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Protean and boundaryless career orientations – An empirical study of IT professionals in Europe

by

Martin Gubler

Doctoral Thesis

Submitted in partial fulfilment of the requirements for the award of the degree of Doctor of Philosophy of Loughborough University

July 2011

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Abstract

One of the key themes in current career research is the debate regarding the prevalence of so-called “new” careers and the assumed decline of “old”, organizationally driven careers. Yet, new career concepts – characterized by increasing mobility, boundary crossing and self-directedness – often suffer from a rather vague conceptualization, as well as from a lack of empirical evidence, especially outside the US cultural context from where most of these models originate. This study critically examines, conceptually refines, and empirically applies two frequently quoted new career models, namely the protean career and the boundaryless career. In addition, the two concepts are linked with career success, career anchors and career management – three other relevant areas in career research.

These themes are explored in a large empirical study in the context of the Information Technology (IT) industry in Europe. Careers of IT professionals have often been considered as prototypical for new careers. Hence, this study makes it possible to examine empirically the two American career concepts in a European context. It further addresses relevant topics for IT organizations in Europe, where many employers struggle to attract new talent whilst retaining and developing their existing workforce.

The study applies a mixed-method approach, combining quantitative and qualitative, cross-sectional and longitudinal elements. Whilst it predominantly focuses on individuals and their careers, the study also takes into account more general perspectives, namely the organizational, industrial/professional and economic/societal levels, in order to provide a more encompassing view of individual careers.

The findings suggest that the protean and the boundaryless career concepts are helpful tools to examine and understand individual careers. Based on the two concepts, three clusters of individuals with different career orientations are identified. These clusters differ significantly with regard to a wide range of characteristics. Yet, the results also show that both concepts require further conceptual clarification and that they cannot provide an all-encompassing perspective on career orientations. By taking career success, career anchors and career management tools into account, several additional aspects of individual careers are revealed. Also, the results demonstrate that only by looking at the complex interplay of various levels of analysis can individuals and their careers be understood more holistically. Finally, the study contributes to a better understanding of IT professionals and their careers – and it provides a variety of practical implications which can support IT organizations in Europe in creating a more attractive, motivating work environment for their workforces.

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1 Introduction

In the first chapter, the key research objectives of this study are briefly introduced and its origins are described. This helps contextualize the focus and the approach of this thesis. Furthermore, an outline of the thesis structure is presented.

1.1 Purpose and research objectives

There are two key purposes of this thesis. The first one is to examine critically two popular models in career research, namely the protean and boundaryless career concepts, and to provide suggestions for their conceptual enhancement. Second, protean and boundaryless career orientations of individuals are explored in a wider context. Their potential interplay with individuals' views of career success, career anchors and preferences regarding career management is explored. These topics are addressed based on a large empirical study in the context of the Information Technology (IT) industry in Europe, which seems ideally suited for those aims as will be argued in subsequent chapters. The study applies a mixed-method approach that combines quantitative and qualitative, cross-sectional and longitudinal elements.

The overarching research objectives in this thesis are as follows:

RO 1) To refine and use the protean and boundaryless career concepts in order to identify career orientations amongst IT professionals in Europe

RO 2) To observe the potential interplay between career orientations of IT professionals in Europe and

a) their individual definition of career success
b) their career anchors
c) their preference for career management tools

RO 3) To use career orientations, individual definitions of career success, career anchors and preferences for career management tools to explore additional characteristics of IT professionals' careers in Europe

Based on these research objectives and a thorough literature review, detailed research questions are presented later in the thesis (see chapter 5).

In order to address these research objectives, the thesis has adopted four different perspectives, i.e. levels of analysis, which differ in their degree of abstraction, as shown in Figure 1.

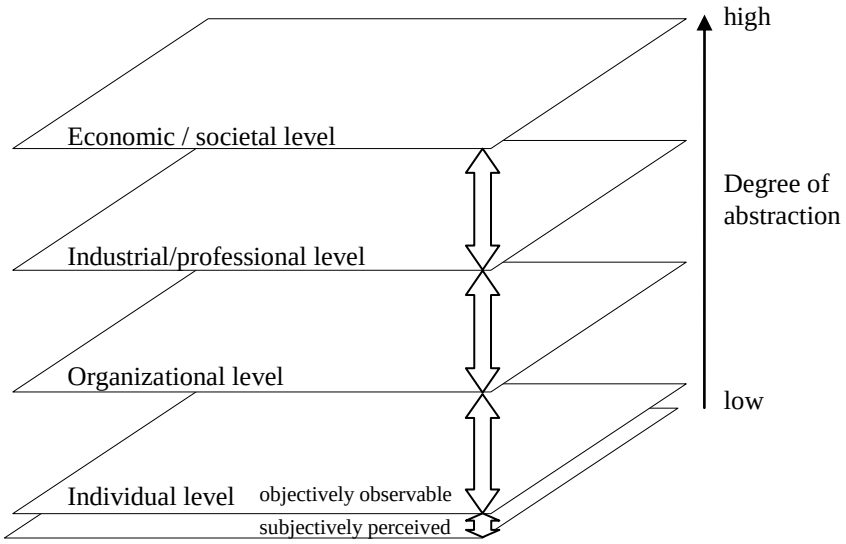


Figure 1: Four levels of analysis

At the most abstract level, some major economic and societal developments are discussed. Not only do they provide the relevant context of this study, these developments also have an impact on the next three levels. At the industrial/professional level, the evolution of the IT industry is covered, and its labour markets are described. In addition, some key characteristics of the professionals working in that industry are discussed. At the organizational level, changes are explored which may have occurred as a consequence of more general developments, such as shifts in employment patterns.

The key research focus in this thesis, however, is on the least abstract level, i.e. on individuals. At that level, the study aims at gaining a more thorough understanding of individuals and their careers. Two different perspectives have been adopted. One focuses on objectively observable aspects of individual careers, such as mobility patterns. The other is concerned with subjectively perceived aspects of a career, such as an individual's career-related motivation, values and attitudes.

Although they are not in the main scope of this study, the three more abstract levels of analysis are also kept in mind. Hence, it will be possible briefly to comment on each of them at the end of the thesis. As will be argued, they are key to understanding various findings at the individual level (see section 9.5).

1.2 Significance and contributions

This study is significant in two main ways. First, as will be argued in subsequent chapters, it is concerned with one of the key discussions in the current academic career literature. The study focuses on two highly popular concepts, the protean career and the boundaryless career, and addresses some of the unsettled points in that particular debate. It critically and thoroughly examines the two models from a conceptual point of view. Also, the empirical evidence of the two concepts is investigated as is their potential usefulness in a cultural context outside the USA.

Second, by studying careers in the particular context of the IT industry, the study covers a highly economically relevant industry with tight labour markets in most Western economies. Yet, as is shown below, there are concerns that economic damage might be caused unless the IT industry is able to better attract, develop, and retain adequately trained professionals. Doing so successfully not only reduces recruitment costs. For instance, it also saves knowledge, improves chances of IT projects being delivered on time and, ultimately, allows capitalizing on the often large investments in IT systems. The findings of this study, therefore, may not only be relevant for individuals working in that industry. A more thorough understanding of IT professionals and their careers is also likely to address topics of substantial significance at an organizational, industrial/professional and, arguably, even at a general economic level.

This research project provides various contributions to the general career literature, all of which will be discussed in detail. First, one of the key debates in the current career literature is concerned with the potential occurrence of new career patterns, characterized by increased mobility, boundary crossing and individual agency, and the assumed demise of more organizationally-driven careers. This study primarily provides empirical data regarding the existence of such new careers in Europe, which is a valuable contribution given the scarcity of empirical data on this topic, especially from individuals outside the USA.

Second, despite the often highly positive claims, one important shortcoming of new career concepts is their often vague and one-sided conceptualization. By thoroughly examining two of those concepts, the protean and the boundaryless career, and suggesting conceptual refinements for them, this study contributes valuable input to the current career discourse.

Third, the exploration of individual definitions of career success amongst a large sample of European individuals addresses both a current dearth of corresponding research and important gaps in the literature.

Fourth, there is a scarcity of career anchor research in Europe, which is addressed by this study. As will be shown, career anchors not only conceptually bridge the assumed dichotomy between "traditional" and "new" careers, they also provide a variety of potential benefits for career management both at an organizational and individual level.

Fifth, this study contributes to the current career management discourse by exposing potential discrepancies between what individuals perceive as useful and what organizations actually provide in terms of career management tools. Such findings may help especially organizations in tight labour markets, such as in the IT industry, better to attract, retain and motivate their workforce.

As a sixth contribution, by linking several strands of career research and examining the interplay between various views on careers, this study contributes to a broader and more thorough understanding of individual careers in Europe.

In addition, there are two IT-specific contributions. First, this study substantially contributes to the literature regarding subjective careers in the IT industry where corresponding research is currently scarce. Second, contrary to most of the previous research in IT, careers are not examined relying on a few narrow hypotheses; rather, based on an approach which combines both quantitative and qualitative methods, this study provides a rare step towards a more contextualized understanding of individual careers in the IT industry.

1.3 Origins of research – Why study IT professionals' careers?

After five years of working as a teacher at Swiss secondary schools, Martin Gubler, the author of this thesis, decided to go back to university and study Business Information Technology in the year 2000. He then also took on a part-time job in the IT division of a large Swiss bank. It did not take him long to realize that neither the technical nor the financial aspects of IT seemed sufficiently intriguing to him. Instead, he became interested in the people working in that industry. The combination of his studies in IT and his background as a teacher soon allowed him to move into the bank's IT training unit.

For more than two years, Martin worked as deputy Head IT training and development for Switzerland. After he had finished his IT studies, he was offered the opportunity to take on the role as Head IT training and development for Europe, Middle East and Africa (EMEA) in London. In that role, Martin was responsible for the provision of all technical and soft-skill training to the bank's IT professionals in the EMEA region.

Soon after his move to IT training, Martin joined a project team that was responsible for establishing a career path model for IT professionals. At the time, the bank faced high turnover rates in its IT department and had major difficulties in hiring adequately trained new staff. In order to position the bank as a more attractive employer for IT professionals, a proper career path system in IT was to be established. They developed a dual career path model for about 3,000 IT professionals in Switzerland. After some initial resistance from both IT line managers and IT professionals, the model was eventually widely accepted and became an important instrument for developing and managing careers of IT professionals in the bank.

Three years after the introduction of the model, the previously mainly Swiss-centred bank merged with an American investment bank. One of the consequences of the merger was that the IT career path model was abandoned. After much discussion, the new American management acknowledged the potential benefits of having a global career path model for the bank's entire IT workforce. However, it was decided that the original model needed some significant changes. So, Martin worked in a global project team on a new, global career path model that was partly built on the previous one from Switzerland. Eventually, in early 2007, the new career path model was rolled out to the bank's almost 10,000 IT professionals worldwide.

The longer Martin worked on the career path project and with IT professionals in general, the more he realized that, in the project team, the answers to some basic questions were lacking. They did not know, for example, what motivated their IT professionals or what they expected from their careers. In discussions with representatives from other IT organizations, he soon realised that they did not have the answers to such questions, either. In Switzerland and the United Kingdom, most of the IT organizations he spoke to had trouble finding adequately trained IT professionals and struggled when it came to providing adequate career management tools for their IT workforce.

As a consequence, Martin's project team had to take refuge in mere assumptions or in anecdotal evidence for their career path models. Both the Swiss and the global career model heavily relied on three main assumptions. First, it was assumed that IT professionals would be keen to follow a track of increasing technical specialization over the course of their careers. Second, especially amongst American managers, there was an expectation that IT professionals would be grateful for receiving organizational guidelines for their careers and would happily long for the incentives provided, which were mainly centred on increasing technical specialization. Finally, the expectation was that the IT professionals would proactively navigate their careers along the newly created career paths, using the tools (e.g. online portals) provided by the organization. Much as he found working on the career path models interesting and worthwhile, Martin increasingly realized how problematic it was to build career development tools for thousands of employees based on such simplistic assumptions. Instead, he wanted to learn more about IT professionals, their careers, their needs, their motivation and their goals. In order to find answers to the open questions above, he decided to write a PhD thesis on this topic.

Over the course of the more than five years spent working part-time on his PhD, Martin's key interests have remained the same, even though the research focus has slightly shifted. For example, new career concepts had not been in his initial scope because he simply had not been aware of them at that time. Yet, they proved to be helpful for understanding phenomena going on in IT organizations today. Other elements of this study, such as the examination of career management tools, are rooted in his professional experience of what he perceived to be lacking relevant information whilst working as a professional in the field.

1.4 Thesis structure – An outline

The following chapters present the research project and its findings in detail. The literature review in chapters 2 to 4 provides the theoretical background and chapter 5 explains the exact research questions. Then, chapters 6 to 10 are dedicated to this study, its results and a thorough discussion of the findings.

Chapter 2 provides the wider context for all subsequent chapters. First, it covers the relevant background information regarding major general developments at an economic and societal level. Then, subsequent changes that many organizations have undergone in recent years are discussed and the potential impact of such changes on individual careers is explored.

Second, more specifically, the IT industry is analyzed from various perspectives. At an industry level, particular issues of IT labour markets are discussed. Then, changes and current challenges in IT at an organizational and an individual level are outlined. The chapter concludes with a discussion of some key characteristics of IT professionals.

Chapter 3 gives an overview of the general career literature that is relevant for this study. In particular, it focuses on the debate regarding traditional and contemporary career concepts and puts a special emphasis on the role of career success. The protean career and the boundaryless career, two seminal concepts in the ongoing academic debate, are presented and thoroughly examined. Finally, the career anchor concept is introduced. It may help bridge the assumed dichotomy between traditional and contemporary careers. Moreover, career anchors provide a useful tool in understanding and managing the career-related interaction between organizations and individuals.

Chapter 4 generally examines the role of career management, both from an organizational and an individual point of view. In particular, it focuses on potential links between career management and new career concepts, career success as well as career anchors. Also, specific career management practices that are relevant for this thesis, such as the dual career ladder, are presented and critically discussed.

In chapter 5, the detailed research questions of this study are presented. They are all rooted in the research objectives above and are built on the detailed literature review in chapters 2 to 4.

Chapter 6 thoroughly explains the methodological approach adopted in this study. It covers conceptual considerations, research design and data collection, as well as communication of the results. Also, a description of the participating organizations in this study is provided.

In chapter 7 the data analysis and the results regarding the protean and boundaryless career orientations are presented in detail. Furthermore, the interplay between those career orientations and a broad range of demographic variables is examined. These findings are based on two quantitative and one qualitative data collections.

Chapter 8, then, presents the analyses and the results regarding career success, career anchors and career management practices. The findings regarding these three topics are also put into a broader context with protean and boundaryless career orientations. In addition, the interplay between career success, career anchors and career management practices and a wide range of demographic variables is covered.

Chapter 9 critically discusses the results presented in chapters 7 and 8. The findings are contextualized, taking into account the literature review. Similarities, as well as conflicting results with previous literature, are examined and discussed.

Finally, chapter 10 concludes with the key contributions of this thesis. Further, practical implications for organizations are described and an overview of how the participating organizations used the results of this study is presented. Limitations and suggestions for future research are discussed.

2 Careers and their context

In this chapter, the relevant key terms for this thesis are defined. Then, some major economic, societal and technological changes are described and their impact on organizations and individual careers is discussed. These developments are then exemplified in the context of the Information Technology (IT) industry and its labour markets. Implications for IT organizations and their workforce are covered. In addition to a description of some key characteristics of IT professionals, these topics set the stage for a more specific discussion in subsequent chapters.

2.1 Key definitions

Before the concept of career is explored further, various definitions of the term "career" and related constructs are discussed.

2.1.1 Career

The roots of the word "career" go back to the old Latin word "carraria" (Gunz & Peiperl, 2007a) that developed into the French word, "carrière", meaning road or racecourse (Dalton, 1989). Although the word already had some figurative meanings in the 16th century, it was not before the early 19th century that the term was first referred to in the way it is still used today (Gunz & Peiperl, 2007a).

The term "career" is often interpreted differently depending on the author, his/her background and the context within which it is used (e.g. Eaton & Bailyn, 2000; Greenhaus, 1987; Sullivan & Baruch, 2009). Collin (2007, p. 558) cautioned that the term still lacks a clear and universally accepted definition:

> *"[Career] is an everyday word used by a variety of people, in a variety of contexts, from a variety of perspectives, for a variety of purposes, and with various levels of specificity or generality, focus or breadth."*

In response to such claims, Gunz and Mayrhofer (2009) provided a helpful overview of six distinct approaches to defining a "career". According to Hall (2002), the most popular meaning of the word is associated with advancement, especially hierarchical advancement (e.g. Gray, 2001). Alternatively, careers are perceived as professions in the sense that certain occupations offer careers (e.g. lawyer), whereas others (e.g. liftboy) do not (e.g. Handy, 1989).

In a commonly used definition, Arthur, Hall and Lawrence (1989a, p. 8) described a career as "[...] the evolving sequence of a person's work experiences over time". This definition emphasizes the temporal aspect of a career, namely that it consists of a sequence of experiences.

A broader definition was offered by Arnold (1997). He described a career as "[…] the sequence of employment-related positions, roles, activities and experiences encountered by a person" (p. 16). This definition includes the notion that careers have a subjective element, that they are not restricted to employment or a single occupation, and that they are neither confined to occupations with high status nor necessarily include promotion. In this thesis, Arnold's encompassing definition of career is adopted. However, even if the verb "encounter" in the definition above might imply a mainly passive role for individuals, in this thesis it is explicitly assumed that individuals may well play an active role in pursuing their careers. In line with the above definition, careers do not necessarily have to evolve in a traditional employment setting. This implies that careers can further develop even after retirement (Schein, 2007b); a fact that may gain in importance with regard to future demographic shifts (Adamson, Doherty, & Viney, 1998).

For the context of this thesis, it is important to note that the direct German translation of "career" ("Karriere") is commonly associated with hierarchical advancement. As in the definition above, the English term, however, is more neutral and can be interpreted more broadly. The German equivalents of these broader meanings of "career" are "Laufbahn" ("professional path") or "berufliche Entwicklung" ("professional development"). To encompass that more neutral sense of the term "career", the word "Laufbahn" was consequently used in all German translations related to this research project.

2.1.2 Subjective and objective career

Various authors have argued that careers comprise both an organizational and an individual perspective (e.g. Adamson, et al., 1998; Baruch, 2004b; Hall, 2002; Heslin, 2005). Whilst the concept of career is useful for organizational planning purposes, it also allows individuals to meet their basic economic needs and often provides them with some sense of social status. This potential to link the two areas above is one of the strengths of the notion of a "career" (Collin & Watts, 1996).

These two different aspects of a career are generally referred to as "objective" (also "external") career on one side and "subjective" (also "internal") career on the other. The objective career is concerned with (theoretically) observable categories, such as job titles, promotions, social status, salary etc. The subjective career is focused on an individual's own perception and interpretation of his/her career, which can – but does not necessarily have to – be the same as the objective career (e.g. Arthur, Khapova, & Wilderom, 2005; Derr, 1986; Ginzberg & Baroudi, 1988; Schein, 1996).

Hall (2002, p. 161) once noted that "[a] career is what the person construes it to be". Even if this exclusive focus on the subjective career may be overstated, according to many authors the importance of the subjective career has increased over the past decades, as is argued below (see section 3.1.2).

2.1.3 Career orientation

Igbaria and Baroudi (1993, p. 133) simply equalled "career orientation" with "internal career", i.e. subjective career. However, much as it is concerned with the subjective side of a career, the term "career orientation" encompasses a broader meaning. Whilst the subjective career is solely concerned with an individual's perception of events, experiences or achievements in his/her career, an individual's career orientation refers to his/her mindset or attitude towards the individual career which may influence future decisions. Career orientations are believed to have an impact on work-related behavioural and attitudinal outcomes (Gerpott, Domsch, & Keller, 1988). Gerber et al. (2009, p. 780) defined the term as follows:

> *"[A career orientation] is an attitude concerning a person's career [...]. It consists of cognitive, affective, and behaviour-related components and is expressed by superordinate intentions of an individual that will influence career-related decisions [...]."*

This definition is adopted here. However, it is important to note that having a certain career orientation may – but does not necessarily have to – translate into corresponding behaviour or action (Gerber, 2009; Khapova, et al., 2005). Gerber et al.'s definition, therefore, is applied in this study with the caveat that a career orientation may not always result in actual behaviour.

Especially in the Information Technology (IT) literature the term "career orientation" has often been used synonymously with "career anchor" (e.g. Crook & Crepeau, 1997; Igbaria & Baroudi, 1993; Sumner & Yager, 2004). Despite the conceptual proximity of the two

terms, “career orientation” in this thesis is used as in the definition above, whereas “career anchor” exclusively refers to the corresponding concept developed by Edgar Schein (see section 3.6).

2.2 Changing world of careers

This section covers some fundamental economic, technological and societal changes of the past few decades. It describes their impact on economies and on organizations. Also, potential influences on individuals’ objective and subjective careers are discussed.

2.2.1 Causes of change

In many parts of the world, especially in industrialized countries, major technological, economic and societal changes have occurred over the past few decades. According to some authors (e.g. Friedman, 2005; META Group, 2001), the underlying force for most of these changes was technology. In his book on the causes and effects of globalization, i.e. the increasingly interwoven global business structures, Friedman (2005) claimed that ten so-called “drivers” brought about change on a scale unknown before. Only one driver Friedman mentioned is a political event (the fall of the Berlin wall in 1989), but he listed nine other drivers that are almost entirely rooted in technological advancement. The going-live of the Netscape browser in 1995, technically supported new business models, such as supply chain management, or more recent trends, such as the ubiquitous availability of web-based information services – all these inventions are thought to be drivers towards a business world that is organized less hierarchically and more collaboratively. Handy (1989) argued that many major changes often start so inconspicuously that they go unnoticed until it might be too late to adjust to them properly. In Friedman’s view, today’s changes are clearly visible and can easily be noticed. However, due to their global scale and their unprecedented speed, adapting to them remains a highly demanding and challenging task.

Several authors have acknowledged the key role of technology as a change agent. However, it has been claimed that the rise of neo-liberalism as an economic and political paradigm was a major underlying force of change (Roper, Ganesh, & Inkson, 2010). Neo-liberalism, stressing “individual responsibility, free markets, liberalisation and enterprise” (Roper et al., 2010, p. 663), arguably led to the introduction of new management techniques, more competitive product markets, changes in the nature of competition (e.g. shorter production cycles) or a pressure to increase shareholder value (Cappelli, 1999a, 1999b; Cappelli & Hamori, 2007). Also, new business models such as outsourcing

(Jackson, et al., 1996; Kanter, 1989), new work structures such as virtual teams (Igbaria, Shayo, & Olfman, 1999) or new employment models such as contingency work (Handy, 1989; Lawler III & Finegold, 2000; Peiperl & Baruch, 1997) have been referred to as potential change agents, in line with neo-liberal ideas.

Demographic changes confront many industrialized countries, especially in Europe, with a major additional challenge: rapidly ageing populations will cause substantial shifts in the workforce over the coming years (e.g. Diaz Research, 2006b; Jackson, et al., 1996; Schweizerischer Arbeitgeberverband, 2006). For Europe, an OECD report (2006) expects a steep increase of elderly persons in the population, as well as a decline amongst those in the prime working age. According to that report, rising costs for rents and social welfare will put substantial pressure on current living standards in many countries. It is argued that just promoting higher birth rates or encouraging immigration will not suffice to fend such developments off. The report concludes that only major efforts in keeping individuals significantly longer in the workforce may help, which will require considerable adjustments in legislation (e.g. in pension schemes and social welfare), as well as in organizational practices (e.g. special programmes to retain and train the elderly). In several organizations, the looming threat of such demographic shifts has led to a so-called “war for talent”, i.e. an increased competition for the best and the brightest on the labour market, often with unintended negative side-effects on organizational culture or business performance (Beechler & Woodward, 2009).

Various authors (e.g. Arnold, 1997; Guest & Sturges, 2007; Hirsh & Jackson, 2004) noted also that considerable changes in societal values have occurred – in addition to the technological and economic shifts mentioned above. For example, the workforce today has become more diverse because more and increasingly well-educated women and people from ethnic minorities join (Storey, 2000). Additionally, changing family structures have increased the number of dual-career couples and single working parents (Sullivan & Baruch, 2009). Generational differences are often referred to as one reason for changes in societal values (e.g. Hall & Richter, 1990). It has been argued that different generations emphasize different values according to the world they grow up and live in (Sullivan, et al., 2009; Twenge, et al., 2010). In a study comparing data from 1974 and 1999, Smola and Sutton (2002) found that members of the “Generation X” (those born between the early 1960s and 1980), significantly differed from the “Baby Boomers” (those born between 1940 and 1960). For example, members of the Generation X were less loyal to a specific company and expected quicker promotions. Also, they considered work as a less important part of

their lives than did the "Baby Boomers". However, other studies could not empirically confirm generational differences in personality and motivational drivers (e.g. Pralong, 2010). Even if inter-generational differences were found, they were sometimes not in line with popular assumptions about generations. Also, such differences were often smaller than inter-individual differences and, despite their statistical significance, tended to be hardly relevant in practical terms (Macky, Gardner, & Stewart, 2008; Wong, et al., 2008). Lastly, as Twenge and Campbell (2008) pointed out, few studies have been able to separate age-related from generational differences. In one of these rare studies, Kattenbach et al. (2011) found strong age-related, yet no generational, differences in job mobility in Germany between 1984 and 2009.

Finally, over the last years work-life balance, defined as the "satisfaction and good functioning at work and at home with a minimum of role conflict" (Clark, 2000, p. 751), is believed to have increased in importance. Corresponding findings have been reported for various groups of employees, such as young adults (e.g. Smola & Sutton, 2002; Sturges, 2008; Twenge, et al., 2010), software developers (Scholarios & Marks, 2004), as well as individuals in managerial positions (Schein, 1996). This has led to a growing interest in part-time work schemes, flexible working hours, teleworking and the like in organizations. However, some discrepancies may exist between what people perceive as important and how they actually behave. For example, Sturges and Guest (2004) reported that graduates, despite their explicitly stated high importance of work-life balance, were still willing to work long hours in order to show commitment to their organizations, hoping to increase their future advancement opportunities.

2.2.2 Effects on organizations and individual careers

The technological, economic and societal changes mentioned above have had an impact on many organizations and, ultimately, individual careers (e.g. Arnold, 1997; Collin & Watts, 1996; Storey, 2000). For example, the way organizations structure their employees' jobs and the way individuals adapt their own lives to a changing environment both directly influence what careers mean to organizations as well as to individuals, how careers develop, and how careers can be managed (e.g. Hall & Richter, 1990; Hirsh & Jackson, 2004; Jackson, et al., 1996; Miles & Snow, 1996). The changes also influence the kind of career support individuals may require (Savickas, et al., 2009).

According to Miles and Snow (1996), careers were traditionally closely linked to prevailing business paradigms. Until the late 1970s many companies in the Western world tried

to act as autonomously as possible, providing all business processes themselves. Getting better as a company meant getting bigger, which included managing the company by internal rules, policies and procedures. As a consequence, the proverbial "organization man" (Whyte, 1961) found himself in a relatively stable and predictable organizational environment which often allowed for career planning until retirement. Careers at that time typically equalled hierarchical progression along well-defined corporate career paths. The organization offered employment security, training and development, as well as promotion prospects, in exchange for loyalty, conformity and commitment to the organization (Baruch, 2004b; Herriot & Pemberton, 1995). IBM before the 1980s may serve as a good example of such an organization (Cappelli, 1999b). This kind of career is often referred to as the "traditional" or "bureaucratic" career (Kanter, 1989).

As various authors have pointed out, those "good old times" were not as good as they are sometimes portrayed – at least not for everybody. The upwardly mobile, relatively stable bureaucratic career was the dominant model only for a minority of middle-class, mainly white males working in large organizations in post-war America. Estimates regarding the proportion of the workforce following such careers in America vary between 5% (Hall, 2002; Hall & Moss, 1998) and about 10% (Cappelli, 1999b). Despite the inherent imprecision of these estimates, such numbers make it apparent that the "organization man's" career may hardly have been a reality for the majority of workers (Guest & Sturges, 2007). As Collin and Watts (1996, p. 386) put it, "the bureaucratic career [...] was always limited in its applicability: a reality for few, though a beacon for many". Cappelli (1999a) argued that the bureaucratic career has been a relatively recent phenomenon. Only a little more than a generation ago, many employees had been subject to several organizational practices highly similar to those that awaited them in the wake of the major shifts described above (Cappelli, 1999b).

Especially as of the 1980s, the industrialized world began to experience the effects of these changes. In an increasingly competitive and globalized business environment, mainly large companies began to outsource their non-core operations to specialized firms. Now, getting better as an organization meant creating mutually beneficial relationships with suppliers and customers (Friedman, 2005; Handy, 1989; Miles & Snow, 1996). Based on new business paradigms, organizational hierarchies became flatter and, eventually, economic slowdown trimmed their pyramidal shapes even further (Kotter, 1995; Peiperl & Baruch, 1997). External markets became the determining forces of numerous jobs and careers in companies (Cappelli & Hamori, 2007).

The impact was substantial for many employees. Job losses became more widespread, even in organizations formerly believed to be secure. For the first time managerial positions were no longer safe from being cut on a large scale (e.g. Hirsch, 1987). The effects of global economic changes on individual managerial careers became visible. This, for example, was illustrated by Kotter (1995) in his longitudinal study of 115 Harvard MBAs. However, the changes were arguably more dramatic for white-collar than for blue-collar workers, who had traditionally been more used to potential job losses (Cappelli, 1999a). Also, the disruptions are believed to have been larger for men than for women because intermittent career patterns had traditionally been more prevalent amongst women (Ackah & Heaton, 2004).

The phenomenon of "[…] planned elimination of positions or jobs" (Kets de Vries & Balazs, 1997, p. 11) became known as "downsizing". As of the 1990s, jobs were sometimes downsized even in times of economic prosperity (Cappelli, 1999a; Jacoby, 1999). However, downsizing often did not provide the desired financial results or improvements in productivity. As various studies have shown, the importance of leadership, the response of both remaining and laid-off staff, the impact on careers (not least the decrease in hierarchical development opportunities) or the complexity of the change processes were often underestimated (Appelbaum, Close, & Klasa, 1999; Armstrong-Stassen, Reavley, & Ghanam, 2005; Beylerian & Kleiner, 2003; Brockner, et al., 1992; Darling & Nurmi, 1995; Kets de Vries & Balazs, 1996; Lämsä, 1999).

The new business models also led to changes in the workforce structure, especially in large organizations. There, a reduced core workforce was supported by an increasing number of contractors, part-time and temporary workers. Such "shamrock organizations", symbolically named after the three leaves of the Irish national emblem (Handy, 1989), allowed companies to be more flexible. For example, specialists could be hired as contractors just for the duration of specific projects rather than as long-term employees. At the same time, this kind of organization required new managerial skills to cope with a more complex workforce (Handy, 1989). Various authors claimed that in companies adopting such new approaches the relationship between employers and employees had to be redefined. Advocates of the so-called "new deal" (Herriot & Pemberton, 1995) between employers and employees argued that the relationship between individual and organization increasingly became a short-term contract.

As Cappelli (1999b, pp. 2-3) put it:

> *"If the traditional, lifetime employment relationship was like a marriage, then the new employment relationship is like a lifetime of divorces and remarriages, a series of close relationships governed by the expectation going in that they need to be made to work and yet will inevitably not last."*

In the "new deal", future employability (Baruch & Quick, 2007), i.e. the "ability to market oneself in external labour markets" (O'Mahony & Bechky, 2006, p. 920), and pay were exchanged for job performance, long working hours, added responsibility as well as tolerance for change and ambiguity in a dynamic work environment (e.g. Baruch, 2004b; Herriot & Pemberton, 1995; Hiltrop, 1995). From a radically neo-liberal point of view, unemployment in times of the "new deal" may even be "implicitly positioned as a matter of choice" (Roper, et al., 2010, p. 664). Outsourced Information Technology providers in developing countries may serve as an example of such practices (e.g. Wickramasinghe & Jayaweera, 2010).

However, whilst the individually perceived job insecurity in most OECD countries rose significantly between the 1980s and the 1990s, job insecurity in terms of average job tenure with the same employer and the likelihood of remaining with the same firm did not change (OECD, 1997; Rodrigues & Guest, 2010). In particular, Sousa-Poza (2002) reported that job insecurity in Switzerland did not increase between 1991 and 2001. This was the case although during that period the country was exposed to its worst recession since the 1930s, its workplace underwent significant technological changes, its unions were comparatively weak, and it had the least strict employment protection legislation in continental Europe. These factors may have very much exposed the small country to the forces of globalization. Still, "[…] if job security remained constant in Switzerland [between 1991 and 2001], then the influence of globalization and technological change on job instability is at least questionable" (Sousa-Poza, 2002, p. 5). Inkson (1995), however, demonstrated that economic cycles can, indeed, have a measurable impact on individual careers. In fact, the proportion of inter-organizational job changes remained relatively stable amongst a sample of British managers even during an economic recession between 1989 and 1992. Yet, the types and reasons for job moves changed substantially during that period. Upward moves became less frequent, whereas horizontal and downward job moves increased markedly. Also, job changes were increasingly reactive and organizationally driven whilst proactive job changes became less frequent. After the recession, individuals soon resumed a much more proactive behaviour regarding job changes.

Still, the formerly relative predictability of how many careers evolved eventually diminished (Adamson, et al., 1998) and transitions seemed to become part of more people's biography (Nicholson & West, 1989). For example, Sousa-Poza (2002) found that in Switzerland involuntary turnover actually declined during the 1990s whilst voluntary turnover increased. Also, it has been argued that some formerly "linear", upwardly-oriented careers have become more "multidirectional", i.e. that individuals experienced more lateral or even hierarchical downward moves than before (Baruch, 2004c). Such changes were not limited to the 1980s or 1990s. There is some evidence that economic cycles continue to impact individual careers, e.g. during the global financial crisis in 2008-2009 (Sullivan & Baruch, 2009).

2.2.3 Effects on psychological contracts

In addition to the effects described above, potential changes to individual careers may have psychological aspects that must be considered. The changed emotional relationship between employer and employee in the "new deal" is often referred to as the "new psychological contract". Rousseau (1990, p. 390) defined a psychological contract as follows:

> *"[W]hen individual employees believe they are obligated to behave or perform in a certain way and also believe that the employer has certain obligations toward them, these individuals hold a psychological contract."*

According to Rousseau, there are two typical forms of psychological contracts, an "old" relational and a "new" transactional one. Typically, the relational contract is associated with the bureaucratic career, whereas the transactional contract is linked to careers after the changes described above (e.g. Herriot & Pemberton, 1996). Table 1 shows their key components.

Aspect	Relational contract	Transactional contract
Focus	• Economic and non-economic • Socio-emotional • Intrinsic • Often includes developmental aspects	• Economic • Extrinsic • Competitive wage rates
Time frame	• Open-ended • Indefinite	• Specific • Often brief • Absence of long-term commitment
Stability	• Dynamic	• Static
Scope	• Pervasive	• Narrow
Tangibility	• Subjective	• Public • Observable

Table 1: Relational and transactional psychological contracts

(based on Robinson, Kraatz, & Rousseau, 1994; Rousseau, 1990)

Having a psychological contract is said to help employees to reduce insecurity, to shape behaviour in the workplace and to give them a feeling of influence (Anderson & Schalk, 1998). Empirical results indicate that employees tend to estimate their own contribution to the fulfilment of the psychological contract as being high, and to downplay the organization's degree of contract fulfilment (Robinson, et al., 1994; Robinson & Rousseau, 1994). Especially during downsizing, when jobs are reduced in large numbers, keeping psychological contracts intact becomes a highly demanding task for organizations. Failure to fulfil a psychological contract, e.g. the perceived lack of fairness in promotions, can have negative consequences (Atkinson, 2002; Flood, et al., 2001). It is associated with reduced job satisfaction and trust, with a decrease in the intention to stay in the organization as well as with an increase in actual turnover (Robinson & Rousseau, 1994), especially once the economy has picked up after a crisis (Henneberger & Sousa-Poza, 2007). A decline in loyalty as a consequence of unfulfilled psychological contracts may even turn into malicious behaviour in organizations, as research on insider security risks has indicated (Colwill, 2009).

There is a considerable body of research on the negative outcomes of downsizing on employees and the effects of broken psychological contracts (e.g. Baruch & Hind, 2000; Cross & Travaglione, 2004; Dolan, Belout, & Balkin, 2000 ; Feldman, 1995, 1996; Lee & Corbett, 2006; Paulsen, et al., 2005; Sadri, 1996; Spreitzer & Mishra, 2002). The crucial point is that not only people who are made redundant feel as if their psychological contract is violated and broken. It has often been found that those who can stay show symptoms known as "survivor syndrome". This includes psychological responses, such as anger, anxiety, guilt, increased work stress and uncertainty, as well as behavioural reactions, such as increased absenteeism, higher resistance to change or increased intention to leave (Thornhill & Saunders, 1998), all of which negatively affect employees' work-life balance (Virick, Lilly, & Casper, 2007). Sometimes, these negative effects are so severe that for some individuals being a "victim" would actually be better than being a "survivor" (Devine, et al., 2003).

Just treatment during layoffs is considered crucial to mitigating such negative effects, which includes both distributive and procedural justice. Distributive justice reflects the fairness of an outcome, whereas procedural justice reflects the fairness of a process associated with an outcome, e.g. formal characteristics of a decision process (Gilliland & Schepers, 2003). Changing the psychological contract in line with the changes in the work environment, therefore, requires careful renegotiation between the organization and the

individual (Herriot & Pemberton, 1995; Rousseau, 1996) to avoid survivor syndrome and its negative aspects. Various authors have suggested frameworks for dealing with new psychological contracts and highlighted the benefits of taking them seriously (e.g. Herriot & Pemberton, 1996; Inkson & King, 2011; Slay & Taylor, 2007).

The notion of psychological contracts has attracted some criticism, especially with regard to its potential lack of conceptual and operational clarity (Guest, 1998), as well as the imprecise ways it is defined (Roehling, 1996). Arnold (1997) pointed out that defining psychological contracts as a purely one-sided perception of mutual obligations almost inevitably leads to misunderstandings and feelings of undelivered promises. This is why Herriot and Pemberton (1995) stressed the importance of making the contracts as clear and as transparent as possible to minimize potential room for conflict. However, it remains an open question how much freedom individuals actually have for (re-)negotiating their contracts, especially if they are just "ordinary" employees (Hirsh & Jackson, 2004). Finally, in line with the words of caution about the "good old days" of bureaucratic careers (see section 2.2.2), several authors have challenged the strict dichotomy between the "old" and the "new" contract and questioned whether the "old contract" was really as ideal as the notion of the relational psychological contract implies (e.g. Beaumont & Harris, 2002; Cappelli, 1999a; Guest, 1998).

In summary, there is substantial evidence that major economic, technological and societal changes have occurred and are still ongoing. Those changes have had a considerable impact on economies and have led to subsequent organizational changes. Such developments have also had an effect on many individuals' work environments and, sometimes, their careers. However, the extent of change at an individual level is a point open for debate. Many authors have questioned the degree to which individual careers have actually changed over the last decades (see section 3.5). Still, there is a scarcity of corresponding empirical research on potential shifts in individuals' objective and, especially, subjective careers. Yet, gaining a more thorough understanding of such aspects may be relevant to organizations, entire industries or even economies, as shows the example of the IT industry in the next section.

2.3 IT professionals and their careers in the IT industry

This study examines careers in the Information Technology (IT) industry which has been particularly affected by the changes described in the section above. The following section provides the background information that is necessary to put this study into the specific IT context, describing changes at an industrial/professional, organizational and individual level. First, some key definitions are introduced. Then, at the industry level, developments in IT labour markets are discussed. There is an emphasis on the IT labour markets in the UK, Switzerland, and Germany as they are relevant for contextualizing this study. Next, the shifting role of IT in organizations is covered, and changes to organizational career paths and skill requirements are explored. Finally, some key characteristics of IT professionals, such as their motivation and turnover behaviour, are discussed.

2.3.1 IT definitions

Information Technology (IT) is concerned with "processing information by computer" (Techweb, 2007). It is just the most recent umbrella term for a particular industry, its products and processes. As the terminology is often confusing and inconsistent in both academic and practitioner literature, in this thesis the terms "Information Technology" or "IT" are used as synonyms for older labels, such as "MIS" (Management Information Systems) or "IS" (Information Systems).

In line with Srivastava and Theodore (2006), this thesis uses the term "IT industry" to describe both organizations that provide IT services as their core business as well as IT departments within non-IT organizations. This definition excludes the telecommunications industry which shares some overlap with the IT industry (Burns Owens Partnership Ltd, 2002).

For this text, the terms "IT professionals", "IT specialists", "IT personnel" or "IT employees" are all regarded as synonyms to address exclusively "[...] those directly involved with [the] creation of new information technology and maintenance of existing processes [...]" (Niederman & Crosetto, 1999, p. 175). Thus, those who only work with IT as end users are not included in the definition even if the widespread use of computers has blurred the distinction between end users and IT professionals (Niederman, Moore, & Yager, 1999).

2.3.2 IT labour markets

Over the course of a few decades, IT has become an important economic factor and a cornerstone of modern corporate life in industrialized countries. In 2009, global spending on IT reached an estimated $1.66 trillion (Bartels, Daley, & Ashour, 2009). Despite the importance of the IT industry, in which a majority of employees is employed by non-IT companies (ITAA, 2004), proper statistics on the IT labour market are surprisingly difficult to obtain (e.g. Betschon, 2008b; Murphy, 2009). National labour market statistics often only refer to the "ICT industry", in which IT and telecommunications data are merged.

Despite two recessions in the early 1990s (Cappelli, 2001) and one around 2001 (Maguire, 2008), the IT industry has mostly prospered over the last 20 years. In the 1990s, the rapid expansion of the IT industry created a huge demand for IT professionals (Srivastava & Theodore, 2006). As a consequence, IT labour markets were tight (Niederman, et al., 1999) with supposedly high turnover rates (see section 2.3.5.1). For many years unemployment in IT was almost unknown (Srivastava & Theodore, 2006; Symons, 2003). IT salaries were often above the average salaries of non-IT employees (META Group, 2003), although they seemed to be determined by a much wider array of factors than just market forces (Ang, Slaughter, & Ng, 2002).

Tight labour markets for IT professionals and demographic trends (see section 2.2.1) led to the expectation that the shortage of IT professionals might become even worse in the future (Agarwal & Ferratt, 2002; Ferratt, et al., 1999; Mahoney & Mingay, 2002). Such assumptions about the future shortage of IT professionals were only rarely challenged (e.g. Babbitt, 2001; Cappelli, 2001). As a reaction to the expected shortage on the IT labour markets, countries such as Germany and the USA temporarily introduced new immigration laws for IT specialists from countries like India to meet their expected future demand (Dostal, 2001; Moore, et al., 2001), although such practices may not have provided the intended benefits (Cappelli, 2001). Some companies even tried to hire IT professionals in third-world countries directly (Hazelhurst, 2001). Governments, universities and the private sector cooperated on the introduction of additional education and training initiatives for the future IT workforce (Moore, et al., 2001).

In 2001, a recession changed the situation considerably. For example, many jobs in the US IT industry were cut and unemployment amongst IT professionals rose accordingly (Srivastava & Theodore, 2006; Symons, 2003). In addition, new business models led to the outsourcing of IT functions to low-cost countries, such as India, which has been considered

a significant factor in the decline and subsequent slow re-growth of IT jobs in Europe and America (Diaz Research, 2006d; Shao & Smith David, 2007; Srivastava & Theodore, 2006). During that time, “survivor syndrome” became a well-known symptom for many of those who remained in the industry (Jiang & Klein, 2000). Both the negative effects of badly-managed organizational restructuring (Smith, Wenger, & Quanash, 1998) and the mitigating impact of well-managed downsizing have been reported in IT (Jiang & Klein, 2000; Tzafrir & Eitam-Meilik, 2005). Notably, Jiang et al. (1997) found that survivors in IT generally had a neutral attitude towards downsizing as a means to improve organizational performance and were more likely than other professionals to remain in their organization.

After 2002, the IT industry recovered, albeit slowly. It has been argued that this reflected a typical cyclical recovery of a labour market and not a sustainable growth because much of the spending at that time was caused by investment postponed during the recession (Srivastava & Theodore, 2006). Growth patterns in IT labour markets became complex. For example, between 1999 and 2008, the US IT industry grew by 36% overall (compared with 6% across all industries), but there were substantial differences between various IT disciplines, ranging from high job growth to major job loss (Murphy, 2009). The economic crisis in 2008 also affected the IT industry, although little specific research is available yet. In general, the impact seems to have been much less severe than in 2001 (Bureau of Labor Statistics, 2010; NACCB, 2008).

Today, recruiting IT specialists in developing countries continues (Schuler, Jackson, & Tarique, in press). Nevertheless, in parallel with the general ageing of Western societies (see section 2.2.1), there is a trend that in IT the average employee is getting older (Diaz Research, 2006a). Too little recruitment at graduate level exacerbates the situation (see below). The demographic shift not only leads to growing concerns in the IT industry about the best way to manage careers of an increasingly old workforce (Mirvis & Hall, 1996; Schweizerischer Arbeitgeberverband, 2006), about their performance at work (Diaz Research, 2006b) or about their marketability (Cappelli, 2001). It also causes difficulties for hiring new talent and leads to a lack of critical knowledge and experience in IT departments and companies (Diaz Research, 2006b; Vecchio, 2002), Yet, whilst demographic trends play a significant role, other factors need to be taken into account as well to explain the dynamics in IT labour markets. Cappelli (2001) argued that short-term imbalances in IT labour markets may frequently occur, for example, due to exogenous shocks and extremely short lifecycles of IT services and skills on the one hand, and much longer time

lags to readjust to such changes in demand on the other, for example, through education and training. As discussed in the following paragraphs, such aspects are also characteristic of the current situation in the UK, Switzerland, and Germany, the three IT labour markets in the main focus of this study.

2.3.2.1 UK IT industry and labour market

With 9% of the overall ICT employment in the OECD, the UK is the largest software and ICT services market in Europe (Scholarios, et al., 2008). Overall, about 5% of the UK workforce is employed in the ICT industry (about 1.2 million work in IT), in which six large companies employ almost a fifth of the workforce (E-Skills UK, 2008g). These individuals are highly educated, with 55% having either a graduate or an undergraduate degree. Between 2001 and 2006, a shift towards older workers could be observed in the workforce (Diaz Research, 2006b, 2008a), especially a decline in the group of those aged 16-29 (E-Skills UK, 2008g). Also, the gender gap has widened (Diaz Research, 2008a). Recent figures indicated that 18% women work in the industry (E-Skills UK, 2008g), earning less than men, on average (E-Skills UK, 2008d). Across the industry, gross average earnings in the fourth quarter 2009 were £38,900 per annum (E-Skills UK, 2010a). In July 2010, JobStats (www.jobstats.co.uk), a website surveying IT job advertisements in the UK, showed 33% of all job openings to be in London. Surprisingly, Switzerland (4.0% of all ads) and Germany (2.9%) were the next most frequent locations for which UK IT professionals were sought.

Low job satisfaction, low job security and low firm pride were found to be the key determinants for the generally high turnover intentions in the UK workforce (Sousa-Poza & Henneberger, 2002). A recent survey of more than 500 UK IT professionals confirmed such findings for IT (Diaz Research, 2008a). The intentions to change jobs were especially high amongst those younger than 25, whilst older workers were less inclined to change. This was in line with other studies indicating that turnover and job tenure seem to be highly correlated with age (e.g. Boxall, Macky, & Rasmussen, 2003).

Productivity in the UK ICT industry is predicted to rise by up to £35 billion over the next years, provided that the potential of the industry can fully be exploited (E-Skills UK, 2008e). However, especially small UK firms may not be able to capitalize fully on the potential of IT due to a lack of awareness, investment or relevant skills (E-Skills UK, 2008a, 2008e). Scholarios et al. (2008) reported that the skills shortage in the UK was above the European average.

The lack of relevant skills may become even worse given a trend to provide less formal training to employees (E-Skills UK, 2010a), which may point to the so-called “free rider” problem associated with flexible labour markets (Currie, Tempest, & Starkey, 2006).

Over the next ten years, the IT workforce is predicted to grow much faster (1.9%) than the average UK workforce (0.5%) (E-Skills UK, 2008c). Nevertheless, about a fifth of all organizations looking for new IT staff reported difficulties in recruiting (E-Skills UK, 2008g), and hiring for the public sector may be especially challenging (Coombs, 2009). In addition, attracting young IT graduates in the UK may become more difficult in the foreseeable future. Between 2002 and 2006, the number of applications to IT-related courses in higher education dropped by 50%, and only 15% of the applicants were women (E-Skills UK, 2008g). So, the supply of young and highly qualified IT professionals is likely to diminish, especially as too few women enter the IT workforce (E-Skills UK, 2008f). Potential reasons for this decreased interest in IT may be a widely held perception in the UK population that IT is not appealing (E-Skills UK, 2008f) or, more specifically, that young students associate IT with boring, unsociable work that requires long hours staring at computer screens (Diaz Research, 2008a, 2008b).

2.3.2.2 Swiss IT industry and labour market

The Swiss ICT industry accounts for about 5.5% of the national Gross Domestic Product (GDP), a figure similar to Germany but lower than in the UK (Bundesamt für Statistik (BFS), 2010b). In 2005, comparable to the UK, a vast majority (87%) of Swiss ICT firms were micro firms with less than 10 employees, and only less than 1% of the companies employed more than 250 staff (Bundesamt für Statistik (BFS), 2010c). The number of employees in the ICT industry in 2005 was just over 155,000 (about 4.2% of all employees), roughly 130,000 of them worked in IT (Bundesamt für Statistik (BFS), 2010a). Approximately 70% of all employees in the ICT industry work full-time, and the percentage of women amounts to 26% (Bundesamt für Statistik (BFS), 2010a). However, most of the women are employed in the telecommunications industry. The proportion of IT jobs held by women is estimated to be about 16% for those aged up to 29 and only about 8% for women aged 49 and older (Schodl, 2008). Across all industries, average tenure in Switzerland over the past years was about 10 years for men and 8 years for women (Henneberger & Sousa-Poza, 2007), a number that is believed to be similar in the IT industry (Zehnder, 2008b). Between 1996 and 2001, turnover rates in the Swiss ICT industry ranged above the industry average (11-15% against about 10%).

The proportion of voluntary turnover seems to be particularly high in ICT. In 2001, 86.5% of all turnover in the ICT industry was voluntary, as opposed to approximately 50% in the entire workforce (Henneberger & Sousa-Poza, 2002).

Over half of the employees in the Swiss IT industry do not hold an IT degree (Zehnder, 2008a). This is significant because the Swiss labour market is characterized by a profound segmentation based on occupational qualifications, by the principle of matching people to jobs according to occupation-specific credentials, and by a high relevance of occupational certificates (Kriesi, Buchmann, & Sacchi, 2010). As such certificates grant or deny access to certain segments of the labour market, this affects individual job opportunities greatly and clearly distinguishes the Swiss labour market from labour markets that are less occupationally oriented, like, for example, the US labour market (Kriesi, et al., 2010).

In 2009 the median total compensation for IT professionals in Switzerland amounted to CHF 127,792, an increase of 2.8% from 2008 despite the financial crisis (HR Today, 2009). On average, women's salaries in the IT industry tend to be lower than men's incomes (Schodl, 2008). However, although absolute salaries in Switzerland appear to be clearly higher than those in the UK and in Germany, they are much more similar when adjusted buying power is considered (Bundesamt für Statistik (BFS), 2009).

In Switzerland, as in other countries, a general shortage of adequately trained IT professionals is predicted (e.g. Breu, 2008; Noser, 2008). The IT industry struggles to find enough young people to join. Initiatives for a new apprenticeship in IT were at first highly successful but the numbers of new joiners soon dropped by up to a third (Zehnder, 2008a). This situation is similar to Swiss universities where between 2001 and 2006 the number of IT students declined by 30-60% (Murbach, 2008; Troxler Loeliger, 2008; Umbach-Daniel, 2007). More recent data indicate that this trend may have been reversed in 2007 and 2008 when slightly more students enrolled for IT studies again (Umbach-Daniel & Baumberger, 2009). Given the promising labour market perspectives, however, it seems surprising that not more young people are willing to join the Swiss IT industry (Murbach, 2008). Potential causes may be the rather negative image of IT professionals (Betschon, 2008a, 2008b) and a lack of interest in technology amongst young people (Umbach-Daniel & Wegmann, 2008). It is therefore expected that the difficulties in attracting young people in Switzerland into IT jobs will persist (Murbach, 2008).

The consequences for several Swiss companies can be clearly felt already today. For example, IT offshoring and outsourcing in Switzerland is mainly used for coping with growing demand that cannot be met on the domestic IT labour market. Also, immigration of experienced foreign IT specialists has become common (Betschon, 2008b; Zehnder, 2008b). Especially German IT professionals have joined the Swiss IT labour force over the last few years. This is part of a wider trend of highly qualified Germans to join the Swiss labour market (Bundesamt für Statistik (BFS), 2004, 2010d; Löpfe & Vontobel, 2011). Still, it has been warned that the high economic status in Switzerland may be potentially jeopardized unless substantially more IT professionals can be recruited domestically (Zehnder, 2008b).

2.3.2.3 German IT industry and labour market

With 6% of the overall OECD ICT employment, Germany is the second largest software and ICT service market in Europe (Scholarios, et al., 2008). Highly trained IT professionals are scarce in Germany as well, although the skills shortage is thought to be slightly below European average (Scholarios, et al., 2008). Overall, the German IT labour market remained relatively stable during the economic crisis in 2008 (Pütter, 2010). In January 2010, about 15,000 open jobs were reported in the German IT industry (Pütter, 2010; Stachera, 2010). At the same time, about 8,500 IT professionals were registered as unemployed (Bundesagentur für Arbeit, 2010a, 2010b). Studies showed that up to 75% of all IT employees in Germany do not have their first education in IT (Dostal, 2001). This might be one reason for unemployment in times of job availability. It has mainly been explained by a mismatch between the skills required by IT companies and those provided by unemployed IT professionals (Stachera, 2010). In a large online survey amongst German IT professionals, their self-reported average annual salary amounted to € 57,271 in 2008 (CBS Interactive, 2009a).

In line with corresponding trends in the USA (Allen, et al., 2008), the UK and Switzerland (see above), the number of IT students in Germany dropped between 2000 and 2006 and has started to grow slightly again since then (Pütter, 2010). However, only about half of the students are expected to finish their studies (Pütter, 2010; Stachera, 2010). Also, in a survey 90% of the IT, physics and mathematics students in Germany said they would want to work abroad (Pütter, 2009). Many of them actually emigrate from Germany, for example, to Switzerland (see above). This is in line with a broader trend in the German labour market. Immigrants with relatively low skills join the workforce whilst Germans with high

qualifications leave the country (Bundesministerium für Wirtschaft und Technologie (BMWi), 2006). In the IT industry, current immigration laws make things even more difficult. For example, highly qualified Polish and Bulgarian IT professionals who studied in Germany often need to return home instead of being offered a job in Germany (Bundesministerium für Wirtschaft und Technologie (BMWi), 2006).

2.3.2.4 Overview of the labour market characteristics

The UK, Swiss and German IT labour markets share the following key characteristics, as shown in Table 2.

Key characteristics of the UK, Swiss and German labour markets
IT organizations have difficulties in finding adequately trained IT professionals
A lack of IT professionals may lead to negative economic effects
To meet domestic demand, companies have to resort to hiring IT professionals from abroad
IT professionals are usually highly educated but many do not have a degree in IT, which may lead to potential skill mismatches
Negative stereotypes about work in IT may prevent recruiting new staff into the industry
Higher education faced a massive decline in IT students between about 2000 and 2006
Particular difficulties exist in attracting women and young graduates to the IT industry

Table 2: Key characteristics of the UK, Swiss and German IT labour markets

In brief, for various reasons all three countries struggle to find adequately trained new IT staff domestically, especially amongst the younger generation and amongst women. Unless the future demand of IT professionals can be adequately met, negative economic effects are expected. The situation will potentially be exacerbated because, as Murphy (2009) reported, the three countries are amongst the 25 oldest nations worldwide with regard to the percentage of the population aged 65 and older. They are therefore likely to experience a decline in the economically active population over the next decade. However, the need for IT professionals is expected to grow between 2006 and 2016. Hence, Murphy (2009, p. 19) cautioned that in the foreseeable future "[…] strategies that retain key people will be at least as important as those that attract new talent".

2.3.3 Changing organizational roles of IT

As discussed in section 2.2.1, innovation in IT is considered a key trigger for a wide range of economic and societal changes (Khapova, Arthur, & Wilderom, 2007). In business, for example, IT can play a crucial role in downsizing (Beheshti & Bures, 2000) or in mergers and acquisitions (Linder, 1996). IT may also take on a pivotal, pioneering role in organizational change (Daly, 2006; Smith, et al., 1998).

Consequently, it is believed that future changes in IT will continue to have far-reaching implications for economies and organizations, as well as for individuals (E-Skills UK, 2008e, 2008f; Lewrick, et al., 2010).

Whilst it may serve as a change agent for various other areas, the IT industry is also directly affected by the very changes it causes (Smits, McLean, & Tanner, 1997). The major developments discussed in previous chapters also apply to the IT industry, in particular to IT departments in large organizations. Especially in the 1990s, the industry went through a fundamental restructuring process (Henneberger & Sousa-Poza, 2002). The role of IT within organizations has been subject to change as well. Over time, IT has evolved from a centralized function with the main focus on computer maintenance (Kraft, 1977) into a variety of organizational roles, such as service provider or support and advice centre (Knight, 2002). Many organizations nowadays structure their IT functions in a decentralized way to have closer contact with the internal customers (Lee, Trauth, & Farwell, 1995; Mutsaers, van der Zee, & Giertz, 1998).

Today, IT is increasingly considered a strategic partner in many organizations (Ferratt, et al., 2005; META Group, 2001; Mutsaers, et al., 1998), which requires a close alignment of the IT strategy to the overall business strategy of an organization (Daly, 2006; META Group, 2001). However, such a strategic role of IT departments has not been universally adopted. Some business departments still treat IT as a simple support function (Silva & Costa, 2009). Sometimes, IT management may just not be ready to adopt a strategic role (Lewrick, et al., 2010). The finding that less than 5% of all IT students surveyed in a recent UK study seemed to be conscious "[…] that IT's role is to make business more successful, not just to 'do' technology" (Diaz Research, 2008b, p. 3) also indicates a potential lack of strategic awareness amongst many future IT specialists.

2.3.4 Changing career paths and skills requirements in IT

Wider economic and societal trends (see section 2.2.1), developments in IT labour markets at an industry level (see section 2.3.2), and IT's changing role in organizations (see section 2.3.3) have had direct consequences at an individual level for many IT professionals. As will be discussed below, for example, once typical career paths in IT organizations have vanished (Kraft, 1977; Shore, 1983). Also, the skills required from IT professionals have substantially changed and become more varied over time.

2.3.4.1 Changing career paths

Due to various economic and organizational changes (see section 2.2), IT professionals' work environment, their roles, their responsibilities, their customers and the knowledge required are often no longer the same as they were only a few years ago. As a consequence, many individual career paths in IT have also been subject to change in line with organizational adaptations. This has been reported for all levels and types of IT roles – for the Chief Information Officer (CIO) (e.g. Applegate & Elam, 1992; Earl, 1996), for IT line managers (e.g. Ives & Olson, 1981) and for IT professionals in general (e.g. Fidel & Garner, 1990; Kraft, 1977). Smits et al. (1997, p. 36) put it as follows:

> *"The careers of the [IT] professionals who spearheaded these massive workplace changes over the last two decades are now being challenged and shaped by the very forces they set in motion."*

The first professionals who worked on computer-related topics were predominantly electrical engineers, mathematicians and a few technicians for the maintenance of the machines (Kraft, 1977; Niederman, et al., 1999). Later, when IT was no longer a discipline solely open to scientists, three key roles emerged – coders, programmers and system analysts (Kraft, 1977). Each of these roles had a defined set of tasks and responsibilities. With the growth of the industry, there was an increased demand for supervisory roles, which led to the introduction of managerial jobs in IT (Kraft, 1977). Over time, whilst specialization went on, there was still a limited set of roles with some very distinct and typical career paths in IT. One such path was the programmer who eventually moved on to a systems analyst role, then developed into an applications manager and finally became an IT manager (Tanniru, 1983).

Nowadays, such predictable career paths can hardly be found in IT organizations anymore. Due to the fast growth of the IT industry until the late 1990s (see section 2.3.2), a significant portion of the workforce joined the industry without an IT-related education (Dostal, 2001; Zehnder, 2008a). With a much broader variety of people working in manifold IT roles (Niederman, et al., 1999), the variety of careers in IT and the specialization therein have grown substantially as well. Yet, various roles in IT have become subject to potential outsourcing (Diaz Research, 2008a), which may limit the extent to which individuals are actually free to pursue their careers as they would like to (Khapova, et al., 2005).

However, much as some changes to individual career paths in IT have undoubtedly occurred, the extent of such shifts and their impact on individuals is much less clear. Literature on careers in IT is surprisingly rare. Careers were hardly covered by IT research in the 1990s (Niederman, et al., 1999), even though during that period potential changes to careers seemed to be of much interest to academics outside IT (see section 3.1.1). El-Sawad (2002) criticized the existing body of IT literature for its lack of career-related topics. Especially research with qualitative, contextualized approaches seems to be scarce, despite a few notable exceptions (e.g. Guzman, et al., 2004; Ituma & Simpson, 2006). Instead, many studies (e.g. Flood, et al., 2001; Gallivan, 2004; Igbaria, Parasuraman, & Badaway, 1994) have focused on a few narrow hypotheses that can be numerically tested (Niederman, et al., 1999). As a consequence, there is a dearth of research regarding the impact of the above-mentioned changes on individual careers of IT professionals.

2.3.4.2 Changing skill requirements

The rapid development in IT constantly requires new skills and makes old ones obsolete (e.g. Diaz Research, 2008a). Especially the transferability of acquired skills to new roles has become more important (Lee, 2005). In combination with an increasingly demanding business environment and the changing organizational role of IT (see section 2.3.3), this makes the topic relevant (Lee, et al., 1995) both for IT organizations (Feiman & Berg, 2002; Scholarios, et al., 2008) and academic research in IT (Niederman, et al., 1999).

Skill requirements are predicted to become much more complex (E-Skills UK, 2008g). Increasingly, IT professionals are not only expected continuously to update their current set of skills but to broaden it as well. Such requirements are sometimes directly enforced by organizational career management practices (Gubler, 2004; Rüttimann, 2006). In particular, business skills may become more relevant (e.g. Bidwell & Briscoe, 2010; E-Skills UK, 2008f; Morello, 2003a, 2003b). As IT organizations are increasingly aligned to the business strategy (see section 2.3.3), they require more in-depth business knowledge to gain in organizational maturity (Benbasat, Dexter, & Mantha, 1980) and to deliver highly complex services in a competitive environment with a lot of pressure on effectiveness and cost-control (Lee, et al., 1995). The increasing importance of business skills in IT once caused a broad discussion about “hybrid managers” (Knight, 2002; Skyrme, 1996), a boundary-spanning role which may help organizations to bridge the gap between IT and the business and, consequently, to support them in using their IT infrastructure more effectively (Eckhardt & Rosenkranz, 2010).

The changing role of IT has also made “soft skills” more salient (Lee, et al., 1995; Loogma, Ümarik, & Vilu, 2004; Shao & Smith David, 2007; Silva & Costa, 2009), a broad term that encompasses a wide range of personal and interpersonal skills, such as strategic thinking or effective communication (e.g. Tunick Morello, 2001). For example, communication skills have been found to be key for successful software programmers (Brodbeck & Frese, 1994) and are considered important in helping IT professionals and end users understand each other (Eckhardt & Rosenkranz, 2010). Also, growing interaction with end users may require more soft skills (Capretz, 2003), such as social skills for networking (Ibarra & Deshpande, 2007). Political skills reportedly play a critical role in managing careers in IT (El-Sawad, 2002; Standing & Standing, 1998, 1999). It was found that many new IT hires clearly expected support in their development of soft skills (Bandow, 2004) and that these skills may also play an important role in the recruiting process of IT companies (Heer, 2008), not least because they may predict future performance better than technical skills (Cappelli, 2001).

The increasing importance of soft skills, however, may take some time to be reflected in IT. For example, in the early 1980s, it was reported that IT managers spent 76% of their time in oral conversation (Ives & Olson, 1981), which seems somehow contradictory to the findings regarding the low social need strength in IT (see section 2.3.5.2). Yet, most conversations were held within IT rather than with end users. This supports the notion that IT managers may often be closer to their subordinates than to other managers (Couger, Zawacki, & Oppermann, 1979). However, the situation may have changed. A decade later, a similar study (Applegate & Elam, 1992) reported that CIOs spent 70% of their time networking outside IT.

Despite the acknowledged relevance of soft and business skills, technical skills remain crucial for IT professionals (Colley, 2008; E-Skills UK, 2008b; Scholarios, et al., 2008). In a survey of UK IT professionals, the acquisition of technical skills was considered the single most important success factor for getting ahead in IT (Diaz Research, 2008a). However, there were clear gender differences regarding the self-perceived skills. Men considered their skills about equally as mainly technical (33%), mainly non-technical (30%) or balanced between the two (37%). Women, however, predominantly thought of their skills as being non-technical (57%). Only 14% of them saw their skills as being mainly technical, whilst 29% considered themselves as having balanced skills.

Between 1970 and 2003, technical skills were by far the ones most often asked for in IT job advertisements (Gallivan, Truex III, & Kvasny, 2004; Todd, McKeen, & Gallupe, 1995). Gallivan et al. (2004) reported that over many years more than 95% of all skills specified there had been technical. Trends towards more business and soft skills do not seem to have been directly reflected in IT job advertisements.

Studies on key technical IT skills show the shifting priorities and reflect the changes in prevalent technologies and predominant IT paradigms over time (Brancheau & Wetherbe, 1987; Niederman, Brancheau, & Wetherbe, 1991; Tunick Morello, 2002). For many IT professionals, qualifications by hardware and software producers (e.g. Microsoft, CISCO) have gained in importance to demonstrate specific technical skills (e.g. CBS Interactive, 2009a, 2009b; CBS Interactive, 2009c). The fact that only about half of the IT professionals have an IT degree may increase the practical relevance of such highly task-specific credentials which certify skills and proficiency in a variety of technical areas (Cappelli, 2001). They may also have increased the ease of movement of IT professionals across organizations (Cappelli & Hamori, 2007).

Yet, due to the rapid changes in skill requirements, professional obsolescence is a real danger for both individuals and organizations in IT (Pazy, 1990, 1997). Whilst older employees may not be more prone to professional obsolescence than younger ones (Pazy, 1990), they seem to perceive it much more as a threat (Fu, 2011). Professional obsolescence has been reported to be of particular relevance in software engineering. Not only are programming languages amongst the skills with the shortest lifecycle in IT, software engineering is also one of the functions most likely to be outsourced (Fu, 2011). This increases job insecurity and potential negative consequences especially for programmers who lack the latest skills required (Scholarios, et al., 2008). The need for rapidly acquiring new skills makes training in IT an important factor for organizations (E-Skills UK, 2008b). Various studies (e.g. Agarwal, Krudys, & Tanniru, 1995; Agarwal, Prasad, & Zanino, 1996; Allen, et al., 2008; Andrews & Niederman, 1998; Wagner & Benham, 1993) have stressed the relevance of training and focused on how to address the learning needs of IT organizations effectively (see section 4.4).

In summary, one of the key challenges in IT is the rapid technological change that requires high flexibility from both IT professionals and IT organizations, and increases the pressure for constant skill development, which includes but is not restricted to technical skills.

Also, IT professionals may have to cope with increasingly flexible and unpredictable career patterns in the industry (Loogma, et al., 2004). However, the extent to which individual careers are actually subject to such changes is not clear due to a lack of corresponding research. How IT professionals may respond to these challenges arguably depends to a considerable degree on their individual characteristics, which is discussed in the next section.

2.3.5 Characteristics of IT professionals

IT professionals are often stereotyped (Capretz, 2003). One common stereotype, for example, is that they define themselves entirely in terms of their technical skills (Enns, Ferratt, & Prasad, 2006). This stereotype, however, is in stark contrast with findings on IT professionals' career anchors (see section 3.6.2). Also, IT professionals are sometimes simply seen as antisocial geeks (e.g. Diaz Research, 2008a; Enns, et al., 2006; Joshi, Schmidt, & Kuhn, 2003).

Such negative stereotypes can have damaging effects on individuals and IT organizations in general. For example, they can lead to misplaced organizational practices and, eventually, to increased turnover (Enns, et al., 2006). The effects are particularly destructive when direct managers rely on such stereotypes (Knight, 2002). Negative stereotypes about IT may also prevent young people, especially young women, from entering the industry. This phenomenon has been found in various countries such as the USA (Adya & Kaiser, 2005; Joshi, et al., 2003), Canada (Bolan, 2000; Rola, 2003), Australia (Clarke & Teague, 1996), the UK (Diaz Research, 2008a) and Switzerland (Umbach-Daniel & Wegmann, 2008). Even within IT, women may be deterred by certain typical stereotypes, such as the male-dominated culture in the IT of investment banks (Diaz Research, 2007). However, the negative impact of stereotypes on women may be overstated. They may simply be less interested in IT than men (Umbach-Daniel & Wegmann, 2008) and, therefore, less likely to opt for a career in this industry (Rosenbloom, et al., 2008).

Table 3 summarizes some frequently named characteristics of IT professionals as they have been reported in various studies. Two key characteristics are particularly relevant in the context of this study, namely turnover and motivation of IT professionals. These are discussed in detail below.

Characteristics of IT professionals	Authors
They have a high need for achievement and growth.	Bartol & Martin (1982), Beecham et al. (2008), Couger, Oppermann, & Amoroso (1994), Couger & Zawacki (1980), Couger, Zawacki, & Oppermann (1979), Ewers, Hoff, & Schraps (2004), Lee (2002a)
They have a low need for social interaction and a high need for autonomy.	Beecham et al. (2008), Couger, Oppermann, & Amoroso (1994), Couger & Zawacki (1980), Couger, Zawacki, & Oppermann (1979)
They have a high need for feedback.	Couger (1996), Couger & Zawacki (1980), Couger, Zawacki, & Oppermann (1979)
They place less emphasis on money than is commonly believed.	Bartol & Martin (1982), Cappelli (2001), Couger & Zawacki (1980), Mosley & Hurley (1999), Smits, McLean, & Tanner (1997), Smits, Tanner, & McLean (1995), Tunick Morello & Claps (2000)
They show considerable differences amongst themselves.	Bartol & Martin (1982), Ferratt & Short (1986), Teague (1998)
They tend to be more loyal to their profession than to their organization.	Fidel & Garner (1990), Khapova, Arthur, Wilderom, & Svensson (2005), Loogma, Ümarik, & Vilu (2004), Mosley & Hurley (1999), Scholarios & Marks (2004), Scholarios et al. (2008)
They need high levels of technical skills to enter the professional field as well as a broad range of skills to function effectively there and to constantly renew their set of skills.	Lee (2002a), Niederman & Crosetto (1999)
They have high turnover rates.	Agrawal, Khatri, & Srinivasan (in press), Baroudi (1985), Bartol & Martin (1982), Cappelli (2001), Ferratt, Agarwal, Moore, & Brown (1999), Igbaria & Greenhaus (1992), ITAA (2004), Meland, Waage, & Sein (2005), Moore (2000), Moore & Burke (2002), Niederman & Sumner (2003), Niederman & Sumner (2001), Wickramasinghe & Jayaweera (2010)
Especially young and well educated IT professionals are geographically more mobile than professionals in non-hightech occupations.	Herzog, Schlottmann, & Johnson (1986)
Young IT professionals focus more on the work and separate less between work and private spheres than young people in other professions.	Ewers, Hoff, & Schraps (2004), Geffers & Hoff, (2010)
Characteristics of IT professionals are common across various cultures.	Couger (1996), Gerpott, Domsch, & Keller (1988)

Table 3: Characteristics of IT professionals, according to the literature

2.3.5.1 Turnover in IT – Causes and consequences

One of the commonly reported key characteristics of IT professionals is that they tend to change jobs more frequently than other professionals (e.g. Bartol & Martin, 1982; Igbaria & Greenhaus, 1992; ITAA, 2004). Turnover has been considered to be a real problem in the IT industry for a long time (Joseph, et al., 2007), and is believed to affect many areas of the industry negatively, including IT organizations in the public sector (Coombs, 2009). However, reported turnover rates in IT vary greatly between various countries (e.g. Baroudi, 1985; Chang, 2010; Tunick Morello & Claps, 2000). Sometimes they have even been found to be below the average turnover across all industries (Kochanski & Ledford,

2001). Also within IT, turnover rates vary substantially. For example, turnover of programmers has been found to be the highest amongst various IT functions (Cappelli, 2001).

Some turnover is considered healthy for any organization (e.g. Henneberger & Sousa-Poza, 2007). Also, it helps an individual accumulate specific know-how, build networks and strengthen professional identity (Arthur, Inkson, & Pringle, 1999). This may benefit the entire IT industry as was the case in the Silicon Valley (Saxenian, 1996). Also, turnover in IT may well correspond to the reportedly increased need for flexibility in IT professionals' career paths (see section 2.3.4.1). Yet, various authors (e.g. King, Burke, & Pemberton, 2005; O'Mahony & Bechky, 2006) have cautioned that an individual may only experience such benefits if his/her job moves follow a coherent pattern.

Too much turnover, however, can cause problems (e.g. Henneberger & Sousa-Poza, 2007; Kochanski & Ledford, 2001). For example, it may set a detrimental spiral in motion which simultaneously increases salaries and turnover levels (Henneberger & Sousa-Poza, 2002). Both parties, the employer and the employee, will incur direct and indirect costs by job-to-job mobility (Chang, 2010). As turnover costs usually hit several budgets, true turnover costs tend to be underestimated (Kochanski & Ledford, 2001). Depending on an individual's seniority and skills, the estimated replacement costs for an IT organization normally range between 250% (Morello & Harris, 2002) and 300% of an individual annual salary (Mosley & Hurley, 1999) but – due to IT professionals' specific and often rare skills – may even reach 700% thereof (Kochanski & Ledford, 2001).

An additional negative aspect of high turnover rates is the increased level of stress for those who remain in the organization (e.g. Ferratt, et al., 1999), which may negatively affect performance (Sethi, King, & Quick, 2004). Moore (2000) reported that work overload was the strongest contributor to exhaustion and led to a higher intention to quit amongst IT professionals. Other stressors identified in IT were constant training and career development demands, narrow deadlines, team members, performance evaluations, concerns about job security, or demanding users (Sethi, et al., 2004). However, findings regarding the extent to which stress has an impact in IT are controversial (e.g. Huarng, 2001; Rose, 2007) and may well depend on a variety of individual and contextual factors (Sethi, et al., 2004). Numerous studies have focused on the relationship between various causes of turnover in IT (e.g. Agarwal, De, & Ferratt, 2001; Agarwal & Ferratt, 2000; Joseph, et al., 2007; Kochanski & Ledford, 2001; Paré, Tremblay, & Lalonde, 2001). The availability of alternative job opportunities does not seem to be a significant pull-factor (Fu, 2011). Factors

commonly found to determine turnover rates in IT are job satisfaction (e.g. Fu, 2011) with its antecedents role conflict and role ambiguity (Moore, 2000; Niederman & Sumner, 2001), organizational commitment (Baroudi, 1985) and turnover intentions (Igbaria & Greenhaus, 1992; Mosley & Hurley, 1999; Niederman & Sumner, 2001). Potential causes for high turnover amongst IT professionals may include their generally high levels of education (Cappelli, 1999b), tight IT labour markets (Cappelli, 1999b; Henneberger & Sousa-Poza, 2002), long tenure in the industry (Diaz Research, 2008a), as well as the inadequacy (Lee, 2002a) or absence of career opportunities (Cappelli, 2001). However, several studies highlighted that individuals can and do leave companies even without being dissatisfied or without having a better alternative. Turnover can occur on short notice and impulsively (Henneberger & Sousa-Poza, 2002). It may be caused by events unrelated to work and does not have to stem from dissatisfaction in one's current job (Joseph, et al., 2007; Lee & Mitchell, 1999; Niederman & Sumner, 2003) or from mistakes in the initial recruiting process (Bidwell & Briscoe, 2010).

Rose (2007, p. 378) argued that there may be an "in-built" need for mobility in the IT industry to keep one's skills up-to-date because "[IT] careers are built on a strategy of extending skills by means of frequent job changes". Recently, Bidwell and Briscoe (2010) demonstrated that IT professionals may indeed follow such inter-organizational career paths in order to enhance their skills. They showed how IT professionals draw on opportunities in various organizations when they acquire skills, thereby gradually moving from larger to smaller organizations. Bidwell and Briscoe argued as follows (2010, p. 1049):

> *"[T]hese transitions often occur in predictable directions. [T]hey are not haphazard. [C]areers across organizations follow their own logic, as workers link together jobs across different kinds of organizations to match their evolving career needs."*

Once it is set in motion, stopping a "turnover culture" in an organization is difficult (Moore & Burke, 2002). In such a situation, only holistic, long-term Human Resource Management (HRM) practices (see section 4.2) may reverse the situation (Moore & Burke, 2002). Instead of focusing exclusively on the prevention of high turnover, Meland et al. (2005) called for an active turnover management. In their view, even high turnover levels are acceptable as long as they are actively managed and aligned to the workforce strategy of an organization. In addition, Coombs (2009) cautioned that focusing on leaving might not be an effective retention strategy for IT staff as reasons for leaving an organization are not simply direct opposites of reasons for staying.

2.3.5.2 Motivating IT professionals

Given these concerns about turnover in the IT industry and the generally tight labour markets in IT (see section 2.3.2), understanding the key motivators of IT professionals seems paramount.

Motivators in IT

In their seminal work, Couger and Zawacki (1980) reported two key findings regarding the motivation of IT professionals, based on a large survey of IT professionals in the USA with the Job Diagnostic Survey (JDS) by Hackman and Olden.

First, programmers were found to have the highest "growth need strength (GNS)" of all professions. People high on GNS have a "[…] strong need for accomplishment – for learning and developing beyond where they are now, for being stimulated and challenged […]" (Couger & Zawacki, 1980, p. 20). Second, IT professionals' "social need strength (SNS)" was the lowest amongst all professions. SNS indicates an individual's need for interaction with others. This seems to confirm the stereotype about IT professionals as antisocial geeks (see above). However, the authors cautioned against misinterpreting the low scores on SNS (p. 26):

> *"[Programmers] are not antisocial. They mix well with the other programmers. But compared to personnel in other parts of the company [...] to be successful, programmers need far less skill in verbal communication. Nor is understanding of behavioral patterns a prerequisite to success in programming."*

Couger et al. (1979) also showed that IT managers were more similar to their own employees than to their managerial peers elsewhere. The managers' high GNS and low SNS potentially inhibited their interaction beyond their own IT department. These findings were confirmed in a follow-up study some years later (Couger, et al., 1994). Couger and Zawacki (1980, p. 10) stressed the importance of the job content for motivating people:

> *"The job itself must produce the essential elements of satisfaction – the peripheral benefits of being at the forefront of technology are important but alone are insufficient to keep a person motivated."*

This is in line with Herzberg et al.'s (1959) two-factor theory, which argued that factors which cause job satisfaction are distinct from factors which cause job dissatisfaction. Factors associated with job satisfaction, called "motivators", are more frequently related to the characteristics of work itself, i.e. the recognition, responsibility and development opportunities an individual receives at work. The presence of motivators is thought to lead to good performance and to high job satisfaction. Factors associated with job dissatisfaction are

more likely to be found in the work context. These “hygiene factors” comprise aspects such as policies, working conditions or salary. A perceived deficit in this area is likely to cause dissatisfaction. Even if hygiene factors are fully addressed, they do not have any motivating effect themselves (Kreitner, Kinicki, & Buelens, 2002). In support of this, Couger and Zawacki (1980) believed in employee participation for redesigning the workplace. They suggested that job enrichment and job enlargement may be efficient means to address the high growth need strength of IT professionals.

A second important study on motivation in IT was the longitudinal research by Smits, McLean et al. (McLean, Smits, & Tanner, 1996; McLean, Tanner, & Smits, 1991; Smits, Bryan, & McLean, 1996; Smits, McLean, & Tanner, 1992; Smits, Tanner, & McLean, 1993; Smits, et al., 1995) which was based on a large sample of IT undergraduates and graduates in the USA. One of the key findings of the study was that students and recent IT graduates generally reported higher initial motivation than after a few years (Smits, et al., 1993). In contrast to Couger and Zawacki (1980), Smits et al. (1997) found that IT professionals appeared to have an emerging interest in jobs capable of meeting interpersonal needs through teamwork and contact with end users as well as the opportunity to develop professional friendships. Smits et al. (1992) reported that IT professionals at entry level, in particular, needed interaction with others to develop their strengths and their performance. Also, it was found that IT jobs generally provided the creativity and challenge that allowed IT professionals to make their technical decisions and achieve a sense of accomplishment (Smits, et al., 1997), a fact that seemed to be strongly appealing to many of them (Smits, et al., 1992). In support of this view, Coombs (2009) reported that for IT professionals in the UK National Health Service (NHS), the perceived relevance of their job tasks was important. Also, NHS IT professionals favoured tasks that required teamwork and interaction with users. In that study, teamwork was seen as a relevant factor for IT staff retention.

In a meta-analysis of 92 papers on motivation in IT, Beecham et al. (2008) reported need for growth and independence to be the most frequently cited general motivators, supporting Couger and Zawacki’s (1980) findings. The job itself was found to be the key motivator for IT professionals, whereby learning and exploring new techniques seem to be highly motivating tasks. Task identification, working on an identifiable piece of quality work, having a clear career path and working on a variety of tasks were also important motivators. According to Cappelli (2001) this causes a major problem as many jobs in IT may be considered as “lousy work” (p. 94).

In particular, Cappelli criticized that IT jobs often suffer from poor work design, i.e. they comprise singular tasks without overall responsibility and, whilst mistakes are highly visible, positive results of programming are hardly adequately acknowledged.

Beecham et al. (2008) further reported that the top demotivators for IT professionals were aspects such as poor working conditions and a lack of resources, which corresponds with the "hygiene factors" in the two-factor theory. Beecham et al.'s study also revealed contradictory results. For example, they found a high importance of being involved in decision making and working with others, as well as a high need for independence and high levels of introversion amongst IT professionals. Finally, they discovered aspects such as close supervision which – depending on the individual – can either work as motivators or demotivators.

The role of salary as a motivator

The role of salary as a tool to motivate employees has been a disputed point since Herzberg et al. (1959) first published their theory. Several studies found pay to play an important role in IT (e.g. Fidel & Garner, 1990; ITAA, 2004; Thatcher, Liu, & Stepina, 2002). Rose (2007) reported a lower than average satisfaction with total pay amongst IT professionals although their salaries were higher than the average salaries in other professions. For some IT professionals, indeed, salary may serve as a motivator in unstable work environments or it can help reduce turnover of high performers (Griffeth, Hom, & Gaertner, 2000; Kochanski & Ledford, 2001). Also, relative levels of salary were reported to be inversely related to an individual's willingness to change jobs (Henneberger & Sousa-Poza, 2007).

However, Smits et al.'s work (Smits, et al., 1997; Smits, et al., 1995) revealed a more nuanced picture which was confirmed in other studies (Beecham, et al., 2008; Diaz Research, 2008b). It was found that salary may, indeed, serve as a motivator, especially for recent IT graduates. In their early career, salary acts as a measure to evaluate their career status and competence. After a few years in their jobs, however, salary becomes a hygiene factor as predicted by Herzberg and colleagues. Many other authors support the view of salary as a hygiene factor in IT (e.g. Cappelli, 2001; Mosley & Hurley, 1999; Paul & Anantharaman, 2004). This is in line with Couger and Zawacki (1980, p. 4), who cautioned early on against relying on money as a motivator and a retention tool:

> *"[T]he view that high salary and fringe benefits are the solution to the turnover problem is calamitous. Companies that concentrate solely on financial inducements will be disappointed in the results."*

Kochanski and Ledford (2001) argued that it was not the actual pay level but rather the fairness and transparency of pay changes that were a key predictor for IT professionals' retention. In line with this, Rose (2007) reported that the absolute level of pay had only a weak impact on job satisfaction but that individual perception and relative comparison of salaries mattered much more. This view was supported by Judge et al. (2010), who found in a meta-analysis on the relationship between pay and job satisfaction that, in general, income was perceived as satisfying as long as it was higher than the income of others. Rynes et al. (2004) provided a helpful overview of various contingency factors affecting the importance of pay for individuals. They argued that there is often a discrepancy between what people say and do regarding monetary rewards and that the importance of pay tends to be underreported in surveys. As a consequence, Rynes et al. cautioned against underestimating the relevance of monetary rewards in organizations.

Conclusions regarding motivation and skills

In conclusion, findings about characteristics of IT professionals are complex and cannot be captured by simplistic stereotypes. For example, whilst certain motivating aspects like challenging tasks and varied work still seem to play a key role for IT professionals, more recent studies indicate that previously weak motivators, such as social interaction, may have gained in importance. So, extroverted individuals in IT were found to be more satisfied with their jobs and careers (Lounsbury, et al., 2007). Such developments also fit well the reportedly increased importance of soft skills in IT organizations. One reason for such potential shifts in characteristics of IT professionals may be that the IT workforce has become more diverse than it was a few decades ago (e.g. Diaz Research, 2008a). Also, the above-mentioned changes in career patterns and skill requirements may influence the characteristics of those already working in the industry.

2.3.6 Are there any distinct "IT characteristics"?

Some studies imply that IT professionals have some distinct characteristics and can be considered an occupational group (e.g. Guzman, et al., 2004). For example, turnover amongst IT professionals seems to be generally higher than in other professions, even if it is subject to general economic cycles (see section 2.3.2). Also, as shown above, research on the motivation of IT professionals has found differences between them and other professional groups. Studies applying personality tests have repeatedly indicated such differences as well.

For example, in Myers Briggs Type Indicator (MBTI) studies, typically an over-representation of introverted, thinking and judging types has been reported (e.g. Capretz, 2003; Mourmant & Gallivan, 2007; Smith, 1989), which might well match the requirements of the IT industry (e.g. Devito Da Cunha & Greathead, 2007) and its technical work environment.

However, not all studies conclude that IT professionals are a distinct group (e.g. Bartol & Martin, 1982). For example, potential antecedents of turnover in IT correspond well with those in the general literature (Joseph, et al., 2007). Also, not all MBTI studies on IT professionals have found significant differences compared with individuals outside the IT industry (Kaiser & Bostrom, 1982). Instead, they have revealed substantial differences within IT (Teague, 1998). In addition, career anchors in IT do not show any clear IT-specific patterns (see section 3.6.2). Then, it seems that in IT, as in other industries, the role of pay as a motivational tool is more complex than often assumed. Much as it may serve its motivational purpose in specific situations and for specific groups of employees, "[…] employers should realize that being a pay leader is not likely, by itself, to result in a satisfied workforce." (Judge, et al., 2010, p. 163). Finally, in a frequently quoted study IT professionals were not found to be significantly different from non-IT professional staff regarding their motivators of productive work behaviour (Ferratt & Short, 1986). This may imply that good management practices in IT do not differ from those outside IT (Ferratt & Short, 1988, 1990).

In the above-mentioned meta-analysis, Beecham et al. (2008) found that 54% of the studies supported the claim that IT professionals form a distinct group. The main distinct characteristics of IT professionals were that they find their work less meaningful and rate their jobs less favourably than others, they have little need to interact with others, they display a high growth need and are concerned with learning about new technology. However, 24% of the studies in the meta-analysis did not find any significant differences from other professionals and 22% of the studies reported that the answer was dependent on the context. Key control factors in that meta-analysis were personality traits, career path preference and competencies whilst career stage, culture, and type of organizations were reported as the key moderators (Beecham, et al., 2008). So, to sum up, much as they do share some distinct characteristics, whether or not IT professionals can be considered a distinct group seems largely to depend on the specific context of each individual.

2.4 Summary

For most industrialized Western countries, the past few decades have brought about extensive change on various levels. First, there is substantial evidence that the general economic and societal environment has considerably changed over the past two decades – and that it continues to do so. For example, new technological opportunities, such as the widespread availability of the internet, have led to increasingly globalized trade. The demographic trend to ageing populations in many Western societies has already had a direct impact on immigration policies, educational systems or social security policies in several countries. Also, societal trends, such as an increasing proportion of economically active women, have an effect on the general workforce in many countries.

Second, as a consequence of such general economic and societal trends, various changes have occurred at an organizational level. For example, many organizations have adopted new business models that entail outsourcing and offshoring. Such new business models, in turn, have a direct impact on how organizations structure their workforce. They may, for example, increase the proportion of external contractors and temporary workers and reduce the number of employees with long-term contracts.

Third, the above changes have also had some effect on individual careers. For example, downsizing in previously stable organizations has made many career paths more unpredictable. Flatter organizational structures have reduced the opportunities for hierarchical advancement in numerous companies. In such organizations, the relationship between employers and employees is believed to have become less long-term and loyalty-oriented. However, evidence regarding the extent of change for individual careers appears to be scarce and inconclusive. It is not clear, for example, whether shifts in job mobility patterns are mainly externally driven, such as by economic cycles (e.g. Inkson, 1995), or whether individual career orientations have actually changed. Also, it may well be that individuals have experienced different levels of change in their objective and subjective careers. For example, whilst subjectively felt job insecurity, indeed, seems to have risen amongst individuals, labour market statistics do not support claims of a massive decline in job stability.

Such developments and changes can be exemplified and explored in the context of the IT industry. Over the last two decades, the IT industry has become an important economic pillar and a key function for many companies in Western countries. As a consequence of more general trends at an economic and societal level, this industry has been subject to various changes and subsequent challenges. At an organizational level, the role of IT

within companies has changed substantially over the last years. This has also affected the skills IT organizations require (e.g. increasingly more business and soft skills) and the way they provide their services (e.g. by developing products offshore rather than domestically).

Finally, at an individual level, some changes to IT professionals' careers have occurred as well. Career paths in IT have become more diverse and less predictable. Also, ongoing changes in organizational skill requirements seem to lead to an increased need for continuous learning, which may directly impact individual career paths. As a consequence, mobility and flexibility are thought to have become more important for IT professionals in order to navigate their careers successfully (e.g. Loogma, et al., 2004).

However, as in the general workplace, the extent to which such changes to individual careers in IT have actually happened is debatable due to a lack of corresponding research. For example, little is known about career mobility in IT and whether it has really increased in individuals' objective careers, as is often implied. And with regard to their subjective careers, it is unknown whether IT professionals just happily accept their potentially increased mobility or whether many of them long for more stability.

Given the economic relevance of the IT industry and its notorious shortage of adequately trained professionals, input to such questions would be highly relevant for IT organizations and, ultimately, for entire economies. It might help attract new talent to the IT industry and reduce turnover in the existing workforce. For example, companies sometimes still tend to rely simply on financial incentives and overestimate the impact money has on motivation and reducing turnover in IT. However, existing research implies that learning seems to be a key motivator for many IT professionals which, simultaneously, may also serve organizations in keeping up with changing skill requirements.

Yet, large inter-individual differences amongst IT professionals make it imperative not to treat them all as simply being part of one single, apparently homogeneous group and manage them accordingly. Rather, individual characteristics need to be taken into account. For example, better acknowledging inter-individual differences in IT organizations was found to increase trust and commitment (Scholarios & Marks, 2004), as well as to decrease turnover intentions (King, Xia, et al., 2005) amongst IT professionals.

Hence, as has been argued in this chapter, there is a need for a more thorough understanding of individual careers and career orientations both in the general workforce as well as in the IT industry. The two areas may well be combined. On the one hand, general career research might provide helpful insights to better understand careers in the IT industry. On the other hand, there are various reasons why studying individual careers in the context of the IT industry is likely to provide valuable input both for general career literature as well as for specific IT research. The IT industry is economically relevant and has already been substantially affected by trends that may increasingly impact other industries as well. Also, IT professionals work in a variety of sectors, industries and organizations, and their skills are usually highly transferable across organizations. Furthermore, there is an absence of strong professional institutions or unions in the IT industry, which may make it easier to examine the impact of developments at an economic, industry or organizational level on individual careers (Bidwell & Briscoe, 2010).

However, when taking such an approach, it is necessary to consider whether general career concepts are applicable to the IT industry or whether IT professionals are so different a professional group that corresponding research cannot be generalized. Overall, previous research is inconclusive. About half of the existing studies on the topic imply that IT professionals have some distinct characteristics, such as a high need for learning and development; yet, arguably any other professional group, for example academics (Baruch & Hall, 2004), may have some specific characteristics. Also, about an equal amount of studies on characteristics of IT professionals do not find them to be substantially different from other professional groups, provided that the specific individual context is taken into account.

Bearing that context in mind, this leads to two main conclusions. First, research on IT professionals may, indeed, provide valuable findings for the general workforce. For example, findings regarding career orientations of IT professionals may well inform the general discussion about potential changes of individual careers. Second, in order to understand individual careers in IT better, general career concepts may well be applicable in the IT context. Hence, chapter 3 discusses some key concepts in general career research. In subsequent chapters, these concepts then serve as tools for further exploring individual careers and career orientations in the context of the IT industry. Conversely, the IT industry provides the context in which specific aspects of these general concepts are empirically examined.

3 Career concepts

In order to contextualize the further exploration of individual careers and career orientations, this chapter first provides an overview of academic career research; in particular, the debate regarding traditional and contemporary career concepts and the key role career success plays therein. Then, two of the key concepts in the current discourse, the "protean career" and the "boundaryless career", are presented and thoroughly discussed. The two concepts serve as tools to examine individual careers in subsequent chapters. Based on the discussion of protean and boundaryless careers, an overview of the key concerns about contemporary career concepts is provided. This chapter concludes with the introduction of the career anchor concept. Although it is based on "traditional" assumptions about careers, the model provides a potentially helpful tool to examine, understand and combine aspects of both traditional and contemporary careers.

3.1 From traditional to contemporary career concepts

In this section, the roots as well as current debates of career research are highlighted. Then, the emergence of "contemporary" career concepts is discussed and they are contrasted with more traditional views of careers. Also, the notion of career success as a key element in contemporary career concepts is covered.

3.1.1 Changing focus of organizational career research

Career research has developed from and been influenced by three main sources (Gunz, 2009; Moore, Gunz, & Hall, 2007; Peiperl & Gunz, 2007). The first source is sociology. In the 1920s, studying the concept of careers became of academic interest to sociologists at the Chicago School of Sociology (Adamson, et al., 1998). The sociological focus on careers has been on topics such as social networks (e.g. Granovetter, 1973) or transitions between various roles (e.g. Nicholson & West, 1989). The second source is vocational psychology, the earliest roots of which may be traced back as far as the 1850s (Inkson, 2007). Vocational psychologists mainly focus on the fit between an individual and his/her job (Betz, Fitzgerald, & Hill, 1989), thereby taking a relatively "static" view of careers (Moore, et al., 2007). One of the key concepts from this strand of psychology was Holland's (1973) model of vocational choice which is still important for vocational career counselling. Finally, developmental psychology served as the third source for career research. From that point of view, careers are perceived as something dynamic, developing over the course of a lifetime.

Several of the key concepts in that area have remained influential until today (Sullivan & Crocitto, 2007), such as Super's (1957), Levinson's (1978) and Schein's (1978) theories.

The vocational perspective dominated career studies for many years (Inkson, et al., 2010). It was not until the 1970s that business school academics became interested in career research as part of organizational psychology, which predominantly built on sociology and the developmental view of psychology (Gunz, 2009). Career research was eventually established as a discipline in its own right, mainly thanks to the four researchers Lotte Bailyn, Edgar Schein, Douglas (Tim) Hall and John van Maanen (Arthur, 1994). The main contributions of these four pioneers in organizational career research included the broadening of the definition of career to all workers and sequences of work roles, the recognition of the time dimension as a key mediator of individual-organizational relationships, the establishment of the career as a focus for interdisciplinary study (e.g. regarding careers and their social context), as well as the focus on careers from both subjective and objective perspectives (Arthur, 1994).

The main legacies of those early days in career research were an emphasis on intra-organizational rather than inter-organizational phenomena, the assumption that organizations and their environments are relatively stable and the notion that organizational structures are inherently hierarchical (Arthur, 1994; Derr & Briscoe, 2007; Tams & Arthur, 2010). So, despite the developments at an economic and organizational level in the 1980s (see section 2.2), career research continued to assume a stable environment for individual careers. Hence, its focus was predominantly on intra-organizational issues (e.g. organizational practices), as well as on established processes between the organization and the individual, such as negotiation and contracting (Arthur, 1994). It was only as of the mid-1980s that careers were increasingly treated from a multi-disciplinary point of view, acknowledging the dynamic relationships between individuals, organizations and society. Consequently, research interests eventually shifted away from an almost exclusive focus on large corporate organizations towards the inclusion of smaller, more dynamic companies. Also, researchers became interested in careers of specific demographic groups (e.g. women, dual-career couples, ethnic minorities) and their studies increasingly covered particular aspects of careers (e.g. work-family conflicts, career commitment) (Adamson, et al., 1998; Arthur, 1994). This shift in focus was based on the understanding that the previous scope of career research may have been far too narrow, as Heslin (2005, p. 127) explained:

> *"Even though most people who have careers are not white, male, well-educated managers or professionals working in large, hierarchical organizations, the vast majority of [career] research has been focused on this very narrow subset of all the people who are engaged in a career."*

As Sullivan and Baruch (2009) recently noted, career research has made significant advances over the last decade. Compared with similar studies in the late 1990s (Sullivan, 1999; Sullivan, Carden, & Martin, 1998), they found considerably more research on a conceptual level, as well as on careers in non-managerial and in non-Western contexts. Yet, organizational career research still faces four key dichotomies that are under debate (Peiperl & Arthur, 2000).

The first dichotomy, universalism versus particularism, is focused on the question of whether career concepts may or may not be universally applicable. The examination of the role of culture is essential, as Schein (1984, p. 80) cautioned early on:

> *"We cannot infer from one culture to another what the structure of external careers will be, nor can we infer how people will feel about their own careers."*

Careers have been studied in Africa (e.g. Igbaria, Meredith, & Smith, 1995), Asia (e.g. Aryee & Debrah, 1993), Europe (e.g. Hansen & Willcox, 1997) and Oceania (e.g. Boxall, et al., 2003), as well as in various cross-cultural research projects (e.g. Chudzikowski, et al., 2009; Spector, et al., 2007). Still, organizational career research has remained a predominantly North American stronghold. Until today, the key concepts used in the field are mainly based on research from the USA (see section 3.5). In line with several other academics, Tams and Arthur (2007) called for more cross-cultural career research. In a special edition of the *Journal of Occupational and Organizational Psychology*, various European researchers (e.g. Khapova, Vinkenburg, & Arnold, 2009; Mayrhofer & Schneidhofer, 2009) emphasized the value of European career research and the importance of the cultural context for studying careers.

The second dichotomy in career research, according to Peiperl and Arthur (2000), is about stasis versus adaptation. This dichotomy focuses on the question of how stable or how prone to change careers actually are. The third dichotomy is about structure and action. It is concerned with the question as to what extent careers are the product of established structures and to what extent they are the product of individual action. Finally, the fourth dichotomy is about institutional versus individual knowledge and focuses on the extent to

which knowledge lies with the individual. All four dichotomies are relevant in the subsequent discussion of contemporary career concepts (see section 3.5).

Today, careers are examined from various points of view. No longer are psychology and sociology the only disciplines interested in careers. Fields such as anthropology, economics, management and business studies, education, history, political science, and geography have become concerned with careers and their future development (Arthur, et al., 1989a; El-Sawad, 2002). In their "Handbook of career studies", Gunz and Peiperl (2007b) demonstrated how broad and diverse the field of career research has become today; a development which is often seen as beneficial (e.g. Schein, 2007a). However, it has sometimes been claimed that there is still a lack of rigour when it comes to defining and clarifying the basics of "career theory" and that some former research paradigms must be reviewed in order to more accurately address the concept of careers (Collin & Young, 1986). Also, some researchers have called for a more balanced view on careers, including their potentially negative aspects (e.g. Vardi & Kim, 2007). Further, there have been repeated calls for even more multidisciplinary career research, such as between psychology and sociology (e.g. Schein, 2007a). Even within psychology, the vocational and organizational strands have developed mostly in parallel with little exchange so far, leaving ample room for potential for synergies (Collin, 2009) (also see sections 3.3.2.2 and 3.5). Hence, as has been repeatedly pointed out (e.g. Gunz & Mayrhofer, 2009; Khapova & Arthur, 2011; Parker, Khapova, & Arthur, 2009), interdisciplinary approaches in career research may still be substantially improved and intensified.

3.1.2 Traditional versus contemporary career concepts

As a result of the developments described in section 2.2, an academic debate evolved as to whether the notion of "careers" was still applicable. Existing career concepts, which reflected the prototypical bureaucratic career – assuming stable, relatively predictable organizational structures and increasing hierarchical progress of an individual over the course of their lifetime (e.g. Levinson, et al., 1978; Schein, 1978; Super, 1957) – no longer seemed satisfactorily to reflect many individuals' career experiences. Several researchers claimed that such traditional, bureaucratic, or organizational careers were "dead" (Cappelli, 1999a; Gray, 2001; Hall & Associates, 1996). It seemed as if new, contemporary (Hall, 2002) career models needed to be developed to account for some of the observed changes more adequately. However, Hirsh, Jackson and Jackson (1995) highlighted early on the importance of traditional forms of careers even in such new circumstances.

Especially as of the 1990s, academics suggested a broad and stunning variety of new, contemporary types of careers, as shown in Table 4.

Contemporary career label	Authors
Authentic career	Svejenova (2005)
Boundaryless career	Arthur & Rousseau (1996b)
Career entrepreneurship	Korotov, Khapova, & Arthur (2011)
Chaotic career	Peterson & Anand (2002)
Chronically flexible career	Iellatchitch, Mayrhofer, & Meyer (2003)
Customized career	Valcour, Bailyn, & Quijada (2007)
Disengaged and independent career	Guest & Conway (2004)
Hybrid career	Bailyn (1991)
Intelligent career	Arthur, Claman, DeFillippi, & Adams (1995)
Kaleidoscope career	Mainiero & Sullivan (2005)
Nomad career	Cadin, Bailly-Bender, & de Saint-Giniez (2000)
Post-corporate career	Peiperl & Baruch (1997)
Protean career	Hall (1976)
Responsible career	Tams & Marshall (2011)
Spiral career	Brousseau, Driver, Eneroth, & Larson (1996)
Sustainable career	Newman (2011)

Table 4: Contemporary career labels

The protean and the boundaryless career concepts have become the most prominent and influential of those models by far. (For a useful overview of some recent developments of contemporary career concepts, see Sullivan and Baruch, 2009). Despite the variety of the contemporary notions of careers, most of them share a few distinct characteristics that clearly distinguish them from the former "traditional" career models. Arthur (2008, p. 168) described them as follows:

> *"[Contemporary] careers [...] can be broadly described as being responsive to: a) shifting boundaries in occupational, organizational, national and global work arrangements; b) higher uncertainty given the rapid generation of knowledge and the unpredictability of its effects; and c) greater individual agency, not only as a response to shifting boundaries and uncertainty, but also because of the wider combinations of job experiences that can be incorporated into one career."*

Table 5 provides a summary of the key assumptions in the two types of career concepts. This overview shows how fundamentally the two conceptual strands differ. Traditional models assumed a stable, predictable work environment, in which individuals followed vertical careers with one or two employers over the course of their working lives. As long as they were loyal to the company, employees could rely on relative job security. The organization took care of the development of the firm-specific skills an individual would need, mainly through the use of formal training programmes. An individual's performance would be rewarded based on objective success criteria, such as promotions or salary increases.

	Assumptions of "traditional" career concepts	Assumptions of "contemporary" career concepts
Career environment	Stable, predictable, high levels of security	Unstable, unpredictable, low levels of security
Employment deal	Job security for loyalty (relational psychological contract; "old deal")	Employability for performance and flexibility (transactional psychological contract; "new deal")
Career trajectory	Vertical, mainly in one or two firms	Multidirectional, mostly in multiple firms
Skills required	Firm-specific	Transferable
Responsible for career management	Organization	Individual
Success criteria	Objective career success	Subjective career success
Training	Long-term; formal programmes	Short-term; on-the-job learning
Individual is committed to…	Organization	Profession

Table 5: Key assumptions of traditional and contemporary career concepts
(based on Gasteiger, 2007b)

Contemporary careers, in contrast, mainly assume that – due to the less predictable environment – individuals trade their performance for employability. The transferable skills individuals need to navigate their careers within their professions, rather than within their current organizations, are predominantly provided on-the-job rather than in formal training programmes. Finally, individuals shoulder the key responsibility for their career development.

Such claims of the heralds of contemporary career concepts caused a broad ongoing debate amongst career researchers. In this thesis, the protean and the boundaryless career concept are both critically discussed in detail (see sections 3.2 to 3.4), and a general overview of the strengths and weaknesses of contemporary career models is presented (see section 3.5). However, before the two concepts can be explored further, the notion of "career success" is discussed. As shown in Table 5, success criteria in contemporary careers are believed to differ substantially from those in traditional careers. The next section covers this topic, which sets the scene for the further discussion.

3.1.3 Career success

Career success has received much academic attention for many years. A thorough understanding of career success is believed to be beneficial for both individuals and organizations (Ng, et al., 2005). According to Arnold and Cohen (2008), two main strands of career success research can be distinguished. One strand focuses on how career success is construed, and the other is concerned with potential predictors of career success. It would be far beyond the scope of this thesis to cover the extensive body of literature that has been published on the topic exhaustively.

This section only discusses some key aspects and potential weaknesses of the career success concept that are relevant in the context of this thesis.

In a longitudinal study of alumni of the Harvard Business School, Kotter (1995) described how the globalization of markets and competition increasingly altered individual careers. In that study, the benchmark as to whether or not an individual was considered as being successful was almost exclusively based on the individual's salary and hierarchical status in a company. Kotter's view reflects a traditional notion of career success which equalled increasing levels of salary or hierarchical promotion with being successful (Gattiker & Larwood, 1986). Reward systems in many organizations traditionally were – and often still are – based on these two pillars. This type of career success is referred to as "objective" career success. Based on Hughes (1937), Heslin (2005, p. 114) defined objective career success as "[...] directly observable, measurable, and verifiable by an impartial third party". Typical signs of objective career success are salary growth, hierarchical position, number of promotions, proximity to the CEO or status (Arnold & Cohen, 2008). Yet, career success comprises a second component, namely the extent to which an individual perceives his/her own career as successful. Heslin (2005, p. 114) stated that this so-called "subjective" career success "[...] is only experienced directly by the person engaged in her or his career". Frequently named proxies of subjective career success are job satisfaction, life satisfaction or perceptions about one's own employability (Arnold & Cohen, 2008). In their extensive review of career success literature, Arthur et al. (2005) provided a detailed and helpful list of the various elements used to characterize objective and subjective career success. Based on these two components, career success in general may be defined as follows (Judge & Kammeyer-Mueller, 2007, p. 60):

> *"[T]he real or perceived achievements individuals have accumulated as a result of their work experiences [...]"*

Many researchers posit that the importance of subjective career success has risen over the last few years (e.g. Arnold & Cohen, 2008; Arthur, et al., 2005; De Vos, Dewettinck, & Buyens, 2008; Hall & Richter, 1990). The main argument is that in addition to more uncertainty in the labour markets, fewer opportunities for promotions exist in many organizations due to flatter hierarchies. This reduces the chances for individuals to experience objective career success. Hence, subjective career success may serve as a substitute in order to compensate for the loss (or inexistence) of objective career success opportunities. Sturges (1999) supported such findings in her study of managerial career success definitions, as did Hennequin (2007) in a rare and valuable study on blue-collar workers' perceptions of

career success. Other research has also confirmed the important role of subjective career success, be it in the context of gender (e.g. Ackah & Heaton, 2004; Dyke & Murphy, 2006), personality traits (e.g. Judge & Higgins, 1999; Seibert & Kraimer, 2001), social networks (e.g. Forret & McCallum, 2010; Ibarra & Deshpande, 2007; Seibert, Kraimer, & Liden, 2001), employment relationships (Abele, Spurk, & Volmer, 2010), perceived marketability (De Vos & De Hauw, 2010), the perceived role of work in one's life (Wrzesniewski, et al., 1997), or various types of mobility (Feldman & Ng, 2007), such as expat assignments (Biemann & Braakmann, 2010).

Not only does it seem as if subjective career success may have become increasingly important in general, it might also grow in relevance over the course of individual careers. For example, in a qualitative study of ten men's radical mid-career job transitions into the education sector, Mahler and Hoare (2010) showed that those men were substantially driven by their growing desire for more subjective career success. After their job transitions, the men were objectively, e.g. in terms of salary, less successful than before. Nevertheless, all of them considered themselves as being subjectively more successful. These findings are in line with an earlier study of a similar nature (Mintz, 2003). A comparable effect was found in a completely different context. In a large longitudinal study of job mobility in the IT industry, Bidwell and Briscoe (2010) demonstrated that IT professionals showed a tendency to move towards smaller workplaces over time, voluntarily. By doing so, many of them accepted lower salaries. Yet, the monetary loss seemed to be more than outweighed by better opportunities to experience subjective career success in the smaller companies. The individuals in those studies may be called "happy losers" (Nicholson & de Waal-Andrews, 2005), i.e. subjectively successful but objectively unsuccessful. Interestingly, empirical research has also found a group of "unhappy winners" (Mayrhofer, et al., 2005; Nicholson & de Waal-Andrews, 2005), i.e. objectively successful individuals who felt subjectively unsuccessful. Such studies not only indicate that individual career success criteria may change over time, but also, in support of Arnold and Cohen (2008), they highlight that objective and subjective career success do not necessarily need to develop in parallel.

Heslin (2003, 2005) argued that the standards individuals measure their success against need to be considered more thoroughly. Expanding the objective versus subjective dichotomy, he therefore suggested the inclusion of an additional dimension of career success – self-referent versus other-referent.

This dimension refers to the question whether an individual assesses their success against an internal benchmark (self-referent) or whether other people are used as a point of reference (other-referent). Table 6 gives an overview of his categorization, which is often referred to in career success literature.

	Objective	Subjective
Self-referent	Objective/self-referent (e.g. personal financial and promotion aspirations)	Subjective/self-referent (e.g. personal goals for work-life balance and fulfilment)
Other-referent	Objective/other-referent (e.g. pay and own social standing in relation to own peers)	Subjective/other-referent (e.g. own stimulation and job satisfaction in relation to own peers)

Table 6: Four types of success criteria

(based on Heslin, 2005, p. 121)

Heslin (2005), argued that individual and contextual factors might influence the relevance of the above criteria. For example, objective/other-referent criteria were thought to be more important for individuals with traditional career orientations, whereas subjective/self-referent criteria might be more salient for individuals with more self-directed career orientations.

According to Heslin (2005), the career success discourse has often made four implicit assumptions. First, it has been assumed that objective outcomes (e.g. pay) are adequate proxies for success. As a consequence, much previous research has focused on objective criteria of success (Arthur & Rousseau, 1996a). Second, job and career satisfaction have been thought to capture adequately how individuals feel about their careers. Third, it has sometimes been believed that all individuals have similar perceptions regarding the importance of objective and subjective career success criteria. And fourth, it has been assumed that individuals conceptualize and evaluate their career success only in relation to self-referent criteria. Heslin (2003, 2005) argued how deficient these assumptions are and how limited and incomplete the frequently used operationalizations of objective and subjective career success may be.

There are several additional gaps and potential weaknesses in the existing career success literature. For example, Arnold and Cohen (2008) demonstrated that the distinction between objective and subjective career success is much less clear-cut in practice than it is portrayed in theory. Also, career success literature is often built on the underlying assumption that objective success is a precursor of subjective success (Arthur, et al., 2005). Ac-

cording to Arnold and Cohen (2008), this view may be based on Hall's notion of a psychological success cycle (2002). Hall suggested that objective achievements result in subjective feelings of success. This may then lead to an increased willingness to take on more challenging assignments which, provided the individual completes them successfully, increases his/her objective success, and so on. However, in a longitudinal study, Abele and Spurk (2009) found that the relationship between objective and subjective career success is much more complex.

Also, there is a dearth of systematic career success classifications. Building on Heslin's (2005) model, Dries et al. (2008) provided a rare example of a framework to classify career success criteria. In a study amongst managers in Belgium, they revealed nine main themes (e.g. performance, advancement, self-development) that were frequently mentioned in order to define career success. Based upon their empirical findings, Dries and colleagues suggested a matrix with four quadrants along two dimensions (inter-personal versus intra-personal and achievement versus affect) to map career success criteria, as shown in Table 7.

	Affect	Achievement
Inter-personal	Recognition Cooperation Contribution (perceived)	Performance Advancement Contribution (factual)
Intra-personal	Security Satisfaction	Self-development Creativity

Table 7: Multidimensional model of career success

(based on Dries, Pepermans, & Carlier, 2008, p. 260)

Much as this model addresses an important gap in career success literature, it still needs empirical examination in various occupational and cultural settings to examine its applicability outside the specific context it was developed in.

Further, there is a gap in current career success literature which has rarely been addressed. Gunz and Heslin (2005) cautioned how difficult it is to define and assess what career success actually means to an individual. In line with Gattiker and Larwood (1986), Hall and Chandler (2005, p. 157) noted how important this would be:

> *"When viewed from inside the skin of the person pursuing the career, success, by definition, has to be defined in terms of how it looks through that person's eyes."*

Despite the substantial academic interest in career success, several researchers (e.g. Hay & Hodgkinson, 2006; Sturges, 1999) have highlighted the scarcity of empirical research, especially where individuals are given the opportunity to define career success in their own words. For example, Hay and Hodgkinson's (2006) study revealed the unexpectedly diverse and broad ways MBA students defined career success and how important subjective success criteria were to them. McDonald and Hite's (2008) qualitative study not only revealed the complex ways individuals defined career success but also highlighted perceived barriers to success of the young professionals who were interviewed. Yet, studies focusing on individual definitions of career success are typically of qualitative nature and based on small sample sizes. This reduces the extent to which their findings can be generalized. Quantitative studies analyzing larger samples, however, typically either apply a pre-defined set of career success indicators participants can choose from (e.g. Dyke & Duxbury, 2009; Gattiker & Larwood, 1986) or they use some of the widely accepted proxy variables to measure career success, such as salary for objective career success and job satisfaction for subjective career success (e.g. Chudzikowski, Mayrhofer, & Schiffinger, 2008). Such studies are inevitably limited by the pre-defined usage of the term "career success" and, unlike qualitative approaches, they do not allow new topics to emerge from the respondents.

In summary, despite the substantial amount of literature on career success, researchers may only have a limited understanding of what factors people actually take into account when judging objective and subjective success. As a consequence, research may well be based on inaccurate assumptions about what individuals perceive as career success. This situation is potentially exacerbated by the fact that the current discourse on career success is still widely dominated by North American research, despite growing awareness of the importance of cultural and country-specific contexts (e.g. Inkson, Khapova, & Parker, 2007; Khapova, et al., 2009) and extensive career success research outside the US, especially in Europe (e.g. Abele & Spurk, 2009; Chudzikowski, et al., 2008; De Vos, De Clippeleer, & Dewilde, 2009). There is still a gap in the research that needs to be addressed. One way of doing this is to give large samples of respondents outside North America the opportunity to express freely what career success means to them, and then to classify the potential variety of their career success definitions in a structured way.

3.2 The protean career

Based on this discussion of career success, the protean career concept, one of the most prominent and influential contemporary career concepts, can now be introduced. In this section, the protean career is discussed in detail, and its main conceptual and metaphorical strengths and weaknesses are examined.

3.2.1 The protean career concept

In 1976, Tim Hall described what he thought to be an emerging form of career, the "protean career" (Hall, 1976). By doing so, he was one of the first academics to recognize and respond to potential shifts in the environment of individual careers (see section 3.1.1). Named after Proteus, the Greek god who was able to shape his form at will, Hall's new concept depicted a notion of career which was fundamentally different from traditional views of careers. Hall (1976, p. 201) defined it as follows:

> *"The protean career is a process which the person, not the organization, is managing. It consists of all of the person's varied experiences in education, training, work in several organizations, changes in occupational field, etc. The protean career is not what happens to the person in any one organization. The protean person's own personal career choices and search for self-fulfilment are the unifying or integrative elements in his or her life. The criterion of success is internal (psychological success), not external. In short, the protean career is shaped more by the individual than by the organization and may be redirected from time to time to meet the needs of the person."*

The characteristics of the protean career compared with the traditional career can be summarized as shown in Table 8. The main goal of the protean career is subjective, psychological success, "[...] the feeling of pride and personal accomplishment that comes from achieving one's most important goals in life, be they achievement, family happiness, inner peace, or something else" (Hall, 1996, p. 8). He pointed out that (in theory) there are infinite ways to achieve subjective success in a career, whereas the traditional, objective view of career success only allows for one path, namely the way towards the top of the organization (Hall & Richter, 1990). In 1976, Hall's view was in stark contrast with the prevailing notions of career success that featured a strong focus on objective success criteria (see section 3.1.3). Also, according to Hall, responsibility for and ownership of the career shifted. In brief, "[…] if the old contract was with the organization, in the protean career the contract is with the self" (Hall, 2002, p. 23). Referring to Shepard's (1984) metaphor, Hall (1996, p. 10) put it this way: "The path to the top has been replaced by the path with a heart".

	Protean career	Traditional career
Who is in charge	• Person	• Organization
Contract with	• Self	• Organization
Core values	• Freedom • Growth	• Advancement • Power
Degree of mobility	• High	• Lower
Important performance dimensions	• Psychological success • "Path with a heart"	• Position level, salary • "Path to the top"
What counts is	• "Career age"	• Chronological age
Development is	• Continuous learning • Self-directed • Relational • Found in work challenges • Horizontal growth	• Formal training • Retraining • Upward mobility • Vertical advancement
Ingredients for success	• Learn-how • Employability	• Know-how • Job security
Important attitude dimensions	• Work satisfaction • Professional commitment	• Work satisfaction • Organizational commitment
Important identity dimensions	• Do I respect myself (self-esteem) • What do I want to do? (self-awareness)	• Am I respected in this organization? (esteem from others) • What should I do? (organizational awareness)
Important adaptability dimensions	• Work-related flexibility • Current competence (measure: marketability)	• Organization-related flexibility (measure: organizational survival)

Table 8: Comparison of traditional and protean career characteristics

(based on Hall, 1976, 1996, 2002; Hall & Mirvis, 1996)

The traditional view of careers was based on predictable development over one's biological age and life stages. A protean career, on the contrary, was said to evolve through a series of short learning cycles (Hall & Mirvis, 1996). As shown in Figure 2, these cycles follow similar stages as Super (1957) suggested for a prototypical career over the entire professional life.

In Hall's (2002) view, however, the cycles are repeated every few years and subsequent learning cycles lead to an eventual increase in performance. An individual's position within a learning cycle, i.e. the level of knowledge of a specific task, defines his/her "career age" which is not necessarily related to the biological age. A move from one learning cycle to the next may be triggered either externally (e.g. by technological changes) or internally (e.g. by the decision to have children and take on a new part-time job). Yet, Hall made it clear that such learning cycles do not completely render life-stage theories irrelevant. Talking about an early, mid, and late career may still be appropriate in the context of the protean career (Hall, 2002; Mintz, 2003). This view is in line with other authors (e.g. Boyatzis & Kolb, 2000; Lifton, 1993) who acknowledged the relevance of life cycles even in the context of concepts such as the protean career.

However, Hall (2002) argued that today there might be greater asynchronicity between an individual's various life and work roles.

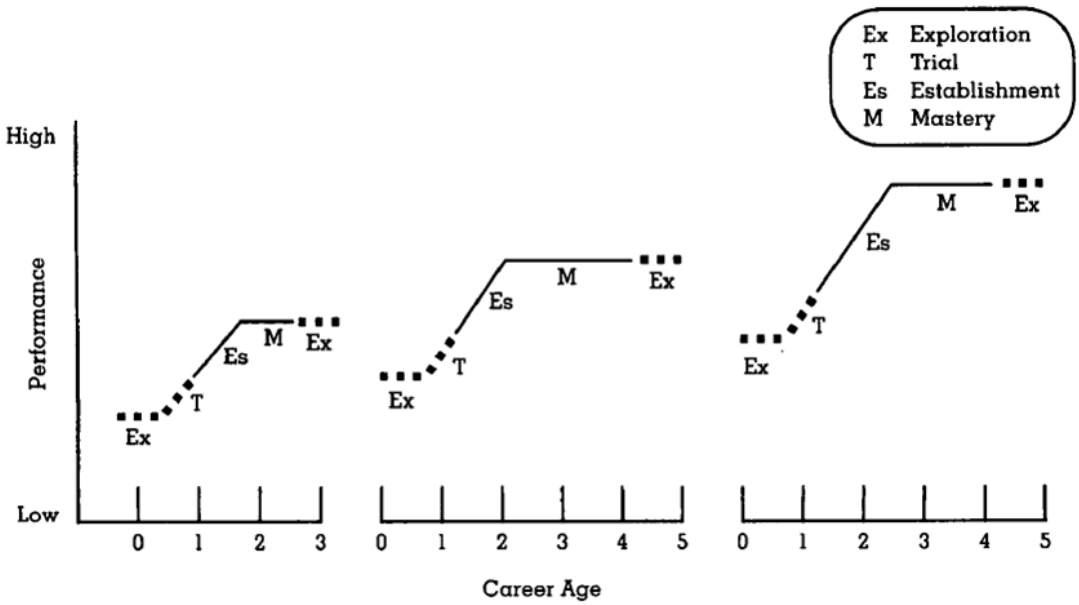


Figure 2: Learning cycles and learning stages
(Hall, 1996, p. 9)

The inevitable periods of transition between learning cycles highlight that less predictability may be expected from a protean than a traditional career. Also, the constant reiteration of exploration, trial, establishment and mastery emphasize the importance of continuous learning throughout an individual's life in order to cope with constant changes. Hall (1996, p. 11) claimed the capability to learn might become "[…] the basic currency of the self-directed protean career of the next century". According to the protean career concept, development predominantly happens on-the-job. A challenging work environment and meaningful tasks, in combination with learning from other people in the workplace, are seen as the key components for development. This, again, contrasts with the more formal, off-the-job training programmes which are typically associated with professional development in traditional careers (Hall, 1996). A notable point about the relationship between employer and employee is that Hall still saw a role for the organization. He did not reduce the relationship between the two to being merely performance-driven and short-term focused as the definition of the protean career might imply. Hall (2002) suggested that a combination of high loyalty and protean career might be most effective for both parties.

According to Hall (2002), two so-called "metacompetencies" are required to pursue a protean career successfully – adaptability and identity or self-awareness, as shown in Figure 3.

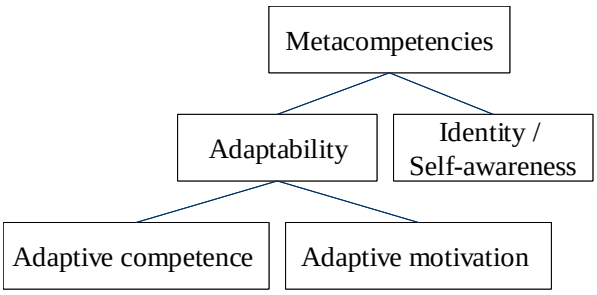


Figure 3: Protean career metacompetencies

(based on Hall, 2002)

Hall (2002) defined a competency as the "[…] global quality of [a] person that enables him or her to be effective in a larger area of functioning, such as a job role" (p. 158) and a metacompetency as "[…] a competency that is so powerful that it affects the person's ability to acquire other competencies" (p. 160).

According to the protean career concept, an individual needs adaptability to thrive in an environment where autonomy, self-direction, and proactive behaviour are thought to become increasingly important, be it at work or in private (Hall, 2002; Hall & Mirvis, 1996). However, a person must both be able and willing to adapt to new situations. Hall (2002), therefore, saw the ability to learn ("adaptive competence") and the motivation to learn ("adaptive motivation") as the two major components of adaptability. Yet, adaptability alone is not enough. The successful pursuit of a protean career requires a second metacompetency, identity or self-awareness. Being clear about one's own values, motivations, abilities or interests is crucial to define where one wants to head in life, to keep a sense of direction and successfully to adapt to new work environments (Hall, 2002; Hall & Mirvis, 1996). Hall, Zhu and Yan (2002) stressed the importance of identity exploration for individuals in the context of protean careers.

It has repeatedly been highlighted that both metacompetencies are required simultaneously (Hall, 2002, 2004). Table 9 illustrates the consequences of the lack of one or both metacompetencies as assumed by Hall.

		Adaptability	
		High	Low
Identity / Self-Awareness	High	• Proactivity • Smart performance	• Paralysis • Blocking • Avoidance
	Low	• Reactivity • Chameleon behaviour	• Rigidity • Performing to orders

Table 9: Interactive effects of two metacompetencies

(based on Hall, 2004, p. 7)

On the one hand, high adaptability with a lack of self-awareness might cause a person to act "chameleon-like", i.e. to follow other people's rather than his/her own ideas and values. High self-awareness combined with a lack of adaptability, on the other hand, is likely to result in a situation where the person is paralyzed, not able to take action even though the mismatch between one's values and the current situation is acknowledged. Finally, the lack of both identity and adaptability leads to "rigidity" where people can and will only act and perform to orders (Hall, 2004). Interestingly, Lifton (1993), although he used the notion of proteanism in a much broader psychological sense and without referring to career research, described the same balancing act between adaptability and identity as did Hall.

More than three decades after Hall first depicted it, the core of the protean career has remained unchanged. In 2002, he described the protean career with exactly the same characteristics as in 1976 (Hall, 2002). Yet, Hall claimed that the protean career can be found much more frequently today than in 1976, when it was merely an emerging concept (Hall, 2002, 2004). Due to its emphasis on values and self-awareness, he perceived it as being even more important than three decades ago. Also, the role of the organization in career management, not least the importance of challenging job assignments, is much better understood today than it was in the mid-1970s. Work-life balance issues were not addressed at all in 1976, but they arguably have become a cornerstone of a more individual and holistic view on careers (Hall, 2002, 2004). Hall (2002) argued that careers have at the same time become tighter (e.g. shorter learning cycles, more demanding work objectives) and looser (e.g. more self-control and self-direction) than in 1976. As a potential future development of the protean career concept, Hall (2002) suggested the notion of careers as a calling. This means that the formerly religious definition of a calling might be broadened to a secular view which considers careers as serving an individual to enact their personal fulfilment (Hall & Chandler, 2005). The potential relevance of such a secular notion of a calling in the context of individuals' careers has been empirically confirmed (e.g. Dobrow

& Tosti-Kharas, 2011; Hirschi, 2011; Wrzesniewski, et al., 1997). However, Hall and Chandler (2005) cautioned that having a protean career is not equivalent to having a calling because, in their view, a calling encompasses more than a protean career. For example, it additionally requires being conscious of a strong sense of purpose.

3.2.2 Discussion of the protean career concept

Especially since the 1990s, the protean career has become a popular concept in career research. Many academic papers and books on career research refer to it. However, there is a surprisingly limited body of literature that attempts to analyze and assess the protean career concept thoroughly and critically.

3.2.2.1 Findings supporting the protean career concept

Baruch (2006, p. 129) enthusiastically called the protean career "[…] one of the most innovative approaches to capture the new notion of career systems". Even academics who adopt a more critical stance towards the notion of the protean career concede the conceptual relevance of Hall's influential work (e.g. Arnold & Cohen, 2008; Gerber, 2009). Several researchers reported findings in support of the protean career. In a study of men facing major job transitions in their mid- and late careers, Mintz (2003) found that a protean career orientation helped these individuals make sense of their new situation and supported them in getting a positive perspective. This was confirmed in a similar study of men undergoing major voluntary career transitions in their mid-career (Mahler & Hoare, 2010). The authors highlighted the strong emphasis on self-directedness and personal values, as well as the high need for learning, they found amongst these men. Such observations are in accordance with Hall's (2002) assumption that individuals with a protean career orientation would be more likely to redefine themselves and their success criteria over the course of their lives. In a study of career transitions of US Navy admirals, Baruch and Quick (2007) found that individuals with protean career orientations showed more positive responses towards job transitions, had more positive feelings towards creating something new, experienced shorter times out of work before finding a new job and reported higher career satisfaction than those without such attitudes. In line with this, a protean career orientation was found to be positively associated with job search and re-employment of unemployed individuals (Waters, Briscoe, & Hall, 2011).

Based on an empirical study of German managers, Gasteiger (2007a) reported a variety of positive characteristics of individuals with protean career orientations. Such individuals tended to base career decisions on personal values and they were more proactive in mana-

ging their own careers than those without a protean career orientation. Also, they were usually highly motivated continuously to learn and develop themselves, and they liked variety as well as creating new things. Managers with a protean career orientation tended to strive for personal growth, had a high need for autonomy and self-actualization and showed higher levels of frustration tolerance. Also, they were more likely to change employers if their personal values were not met. Although these managers seemed often to experience subjective career success, objective success was not irrelevant to them. They considered it important as long as it was in line with their own personal values, a finding that was also confirmed elsewhere (e.g. Sargent & Domberger, 2007). Managers with a protean career orientation were also ranked more positively by their subordinates but, interestingly, not by their peers and superiors (Briscoe, Hoobler, & Byle, 2010).

In Belgium, employees with protean career orientations were found to report more subjective career success, i.e. higher levels of career satisfaction, and to show more proactive behaviour than those without such career orientations (De Vos & Soens, 2008). Other studies referred to potential positive relationships between protean career orientations and career success (e.g. Hall & Chandler, 2005; Jung & Takeuchi, 2011; Sargent & Domberger, 2007; Sturges, 1999; Volmer & Spurk, 2010), as well as motivation (e.g. Quigley & Tymon Jr, 2006; Thomas & Velthouse, 1990). Sargent and Domberger (2007) reported that individuals with a protean career orientation mainly had two core values – making a contribution to society and work-life balance. This is consistent with De Vos et al. (2008), who found a clear link between the acceptance of lateral career moves (i.e. non-traditional career moves) and the importance attributed to work-life balance by individuals. However, this view slightly contrasts with Gasteiger's (2007a) findings that a protean career orientation may not necessarily be equalled with a preference for work-life balance, but that it may rather be focused on learning and acquiring new competencies. Other recent research (e.g. Beechler & Woodward, 2009; Demel, et al., 2008; Prottas, 2008) supported the importance of the metacompetencies for individuals to be successful in today's world of work.

One interesting discussion is whether individuals who follow a protean career are selfish and self-centred, which – based on the original definition – might be assumed (Sargent & Domberger, 2007). Several authors (e.g. Granrose & Baccili, 2006; Hall, 1999) claimed that having a protean career orientation does not equal being selfish. Also, Sargent and Domberger (2007) found that individuals with a protean career orientation may well become engaged for the benefit of others. Gasteiger (2007a) reported that individuals with a

protean career orientation can easily cooperate with others. They just might prefer to work on their own due to their high degree of autonomy. Also, such individuals might get into conflicting situations with organizations if their personal values and the corporate values do not match well. According to Hall (2002), the protean career offers much autonomy and freedom for people with both high levels of identity and adaptability. At the same time, protean careers may be terrifying to people who – due to a lack of these metacompetencies – perceive the degree of autonomy and freedom as lack of support (Hall, 1996) or to those who have spent much of their working lives in a traditional organizational career environment (Baruch, 2004b; Gasteiger, 2007a).

3.2.2.2 Concerns regarding the protean career concept

Some authors have critically examined the protean career concept, and they highlighted various areas of concern.

The protean metaphor

One area of discussion is concerned with the adequacy of the protean metaphor. Inkson (2006) compared the commonly used metaphorical meaning of "protean" with Hall's definition. Proteus did indeed change form at will but it was a random and desperate act to break free from Odysseus. Transferring this argument into the world of work, Gerber (2009, p. 106) argued that "[p]rotean career oriented employees might easily adapt to changing situations but this high adaptability might result from dissatisfaction with their employer or work environment" rather than from self-directed, values-driven decisions taken by free will. Arnold and Cohen (2008) cautioned that Proteus, when forced to do so, often changed into scary forms with the intention to frighten and deceive others, which is far from what Hall (1996) referred to with the "path with a heart" metaphor. Furthermore, according to Inkson (2006), the metaphor gives a wrong emphasis on adaptability, thereby ignoring the identity metacompetency. Lifton (1993) noted an alternative version of the Proteus saga that is hardly ever referred to in the career literature. In that version, Proteus was an Egyptian king, a most honourable person, "[...] a pillar of strength and a preserver of values" (Lifton, 1993, p. 5). This gives the metaphor a different notion, putting considerably less emphasis on adaptability.

Inkson (2006) also pointed to an apparent contradiction in the protean career. Whilst adaptability requires flexibility, the notion of identity implies stability around an inner core. As he put it, "[t]he paradox might be that the more the career protagonist stays the same (on the inside), the more he or she has a firm base around which to change (in adapt-

ing to different roles)" (2006, p. 59). Inkson (2002, p. 23) also pointed out that the protean metaphor may fail to take an individual's career history into account. He implicitly supported the idea of the learning cycles but questioned whether the metaphor adequately reflected their inherent meaning and implication:

> *"If the individual truly has the power to change form at any time, then such things as the accumulation of career skills and the nature of the job held prior to the change are irrelevant. This does not seem to be realistic. Every career is informed in some way by retrospective sense making [...] or knowledge acquisition from that career's past [...]. No career can be more than partly protean. Proteus is, as it were, 'anchored'!"*

Inkson (2006) concluded that the terms "self-directed career" or "autonomous career" would better convey the core meaning of Hall's concept. Gasteiger (2007a) argued that the term "selbstverantwortliches Laufbahnmanagement" ("self-directed career management)" would be a more appropriate term to capture the notion of the protean career.

The role of values in the protean career

A second key discussion is concerned with the assumptions about values in the protean career concept. The role of values in most contemporary concepts is considered to increase in importance (Patton, 2000). However, Arnold and Cohen (2008) cautioned that the heralds of the protean career have often implied that being protean is necessarily good and positive (e.g. Hall, 2002; Hall & Richter, 1990). They highlighted that being "values-driven" does not necessarily have to mean valuing self-expression and autonomy. Instead, the term may well mean valuing loyalty, conformity or service (Arnold & Cohen, 2008), as well as security or lifestyle (Gerber, 2009). Also, Arnold and Cohen (2008, p. 7) expressed their concern that the protean career concept has often been uncritically accepted as a given fact and that such contemporary career concepts "[…] are fast becoming reified and being used as mirrors that reflect the social world, rather than as lenses that offer a particular perspective on it".

Additional concerns

Several additional issues about the protean career have been raised in the literature, as shown in Table 10 (also see section 3.5).

Concerns regarding the protean career concept	Authors
Concerns regarding the "protean" label	
The metaphor does not fully bring across intended meaning.	Arnold & Cohen (2008), Cohen, Arnold, & Gubler (2008), Gasteiger (2007a), Inkson (2002, 2006)
"Self-directed career" or "autonomous career" would better convey the entire meaning protean concept.	Inkson (2006)
It is a highly normative concept, carries the implication that being protean is necessarily good.	Arnold & Cohen (2008), Cohen, Arnold, & Gubler (2008), Forrier, Sels, & Stynen (2008)
"Values" in the context of protean careers need conceptual clarification.	Cohen, Arnold, & Gubler (2008), Domberger (2005), Gasteiger (2007a), Gerber (2009)
Being "values-driven" does not necessarily mean to value self-expression and autonomy. There are other values people can be driven by (loyalty, conformity, service etc.).	Arnold & Cohen (2008), Cohen, Arnold, & Gubler (2008), Gasteiger (2007a), Gerber (2009), Sargent & Domberger (2007)
There is an over-emphasis on individualism in the concept.	Arnold & Cohen (2008), Cohen, Arnold, & Gubler (2008), Forrier, Sels, & Stynen (2008), Gasteiger (2007a)
The idea of "making" someone more protean is against the very core of the concept.	Cohen, Arnold, & Gubler (2008)
Being "protean" or being "not protean" may be more than just a simple dichotomy.	Gasteiger (2007a)
Concerns regarding the empirical evidence	
There is a lack of empirical evidence for protean career orientations.	Baruch (2008), Domberger (2005), Gasteiger (2007a), Gerber (2009)
Additional concerns	
No one can be more than partly protean, all careers are somewhat informed by previous experience.	Inkson (2002)
Leading a protean career can create problems of self-definition.	Lifton (1993), Mirvis & Hall (1996)
The concept of protean career might not be universally accepted – the cultural context matters.	Gasteiger (2007a), Gerber (2009), Hall & Las Heras (2009), Martin & Butler (2000), Truty (2003)
The concept cannot yet be properly measured.	Arnold & Cohen (2008), Cohen, Arnold, & Gubler (2008), Gerber (2009)
It is unknown how variations between career stages in terms of values and needs will affect the manifestation of the protean career.	Domberger (2005)

Table 10: Concerns regarding the protean career concept

For example, Gasteiger (2007a) stressed that the dichotomization between "being protean" and "not being protean" may be too simplistic. Yet, as various authors (e.g. Arnold & Cohen, 2008; Cohen, et al., 2008; Gerber, 2009) have pointed out, it is far from clear what "being protean" actually means because, to date, "being protean" cannot be satisfactorily measured (see section 3.4). Also, it has repeatedly been cautioned (e.g. Arnold & Cohen, 2008; Forrier, et al., 2008; Gerber, 2009) that the rather normative view of the protean career is heavily rooted in American culture and its underlying norms and values. This may well limit the extent to which the protean career concept is applicable to careers outside North America. For example, in a rare empirical cross-cultural investigation of protean career orientations of students in Germany and the US, clear cultural differences were found (Gasteiger & Briscoe, 2007).

Cohen and colleagues (2008) questioned whether people can actually be made protean as Hall (2004) suggested. They argued that "making" someone protean would be against the very core of the concept, namely against acknowledging an individual as being values-driven and self-directed. Gunz et al. (2007) cautioned that protean careers may have a far-reaching impact on individuals and their personal identity. Finally, even though there are some notable exceptions (e.g. Gasteiger, 2007a), the dearth of empirical evidence of protean careers, especially outside the USA, has been highlighted (e.g. Gerber, 2009; Martin & Butler, 2000).

To sum up, on the one hand the protean career concept seems to be widely acknowledged as a valuable and helpful lens with which to examine the subjective side of individual careers. Several researchers have provided evidence of the potential benefits of the protean career perspective. On the other hand, there are also substantial concerns regarding the concept in its current form. These concerns mainly focus on problematic aspects of the protean label and, arguably more importantly, on various conceptual issues which need further refinement. For example, Sullivan and Baruch (2009) called for more empirical exploration of the protean career, such as regarding gender differences or the influence of culture.

3.3 The boundaryless career

Amongst contemporary career concepts, the boundaryless career is arguably even more frequently referred to than the protean career. After a detailed overview of the basic concept, its strengths and weaknesses are critically discussed from various points of view.

3.3.1 The boundaryless career concept

In 1994, the boundaryless career concept was described for the first time (Arthur, 1994). Two years later, Arthur and Rousseau (1996b) edited a highly influential book on the topic. The authors explained that "[...] the term boundaryless distinguishes our concept from the previous one – the 'bounded,' or organizational career. That view saw people in orderly employment arrangements achieved through vertical coordination in mainly large, stable firms" (p. 3). Boundaryless careers, however, were defined as "[…] the opposite of 'organizational careers' – careers conceived to unfold in a single employment setting" (p. 5).

As detailed in Table 11, Arthur and Rousseau (1996a) described six meanings that characterize a boundaryless career. Common to all meanings is that they emphasize an individual's independence from rather than dependence on traditional organizational career structures and principles (Arthur, 1994; Arthur & Rousseau, 1996a).

	Meanings of boundaryless career
1	• Moving across the boundaries of separate employers • Example: the typical Silicon Valley career (see Saxenian, 1996)
2	• Drawing validation and marketability from outside the present employer • Example: Academics
3	• Being sustained by external networks or information • Example: Real-estate agents
4	• Breaking traditional organizational assumptions about hierarchy and career advancement
5	• Rejecting existing career opportunities for personal or family reasons
6	• Perceiving a boundaryless future regardless of structural constraints • Perception entirely based on the career actor's individual interpretation

Table 11: Six meanings of a boundaryless career

(based on Arthur, 1994; Arthur & Rousseau, 1996a)

Even if, by definition, the boundaryless career was devised as the opposite of the organizational career, it still shares four aspects with traditional careers. According to Arthur and Rousseau (1996a) both are applicable to the entire workforce of an organization and both recognize the importance of the time dimension in careers. Also, they both acknowledge careers as a focus for interdisciplinary studies and allow a subjective, as well as an objective, perspective on careers.

Three main competencies were considered to determine career success in a boundaryless career – knowing-why, knowing-how, and knowing-whom (Arthur, DeFillippi, & Lindsay, 2008; Arthur, et al., 1999; DeFillippi & Arthur, 1994, 1996). Arthur et al. (1999, p. 122) called them the "career complements to the firm's development competencies". According to these authors, the first competency, knowing-why, is related to a person's identity, to his/her career motivation as well as to the individual's meaning of and identification with a career. It provides the motivational energy for a person. The second competency, knowing-how, constitutes an individual's career-relevant skills and job-specific knowledge. The third competency, knowing-whom, not only refers to a person's ability to liaise with others. It also encompasses his/her ability to build and maintain networks in order to gain access to expertise from other firms as well as to use them as a source of learning for one's personal career progress. Especially this third competency is believed to be increasingly important in the changing context of individual careers (Tams & Arthur, 2010). DeFillippi

and Arthur (1996) argued that an underdeveloped competency may have a negative impact on the individual's ability to use and further develop all three competencies. Table 12 contrasts the three competencies in a boundaryless and a traditional career.

Competency		Boundaryless career	Traditional career
Knowing-why	Identity is…	Employer-independent Example: "I am a software developer" instead of "I work for Microsoft"	Employer-dependent
Knowing-how	Employment context is…	Flexible Example: How to work efficiently in a changing environment	Specialized
Knowing-whom	Focus is on…	Inter-firm networks Example: Professional networks	Intra-firm networks
	Structure is…	Non-hierarchic Example: User-groups, networks of practice	Hierarchic
	Process is…	Emergent Example: Employee defines how to proceed	Prescribed

Table 12: Competency profiles of boundaryless and traditional careers
(based on DeFillippi & Arthur, 1996, p. 124)

3.3.2 Discussion of the boundaryless career concept

The boundaryless career has probably become the most frequently quoted concept in career research over the last two decades; hardly an academic paper or book in career research does not refer to this seminal concept. However, as is the case with the protean career, only a relatively small, yet growing, part of the literature has attempted to assess the concept thoroughly and critically. The following section provides an overview of the key findings in support of the concept, as well as the main areas of concern that have been raised regarding the boundaryless career.

3.3.2.1 Findings supporting the boundaryless career concept

Early on, Jones and DeFillippi (1996) described how individuals in the film industry increasingly acted as "free agents" rather than as traditional employees. Cappelli (1999a) reported examples of boundaryless careers from the investment industry. Building on such studies, Littleton et al. (2000) argued that individual enactment (Weick, 1996; Weick & Berlinger, 1989) of careers had become more important.

The relevance of the boundaryless career concept has also been reported for the IT industry. In a frequently quoted study, Saxenian (1996) described prototypical examples of boundaryless careers in the Silicon Valley. IT professionals repeatedly changed organizations, supported firm-independent networks and were more loyal to their profession than to their employers. Cappelli (1999b) reported that 44% of the jobs there were found through

employee networks as opposed to an average of 9% in the US as a whole. Their reputation amongst colleagues inside and outside their current firm was a key credential for IT professionals in the Silicon Valley. More recently, Khapova et al. (2005) examined careers of IT professionals in Europe. They found that, in line with the boundaryless career concept, IT professionals with higher professional identity were indeed more likely to seek new career opportunities. Supporting evidence of boundaryless careers was also reported by Bidwell and Briscoe (2010), who demonstrated that crossing organizational boundaries may positively affect skill development amongst IT professionals.

More generally, in line with other recent studies regarding the relevance of the boundaryless career concept in the context of international organizations (e.g. Banai & Harry, 2004; Tams & Arthur, 2007) Biemann and Braakmann (2010) highlighted the positive effects of boundary crossings on objective and (for men) subjective career success amongst German expatriates and repatriates. Crossing functional, organizational and geographical boundaries was found to be positively related to career advancement of managers (Chen, Veiga, & Powell, 2010, 2011). Other studies have provided support for the relevance of the three boundaryless career competencies. For example, based on an empirical study Colakoglu (2011) reported that the three competencies were all positively related to career autonomy and negatively related to career insecurity, which is in line with the boundaryless concept. Eby et al. (2003) found the three competencies to be important predictors of career success, as well as of perceived external and internal marketability.

Various authors (e.g. Inkson, et al., 2010; Rodrigues & Guest, 2010) have acknowledged that the boundaryless career concept has made many significant academic contributions. According to these authors, it provided a novel and appropriate model of thinking "[…] for *some* individuals, *some* organizations, and *some* industries" (Inkson, Roper, & Ganesh, 2008, p. 24). The concept has responded to changes in the outside world, and with its focus on individual agency it has provided important fresh perspectives in career research. The concept created an opportunity for linking vocational and organizational views on careers more closely and, finally, it has helped increase multidisciplinary views of careers. Becker and Haunschild (2003) also pointed out that the concept of boundaryless careers has been helpful in overcoming an overly narrow view in traditional career research. Yet, despite such positive findings, there are various areas of concern regarding the boundaryless career concept.

3.3.2.2 Concerns regarding the boundaryless career concept

The following section describes the main concerns that have been raised in the context of the boundaryless career.

Concerns regarding the "boundaryless" label

Based on Jack Welsh's, CEO of General Electrics, notion of the "boundaryless organization", the theme of the annual Academy of Management meeting in 1993 was "Managing the Boundaryless Organization". As part of that conference, one symposium was dedicated to the "boundaryless career" (Tams & Arthur, 2010). That symposium was one of the first steps in the development of the boundaryless career concept. Inkson et al. (2010, p. 8) put it like this:

> *"The label 'boundaryless' was […] chosen not by scholars seeking the most appropriate term for particular career phenomena, […] and therefore the development of research on the topic can be seen as a case of a label attracting a set of ideas rather than a set of ideas being carefully evaluated and given the best possible label."*

Because the notion of the boundaryless career has become increasingly popular in organizational psychology, its rather accidental labelling and its loose definition have had several consequences. Inkson et al. (2010) cautioned that the term "boundaryless career" may not only be inappropriate but also misleading. For example, the suffix "-less" implies "without boundaries", although the concept is mainly concerned with the crossing of existing boundaries. Also, "boundaryless career" implies that an individual's entire career is boundaryless. However, the reality might be much more complex. As has been empirically confirmed (e.g. Geffers & Hoff, 2010), many individuals experience both stable "traditional" and turbulent "boundaryless" periods over the course of their careers. Further, defining the boundaryless career as the "opposite of organizational careers" (Arthur & Rousseau, 1996a, p. 5) may also be inadequate and semantically confusing because neither "organizational" nor "career" have opposites (Inkson, et al., 2010).

The label "boundaryless career" inherently carries one more ambiguous aspect that has only been referred to by a few researchers. Gunz and colleagues (Gunz, Evans, & Jalland, 2000, 2002; Gunz, et al., 2007) provided important contributions regarding the clarification of what "boundaries" might actually mean. Boundaries in the context of careers were described as follows (Gunz, et al., 2007, pp. 472-473):

> *"If work careers are patterns of movement across a social landscape formed by the complex networks of economic society, then career boundaries are the lines on that social landscape that mark discontinuities in the patterns, points at which there are constraints on these movements. […] [A]n entire work career, that is, a sequence of career stages, involves crossing any number of career boundaries."*

However, these authors cautioned that not all career boundaries may be objectively observable, they may well only be "[...] as real as the actors experiencing or managing them make them" (Gunz, et al., 2007, p. 474). Various researchers (e.g. Cohen, et al., 2008; Gunz, et al., 2000, 2002) claimed that different kinds of boundaries exist which, for example, can be distinguished based on their level of permeability. Also, it has repeatedly been argued that careers cannot develop outside any boundaries and that the existence of boundaries is not necessarily negative for individuals (e.g. Gunz, et al., 2000; Pringle & Mallon, 2003; Sullivan, 1999). On the one hand boundaries may, indeed, limit individuals. For example, Chen et al. (2010) reported that crossing work-family boundaries may negatively affect managerial career advancement. On the other hand, boundaries may also provide individuals with a sense of stability (Gunz, et al., 2002). For example, Currie et al. (2006, p. 769) found in a case study that both in the TV and in the retail industry "[…] people actively seek boundaries and the sense of belonging, connection and engagement, and identity that these entail". Gunz and colleagues (2007, p. 490) summarized this point as follows:

> *"[T]here is no evidence thus far that [the] absence [of structure], for most people, is accompanied by anything other than a sense of dislocation, to which the response is to seek a new kind of structure and a re-creation or reorganization of career boundaries."*

There is still a lack of clarity regarding the kind of boundaries that boundaryless careers claim to transcend (Arnold & Cohen, 2008; Inkson, et al., 2010). In particular, the concept has suffered from too limited a view regarding the types of boundaries that may be crossed (e.g. Becker & Haunschild, 2003; Inkson, 2006; Sullivan, 1999; Sullivan & Arthur, 2006). It has often been interpreted very narrowly. Although the original definition included six distinct meanings (see Table 11), boundaries in the context of the boundaryless career have often been reduced to the aspect of inter-organizational mobility (Inkson, 2006; Sullivan, 1999), which does not adequately capture the initially much broader notion of what boundaryless careers may be (Inkson, et al., 2010).

Additionally, the ambiguous and broad original definition of a boundaryless career has also been seen as problematic (e.g. Arnold & Cohen, 2008; Feldman & Ng, 2007; Inkson, et al., 2010). Forrier et al. (2008) argued that the lack of conceptual precision stems from the fact that the boundaryless career had not been introduced as a construct. Rather, it was increasingly treated as such and eventually interpreted in various ways. Feldman and Ng (2007) concluded that the concept has remained imprecise and that it is not clear what exactly it refers to. They contended that the boundaryless career concept comprises two major components – the permeability of institutional labour markets and the plasticity of individuals' career paths. In line with Cohen and colleagues (2008), who cautioned that the metaphorical strength of the boundaryless career concept could be undermined if used too sloppily, Feldman and Ng (2007, p. 368) summarized the conceptual confusion about the boundaryless career as follows:

> *"Ironically, during the past decade, the construct of boundaryless careers has become somewhat boundaryless itself."*

Furthermore, Arnold and Cohen (2008) challenged the predominant view that traditional careers only happen within a single organizational context and that not remaining within a particular organizational context automatically equals being boundaryless. An individual may well be highly mobile within one single organization (e.g. on an expatriate assignment). They pointed out that the dichotomization of organizational and boundaryless careers leads to simplistic analyses which may not accurately account for the complex interaction between individuals and organizations. Also, they questioned whether boundaryless and traditional careers can really be seen as opposites. Inkson et al. (2008) criticized the implicit tension between boundaryless and organizational careers in which a boundaryless career is perceived as "new" and an organizational career as "old" or "traditional", despite a lack of corresponding empirical support.

Few academics have gone as far as Sullivan (1999, p. 477), who called the term boundaryless career a "misnomer". However, several authors have argued that there might be more appropriate terms to capture the underlying notion of the concept (e.g. Briscoe, Gasteiger, & Derr, 2005; Zeitz, Blau, & Fertig, 2009). For example, "inter-organizational career" (Inkson, et al., 2010) or "boundary-crossing career" (Inkson, 2006) have been suggested as alternatives. Arthur (2008) acknowledged that the latter might well refer to the meaning he initially wanted to convey. In response to the increasingly critical discussion of the boundaryless career concept, he argued that the term may have become more than what it was initially meant to be (Arthur, 2008, p. 179):

> *"One issue […] is whether the term boundaryless career […] is expected to simply encourage a range of fresh perspectives or to serve as a specific construct for further research [...]. My own view is that it is sufficient to see the term as one that encourages fresh perspectives. Each perspective can then be developed through the adoption of particular constructs and methodologies to underlie separate research initiatives about shifting identities, work and family issues, careers as repositories of knowledge, or whatever."*

This is an important statement to understand the meaning of the boundaryless career concept. However, by neglecting calls for conceptual clarification for a long time, heralds of the boundaryless career may, arguably, have at least contributed towards the widespread and sometimes inappropriate usage of the term.

Concerns about the academic impact

Inkson and colleagues (Inkson, et al., 2010; Inkson, et al., 2008; Roper, et al., 2010) reported that only a few papers on the boundaryless career can be found outside the organizational career research community. Articles on the boundaryless (as well as the protean) career have almost exclusively been published in scholarly journals. The popularity of the concept seems to be restricted mainly to academics at business schools with an interest in careers. Around 95% of the authors who have written about the topic were affiliated with a business school (Inkson, et al., 2008), which may lead to a biased view of the concept (Inkson, et al., 2010). With only few notable exceptions (e.g. Harrison, 2006), the concept seems to be missing in writing on vocational career choice and seems not to have been influential amongst practitioners (e.g. career counsellors).

Such findings are in line with the view that little cross-fertilization between organizational psychology and other disciplines has taken place so far (see section 3.1.1). Based on their findings, Inkson et al. (2008, p. 14) concluded:

> *"[The] boundaryless careers discussion may be little more than a series of self-referential or self-inflating conversation[s] among a group of scholars, whose enthusiasm may be considerable, but whose influence and numbers are small."*

However, Inkson and colleagues conceded that other academic disciplines may well debate related issues. They might just use a different terminology to describe similar phenomena.

Concerns regarding the emphasis on personal agency

According to Inkson et al. (2010), vocational psychology has traditionally seen individuals as their own agents and the sociological perspective has assumed that wider institutional forces (e.g. social class, gender) place major constraints on individual actors. The organizational psychology perspective has traditionally been concerned with organizational control of careers (e.g. by using incentives). Yet, boundaryless career enthusiasts tend to neglect institutional constraints on careers (Inkson, et al., 2010). Several authors (e.g. Arnold & Cohen, 2008; Forrier, et al., 2008; Forrier, Sels, & Stynen, 2009) have pointed out that in the boundaryless career concept an exaggerated degree of autonomy is attributed to the individual whilst the institutional influence on careers is downplayed. These authors have argued that the boundaryless career concept is often presented in a very normative, highly positive way. It has frequently been portrayed as something good and desirable an individual should strive for, thereby strongly emphasizing the role of personal agency. According to Inkson et al. (2010), whether or not careers are a product of institutional frameworks or of individual agency is an unresolved point in the academic discussion (see section 3.1.1). In line with Roper et al. (2010), they argued that such views may be rooted in the neo-liberal ideology that was prevalent when the concept was developed. The neo-liberal point of view might have led to an underestimation of the organizational resources an individual can draw from for his/her career, as well as to an overestimation of the degrees of freedom an individual may have.

The question of agency, however, may not be equally relevant to all groups of employees (Inkson, et al., 2010). The research focus so far has mainly been on groups with scarce skills who, in general, are able to exert a reasonable degree of agency, autonomy and mobility (e.g. managers, highly skilled professionals). Often, it has been implicitly assumed that developing the right career competencies allows individuals to survive and thrive in the “new world of careers” (Forrier, et al., 2008; Zeitz, et al., 2009). Such considerations are in line with Hirsch and Shanley (1996). They argued that the boundaryless career is especially promising for highly talented and mobile individuals who perceive the new structures as advantageous. However, especially individuals who, due a lack of skills, are bound to a particular organization may suffer from negative consequences. Such employees might perceive a boundaryless career as a much bigger struggle and as a barrier to personal development (Larsen, 2002). Also, some people may not adopt a boundaryless career by free will but might be involuntarily forced into it (Inkson, et al., 2010; Zeitz, et al., 2009). From a boundaryless career perspective, academic advice for such individuals

has often been limited to statements that they should help themselves rather than rely on organizational support (Inkson, et al., 2010). The potential lack of agency of those with fewer skills is hardly reflected in the boundaryless career concept.

The overall emphasis on individual agency in the concept may have led to a decreased interest in organizational careers and organizational support of careers. Also, the low emphasis on organizational influence may potentially undermine the concept's acceptance in companies as it downplays managers' role (Inkson, et al., 2010). However, Zeitz et al. (2009) noted how important organizational support for individuals may be even today. They argued that the contemporary work environment is often perceived as stressful both by highly qualified and by low-skilled individuals. Institutions may well provide support to reduce potentially stressful aspects for employees (see section 4.2). Furthermore, they claimed (p. 388):

> *"'Boundaryless' implies escape from nine-to-five schedules, narrow work rules, bosses' orders, office politics, and work that has long since become boring. […] This is an appealing vision. But the absence of constraint alone does not bring liberation."*

Zeitz et al. (2009) suggested an interesting distinction between two types of freedom. Negative freedom was defined as the "absence of constraint", whilst positive freedom was seen as "being able to realize one's 'real self'" (p. 388). Based on this distinction, they suggested that highly skilled individuals are much more likely to experience positive freedom. Individuals with fewer skills, though, may "[…] have freedom in the negative sense (no one is interfering in their work lives), but lack significant positive freedom and thus are less likely to achieve career success" (p. 388). However, having more positive freedom does not necessarily translate into being more mobile. In Hong Kong, Pang et al. (2008) found that job changes in low-skilled workers' careers were often caused by economic necessity rather than by free will. Workers with high skills, though, tended to have more stable career patterns and were less mobile than workers with less education.

There is one more problematic aspect here. Saxenian (1996) provided a valuable case study of high inter-organizational mobility. However, her report also illustrated that being boundaryless in one area may lead to less crossing of other boundaries (Inkson, 2006; Loogma, et al., 2004). For example, whilst those Silicon Valley IT professionals, indeed, had high inter-organizational mobility, their geographical mobility was very limited. Hardly anyone relocated when they changed jobs (Brocklehurst, 2003). Such a combina-

tion of high inter-organizational and low geographical mobility was recently confirmed in a longitudinal study of IT professionals in the USA (Bidwell & Briscoe, 2010).

In this line of thought, Hirsch and Shanley (1996, p. 227) went even further and claimed that "[e]liminating boundaries will not render individuals free, but instead may increase external constraints on individual actions and their unpredictability". In their view, a boundaryless career may lead to less instead of more freedom when an individual increasingly becomes subject to changes in the external and internal labour markets which are beyond his/her control. Dany (2003) supported this view with evidence of French managers. The elimination of some boundaries created new ones for those managers and rendered them less free. In her study, the weakening of organizational boundaries let many managers strive even more for objective career success criteria. Building on such findings, Sommerlund and Boutaiba (2007, p. 535) critically remarked:

> *"As enchanting as this seems, the notion of a boundaryless career, heavily preoccupied with growth and learning, has incited people to become the kind of reflective beings who constantly monitor and judge their own moves with the aim of constantly improving [...]. This is not surveillance and control from the top or the centre, but a sophisticated panopticon [...] extended in time rather than space, which performs a subtler and more efficient control from within – a control that we refer to as freedom."*

In conclusion, there are substantial concerns regarding the degree of personal freedom and the potential effects of personal agency in boundaryless careers.

Concerns regarding the normalization of the concept

It has been pointed out (Arnold & Cohen, 2008) that many authors rather uncritically and often without providing further evidence refer to the boundaryless career concept as if it was a given fact. In such papers (e.g. Banai & Harry, 2004; Colakoglu, 2011; Sullivan & Baruch, 2009), the boundaryless career is presented as something valid, prevalent and inevitable, sometimes even as an inescapable contextual condition (Inkson, et al., 2010).

Inkson et al. (2010, p. 20) called this "normalization", which they defined as the tendency "to represent something as being normal to the extent that audiences commonly regard such representation as fact". In the same context, Arnold and Cohen (2008) used the term "reification" to describe how the boundaryless career has often been taken for granted even if this may not have been intended by its authors (Forrier, et al., 2008). Inkson et al. (2008, p. 18) put it like this:

> *"The boundaryless career, in these commentaries, is not good or bad, it just is, and it is new and ubiquitous. The rhetoric is low-key, the calm, academic expression of normality. The implicit message for academics, for managers and for career actors, is 'get used to it'."*

Considering potential reasons for such a view of the boundaryless career, Inkson et al. (2008) highlighted that the introduction of the concept coincided with the rise of neo-liberalism in Western economies. From a neo-liberal point of view, they argued, the change from traditional to boundaryless careers may well be seen as straightforward and convincing. About 65% of all the papers analyzed by Inkson and colleagues had been written in the USA, New Zealand or the United Kingdom – all countries that are associated with neo-liberal politics.

Zeitz et al. (2009) also described how the boundaryless career concept has sometimes been presented as an economic necessity required by new business models. According to Inkson et al. (2010), such a stance towards the boundaryless career implies that boundaryless careers are the prevailing condition in a new era that is "antithetical to a previous organizational careers era" (p. 21) and that, as a consequence, the boundaryless career "is accepted unproblematically as a given, and inescapable and pervasive environmental condition" (p. 22). They questioned whether the popularity of the concept amongst career researchers really is a reflection of the current state of careers or whether it is rather a "follow-the-leader" (p. 27) phenomenon.

Concerns regarding the empirical evidence of the concept

Various authors (e.g. Lazarova & Taylor, 2009; Valcour & Tolbert, 2003; Vinkenburg & Weber, 2009; Zaleska & De Menezes, 2007) noted that there are hardly any empirical studies supporting the claims of the prevalence of boundaryless careers. It has repeatedly been argued (e.g. Inkson, et al., 2008; Pringle & Mallon, 2003) that most studies taking a normalized point of view either report that circumstances of careers have changed but fail to provide evidence about corresponding changes in individuals' careers. Alternatively, several studies just refer to other research making the same assumptions or are based on case studies in highly specialized contexts, such as IT firms in the Silicon Valley or the American film industry. Based on a large set of data in the USA, Stevens (2005) reported that, in 1969, tenure in the longest job amongst men aged between 58 and 62 averaged 21.9 years. More than 30 years later, in 2002, the corresponding figure was 21.4 years. In 1969 as well as in 2002, slightly more than half of the men who retired had been with a single employer for at least 20 years. Other studies provided similar results with long tenure and stable

work arrangements from the USA (Jacoby, 1999), the UK (Booth, Francesconi, & Garcia-Serrano, 1999; Burgess & Rees, 1996, 1998), Germany (Kattenbach, et al., 2011), and Switzerland (Henneberger & Sousa-Poza, 2007). Recently, Rodrigues and Guest (2010) supported this view by providing solid statistical evidence from the USA, Japan and Europe; they showed that the average job tenure has not changed much over the past two decades. Based on such data, claims of a sudden and widespread move from traditional to boundaryless careers seem widely exaggerated (Inkson, et al., 2010; Inkson, et al., 2008).

Nonetheless, interpreting tenure data is difficult and controversial (Bureau of Labor Statistics, 2010) and requires much caution. For example, a recent report by the Bureau of Labor Statistics (2010) indicated a median tenure of only 4.4 years in the USA in January 2010, which was slightly more than the median tenure of 4.1 years in January 2008. This seems to be in stark contrast to the higher figures presented in the studies above. One plausible explanation to reconcile both findings is that tenure largely depends on how it is calculated. As Burgess and Rees (1996) demonstrated, a few individuals with frequent job changes may greatly affect overall tenure. Based on their data, the authors argued that "most jobs are short, but most workers are in long jobs" (p. 337). This means that the number of short-term jobs may, indeed, have increased, but that only a minority of individuals actually work in such jobs. Rodrigues and Guest's (2010) findings seem to support this view. They reported that even though the average tenure has remained stable, some groups of employees, especially disadvantaged and young workers, may well have encountered increased job insecurity. Such groups of highly mobile workers may significantly affect overall tenure even if most individuals do not frequently change jobs, as claimed by Burgess and Rees (1996).

With regard to the discussion above, Inkson et al. (2010, p. 26) argued in conclusion:

> *"[...] that organizational careers never disappeared, that mobile careers were common long before the 1990s and that any move from organizational to boundaryless careers in recent years has probably been quite modest."*

They conceded, however, that subjectively felt boundarylessness may have increased over time. Yet, this can neither be measured nor confirmed in retrospect.

Additional concerns

Other concerns about the boundaryless career concept focus on its potential lack of intercultural transferability from the US context to other countries (e.g. Forrier, et al., 2008), on gender differences (e.g. Valcour & Tolbert, 2003), on women and minorities (e.g. Pringle

& Mallon, 2003) or on issues regarding the measurement of the boundaryless career (see section 3.4). Table 13 provides an overview of the main critical arguments in the context of boundaryless careers.

Concerns regarding the boundaryless career concept	Authors
Concerns regarding the "boundaryless" label	
The "boundaryless" metaphor may be inadequate or even misleading for the phenomena it describes.	Inkson (2006), Inkson, Ganesh, Roper, & Gunz (2010), Sullivan (1999)
Other terms (e.g. "boundary-crossing" or "inter-organizational career") would more adequately define the underlying meaning of the concept.	Inkson (2006), Inkson (2011), Inkson, Ganesh, Roper, & Gunz (2010), Zeitz, Blau, & Fertig (2009)
The concept needs further refinement.	Brocklehurst (2003), Cohen, Arnold, & Gubler (2008), Feldman & Ng (2007), Forrier, Sels, & Stynen (2008), Inkson, Ganesh, Roper, & Gunz (2010), Lazarova & Taylor (2009), Pringle & Mallon (2003), Rodrigues & Guest (2010), Tams & Arthur (2010)
The original model highlights six distinct meanings and three key competencies, but the boundaryless career is often reduced to inter-organizational mobility.	Becker & Haunschild (2003), Briscoe, Gasteiger, & Derr (2005), Cohen, Arnold, & Gubler (2008), Forrier, Sels, & Stynen (2008), Inkson (2006), Inkson (2011), Inkson, Ganesh, Roper, & Gunz (2010), Inkson, Roper, & Ganesh (2008), Lazarova & Taylor (2009), Rodrigues & Guest (2010), Sullivan (1999), Sullivan & Arthur (2006)
Organizational careers do not necessarily have to happen within a single organizational context – not to remain within an organizational context does not automatically equal "boundarylessness".	Arnold & Cohen (2008), Brocklehurst (2003), Cohen, Arnold, & Gubler (2008), Inkson, Ganesh, Roper, & Gunz (2010), Smith-Ruig (2008)
Constant role redefinition can create boundaryless careers within one single organization.	Inkson (2011), Södergren (2002)
The dichotomization of "organizational" and "boundaryless" careers leads to simplistic analyses which do not account for the complex interaction between organizations and individuals.	Arnold & Cohen (2008), Cohen, Arnold, & Gubler (2008), Currie, Tempest, & Starkey (2006), Inkson (2011), Inkson, Ganesh, Roper, & Gunz (2010), Inkson, Roper, & Ganesh (2008), King, Burke, & Pemberton (2005), Uenoyama & Misaki (2005)
Boundaryless and organizational careers do not necessarily have to be seen as opposites.	Arnold & Cohen (2008), Cohen, Arnold, & Gubler (2008), Sommerlund & Boutaiba (2007), Zaleska & De Menezes (2007)
For most individuals, various types of career boundaries exist and have to be acknowledged.	Birkett (2011), Briscoe, Gasteiger, & Derr (2005), Brocklehurst (2003), Cohen, Arnold, & Gubler (2008), Currie, Tempest, & Starkey (2006), Donnelly (2009), Feldman & Bolino (1996), Forrier, Sels, & Stynen (2008, 2009), Gunz, Evans, & Jalland (2000, 2002), Gunz, Peiperl, & Tzabbar (2007), Haas, Keinert, Koeszegi, & Zedlacher (2011), Inkson (2011), Inkson, Ganesh, Roper, & Gunz (2010), Jacoby (1999), Kels (2011), King, Burke, & Pemberton (2005), Newell, Pan, Galliers, & Huang (2001), Parker (2011), Pringle & Mallon (2003), Rodrigues & Guest (2010), Roper, Ganesh, & Inkson (2010), Sommerlund & Boutaiba (2007), Tams & Arthur (2010), Tschopp & Wrzesniewski (2011), Valcour & Tolbert (2003), Yanar, Toh, & Gunz (2011), Zuckerman, Kim, Ukanwa, & von Rittmann (2003)
The concept has been used in so many ways and contexts that it is difficult to determine what it actually refers to.	Feldman & Ng (2007), Inkson, Ganesh, Roper, & Gunz (2010), Lazarova & Taylor (2009)

Concerns regarding the boundaryless career concept	Authors
"Boundaryless career" implies that the entire career of an individual may be boundaryless. Yet, often only some phases within a career will follow such a pattern.	Inkson (2011), Inkson, Ganesh, Roper, & Gunz (2010)
The boundaryless career concept is defined ambiguously.	Inkson, Ganesh, Roper, & Gunz (2010), Rodrigues & Guest (2010)
There is much ambiguity regarding the boundaries to be crossed in a "boundaryless career".	Inkson, Ganesh, Roper, & Gunz (2010)
It is not clear whether boundaryless careers are a category or a discrete dimension.	Inkson, Ganesh, Roper, & Gunz (2010)
The popularity of the concept may be based on a "follow-the-leader" phenomenon amongst academics rather than on its reflection of current career phenomena.	Inkson, Ganesh, Roper, & Gunz (2010)
Concerns regarding the academic impact	
The boundaryless career concept is mainly popular amongst business schools, which may lead to a biased view of the concept.	Inkson, Ganesh, Roper, & Gunz (2010), Roper, Ganesh, & Inkson (2010)
So far, the boundaryless career concept has had little impact on related fields such as vocational psychology or career practitioners.	Inkson, Ganesh, Roper, & Gunz (2010), Inkson, Roper, & Ganesh (2008)
Concerns regarding the emphasis on personal agency	
There is an over-emphasis on individual agency in the concept.	Birkett (2011), Forrier, Sels, & Stynen (2008, 2009), Inkson (2011), Inkson, Ganesh, Roper, & Gunz (2010), Rodrigues & Guest (2010), Roper, Ganesh, & Inkson (2010), Zeitz, Blau, & Fertig (2009)
The role and influence of organizations on individual careers may be neglected due to the strong emphasis on individual agency.	Inkson, Ganesh, Roper, & Gunz (2010), Lazarova & Taylor (2009), Roper, Ganesh, & Inkson (2010), Zeitz, Blau, & Fertig (2009)
Gatekeepers play an important role in controlling the potential freedom of career mobility.	King, Burke, & Pemberton (2005)
The concept has developed some limitations on its own, such as the focus on inter-organizational mobility and the emphasis on individuals' influence on careers.	Becker & Haunschild (2003), Inkson (2011), Lazarova & Taylor (2009)
Boundaries are not necessarily bad; they can have very positive effects on individuals and organizations. The loss of boundaries can have a negative impact.	Colakoglu (2011), Currie, Tempest, & Starkey (2006), Gunz, Evans, & Jalland (2000, 2002), Gunz, Peiperl, & Tzabbar (2007), King, Burke, & Pemberton (2005), Pringle & Mallon (2003), Sommerlund & Boutaiba (2007), Sullivan (1999), Zeitz, Blau, & Fertig (2009)
The reduction of boundaries can lead to less rather than more freedom.	Arnold & Cohen (2008), Currie, Tempest, & Starkey (2006), Dany (2003), Hirsch & Shanley (1996), Inkson (2006), Larsen (2002), Loogma, Ümarik, & Vilu (2004), Sommerlund & Boutaiba (2007), Zeitz, Blau, & Fertig (2009)
Boundaryless careers may benefit those with skills in demand at the expense of those on the margins of the workforce.	Inkson (2007), Inkson, Ganesh, Roper, & Gunz (2010), Roper, Ganesh, & Inkson (2010), Zeitz, Blau, & Fertig (2009)
Boundaryless careers benefit those who are proactive, flexible and adaptable to new experiences.	Currie, Tempest, & Starkey (2006), Eby, Butts, & Lockwood (2003), Gasteiger (2007a)
Boundaryless careers mainly bring about more negative freedom (i.e. the absence of constraint) than positive freedom (i.e. being able to realize one's 'real self'), especially for those with fewer skills.	Zeitz, Blau, & Fertig (2009)

Concerns regarding the boundaryless career concept	Authors
Concerns regarding the normalization of the concept	
The boundaryless career concept has to be acknowledged in the (neo-liberal) political and cultural context in which it was developed.	Cohen, Arnold, & Gubler (2008), Forrier, Sels, & Stynen (2008), Inkson, Ganesh, Roper, & Gunz (2010), Inkson, Roper, & Ganesh (2008), Roper, Ganesh, & Inkson (2010), Zeitz, Blau, & Fertig (2009)
The boundaryless career concept is often used in a highly normative way.	Forrier, Sels, & Stynen (2008), Inkson, Ganesh, Roper, & Gunz (2010), Inkson, Roper, & Ganesh (2008), Roper, Ganesh, & Inkson (2010)
The boundaryless concept is too often "normalized" and taken as a "given" rather than critically examined.	Inkson (2011), Inkson, Ganesh, Roper, & Gunz (2010), Inkson, Roper, & Ganesh (2008), Roper, Ganesh, & Inkson (2010)
Concerns regarding the empirical evidence	
Normalization of the concept implies that boundaryless careers have suddenly and on a large scale become the dominant form of careers – but there is little empirical support for that view.	Inkson (2011), Inkson, Ganesh, Roper, & Gunz (2010)
There is a lack of empirical data on boundaryless careers.	Chen, Veiga, & Powell (2010), Gunz, Evans, & Jalland (2000), Inkson (2011), Inkson, Ganesh, Roper, & Gunz (2010), Inkson, Roper, & Ganesh (2008), Lazarova & Taylor (2009), Pringle & Mallon (2003), Rodrigues & Guest (2010), Segers et al. (2008), Valcour & Tolbert (2003), Vinkenburg & Weber (2009), Zaleska & De Menezes (2007)
The boundaryless career is far less common than its authors claim.	Inkson, Ganesh, Roper, & Gunz (2010), Inkson, Roper, & Ganesh (2008)
Additional concerns	
The concept is not (yet) globally applicable for everybody, there is a lack of transferability in it.	Forrier, Sels, & Stynen (2008), Pringle & Mallon (2003), Zaleska & De Menezes (2007)
There is little cross-fertilization from/to other closely related research topics or to practitioners.	Forrier, Sels, & Stynen (2008), Inkson, Ganesh, Roper, & Gunz (2010), Inkson, Roper, & Ganesh (2008)
There are too many positive connotations with this concept. It has negative aspects, too.	Feldman & Ng (2007), Lazarova & Taylor (2009), Zeitz, Blau, & Fertig (2009)
Some aspects of the boundaryless career much more refer to career tactics.	Feldman & Ng (2007)
The concept lacks a gender-specific lens.	Haas, Keinert, Koeszegi, & Zedlacher (2011)
Boundaryless careers have been studied primarily in the context of managers or highly skilled professionals without properly justifying this bias.	Roper, Ganesh, & Inkson (2010)

Table 13: Concerns regarding the boundaryless career concept

In summary, as is the case with the protean career, even critical authors acknowledge the contributions of the boundaryless career concept. It is widely perceived as a useful tool to examine and explain aspects of individual careers. In particular, it provides a lens to explore individual career mobility, both at an objectively observable and a subjectively perceived level. However, as shown in Table 13, there are substantial concerns regarding various aspects of the boundaryless career that need to be addressed in order to capitalize fully on its potential benefits. Conceptual adaptability may also be required to preserve the future relevance of the boundaryless career concept, as Tams and Arthur (2010, p. 642) cautioned:

> *"[T]he future relevance of the boundaryless career perspective will depend on its openness to the challenges of careers within an inherently dynamic, uncertain, and complex global society."*

Several suggestions on how to develop the boundaryless career concept further have been made so far.

Potential ways forward

Various potential enhancements of the concept have been provided in order to build on its inherent strengths further. Most of these suggestions either point towards deepening or broadening the concept in its current form. For example, Feldman et al. (2007) described a differentiation into objective and subjective boundarylessness as a way forward. Lazarova and Taylor (2009) delineated four variants of boundaryless careers, linked them to social capital and described the potential impact on organizational performance. Rodrigues and Guest (2010) proposed that future research on the boundaryless career should go beyond the currently strong organizational focus. Rather, it should identify additional relevant career boundaries for individual careers. Tams and Arthur (2010) suggested that the focus should be shifted away from particular forms of boundaryless careers towards studying career dynamics and, in particular, the various roles of career agency therein.

Roper et al. (2010) cautioned that more attention needs to be paid to the ideological climate the concept is rooted in, as well as the potential effects on the objectivity that arises thereof. Further, Inkson et al. (2010) asked for more recognition of the heterogeneity of individual careers and for more focus on an individual's momentary career behaviour than on his/her entire career. Finally, in line with Sullivan and Baruch (2009), they called for more empirical research regarding various aspects of the boundaryless career, such as individual differences in crossing boundaries.

3.4 Operationalizations of the protean and the boundaryless career

As shown above, the protean and the boundaryless career concept need further empirical examination. In order to collect empirical data on the two concepts, it is necessary to operationalize them thoroughly. This requires further refinement of both concepts. The following section covers the latest conceptual developments aimed at clarifying the notion of protean and boundaryless careers. In particular, a model by Briscoe and Hall (2006a) is presented that combines the two concepts in one single matrix. In addition, existing operationalizations of the two concepts, as well as their potential shortcomings, are discussed critically.

3.4.1 Reconceptualization of the protean and the boundaryless career concepts

The protean and the boundaryless career concepts share several similarities. Both were initially presented as clear antitheses to prevalent views on careers (Inkson, 2006). They were both developed in the USA and are therefore likely to reflect American values, where mobility is more widespread and adherence to traditions lower than elsewhere (Hirsch & Shanley, 1996; Lifton, 1993). Also, there is a strong emphasis on change in the concepts. They both highlight the importance of networking in the contemporary workplace (Arthur & Rousseau, 1996a; Hall, 1996), and both of them are often reduced to a narrower view than what they were originally meant to convey. Also, the protean and the boundaryless career concepts have often been referred to loosely, sometimes even by their authors (e.g. Hall, et al., 2002; Khapova, et al., 2005; Mirvis & Hall, 1994). Such lack of clarity may have potentially increased the conceptual confusion about protean and boundaryless careers. Indeed, many researchers have not clearly differentiated between the two concepts (Forrier, et al., 2008). Various articles can be found in which boundaryless and protean careers are narrowly or superficially interpreted or even simply used as synonyms (e.g. Dütschke, Boerner, & Appel, 2007; Joseph, Ang, & Slaughter, 2005; Leiba O'Sullivan, 2002; Reitman & Schneer, 2003; Smith-Ruig, 2008; Truty, 2003). Acknowledging that the two concepts have often been used interchangeably (Briscoe & Hall, 2006b), a few authors have attempted to reconceptualize both of them.

Sullivan and Arthur (2006) suggested that the boundaryless career concept may be portrayed along two dimensions, “physical mobility” and “psychological mobility”. These dimensions represent various degrees of career mobility an individual may have between successive employment situations (Sullivan & Baruch, 2009). They defined physical (objective) mobility as “[…] actual movement between jobs, firms, occupations, and countries […]” and psychological (subjective) mobility as “[…] the capacity to move as seen through the mind of the career actor […]” (Sullivan & Arthur, 2006, p. 21). In theory, an individual may show high or low degrees of mobility on either dimension. Sullivan and Arthur (2006) summarized the resulting four potential career profiles in a matrix.

In line with previous suggestions to portray the protean career along two dimensions (Hall, 2004) and based on the original protean metacompetencies (Hall, 2002), Briscoe and Hall (2006a) redefined the protean career along two dimensions which they called “values-driven” and “self-directed”. These two dimensions were also presented in a matrix with four potential career profiles.

Briscoe and Hall (2006a) suggested a combination of these two matrix structures and the four boundaryless and protean dimensions, which resulted in a table with sixteen cells. According to Briscoe and Hall (2006a), combining the protean and boundaryless dimensions provides a more precise picture of the variety of contemporary career profiles. In a deliberately subjective assessment, they assumed that only eight of the sixteen potential career profiles would be likely to occur in reality. They considered the eight profiles to be "[…] hybrids between protean and boundaryless careers and archetypes of likely career combinations" (p. 10) and provided a description of the characteristics and development challenges for each of them. Also, they gave each of the eight profiles a metaphorical label, as shown in Table 14.

			Protean career dimensions				
			Values-driven	Low	High	Low	High
			Self-directed	Low	Low	High	High
Boundaryless career dimensions	Physical mobility	Psychological mobility					
	Low	Low		"Lost / trapped"	"Fortressed"	-	-
	High	Low		"Wanderer"	-	-	-
	Low	High		-	"Idealist"	"Organization man/woman"	"Solid citizen"
	High	High		-	-	"Hired gun"	"Protean career architect"

Table 14: Combined protean and boundaryless career profiles
(based on Briscoe & Hall, 2006a)

Such an attempt to combine both concepts has several benefits. The matrix with its four underlying dimensions allows for a potentially clearer distinction between the protean and the boundaryless career. This addresses the lack of conceptual differentiation between them, their often synonymous usage and the reduction of each career concept to only one predominant interpretation. Also, Briscoe and Hall presented a variety of potential career profiles. This was a valuable step forward, given the previous sometimes narrow and exclusive focus on protean and boundaryless careers (Inkson, et al., 2008).

However, the suggested approach also has some weaknesses. The matrix still conveys a strong normative tone. For instance, the "protean career architect" is portrayed as the most

desirable position whereas an individual in the "lost/trapped" field is categorized as such because of his/her "'passivity and inability to see possibilities', which is further described as 'a condition', evocative of an illness." (Inkson, et al., 2008, p. 23). The new approach is still full of inherent terminological ambiguity. For example, what exactly is "psychological mobility"? What exactly is the difference between "high" and "low" self-directedness? What kind of values are referred to in the term "values-driven"? Also, the metaphorical labels seem arbitrary as they do not lend themselves to an intuitive and immediate understanding of what is meant with each of them. Briscoe and Hall (2006a, p. 15) conceded:

> *"[F]ew if any metaphors perfectly encapsulate the phenomena they hope to symbolize, and ours are no exception. However, metaphors seem particularly well-suited to introducing new stories and establishing new connections between career theory and experience in ways not possible at this time using more clinical and exact constructs."*

Despite the admittedly strong potential explanatory power of metaphors, there remains a lack of conceptual clarity. Also, the matrix still needs to be examined thoroughly based on an operationalization that is solidly anchored in protean and boundaryless theory. To date, hardly any empirical evidence exists regarding that matrix, its underlying dimensions and the prevalence of the eight suggested profiles. Based on a large database of motivation surveys from all across Europe, Segers et al. (2008) empirically examined the matrix. They found four types of career orientations they called – in reference to the original matrix – "solid citizen", "trapped/lost", "hired gun/hired hand" and "wanderer" (Segers, et al., 2010). This study made an important contribution by providing rare empirical data for both career concepts. To date, it has been the only published attempt to validate Briscoe and Hall's matrix empirically.

3.4.2 Existing operationalizations and measures

To date, several attempts have been made to operationalize and measure the protean and the boundaryless career concepts. Briscoe and colleagues (Briscoe & Hall, 2006a; Briscoe, Hall, & Frautschy DeMuth, 2006) have provided the most detailed work in this area.

3.4.2.1 Briscoe and colleagues' operationalization and measure

Briscoe et al. (Briscoe & Hall, 2006a; Briscoe, et al., 2006) provided a helpful suggestion how the protean and the boundaryless career may be operationalized. They also presented two scales for measuring an individual's protean or boundaryless career orientation. The protean scale built on an earlier version by Hall (see Mintz, 2003) whilst the boundaryless scale was newly developed. The proposed scales were tested in three initial studies with

MBA students (Briscoe, et al., 2006). These studies, as well as further research (Briscoe & Finkelstein, 2009), suggested a reasonable degree of reliability and validity for these measures and that "[…] the protean and boundaryless career attitudes scales measure distinct yet related constructs" (Briscoe, et al., 2006, p. 44).

One key finding of these early studies was that mobility did not seem to correlate with either a protean or boundaryless mindset (Briscoe & Hall, 2006a; Briscoe, et al., 2006). This supported Briscoe et al.'s (2005, p. 29) earlier notion that, for example, being boundaryless may be "[…] a state of mind in addition to potentially a physical career condition". Segers et al. (2008) provided empirical evidence for this view that having a particular career orientation does not necessarily translate into actual job mobility. With regard to the protean career, Hall and Las Heras (2009, pp. 186-187) argued as follows:

> *"The fact that a person might have a protean career orientation, however, does not make any assumptions about organizational membership or inter-firm mobility. […] It only means that the choices persons make are internally driven by their own intentions and values."*

Also, in a later study, Briscoe and Finkelstein (2009) found that having either a protean or boundaryless orientation did not necessarily result in less commitment to the organization. However, mobility preferences were negatively correlated with commitment. The authors therefore concluded (p. 254):

> *"Because of the still emerging nature of new career structures and attitudes, stereotypes of overly mobile employees [have] consistently been coupled with protean and boundaryless attitudes and by extension organizational commitment. This seems unfounded now in retrospect."*

Such findings support the view that both concepts may often have been looked at in a too simplistic way (Inkson, 2006) and that they have been wrongly reduced to synonyms of a preference for job mobility (Briscoe, et al., 2006). To date, the 27 item scale developed by Briscoe et al. (2006) is the only one that has caught wider academic attention and has been applied by other researchers (e.g. Gasteiger, 2007a). Yet, Inkson et al. (2010, p. 13) cautioned that "[i]mplicitly […], such measures imply characterization not of the whole career, but of subjective career attitudes at a particular point in time". Also, Arnold and Cohen (2008) pointed to the contradiction between the vague description of the concepts and attempts precisely to measure them. Gerber (2009) criticized that the existing measures may not allow for adequately capturing types of careers that do not follow protean or boundaryless dimensions.

Discussion of Briscoe and Hall's protean career operationalization

For the protean career, there are two main areas of concern regarding the way the initial concept was operationalized. First, as shown above, Briscoe and Hall (2006a) suggested that the protean career orientation should be measured along the two dimensions "values-driven" and "self-directed". They (p. 8) defined the two terms as a career in which the person is:

> *"(1) values-driven in the sense that the person's internal values provide the guidance and measure of success for the individual's career; and*
>
> *(2) self-directed in personal career management – having the ability to be adaptive in terms of performance and learning demands."*

Based on this definition, Briscoe et al. (2006, p. 45) used the items shown in Table 15 to capture a protean career orientation.

No.	Item (Briscoe, et al., 2006)	Dimension
1	When development opportunities have not been offered by my company, I've sought them out on my own.	Self-directed
2	I am responsible for my success or failure in my career.	Self-directed
3	Overall, I have a very independent, self-directed career.	Self-directed
4	Freedom to choose my own career path is one of my most important values.	Self-directed
5	I am in charge of my own career.	Self-directed
6	Ultimately, I depend upon myself to move my career forward.	Self-directed
7	Where my career is concerned, I am very much "my own person".	Self-directed
8	In the past I have relied more on myself than others to find a new job when necessary.	Self-directed
9	I navigate my own career, based on my personal priorities, as opposed to my employer's priorities.	Values-driven
10	It doesn't matter much to me how other people evaluate the choices I make in my career.	Values-driven
11	What's most important to me is how I feel about my career success, not how other people feel about it.	Values-driven
12	I'll follow my own conscience if my company asks me to do something that goes against my values.	Values-driven
13	What I think about what is right in my career is more important to me than what my company thinks.	Values-driven
14	In the past I have sided with my own values when the company has asked me to do something I don't agree with.	Values-driven

Table 15: Protean career orientation items

It strikes as odd that most items of the "values-driven" dimension (items 9-14) imply that personal values have to be opposed to organizational values. They are characterized as opposites that cannot be reconciled. However, Briscoe and Hall's own definition (see above) does not justify this dichotomization, it is purely implied by the items. Arnold and Cohen (2008) pointed out that the "path with a heart" does not mean that an individual

necessarily has to have values that contradict those of the organization. Furthermore, some items convey an individualistic overtone (e.g. item 11) that may not be explained by the original definition of the concept. Also, the "self-directed" dimension is rather marginally mirrored in this scale. Only the first item directly addresses developmental aspects as mentioned in the definition above. The other items are much more in line with an earlier definition of "self-directed" as "[…] the extent to which the person feels independent and in charge of his or her career" (Hall, 2004, p. 8).

Second, this operationalization does not make clear reference to the two protean career metacompetencies (Hall, 2002). Yet, as has repeatedly been highlighted (e.g. Hall, 2002, 2004), identity and adaptability are essential for individuals to navigate their careers actively. They will allow "[…] people to learn from their experience and develop any new competencies on their own" and thereby "[…] help equip individuals to be more protean […]" (Hall, 2004, p. 6). A new, broader operationalization of the protean career should reflect this point and better integrate the two metacompetencies.

Discussion of Briscoe and Hall's boundaryless career operationalization

As shown above, Sullivan and Arthur (2006) suggested the two dimensions "physical mobility" and "psychological mobility" to operationalize the boundaryless career concept. Sullivan (1999), in her review of empirical literature on careers, found considerably more studies that focused on crossing physical rather than psychological boundaries. According to Sullivan and Arthur (2006), this might be due to the fact that researchers predominantly perceive the boundaryless career as concerned with physical, usually inter-organizational crossing of boundaries. They also acknowledged, as did Rodrigues and Guest (2010), that measuring the crossing of psychological boundaries may be much more difficult than measuring actual physical boundary-crossings.

However, based on the initial six meanings of the boundaryless career (see section 3.3.1), such an emphasis on physical mobility seems hardly justifiable. Only the first meaning ("to move across organizational boundaries") is clearly associated with physical mobility and the objectively observable crossing of organizational boundaries. Yet, contrary to Sullivan and Arthur's (2006) broader definition of physical mobility, this meaning exclusively addresses inter-firm mobility. Meanings 2 to 6 focus on an individual's psychological mobility. They are concerned with an individual's mental crossing of existing or perceived boundaries but do not necessarily entail actual changes of jobs, organizations or even countries.

Based on the above dimensions of physical and psychological mobility, Briscoe, Hall and Frautschy DeMuth (2006) used the items in Table 16 to capture a boundaryless career orientation. Items 1-8 are concerned with the "boundaryless mindset" (i.e. psychological mobility), items 9-13 (reverse-coded) focus on "organizational mobility" (i.e. physical mobility). However, these items do not seem adequately to capture the six original meanings suggested by Arthur and Rousseau (1996a). Instead, they appear to encompass the three boundaryless career competencies well (DeFillippi & Arthur, 1994, 1996). Potential links between the six original meanings, the three career competencies and the items used by Briscoe et al. (2006) are shown below.

No.	Item (Briscoe, et al., 2006)	Dimension	Meaning*	Career competency
1	I seek job assignments that allow me to learn something new.	Psychological mobility	n/a	Knowing-how
2	I would enjoy working on projects with people across many organizations.	Psychological mobility	2/3	Knowing-whom
3	I enjoy job assignments that require me to work outside of the organization.	Psychological mobility	2/3	Knowing-whom
4	I like tasks at work that require me to work beyond my own department.	Psychological mobility	2/3	Knowing-whom
5	I enjoy working with people outside of my organization.	Psychological mobility	2/3	Knowing-whom
6	I enjoy jobs that require me to interact with people in many different organizations.	Psychological mobility	2/3	Knowing-whom
7	I have sought opportunities in the past that allow me to work outside the organization.	Psychological mobility	2/3	Knowing-whom
8	I am energized in new experiences and situations.	Psychological mobility	n/a	Knowing-how/ knowing-why
9	I like the predictability that comes with working continuously for the same organization.	Physical mobility	1	Knowing-why
10	I would feel very lost if I couldn't work for my current organization.	Physical mobility	1	Knowing-why
11	I prefer to stay in a company I am familiar with rather than look for employment elsewhere	Physical mobility	1	Knowing-why
12	If my organization provided lifetime employment, I would never desire to seek work in other organizations	Physical mobility	1	Knowing-why
13	In my ideal career I would work for only one organization	Physical mobility	1	Knowing-why

* (Arthur & Rousseau, 1996a)

Table 16: Boundaryless career orientation items

This table suggests that several of the initial meanings of boundaryless careers are not covered and that some items may not be clearly related to any of the six original meanings. Also, the distinction between physical and psychological mobility does not always seem to be very clear. One might even argue that items 9-13 not only refer to physical mobility but also include an element of psychological mobility (meaning 6). Therefore, a new opera-

tionalization of the boundaryless career is required which more closely represents the core of the concept and reduces potential ambiguity regarding the classification of the items. If such a new operationalization allowed both the physical and the psychological dimensions of the boundaryless career to include various kinds of boundaries (e.g. organizational, occupational, and geographical for the physical mobility dimension), it would also take into account Rodrigues and Guest's (2010) point that the variety of individual career boundaries may not be adequately covered with two simple dimensions.

3.4.2.2 Alternative operationalizations and measures

Other researchers have also tried to operationalize the two concepts and to measure the extent to which individuals have either a protean or a boundaryless career orientation. Forrier et al. (2008) provided a thorough analysis of how the concepts may be operationalized. However, they did not develop a corresponding measure. In one of the few quantitative empirical studies on protean careers, Gasteiger (2007a) applied Briscoe et al.'s (2006) scales to study managers in Germany. Although this resulted in valuable empirical data, she did not critically examine or adjust the existing scales. Baruch and Quick (2007) suggested their own eight-item scale to measure protean career orientations and claimed that the shortness of their scale would make it more applicable in organizational research. Yet, such a brief scale with only eight items seems even less likely to ensure that the complex notion of the protean career is adequately conveyed. Based on Guest and Conway's (2004) work, Gerber and colleagues (Gerber, Wittekind, Grote, Conway, et al., 2009; Gerber, Wittekind, Grote, & Staffelbach, 2009) developed a nine-item scale to explore various types of career orientations. However, that scale was not specifically intended to capture either protean or boundaryless career orientations. Eby et al. (2003) suggested an operationalization of the boundaryless career but Arnold and Cohen (2008) pointed to some problematic issues about their approach. Granrose and Baccili (2006) developed yet another operationalization of both concepts that took into account the perceived needs of individuals in an organization, depending on either protean or boundaryless career orientations. Yet, the chosen approach was very narrow. Being protean was reduced to having a high need for work-life balance and being boundaryless was equated with inter-organizational mobility. Finally, in their empirical examination of Briscoe and Hall's (2006a) matrix, Segers and colleagues (2008) used protean and boundaryless careers almost synonymously and did not attempt to examine the existing scales critically.

In summary, several helpful attempts have been made to operationalize and measure the notion of protean and boundaryless careers, most notably by Briscoe and colleagues. However, no study to date has offered and empirically tested an entirely convincing approach that takes into account all core elements of the original concepts. Indeed, the few alternative operationalizations mostly focus only on specific, narrow characteristics of the protean (e.g. Granrose & Baccili, 2006) and the boundaryless career (e.g. Cadin, et al., 2000; Valcour & Tolbert, 2003; Zaleska, Gratton, & de Menezes, 2002). Therefore, Briscoe et al.'s (2006) statement that there is a lack of operationalizations for the protean and the boundaryless career still seems to be valid.

3.5 Concerns regarding contemporary careers in general

In the previous sections, the protean and the boundaryless career concepts have been discussed in detail. Whilst they are the two most relevant contemporary career concepts, there is an ongoing academic debate that critically examines such concepts more generally. That debate not only includes and broadens the key arguments covered in the above discussion about protean and boundaryless careers but also comprises some additional facets of new careers. This section provides an overview of the key concerns regarding contemporary career concepts in general. These aspects are well applicable to the protean and boundaryless career concepts, but they reach beyond the arguments presented in sections 3.2 to 3.4. The main concerns in that debate focus on the assumed dichotomy of "traditional" and "contemporary" careers, on the limited transferability of such concepts, the scarcity of empirical evidence for them, on their individualistic undertone and potential exaggeration of individual agency, as well as on the overly positive claims some of these concepts make.

Concerns regarding the dichotomy between traditional and contemporary careers

As shown in section 3.1.2, contemporary career concepts have mainly been construed as opposites of a notion of career which is – depending on the authors – synonymously called the "old", "traditional", "bureaucratic" or "organizational" career. Yet, in the literature there is no generally used definition of that particular type of career. Still, the notion of the traditional career seems to comprise four commonly accepted characteristics. First, such a career is confined to a limited number of typically large employing organizations (e.g. Arthur & Rousseau, 1996a). Second, the career environment is considered to be relatively stable and predictable (e.g. Super, 1957; Whyte, 1961). Third, hierarchical advancement over time is seen as something worth striving for (e.g. Baruch, 2004b; Kanter, 1989). Finally, the relationship between employee and organization is based on the "old psychologi-

cal contract" with an emphasis on a long-term, loyal relationship (e.g. Herriot & Pemberton, 1995). It seems surprising that such a crucial term has only been defined so vaguely in the career literature. As a consequence, career models developed as antitheses to "traditional careers" may well suffer from conceptual imprecision.

Based on two studies of individuals who had left their organizations to become self-employed, Cohen and Mallon (1999) described how difficult that transition and the new employment arrangements had been for many participants. Several of them felt that the former organizational world had also had its advantages; security, status, hierarchical progression or a sense of pride about working for a particular company were often missed afterwards. In line with other authors (e.g. King, 2004; Smith-Ruig, 2008; Zaleska & De Menezes, 2007), Cohen and Mallon suggested a much closer link between traditional and contemporary forms of careers than has often been made in literature. Several authors (e.g. Arnold & Cohen, 2008; Cohen, et al., 2008; Inkson, et al., 2010; Martin & Butler, 2000) have critically pointed to the dichotomization between "traditional" and "contemporary" careers in the literature. For example, it was found that characteristics of contemporary careers (e.g. mobility) may well go together with traditional characteristics, such as loyalty (Lips-Wiersma & Hall, 2007) or commitment (Briscoe & Finkelstein, 2009; Zaleska & De Menezes, 2007). Also, a high emphasis on self-directedness may well coexist with low levels of physical mobility (Gerber, Wittekind, Grote, & Staffelbach, 2009). Therefore, Sommerlund and Boutaiba (2007) suggested that traditional and contemporary career concepts should be seen as complements rather than as antipodes. Portraying "old" and "new" careers as a simple dichotomy is not adequate, especially because traditional and contemporary careers both are "ideal types" (King, Burke, et al., 2005, p. 982). According to King et al., none of them is capable of adequately describing the complex reality of individual careers. Finally, it seems questionable to label more recently developed career concepts as "new" when a majority of the workforce has never experienced "old" careers at all, as estimates by Cappelli (1999b) and Hall (2002) suggested (see section 2.2.2).

Concerns regarding the scarcity of empirical evidence

There is evidence that at least some characteristics of new careers can be observed. For example, Zaleska et al. (2002) found that many individuals in their sample felt increasingly responsible for their own career development. In studies on career orientations in Switzerland (e.g. Gerber, 2009), about a third of the sample had non-traditional orientations. In a longitudinal study of MBA students, Reitman and Schneer (2003) described a coexistence

of traditional and contemporary career paths. They reported that each of the two career types was prevalent amongst more than a third of their sample. Chudzikowski et al. (2008) also found an increased level of mobility when comparing career transitions of Austrian graduates of 1970 and 1990. The 1990 cohort reported more career transitions than the 1970 cohort. However, the direction of the transitions did not significantly change, i.e. vertical hierarchical moves were still the most common ones.

Yet, whilst some advocates of new careers have repeatedly written about the assumed demise of the traditional career (e.g. Gray, 2001; Hall, 1996; Handy, 1989), this point of view has been widely contested. There are only a few studies providing empirical examples of truly contemporary careers (e.g. Jones & DeFillippi, 1996; Saxenian, 1996) and there is much evidence that traditional careers can still be found frequently. For example, Dany (2003) reported that despite the new careers rhetoric, traditional careers are still widespread in France. Gerber et al. (Gerber, Wittekind, Grote, Conway, et al., 2009; Gerber, Wittekind, Grote, & Staffelbach, 2009) repeatedly found that about two thirds of the employees in Switzerland still have traditional career orientations and prefer characteristics of traditional careers. Interestingly, Gerber and colleagues reported that within a traditional career orientation individuals either tended to focus on promotion or on loyalty. This also suggests that there may be several manifestations of a “traditional career” and that the term needs conceptual clarification. Zaleska et al. (2002) could not find clear support for contemporary careers amongst 1,500 UK employees. On the contrary, individuals on average preferred stability and security in their careers rather than increased mobility. Truty (2003) confirmed such findings in a study of individuals who had been laid off during the restructuring of a company. There is a considerable amount of additional research indicating that many individuals still prefer stable and secure employment relationships rather than the increased insecurity of new careers (e.g. Ackah & Heaton, 2004; Brousseau, et al., 1996; Dütschke & Boerner, 2008; Valcour, et al., 2007; Zeitz, et al., 2009).

In addition, Currie et al. (2006) compared careers in the TV industry with careers in the retail industry. In both cases, there was strong evidence that traditional careers still exist. Donnelly (2008) reported that elements of traditional careers were common amongst consultants in the UK and the Netherlands. This finding was supported by Inkson et al. (2010). They indicated that even groups of highly skilled professionals who are often believed to enjoy high mobility actually tend to stay in relatively traditional work relationships and may well follow “organizational” careers.

Several authors (e.g. Cappelli, 1999a; Guest & Mackenzie Davey, 1996; Mallon & Walton, 2005; Martin & Butler, 2000; Sullivan & Baruch, 2009), therefore, have cautioned that the extent to which new careers can be found has often been exaggerated.

Even authors of contemporary career concepts have more or less openly acknowledged the ongoing existence of traditional organizational careers (e.g. Mirvis & Hall, 1994; Peiperl & Baruch, 1997). Arthur and Rousseau (1996a, p. 6) conceded that new business environments "[do] not deny the organizational career as a legitimate base of inquiry". Recently, Hall and Las Heras (2009) reflected on earlier claims regarding the demise of the organizational career (e.g. Hall & Associates, 1996). They argued that three assumptions had been made in such publications. First, the traditional career was thought to be in decline. Second, the protean career as a new self-driven, subjectively-perceived type of career was believed to emerge. And, third, networks, rather than the employing organization, were thought to become much more relevant for individuals. Hall and Las Heras (2009, p. 182) conceded:

> *"[W]e were wrong. [...] Careers in organizations are alive and well now that we are out of the myopic tunnel of the dot-com 1990's. [...] Also, the organizations are again interested in loyal, productive and committed employees."*

Much as this statement is remarkable, Inkson et al. (2010) pointed out that its explanation might be questionable as only a limited number of careers had actually been directly affected by the dot-com bubble. Rather, in accordance with other authors (see above), they argued that most careers had actually never become "contemporary" careers. Also, Hall and Las Heras (2009) claimed that the statements regarding the importance of networks and the increasing self-direction amongst employees were correct but they did not provide much evidence for their assertion.

Concerns regarding limited transferability of the concepts

It has been argued that individual careers are much more complex than what is often implied by contemporary career concepts (Collin & Young, 2000a), that the social context of individuals matters (Eaton & Bailyn, 2000; Pringle & Mallon, 2003) and that individuals' power relations should also be taken into consideration when examining careers (Pringle & Mallon, 2003). Such calls for a broader, contextualized view on careers are supported by research showing how complex, controversial and multi-faceted careers and career transitions can be (e.g. Mallon, 1998; Mallon, 1999).

Culture is one widely discussed contextual factor for careers. It has repeatedly been argued that most contemporary career concepts are deeply rooted in American culture and that, as a consequence, such concepts may not be globally applicable (e.g. Arnold & Cohen, 2008; Cadin, et al., 2000; Pringle & Mallon, 2003; Truty, 2003). For example, career concepts may well be perceived differently in Europe and in America (e.g. Dany, 2003; Khapova, et al., 2009; Mayrhofer, et al., 2004). Not only have direct comparisons between career structures (e.g. Martin & Butler, 2000), determinants of turnover intentions (Sousa-Poza & Henneberger, 2002) and tenure (Booth, et al., 1999) in the USA and in Europe provided clear differences. Even within Europe substantial differences between career paths have been found. For example, Donnelly (2008) reported how the different societal and cultural contexts influenced individual levels of flexibility and shaped individual careers of consultants in the UK and the Netherlands. Studying career orientations, Gerber et al. (2009) found clear differences between Switzerland and the UK. Even within Switzerland, career orientation clusters varied significantly between the French and the German speaking parts of the country. This indicates that career orientations cannot simply be generalized within, let alone across, different countries and cultures. Based on such findings, Khapova et al. (2009) emphasized the importance of taking culture into account when studying careers. In the last few years, even authors of prominent career concepts have acknowledged the relevance of such an approach (e.g. Arthur, 2008; Briscoe & Hall, 2006a; Hall & Las Heras, 2009).

Concerns regarding the role of individual agency

Some researchers claim that as much as individual careers are influenced by organizations or, more recently, the internet (DeFillippi, Arthur, & Parker, 2003), contemporary individual careers also influence organizations or even the creation of industries (Arthur, et al., 1999; Weick, 1996). Such examples can be found in IT with the Linux operating system (DeFillippi & Arthur, 2002) or in the biotech industry in the USA (Higgins, 2002). However, in line with the discussion of the role of boundaries in the boundaryless career concept (see section 3.3.2.2), various authors (e.g. Dany, Mallon, & Arthur, 2003; Forrier, et al., 2009; Zeitz, et al., 2009) have pointed out that contemporary career concepts in general may well have focused too strongly on the individual. There are concerns that contemporary career concepts with their emphasis on individual agency may downplay the role of organizations in shaping individuals' careers and tend to neglect existing boundaries for individuals. Newell et al. (2001) cautioned that even if some boundaries may have changed for individuals, they are still a reality in individual careers.

This view was, for example, supported by research on women (Crowley-Henry & Weir, 2007; Valcour & Tolbert, 2003), on managers (Chen, et al., 2011), and on individuals moving from "traditional" to "portfolio" careers (Mallon, 1998, 1999).

Feldman and Bolino (1996) also concluded that due to external pressure, boundaries may limit the extent to which people can enact their free will. Empirical research showed that, despite the claims of many contemporary career concepts, even highly skilled professionals may face very real barriers in their careers. For example, King et al. (2005) reported that IT professionals, who are frequently believed to be prototypical for following contemporary careers (e.g. Ewers, et al., 2004; Knight, 2002; Saxenian, 1996), faced various tangible and intangible constraints in their careers. Individuals had socially determined perceptions of what was considered as valued and appropriate behaviour, which served as a mental barrier for them. Finally, these IT professionals also faced constraints that were imposed by gatekeepers, such as agencies or recruiters. These intermediaries played a key role in providing or denying individuals new opportunities in the labour market. King et al. (2005, pp. 998-999) concluded that even amongst such highly skilled individuals "[p]eople can and do change jobs – sometimes frequently crossing organizational and occupational boundaries, but in all careers there are constraints on which opportunities can be accessed".

Finally, as research on the role of chance events in careers (e.g. Bright, et al., 2009; Bright, Pryor, & Harpham, 2005; Pryor & Bright, 2003; Strunk, 2005) has shown, the influence of external chance events on careers may have been underestimated. In empirical studies, individuals repeatedly reported that various chance events, both positive and negative, had had a major impact on their careers. To date, contemporary career concepts with their strong emphasis on individual agency have hardly taken such findings into account.

Concerns regarding the highly positive claims of the concepts

Various authors (e.g. Guest & Mackenzie Davey, 1996; Hirsch & Shanley, 1996; Inkson, 2006; Mayrhofer, et al., 2004) have argued that contemporary career concepts tend to portray careers in the "new world of work" in a highly positive way, neglecting potential negative aspects for individuals. Negative aspects of contemporary careers may come in various guises. For example, Cappelli (1999a) claimed that additional risks have been shifted from organizations to employees. This was supported by studies in France (Dany, 2003; Dany, et al., 2003). Dany also demonstrated that the development of "new" norms had sometimes become as powerful and restraining as the "old" ones, potentially leading to a stigmatization of those who did not conform with new norms. Sommerlund and Boutaiba

(2007, p. 534) highlighted the potential loss of individual freedom due to contemporary careers which seem "[…] to work upon the individual as an institutionalized regime of forced and incessant self-reflection". This view has been supported by Geffers and Hoff (2010). In Germany, employment chances of people with contemporary career patterns were found to be lower than chances of applicants with traditional career paths. Especially part-time work was rated negatively (Dütschke, et al., 2007). Booth et al. (1999) reported that in the UK, on average, about 20% of all job terminations were caused by layoffs. Workers with lower levels of skills were more frequently subject to losing their jobs than those with higher skills. This supports other researchers (e.g. Ituma & Simpson, 2006; Marler, Woodard Barringer, & Milkovich, 2002; Pang, et al., 2008) who cautioned that individuals do not always embrace contemporary careers by free will but that they might be economically forced into them with potentially negative effects for the individuals.

Concerns regarding various additional aspects

Several authors highlighted further areas of concern regarding contemporary career concepts, for example, their potential impact on organizations (e.g. Dany, et al., 2003) or on training and Human Resource Management practices (e.g. Zaleska & De Menezes, 2007). Table 17 provides an overview summarizing the key concerns of contemporary career concepts.

Concerns about contemporary careers in general	Authors
Dichotomy between old and new concepts	
The debate about contemporary careers is full of dichotomies about old and new careers.	Arnold & Cohen (2008), Cohen, Arnold, & Gubler (2008), Cohen & Mallon (1999), Inkson (2011), Inkson, Ganesh, Roper, & Gunz (2010), Inkson, Roper, & Ganesh (2008), Martin & Butler (2000)
The link between traditional and contemporary careers is much closer than many claim.	Cohen, Arnold, & Gubler (2008), Cohen & Mallon (1999), Currie, Tempest, & Starkey (2006), Forrier, Sels, & Stynen (2009), Geffers & Hoff (2010), Haas, Keinert, Koeszegi, & Zedlacher (2011), Hall & Las Heras (2009), King (2004), Smith-Ruig (2008), Sommerlund & Boutaiba (2007), Zaleska & De Menezes (2007)
Traditional and contemporary careers could well be seen as complements that are beneficial to employees as well as to organizations.	Brousseau, Driver, Eneroth, & Larson (1996), Hall & Las Heras (2009), Sommerlund & Boutaiba (2007)

Concerns about contemporary careers in general	Authors
Concepts are rooted in US culture – they are not universally applicable	
Such concepts are American-centred and may well be perceived differently in different cultures.	Briscoe, Gasteiger, & Derr (2005), Briscoe & Hall (2006a), Cadin, Bailly-Bender, & de Saint-Giniez (2000), Cohen, Arnold, & Gubler (2008), Dany (2003), Donnelly (2008), Dütschke, Boerner, & Appel (2007), Forrier, Sels, & Stynen (2008, 2009), Gasteiger (2007a), Gerber (2009), Gerber et al. (2008), Gerber, Wittekind, Grote, Conway, & Guest (2009), Gerber, Wittekind, Grote, & Staffelbach (2009), Hall & Las Heras (2009), Hirsch & Shanley (1996), Martin & Butler (2000), Mayrhofer, Meyer, Iellatchitch, & Schiffinger (2004), Pringle & Mallon (2003), Segers et al. (2008), Sullivan & Baruch (2009), Truty (2003), Uenoyama & Misaki (2005)
Lack of empirical evidence – traditional careers are still present	
The predominantly US rhetoric may be "outstripping reality" – especially outside America, Yet, there is evidence of substantial changes in organizational forms and career patterns.	Ackah & Heaton (2004), Briscoe, Gasteiger, & Derr (2005), Gasteiger (2007a), Martin & Butler (2000)
Despite much rhetoric, there is a dearth of empirical evidence for contemporary career models.	Arnold & Cohen (2008), Baruch (2008), Briscoe, Hoobler, & Byle (2010), Cohen & Mallon (1999), De Vos, Dewettinck, & Buyens (2008), Gerber (2009), Gerber et al. (2008), Gerber, Wittekind, Grote, Conway, & Guest (2009), Gerber, Wittekind, Grote, & Staffelbach (2009), Granrose & Baccili (2006), Inkson, Roper, & Ganesh (2008), Lazarova & Taylor (2009), Pringle & Mallon (2003), Segers et al. (2008), Zaleska & De Menezes (2007)
Despite the claims of the abundance of contemporary careers, traditional careers can still be frequently found.	Arnold & Cohen (2008), Baruch (2004a), Boxall, Macky, & Rasmussen (2003), Cheramie, Sturman, & Walsh (2007), Cohen, Arnold, & Gubler (2008), Cohen & Mallon (1999), Currie, Tempest, & Starkey (2006), Dany (2003), Domberger (2005), Donnelly (2008, 2009), Dries, Pepermans, & De Kerpel (2008), El-Sawad (2002), Gerber (2009), Gerber et al. (2008), Gerber, Wittekind, Grote, Conway, & Guest (2009), Gerber, Wittekind, Grote, & Staffelbach (2009), Grote & Raeder (2009), Guest & Mackenzie Davey (1996), Guest & Sturges (2007), Hall & Las Heras (2009), Henneberger & Sousa-Poza (2007), Jacoby (1999), Kattenbach et al. (2011), Mallon & Walton (2005), Marler, Woodard Barringer, & Milkovich (2002), Martin & Butler (2000), McDonald, Brown, & Bradley (2005), Oliver (1997), Pang, Chua, & Chu (2008), Pringle & Mallon (2003), Reitman & Schneer (2003), Rodrigues & Guest (2010), Sargent & Domberger (2007), Smith-Ruig (2008), Sommerlund & Boutaiba (2007), Sturges & Guest (2004), Valcour, Bailyn, & Quijada (2007), Vansteenkiste, Verbruggen, & Sels (2011), Zaleska & De Menezes (2007), Zeitz, Blau, & Fertig (2009), Zuckerman, Kim, Ukanwa, & von Rittmann (2003)

Concerns about contemporary careers in general	Authors
Normative nature of the concepts	
Models of contemporary careers are often highly normative.	Arnold & Cohen (2008), Cohen, Arnold, & Gubler (2008), Forrier, Sels, & Stynen (2008, 2009), Inkson, Roper, & Ganesh (2008), Martin & Butler (2000)
Contemporary career concepts should be treated as lenses for viewing careers rather than as "objective entities".	Cohen, Arnold, & Gubler (2008), Inkson, Ganesh, Roper, & Gunz (2010), Inkson, Roper, & Ganesh (2008)
Context matters – concepts are too simplistic	
The reality of careers is often much more complex than assumed in the models – considering the social, cultural, and economic context is important.	Ackah & Heaton (2004), Brocklehurst (2003), Collin & Young (2000a), Currie, Tempest, & Starkey (2006), Donnelly (2008), Eaton & Bailyn (2000), Feldman & Bolino (1996), Forrier, Sels, & Stynen (2008, 2009), Gerber (2009), Gerber et al. (2008), Gerber, Wittekind, Grote, Conway, & Guest (2009), Gerber, Wittekind, Grote, & Staffelbach (2009), Guest & Sturges (2007), Haas, Keinert, Koeszegi, & Zedlacher (2011), Inkson (2011), Inkson, Roper, & Ganesh (2008), Kattenbach et al. (2011), Kels (2011), King, Burke, & Pemberton (2005), Mallon (1998, 1999), Mayrhofer, Meyer, & Steyrer (2007), Sullivan & Baruch (2009), Valcour, Bailyn, & Quijada (2007), Yanar, Toh, & Gunz (2011), Zuckerman, Kim, Ukanwa, & von Rittmann (2003)
Too much focus on the individual	
New careers in the organizational context lack empirical investigation, the primary focus has mainly been on the individual perspective.	Currie, Tempest, & Starkey (2006), Forrier, Sels, & Stynen (2008, 2009), Lips-Wiersma & Hall (2007), Zeitz, Blau, & Fertig (2009)
The recent focus on careers may have been too much on the individual without acknowledging the organizational context.	Currie, Tempest, & Starkey (2006), Dany, Mallon, & Arthur (2003), Forrier, Sels, & Stynen (2008, 2009)
Negative sides of new concepts are neglected	
The concepts are presented in a highly positive way, they potentially over-promise.	Currie, Tempest, & Starkey (2006), Pringle & Mallon (2003), Sommerlund & Boutaiba (2007), Sullivan & Baruch (2009), Truty (2003), Zeitz, Blau, & Fertig (2009)
Potential negative aspects of contemporary careers are hardly mentioned by the authors of the new concepts.	Brocklehurst (2003), Cohen, Arnold, & Gubler (2008), Cohen & Mallon (1999), Currie, Tempest, & Starkey (2006), Gerber, Wittekind, Grote, & Staffelbach (2009), Vardi & Kim (2007), Zeitz, Blau, & Fertig (2009)
Contemporary careers may have negative effects on individuals (less career opportunities, increased pressure etc.).	Ackah & Heaton (2004), Cappelli (1999a), Chen, Veiga, & Powell (2010), Currie, Tempest, & Starkey (2006), Dany (2003), Dokko, Wilk, & Rothbard (2009), Guest & Mackenzie Davey (1996), Harrison (2006), Hirsch & Shanley (1996), Mallon (1998, 1999), Mayrhofer, Meyer, Iellatchitch, & Schiffinger (2004), Pang, Chua, & Chu (2008), Vansteenkiste, Verbruggen, & Sels (2011), Yanar, Toh, & Gunz (2011), Zeitz, Blau, & Fertig (2009)
The new career rhetoric is a bounded portrait of careers that shifts risk and responsibility from the organization to the individual.	Dany, Mallon, & Arthur (2003)

Concerns about contemporary careers in general	Authors
People do not always adopt "new" careers by free will – sometimes they are forced into this situation.	Cohen, Arnold, & Gubler (2008), Currie, Tempest, & Starkey (2006), Guest & Sturges (2007), Ituma & Simpson (2006), Mallon (1998, 1999), Marler, Woodard Barringer, & Milkovich (2002), Pang, Chua, & Chu (2008), Quigley & Tymon Jr (2006), Sullivan & Baruch (2009), Truty (2003), Valcour, Bailyn, & Quijada (2007), Yanar, Toh, & Gunz (2011), Zaleska & De Menezes (2007), Zeitz, Blau, & Fertig (2009)
Some employees would prefer stability and security rather than insecure challenges of new careers.	Ackah & Heaton (2004), Brousseau, Driver, Eneroth, & Larson (1996), Currie, Tempest, & Starkey (2006), Dütschke & Boerner (2008), Gerber et al. (2008), Gerber, Wittekind, Grote, Conway, & Guest (2009), Gerber, Wittekind, Grote, & Staffelbach (2009), Grote & Staffelbach (2011), Hall & Las Heras (2009), Inkson, Ganesh, Roper, & Gunz (2010), Mallon (1998, 1999), Mallon & Walton (2005), Pang, Chua, & Chu (2008), Truty (2003), Valcour, Bailyn, & Quijada (2007), Zaleska & De Menezes (2007), Zaleska, Gratton, & de Menezes (2002), Zeitz, Blau, & Fertig (2009)
The concepts seem to be much more applicable (and beneficial) to highly-skilled people with good qualifications.	Ackah & Heaton (2004), Arthur, Inkson, & Pringle (1999), Cappelli (1999a), Cohen, Arnold, & Gubler (2008), Dütschke & Boerner (2008), Forrier, Sels, & Stynen (2008), Guest & Sturges (2007), Hennebergger & Sousa-Poza (2007), Inkson (2007), Inkson, Roper, & Ganesh (2008), King, Burke, & Pemberton (2005), Pang, Chua, & Chu (2008), Segers et al. (2008), Valcour, Bailyn, & Quijada (2007), Zaleska & De Menezes (2007), Zeitz, Blau, & Fertig (2009)
The extent to which individuals have actually accepted the characteristics of contemporary careers has not yet been fully examined.	De Vos, Dewettinck, & Buyens (2008), Granrose & Baccili (2006), Inkson, Ganesh, Roper, & Gunz (2010), Mallon & Walton (2005)
The development of "new" norms can become as powerful and restraining as the "old" ones.	Brousseau, Driver, Eneroth, & Larson (1996), Currie, Tempest, & Starkey (2006), Dany, Mallon, & Arthur (2003)
New career norms might lead to a stigmatization of those who do not conform to them.	Brousseau, Driver, Eneroth, & Larson (1996), Dany, Mallon, & Arthur (2003)
Various	
Knowledge on new employment relations and their implications for individuals' careers and for HRM is very limited.	Dany, Mallon, & Arthur (2003)
There is still a lack of sound operationalizations of contemporary career concepts.	Baruch (2008), Cohen, Arnold, & Gubler (2008), De Vos, Dewettinck, & Buyens (2008)
The terms "boundaryless career", "protean career" etc. imply that the entire career of an individual may be of a certain kind – but often only some phases within a career may follow such patterns.	Inkson (2011), Inkson, Ganesh, Roper, & Gunz (2010)

Table 17: Concerns regarding contemporary career concepts

In a review of contemporary career concepts, Sullivan and Baruch (2009) acknowledged some of the concerns above and identified several areas with a need for further research. For example, they suggested focusing more on potentially negative aspects of non-traditional career models, considering individual, organizational, national and even interna-

tional levels. They asked for more recognition that traditional careers still exist and called for more research regarding the differences between countries or organizations. Finally, they argued that contemporary career concepts need more integration, as for example Briscoe and Hall (2006a) provided with their matrix. As is shown in the next section, the career anchor concept might also help reconcile views between "old" and "new" careers and integrate them into less dichotomous perspectives.

3.6 Career anchors

In the 1970s, Edgar Schein introduced the concept of "career anchors", offering a view on an individual's internal, subjective career. This section covers the concept in general, and provides an overview of its application in the context of the IT industry.

3.6.1 The career anchor concept

Schein's concept is rooted in the matching theories of vocational behaviour. However, it focuses more on the content of careers and on individuals' decisions regarding lifestyle and less on specific stages and psychological tasks therein than developmental theories do (Arnold, 1997). In Schein's view, the early stages of a career expose individuals to a variety of job challenges, which eventually lets them develop a "self-concept", the so-called "career anchor". Schein (1978, p. 125) defined the three components of a career anchor as follows:

> *"1. Self-perceived talents and abilities (based on actual successes in a variety of work settings);*
>
> *2. Self-perceived motives and needs (based on opportunities for self-tests and self-diagnosis in real situations and on feedback from others);*
>
> *3. Self-perceived attitudes and values (based on actual encounters between self and the norms and values of the employing organization and work setting)."*

Initially, Schein suggested a model with five career anchors. DeLong (1982) added three more anchors. Finally, Schein himself expanded the concept with three additional anchors during the 1980s, which led to the eight career anchors shown in Table 18.

The career anchor concept posits that an individual develops one of these eight anchors early in his/her career and then sticks to that particular anchor throughout his/her working life. Each individual is said to feel most at ease in a job that matches his/her preferred anchor. A person may well be able to work in an environment that does not match his/her main anchor. However, the bigger the mismatch between the work environment and a person's self-perceived talents, motives and values, the stronger a person will be drawn by

his/her career anchor towards a more congruent setting. This may eventually lead the individual to take on a new job that is more in line with the personal career anchor (Schein, 1978). Metaphorically, this can be compared with a boat gently floating right above its anchor in a calm lake. When the boat is forced further away from its anchor point, tension on the anchor chain will increase until the boat eventually is pulled back towards its anchor to ease the tension on the chain. Based on such a pertinent image, the powerful and appealing anchor metaphor was adopted (Inkson, 2002).

Career anchor	Characteristics of individuals with a strong preference for the anchor
Technical/ Functional Competence	• Primarily excited by the content of the work itself • Prefers advancement only in his/her technical or functional area of competence • Generally disdains and fears general management as too political, or boring
Managerial Competence	• Primarily excited by the opportunity to analyze and solve problems under conditions of incomplete information and uncertainty • Likes harnessing people together to achieve common goals • Stimulated (rather than exhausted) by crisis situations
Security and Stability	• Primarily motivated by job security and long-term attachment to one organization • Willing to conform and to be fully socialized into an organization's values and norms • Tends to dislike travel and relocation
Entrepreneurial Creativity	• Primarily motivated by the need to build or create something that is entirely their own project • Easily bored and likes to move from project to project • More interested in initiating new enterprises than in managing established ones
Autonomy and Independence	• Primarily motivated to seek work situations which are maximally free of organizational constraints • Wants to set own schedule and own pace of work • Is willing to trade off opportunities for promotion to have more freedom
Service and Dedication to a Cause	• Primarily motivated to improve the world in some way • Wants to align work activities with personal values about helping society • More concerned with finding jobs which meet their values than their skills
Pure Challenge	• Primarily motivated to overcome major obstacles, solve almost unsolvable problems, or win out over extremely tough opponents • May define their careers in terms of daily combat or competition in which winning is everything • Potentially single-minded and intolerant of those without comparable aspirations
Lifestyle	• Primarily motivated to balance career with own lifestyle • Highly concerned with such issues as paternity/maternity leaves etc.

Table 18: The eight career anchors

(based on Feldman & Bolino, 1996; Schein, 1990)

The career anchor concept provided several key contributions (Feldman & Bolino, 1996). First, there is its distinction between the process of initial occupational choice and subsequent career identity formation. Then, it highlights a variety of career paths within an occupation and the important consequences of these subtler career path distinctions. Furthermore, it shows that differences in career paths amongst groups of employees in the same profession can be as great as the differences in career paths of individuals in different oc-

cupations. Finally, it does not equal stability with zero growth or change of a person because career anchors allow for some movement in a stable, predictable way. In addition, career anchors emphasize the importance of discovery through work experience and the crucial role of feedback in the development of an individual. The main criticism was that the concept of career anchors, at least initially, was built on too narrow a sample with a prime focus on highly educated white males.

According to Igbaria et al. (1999), career anchors affect individual career choices and decisions about job mobility. They shape an individual's aspirations in life, determine his/her views of the future, influence the selection of specific occupations and work settings, and, finally, affect individual reactions to work experiences. Hence, several studies have pointed out the potential benefits of using career anchors as a tool for individual (e.g. Feldman & Bolino, 1996) and organizational career management (e.g. Yarnall, 1998a) (see section 4.4).

Over the last few years, the academic debate of career anchors has mainly focused on four aspects: how many different career anchors actually exist, how many concurrent career anchors an individual may have, the changing importance of the anchors over time, and the transferability of the concept across cultural boundaries. First, regarding the number of existing career anchors, Schein's initial five anchor model was expanded early on by three anchors, as explained above. Schein (1996) still holds to his concept of the eight anchors; however, other researchers' findings support the view that there might well be more than eight anchors. For example, it was claimed that nine anchors – splitting entrepreneurship and creativity into two distinct anchors – would better fit Schein's original model (Danziger, Rachman-Moore, & Valency, 2008; Marshall & Bonner, 2003). Igbaria and Baroudi (1993) showed that the security anchor can be divided into two separate anchors ("job security" and "geographical security"). Other authors empirically found further potential anchors (Chang, 2010; Ituma & Simpson, 2006, 2007; Wils, Wils, & Tremblay, 2010) or argued for additional anchors based on theoretical considerations (e.g. Baruch, 2004b).

A second unresolved point is the number of anchors an individual may have. Schein's original concept claimed that an individual only has one single anchor. However, despite sometimes inconsistent findings, several studies have indicated that individuals may well have multiple career anchors. Schein himself (1996) indirectly acknowledged that people may have more than one need (and therefore career anchor) to strive after. Ramarkrishna

and Potoski (2003) found people with several concurrent dominant anchors. In their study, 37% of the participants had two, 7% three and 2% even four dominant anchors. Martineau et al. (2005) even reported almost 70% of multiple dominant anchors amongst Canadian engineers. Feldman and Bolino (1996) claimed that there are three types of anchors – value-, talent-, and need-based anchors – and that an individual may well have a major and a secondary anchor from different areas. In their study, Feldman and Bolino found that about a third of their sample had such a combination of career anchors. They pointed out how important it may be that multiple anchors are consistent with each other in order not to create conflict for an individual. Such conflicts have been described in various studies (e.g. Sturges & Guest, 2004; Wils, et al., 2010).

The third debate is about the assumed stability of the anchors over time. Despite the absence of longitudinal studies, findings indicate that career anchors may well change in importance for an individual – contrary to the original view that, once formed, they remain stable over the course of a lifetime. Several researchers emphasized that, depending on the personal situation, individual preferences for career anchors may change (e.g. Derr, 1986; Feldman & Bolino, 1996). Also, external factors (e.g. job availability, family situation) may at least temporarily hinder an individual from following their preferred anchor (Feldman & Bolino, 1996). In addition, significant differences of career anchors were found between different age groups (e.g. Chang, 2010; Igbaria, Kassicieh, et al., 1999) and between married and unmarried individuals (Igbaria, Kassicieh, et al., 1999), which suggests that career anchors may, indeed, change over time. Even Schein (1996) acknowledged that career anchors might change their meaning in an evolving environment and could shift in their relative importance. In line with other authors (e.g. Hall & Chandler, 2005), he predicted an increasing importance of the “service and dedication” anchor. Schein also reported that the “lifestyle” anchor had seen a significant rise in importance since the concept was first introduced, a finding that was supported by Sturges and Guest (2004).

Finally, the fourth debate centres on the cultural transferability of the career anchor concept. Early on, Schein (1984) reported a personal experience with managers in the USA and in Australia, showing how the two cultures consider certain anchors as more or less socially acceptable. Gerpott et al. (1988) found significant differences in the relevance of the “technical/functional competence” anchor between the UK, USA and (West) Germany. More recently, studies in Nigeria (Ituma, 2006; Ituma & Simpson, 2007) revealed a new anchor (“being marketable”) but did not find one of the original anchors (“service and

dedication"). By taking into account the specific cultural and economic context of Nigeria, these findings could well be explained. Similarly, a Taiwanese study (Chang, 2010) found "learning motivation" as a new anchor, which had not been discovered in US studies. Again, considering the Taiwanese culture helped explain the occurrence of that anchor. Chang (2010) also described that a particular anchor might not have the same meaning in different cultures. For example, based on the collectivist culture in Taiwan, individuals emphasized the importance of taking care of their family when referring to the lifestyle anchor. In American studies, however, the reasons for choosing that anchor were much more based on individualist motives (e.g. Igbaria, Kassicieh, et al., 1999).

The original career anchor concept is clearly rooted in and compatible with traditional views of careers, e.g. assuming stability over the course of an individual's life. However, its core assumptions are easily applicable to contemporary notions of careers as well. For instance, the emphasis on the subjective perspective of a career, the acknowledgement of the relevance of personal values and the important role of self-direction in discovering one's career anchors are perfectly in line with the key assumptions of the protean career. Also, career anchors consider dimensions that reach beyond those frequently discussed in traditional or contemporary career concepts and they combine elements that may typically be associated with either view of careers. For example, whilst the "managerial competence" and "job security" anchors may correspond well to notions of traditional careers, "service and dedication", "pure challenge", "autonomy" or "lifestyle" can easily be linked to key characteristics of contemporary career concepts. Hence, career anchors might serve as a tool to overcome the dichotomy between traditional and contemporary views of careers and to bridge the gap between the two perspectives, as has been repeatedly called for by various researchers (see section 3.5).

3.6.2 Career anchor research in the IT industry

Especially in the 1990s, career anchors have been repeatedly used to study IT professionals. Various authors (e.g. Igbaria & Baroudi, 1993; Tremblay, Wils, & Proulx, 2002) highlighted the potential benefits of such research. For example, career anchors offer a view on subjective careers of IT professionals, as was called for by Ginzberg and Baroudi's (1988) decisive paper.

Also, career anchors provide an important key to understand and support intrinsic motivation in IT (e.g. Couger & Zawacki, 1980; Thomas & Velthouse, 1990). For example, various authors have reported that individuals in a technical career path had stronger technical anchors than those in a managerial path, whilst those following a managerial career had stronger managerial anchors than those in non-managerial careers (Igbaria, Greenhaus, & Parasuraman, 1991; Martineau, et al., 2005; Tremblay, et al., 2002). Also, career anchors may help explain individual turnover behaviour in IT (Chang, 2010).

Whilst most IT career anchor studies focused on organizations in Western countries (e.g. Crepeau, et al., 1992; Crook, Crepeau, & McMurtrey, 1991; Hsu, et al., 2003; Jiang, Klein, & Balloun, 2001; Martineau, et al., 2005; Sumner, Yager, & Franke, 2005; Wynne, Ferratt, & Biros, 2002), some papers studied career anchors of IT professionals in non-Western cultures (e.g. Chang, 2010; Igbaria, et al., 1995; Igbaria & Weaver McCloskey, 1996; Ituma & Simpson, 2007). One striking and consistent result was the diversity of career anchors held by IT professionals, regardless of their culture. However, the implications of such findings for organizational and individual career management have hardly been discussed. Also, surprisingly, many studies showed that technical competence was amongst the least important anchors for IT professionals (e.g. Crook & Crepeau, 1997; Igbaria, Kassicieh, et al., 1999; Igbaria & Weaver McCloskey, 1996; Sumner & Yager, 2004) (see section 4.4).

Empirical career anchor studies outside the IT industry sometimes produced conflicting and contradictory results (Yarnall, 1998a). The same was the case for studies of IT professionals. First, as may have been expected, some significant differences in career anchors between American and non-Western cultures were discovered (e.g. Chang, 2010; Ituma & Simpson, 2006). More importantly, however, even within Western cultures some major differences in career anchors were found (for an overview, see Chang, 2010). For example, Jiang et al. (1995) contrasted their own findings with results from two earlier studies. Figure 4 indicates the frequency of dominant anchors in each study.

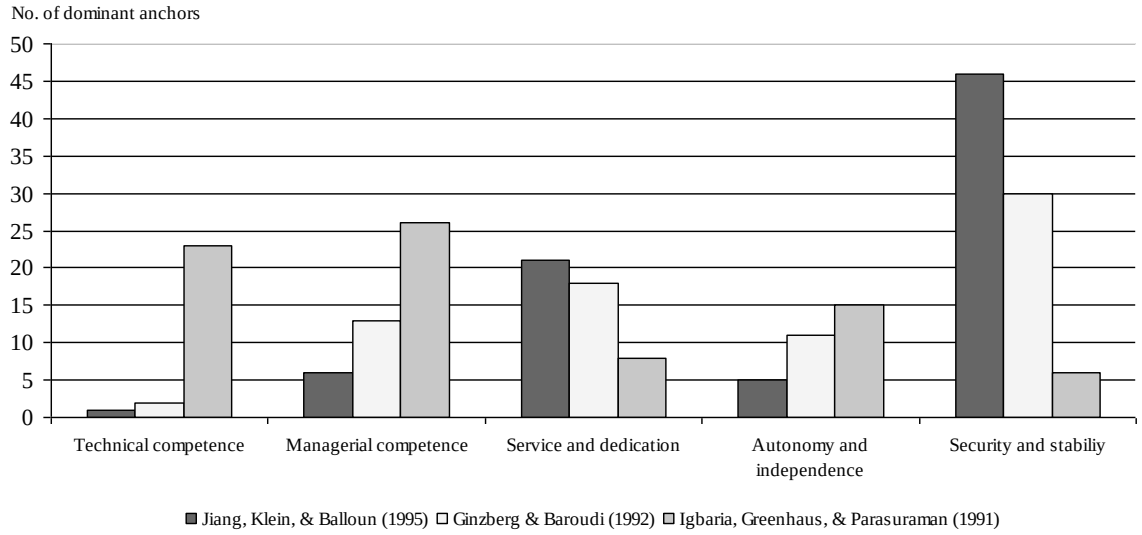


Figure 4: Comparison of various research results on career anchors in IT
(based on Jiang, et al., 1995, p. 12)

The diversity of such findings requires an explanation. Jiang et al. (1995) assumed that additional factors may be accountable for the differences in career anchor results, such as geography, industry, or economic factors. Indeed, in addition to intercultural differences, Gerpott et al. (1988) revealed significant inter-organizational and inter-individual differences in career anchor patterns. One other potential reason is that there are differences in how studies have assessed career anchors, which makes comparing the results difficult. Whilst Schein (e.g. 1990) suggested 40 items to assess individual career anchors, some studies refined the items and used subsets thereof (e.g. Igbaria & Baroudi, 1993). Other researchers applied questionnaires with further variations of the original items (e.g. Crepeau, et al., 1992; Jiang, et al., 1995; Wils, et al., 2010) or based their research on items unrelated to Schein (e.g. Gerpott, et al., 1988). Further, most research has been based on written surveys; although some studies have used interviews to develop assessments of individual career anchors (e.g. Chang, 2010; Ituma & Simpson, 2007).

To sum up, career anchors may serve as a helpful tool in various ways. First, although they are rooted in a traditional notion of career, they seem well applicable to and compatible with definitions of contemporary careers. Hence, they might serve as a tool to bridge the dichotomy between traditional and contemporary views of careers. Second, as is discussed in chapter 4, career anchors may provide a useful tool for career management. However, despite their practical value, there are still several gaps in career anchor research that need to be addressed. For example, further empirical research is required to examine potential reasons for the major differences in career anchor results at an organizational and individual level.

3.7 Summary

This chapter focuses on concepts that may be relevant and helpful in exploring individual careers. According to Tams and Arthur (2010), three main themes emerged in career research as a response to wider economic and societal developments (see section 2.2). First, it was acknowledged that relying on stable employment in large organizations may become increasingly problematic. Second, awareness was growing that individual careers might contribute to (or even shape) an increasingly learning-oriented economy, characterized by networking. And third, there was hope that changes at the economic and at the organizational level might translate into individual careers with better alignment of personal values and commitments outside the realm of work.

As a consequence, career researchers eventually suggested a broad range of so-called "contemporary" or "new" career concepts to examine and describe individual careers. These concepts all have several characteristics in common. For example, they emphasize individual agency and assume a decline in individual commitment to organizations, as well as an increasing insecurity in the workplace. In addition, such concepts consider subjective rather than objective career success criteria to be key for an individual's career evaluation.

The protean and the boundaryless career concepts are two of the most commonly quoted contemporary career concepts. The protean career concept is concerned with an individual's attitude towards tackling his/her career independently. Specifically, it explores whether an individual is guided by his/her own values (as opposed to external ones) and whether that person is self-directed, i.e. proactive, in pushing his/her career in the desired direction. The focus of the boundaryless career concept is on mobility – be it physical (e.g. by crossing organizational boundaries) or psychological (e.g. by creating personal networks beyond one's employing organization).

Both career concepts are potentially useful tools to explore individual careers, as has been widely acknowledged by the academic community. In particular, the protean and the boundaryless career concepts may well match the specific circumstances of the IT industry and some characteristics of professionals working therein (see section 2.3). For example, at the subjectively perceived level of individual careers, the high importance of autonomy, the need for work-related challenges and for flexibility or the importance of the professional community in the IT industry correspond well with the core elements of the protean career and the psychological mobility dimension of the boundaryless career. Also, Hall's (1996) learning stages and the importance of learning in protean careers (see section 3.2.1)

match well with the typical short learning cycles and the pressure for keeping skills up-to-date in IT (see sections 2.3.4 and 2.3.5). Arguably, today's IT learning cycles are even shorter and faster than predicted by Hall. In addition, at the objectively observable level of individual careers, turnover behaviour of IT professionals may well be addressed by the physical mobility dimension in the boundaryless career concept. It is not surprising, then, that careers in the IT industry have repeatedly been regarded as potentially excellent examples of new, contemporary careers (e.g. Ewers, et al., 2004; Knight, 2002; Loogma, et al., 2004; Niederman, et al., 1999; Saxenian, 1996).

Due to various conceptual shortcomings and a dearth of empirical evidence, however, the two concepts may not yet satisfactorily provide answers to open questions regarding mobility or personal values in individual careers. In order to maximize the potential of the protean and boundaryless career concepts as lenses to explore individual careers, three steps need to be made: First, further conceptual clarification is required. For example, more emphasis should be placed on psychological mobility and the distinction of various aspects thereof (e.g. Chen et al., 2010; Sullivan & Baruch, 2009). Also, to date, the sometimes sloppy and imprecise usage of the concepts in the academic discussion has potentially undermined their inherent explanatory power for career phenomena. This calls for more conceptual clarity when referring to protean and boundaryless careers.

Second, whilst various attempts to operationalize and further develop the two concepts have been made, only one validated scale exists to date to measure the extent to which individuals are "protean" or "boundaryless". Yet, as shown above, the items of that scale do not adequately reflect the original notions of the two concepts. Hence, based on a conceptually refined view of protean and boundaryless careers, an adjusted and thorough operationalization of the two concepts is required. This may then be translated into an adjusted measure to explore protean and boundaryless careers empirically.

Third, an empirical study based on such a refined operationalization of the two concepts will address the current lack of data regarding the existence of these careers. Also, such an empirical approach may provide useful input regarding the discussion about the cross-cultural transferability of these American-rooted concepts.

As will be detailed in chapter 6, this study follows these three steps precisely. Whilst capitalizing on the inherent strengths of the two concepts, it aims at addressing some of the current weaknesses regarding the conceptual basis, the operationalization as well as the lack of empirical data for protean and boundaryless careers. This makes it possible to use the concepts as helpful lenses to examine individual careers, namely those of IT professionals.

Yet, before such an approach can be taken, one final topic needs theoretical coverage. As discussed in this chapter, individual careers are not simply protean or boundaryless, and organizations still play an important role for most individual careers. In chapter 4, therefore, the thesis focuses on the interaction between organizations and individuals. If, as assumed, changes at both the organizational and the individual level have occurred, the interaction between them needs to be well understood to allow for potential readjustments. This is why in the following chapter research on managing careers is explored from both an organizational and an individual point of view. Based on the discussion of contemporary career concepts, this allows the identification of potential gaps between organizational practice and individual requirements regarding career management. This will serve as a valuable component in the discussion of empirical findings regarding protean and boundaryless career orientations later in the thesis.

One additional helpful tool to achieve this goal is the concept of career anchors, which offers a perspective on careers that goes beyond the “traditional” versus “contemporary” debate. With a primary focus on individuals’ subjective career, they are a potentially powerful tool for bridging that dichotomy, for explaining individual career behaviour and for suggesting organizational action in managing careers, as will be shown in subsequent chapters.

4 Managing careers

As discussed in chapter 3, despite claims to the contrary of some "new deal" heralds and in contrast to assumptions in some contemporary career concepts, the career-related interaction between organizations and individuals is still highly important for both parties. Yet, arguably, changes at the organizational as well as at the individual level may require constant readjustment of that interaction. This chapter examines the role of career management both from an organizational and an individual point of view. Based on the discussion in previous chapters, links between career management and contemporary careers are made. In particular, the dual career ladder, a career management practice typically applied in IT organizations, is critically examined.

4.1 Who should manage a career?

Whilst traditionally a career was often perceived as something to be managed by a company, today the responsibility for career management is increasingly attributed to individuals (e.g. Adamson, et al., 1998; De Vos & De Hauw, 2010). This is in line with contemporary career concepts (see section 3.1.2). Quoting from a textbook on Human Resource Management, Inkson et al. (2010, pp. 19-20) provided a nice example of this shift over time:

> *"A career is not something that should be left to each employee: instead it should be managed by the organization to ensure the efficient allocation of human and capital resources." (Cascio, 1995, p. 310)*
>
> *"A key feature of the new concept is that the company and the employee are partners in career development."(Cascio, 1998, p. 308)*
>
> *"A career is not something that should be left to chance. Instead, in the evolving world of work it should be shaped and managed more by the individual than by the organization." (Cascio, 2003, p. 373)*

Nevertheless, many authors have argued that organizations still play an important role in individuals' careers (e.g. Baruch, 2004b; Herriot & Pemberton, 1995; Hirsh & Jackson, 2004; Jackson, et al., 1996). This study, therefore, adopts Creed and Hood's (2009, p. 42) broad definition of "career management", using it synonymously with "career development":

> *"Career management involves those personal competencies and organizational influences and structures that allow and drive individuals to acquire the requisite skills, knowledge and attitudes to achieve their own career and personal goals and to meet the demands of their work environment. It is an ongoing process of refining, implementing and monitoring the plans made and the steps undertaken by the individual and his or her workplace."*

In contrast to other definitions of career management, which either define it as something exclusively driven by the individual (e.g. Greenhaus, 1987) or the organization (e.g. Mayo, 1991), this perspective of career management assumes that both individuals and organizations are involved in the process of managing careers. In line with new career concepts, this point of view acknowledges some degree of individual agency, whilst at the same time taking into account the organizational influence on individual careers as boundaries for individual careers. The definition acknowledges a broad agreement in the literature that managing careers is a process ideally to be dealt with by both the individual and the organization (e.g. Baruch, 2006; DeFillippi & Arthur, 1994; Orpen, 1994; Sturges, et al., 2002; Zeitz, et al., 2009) and that this leads to beneficial outcomes for both parties (e.g. Baruch & Quick, 2007; Doyle, 2000; Inkson, 2007; Lips-Wiersma & Hall, 2007). This definition is used here based on the assumption that an individual career cannot be completely managed, controlled or planned, for example, due to chance events (e.g. Bright, et al., 2005). Yet, individual careers can arguably at least be actively shaped to a reasonable extent (e.g. Mitchell, Levin, & Krumboltz, 1999).

Several authors (e.g. Inkson & King, 2011; Lips-Wiersma & Hall, 2007; Orpen, 1994) have highlighted the interdependence between organizational career management (i.e. career management activities initiated by the organization) and individual career management, which is defined as "[...] the personal efforts made by individuals to advance their own career goals which may or may not coincide with those their organizations have for them" (Orpen, 1994, p. 28). "Individual career management" will be used here as a synonym for other terms, such as "career self-management" (e.g. King, 2004; Sturges, 2008) or "self-development" (e.g. Arnold, 1997; Hirsh, et al., 1995). In the following sections, both perspectives are discussed in turn.

4.2 Organizational career management

Contrary to claims in the context of new careers, Hall and Las Heras (2009) contended that, even today, most employees would like to stay with their organizations and have a satisfying career there. Also, it has been argued that organizations may well support individuals in line with contemporary career concepts by providing on-the-job learning opportunities (Zaleska & De Menezes, 2007), development opportunities within certain roles or functions (Hall & Richter, 1990), various types of traditional and contemporary career patterns (Brousseau, et al., 1996), or opportunities for internal mobility (Guest & Sturges, 2007).

4.2.1 Purpose and benefits of organizational career management

Organizational career management is part of Human Resource Management (HRM) which focuses ”[...] on management decisions and behaviours used, consciously or unconsciously, to control, influence and motivate those who provide work for the organization – the human resources” (Purcell, 2001, p. 64). The main purposes of organizational career management are to ensure that the organization has a sufficient number of adequately trained staff for current and future needs, to improve employee productivity and to retain employees with high performance or critical skills (Creed & Hood, 2009). The basic underlying assumption is that organizational career management (e.g. training activities) will positively affect HRM outcomes (e.g. attitudes, motivation). These will then have a positive impact on organizational performance outcomes (e.g. productivity), which will ultimately have a positive effect on an organization’s financial outcomes (Tharenou, Saks, & Moore, 2007). The degree to which such activities are provided in an organization depends on various factors, such as organizational culture, size, industry, economic circumstances, or prevailing organizational paradigms (Creed & Hood, 2009). In Switzerland, for example, a country with few natural resources and a need for knowledge-intensive industries, it was found that 61% of the organizations invested in the development of their staff, 34% of them extensively (Swissstaffing, 2009).

Organizational career management has multiple benefits for organizations. It has been reported to support organizational learning, to develop and spread skills and knowledge across the organization, to implement a corporate culture and corporate values and to attract, develop and retain employees (DeFillippi & Arthur, 1996; Eby, et al., 2003; Hirsh & Jackson, 2004; Scholarios, et al., 2008), to increase their organizational commitment (Orpen, 1994) and engagement (Gruman & Saks, 2011), as well as to improve overall organizational performance (Combs, et al., 2006). Further, organizational career management is thought to be crucial in building trust and fulfilling psychological contracts (Scholarios, et al., 2008). Other studies (e.g. Briscoe & Finkelstein, 2009; Corporate Leadership Council, 2004; Gasteiger, 2007a) also reported a positive effect of organizational career management on employees’ commitment to the organization, provided it is done fairly (Smola & Sutton, 2002). In support of this view, Slay and Taylor (2007) found the degree of organizational career management activities to be positively related to perceptions of employees’ psychological contract fulfilment. In times of organizational change, organizational career management may reduce the amount of perceived threats for individuals and, as a consequence, their resistance to change (Lips-Wiersma & Hall, 2007).

Organizational career management may also be helpful in addressing career plateauing, which is defined as the state "[...] when employees reach a position in the organization from which they are unlikely to be further promoted or given positions of increased responsibility" (Appelbaum & Finestone, 1994, p. 12). Adequate organizational career management practices can provide support to those individuals (Arnold, 1997). So, although plateauing has often been seen as something negative, it does not necessarily result in a negative perception by individuals or in reduced performance (Appelbaum & Finestone, 1994; Ference, Stoner, & Warren, 1988; Nicholson, 1993).

Stevens (1996) reported that effective organizational career management may translate into financial success. However, the link between organizational career management and increased financial performance is debated, and some studies have not found any significant relation between the two aspects (Noe, 1996; Tharenou, et al., 2007). Even Hall (2002) acknowledged the importance of organizational interventions to support individual careers, despite his strong emphasis on self-direction in the protean career concept (see section 3.2). A meta-analysis of 67 studies generally confirmed most of the above positive relationships between training as a typical organizational career management activity and HRM outcomes or organizational performance (Tharenou, et al., 2007). However, the authors concluded that the positive outcomes were often weaker than expected and influenced by various other variables. They cautioned that "[…] it is difficult to understand what it is about the training that makes it more or less likely to be related to organizational-level outcomes" (p. 269).

4.2.2 Potentially critical aspects of organizational career management

For organizations, one key argument against providing extensive career management is that well-educated and more flexible employees may find it easier to look for new jobs and leave their current employers (e.g. Hall, et al., 2002; Inkson & King, 2011; Scholarios, et al., 2008), which is a dilemma, especially for organizations that rely on highly qualified employees. However, case studies from IT companies in Switzerland suggest that the provision of organizational career management may serve as a key attractor and retention tool for highly skilled professionals in a labour market with a shortage of adequately trained specialists (Heer, 2008). Doyle (2000) found that inadequate or bad organizational career management causes cynicism amongst employees.

Beechler and Woodward (2009) pointed to an additional important difficulty in organizational career management, namely the selection of those who may benefit from such practices. For various reasons, organizations may not be able or willing to provide career management to all their employees. For example, especially large organizations need to coordinate career management globally, which is a challenge (Schuler, et al., in press). Beechler and Woodward cautioned that the most frequent solution to such constraints – a narrow focus on a few individuals regarded as the "stars" or "high potentials" in an organization – may be problematic. They reported that such an approach, targeted at a selected minority of employees, may result in reduced individual, team and organizational performance.

As Hirsh and Jackson (2004) highlighted, career management in organizations often does not go far beyond career planning discussions with an individual's immediate line manager. Whilst research has repeatedly shown how crucial the direct supervisor may be for successful career management of an individual (e.g. Wickramasinghe & Jayaweera, 2010; Yarnall, 1998b), the manager's double role as performance assessor and developmental agent can be problematic. In addition to managers' often limited understanding of career options, it may prevent individuals from openly discussing and exploring developmental opportunities. Although organizations typically use line managers as the main source for career discussions with employees, they may not be the ideal persons for such a task (Hirsh, et al., 1995; Hirsh, Jackson, & Kidd, 2001; Kidd, Jackson, & Hirsh, 2003; Scholarios, et al., 2008).

One final potentially problematic aspect of organizational career management is rarely discussed in the literature. Corporate values and culture, which may both be part of organizational career management, help an organization implement and enforce discipline, integration and control amongst the employees (Casey, 1999; El-Sawad, 2002; Geffers & Hoff, 2010; Lepak & Snell, 1999; Scott, 1994).

4.2.3 Organizational career management practices

Various authors have suggested models to structure and classify the roles of HRM and organizational career management in organizations (e.g. Lepak & Snell, 1999; Lepak & Snell, 2002; Sonnenfeld, 1989; Sonnenfeld & Peiperl, 1988), the potential interaction between individual and organization over time (e.g. Hirsh & Jackson, 2004; Schein, 1978) or the different types of organizational career management practices (Baruch & Peiperl, 2000). Baruch (2009) argued that there may be some "best practice" regarding organiza-

tional career management. However, he suggested that every organization should provide such practices according to their specific needs. Table 19 shows a list of some typically applied career management practices, divided into activities that are usually done on-the-job and activities that require time off-the-job.

On-the-job	Off-the-job
Career action and resource centres	Assessment and development centres
Career discussions	Career counselling
Developmental work assignments	Formal education
Dual ladder systems	Internal job markets
Lateral moves	Outplacement
Mentoring	Retirement preparation programmes
Networking	Succession planning
Performance appraisal (360°, peer, upward,…)	Training courses
Personal development plans	Workshops

Table 19: Organizational career management practices

(based on Arnold, 1997; Baruch, 2004b; Baruch & Peiperl, 2000; Hirsh, et al., 2001; Mayo, 1991)

In line with the literature on contemporary careers, various authors called for more individuality in the workplace, including career management (e.g. Baruch, 1996; Boyatzis & Kolb, 2000; Lawler III & Finegold, 2000; Sullivan, et al., 1998). This would allow organizations to provide more effective career management practices, for example, based on criteria such as individuals' perceptions of their work (Wrzesniewski, et al., 1997), subjective career success (Gattiker & Larwood, 1986) or various workplace arrangements (e.g. Handy, 1989; Herriot & Pemberton, 1995; Mayerhofer, Hartmann, & Herbert, 2004; Thite, 2001). In addition, age seems to be an important criterion to consider when designing and providing effective organizational career management practices (e.g. Arthur, Hall, & Lawrence, 1989b; Hall & Mirvis, 1996; Pazy, 1990; Sturges, 2008).

Arnold (1997) highlighted some key factors for successful career management interventions in general. These are aspects such as mutual trust and openness between individual and organization, clearly defined objectives that meet the needs of both sides, the availability of relevant training or the availability of career opportunities to all employees and not just a limited group of staff. Arnold cautioned that an important criterion for successful career management is the limitation to a few well implemented practices. This might explain why it is often the case that only a surprisingly narrow set of career management practices can be found in organizations (Hirsh & Jackson, 2004).

One additional key component is genuine and open support from senior managers (Hirsh & Jackson, 2004; Mayo, 1991). The effect of career management practices can also be enhanced by using clear formal policies (Orpen, 1994).

Yet, it seems as if not all employers fully acknowledged the importance of career management and the key role careers have to their employees as Hirsh et al. argued (2001, p. 37):

> *"[Some] organizations appear to position career development as an optional (and less important) add-on to performance management. For employees, however, it is centrally concerned with their future working life. That is how important it is and how personal it is."*

Scott (1994) also cautioned against overly optimistic views, especially those of managerial support for career management. Indeed, in a report by BlessingWhite (2007) around 1,000 individuals were asked about organizational career management practices. Only 40% believed their organization was committed to helping them achieve their career goals. And only one in three respondents believed their organization's approach to career management did actually meet their own needs. Career coaching, for example, was considered to be one of the most helpful practices but it was amongst the least available tools for individuals. Also, in that study, less than 40% of the respondents believed it would be easy to make a lateral move for them.

To sum up, notwithstanding the claims of contemporary career concepts, organizations arguably still have a highly relevant and crucial role in supporting their employees. Various positive outcomes have been linked to organizational career management practices, especially if such practices are provided well. However, in line with the assertions of contemporary career concepts, at least some organizations seem to shift responsibility for career management towards their employees, thereby running the risk of not capitalizing fully on the potential benefits of organizational career management.

4.3 Individual career management

The next section covers the purposes, benefits, and potentially critical aspects of individual career management.

4.3.1 Purpose and benefits of individual career management

As shown above, the degree to which organizations are able or willing to support their employees varies greatly. This has a direct impact on individual career management, the main purposes of which may be summarized as follows: It is predominantly concerned with the

ability to assess one's own skills, the understanding of current and future job options, the capability to formulate action plans and the access to both the job market as well as to opportunities for further skill development (Hirsh, et al., 1995). Intrinsic motivation is considered key to successful individual career management (Quigley & Tymon Jr, 2006; Thomas & Velthouse, 1990). Noe (1996) argued that individual career management follows a process over three phases – career exploration, development of career goals, and career strategy implementation. Such an understanding of individual career management is perfectly in line with the protean career concept, as it incorporates both the values-driven and the self-directed dimensions of the protean career.

A variety of authors have highlighted the importance of individual career management (e.g. Briscoe & Hall, 1999; Collin & Watts, 1996; Ng, et al., 2005; Sturges, 2008; Tams & Arthur, 2008). In line with the emphasis on individual agency and self-direction in contemporary career concepts, there are various reasons why individuals should actively engage in career management regardless of the degree of organizational career management they receive. For example, Wolff and Moser (2010) highlighted the positive effects of networking within and beyond organizational boundaries. Individuals who actively planned their careers were found to be more successful and they had more positive feelings towards their careers than those who did not (e.g. Baruch & Quick, 2007; Bidwell & Briscoe, 2010; Crowley-Henry & Weir, 2007; Gasteiger, 2007a). Individual career management is thought to help people realize that careers are their own property (King, 2004), to take some control over their worklife (Aryee & Debrah, 1993), to feel valued as individuals (El-Sawad, 2002), and to cope better with uncertainties of chance events (e.g. Mitchell, et al., 1999; Pryor & Bright, 2007). Inkson and Arthur (2001) even suggested that individual career management could be a key driver for today's economy.

In an environment with new psychological contracts, more economic pressure and less predictability, individual career management may help better to maintain one's employability, to stay flexible and to remain capable of learning (Hirsh, et al., 1995). Several authors have argued that learning benefits individuals and their employability (e.g. Arthur, et al., 1999; O'Mahony & Bechky, 2006; Scholarios, et al., 2008). Martin and Butler (2000) claimed that new approaches to learning with more emphasis on the "knowing-how" instead of the "knowing-what" may be required. Learning has also been reported as crucial against plateauing (Södergren, 2002) and is considered important to fight off the negative consequences of the demographic shifts ahead (OECD, 2006). Learning is increasingly seen to happen on-the-job and in less formal settings (e.g. Zaleska & De Menezes, 2007),

which may require more proactivity from individuals (Baruch & Quick, 2007). All this is in line with Hall's claims in the context of protean careers regarding the importance of learning for individual careers (see section 3.2.1).

4.3.2 Potentially critical aspects of individual career management

Although individual career management has many advantages, there are some potential pitfalls. Organizations must not regard it as a cheap short-term solution that can be introduced quickly. Larsen (2002), for example, described the negative consequences of the introduction of unsupported career self-development in an organization. Also, Arnold (1997) reported that effective self-development can be more costly and complex than expected. It is a mid- to long term strategy, requiring time, effort and investment from both the organization and the individual, in order to become successful (Hirsh, et al., 1995; Ibarra, 2002). Further, Ibarra (2003) cautioned that trying to make a big career change at once hardly ever leads to satisfactory results. She argued that an individual should rather tackle his/her own career management in small steps, gradually increase his/her potential new network and gain experience in new fields before making a major career move. For example, Arthur et al. (1999) reported that several participants in their study started their "second career" as a hobby or voluntary work.

In contrast to assumptions in contemporary career concepts, Mallon and Walton (2005) found that individuals still substantially relied on the organization to provide learning opportunities. Employees often narrowly equalled "learning" with "training", i.e. formal programmes, rather than treating it in a broader sense as "self-development". Also, increasing time pressure at work prevented several individuals from engaging in learning activities, even if they would have liked to be more proactive themselves. Pang et al. (2008, p. 1389) reported that learning may, indeed, be key for individuals but that often "[a positive] attitude towards learning may not be borne out of a quest to satisfy curiosity or for personal and professional enhancement but is rather driven by instrumentalism, pragmatism and opportunism [...]". Again, this does not correspond well with assumptions about the positive, values-driven role of learning in concepts like the protean career.

King (2004) explained that individuals' careers are almost always influenced by factors over which the individual has only limited or no discretion. For example, salaries are hardly ever exclusively defined by the individual. So, King argued, in order to influence such factors, at least indirectly, individuals will try to approach what she called "gatekeepers", people with the power to influence one's career outcomes. Gatekeepers, such as line

managers or senior members of the organization, will make their decisions in a social context that is not free of competing interests or personal agendas. According to King (2004), individual career management is a process with three key components – positioning, influencing, and boundary management. Positioning is concerned with the decisions an individual makes around job moves, mobility, investments in training and qualifications, and in active network developing. The second component is the active attempt to influence gatekeepers' decisions. This can happen through self-promotion (e.g. manipulation of how gatekeepers perceive one's performance), ingratiation (e.g. to make oneself more attractive to gatekeepers) or upward influence (e.g. to increase gatekeepers' understanding of one's goals or to increase their felt obligation to support those goals). The third component, boundary management, is concerned with maintaining the balance between work and non-work roles as well as with the transition between them. The relevance of managing that particular boundary has also been confirmed by other authors (Ewers, et al., 2004; Geffers & Hoff, 2010; Sturges, 2008).

King's model matches well with previous research. With regard to positioning, Barney and Lawrence (1989) clustered various career management activities according to their organizationally perceived value and according to the number of others engaging in the same activities. They suggested that individuals follow several career strategies to position themselves effectively. Not to follow activities that are widely adopted and perceived as organizationally valuable (e.g. wearing the right clothes) were likely to hurt one's career, but to adopt them did not increase chances of career success above random level. Activities most likely to have a direct impact on one's objective career success were those with high perceived value and those where only a few others were doing the same (e.g. earning a degree from a prestigious university). Ingratiation and the crucial role of politics in managing one's career have been discussed by several authors (e.g. Dany, 2003 ; El-Sawad, 2002; Ibarra & Hunter, 2007; Standing & Standing, 1998, 1999). The importance of politics with regard to objective career success has often been found to be underestimated by employees. Standing and Standing (1998, p. 313) put it like this:

> *"Whether an individual wants to get involved in the politics of careers is an individual decision but they must acknowledge that it exists or potentially become disillusioned by the process. They must understand that 'getting on with the job' is not enough to secure promotion."*

In summary, in line with contemporary career concepts, individual career management does, indeed, seem to play an increasingly relevant role in today's workplace. Individuals who engage in such practices are generally reported to be more successful, objectively as well as subjectively. However, there is also substantial evidence that individuals face very real boundaries when actively managing their careers. Also, various findings imply that individual self-directedness may not be as widespread as some contemporary career models assert. Hence, much as some elements of new career concepts can be observed in the interaction between individuals and organizations, there is also strong evidence that such interaction is not as protean and boundaryless as claimed by those concepts.

4.4 Career management in IT

It is important to note that in the IT industry there is a wide range of applied, non-academic research available on HRM topics, such as career management. Large firms, e.g. Gartner Group (www.gartner.com), as well as small niche companies specialize in providing research and consulting services related to the needs of IT organizations. This special body of knowledge is widely used by managers and HRM professionals in the IT industry.

4.4.1 Organizational career management in IT

Regardless of the HRM strategy an organization adopts, the alignment of the chosen approach to the IT strategy and, indirectly, to the overall business strategy is of increasing importance. As IT becomes more and more strategically aligned with the business (see section 2.3.3), IT HRM needs strategic alignment as well. Big companies, for example 3M (Roepke, Agarwal, & Ferratt, 2000) and Credit Suisse (Daly, 2006), have taken steps into this direction. Concepts such as the "People Capability Maturity Model (P-CMM®)" (Curtis, Hefley, & Miller, 2001; Morello & Iyengar, 2003) support that alignment. They allow for the modular introduction of a variety of HRM practices in line with the maturity level of the entire organization. This approach has been successful in Indian software companies (Paul & Anantharaman, 2004), as well as in American IT organizations (Intel Information Technology, 2003). Better alignment also requires further development of new employment forms, such as virtual (Igbaria, Shayo, et al., 1999), global (Diaz Research, 2006c; Enns, Ferratt, & Prasad, 2002; Ferratt, Enns, & Prasad, 2001) or contractor work arrangements (Ang & Slaughter, 2001). In general, IT HRM practices have been found to increase productivity and satisfaction amongst IT professionals (Ang & Slaughter, 2004; Ferratt, et al., 2005; Ferratt & Short, 1988), as well as to reduce turnover rates (Agarwal, De, & Ferratt, 2002; Kochanski & Ledford, 2001; Meland, et al., 2005; Tunick Morello &

Claps, 2000). However, in line with IT turnover and motivation research (see section 2.3.5), it has been cautioned that some IT professionals may not be retained even by expensive career management activities unless they find intrinsic motivation for their jobs (e.g. Niederman & Sumner, 2003). Empirically, 15 categories of successfully applied HRM practices in IT organizations were identified, such as performance measurement, provision of advancement opportunities of long-term career development (Agarwal & Ferratt, 1998; Agarwal & Ferratt, 2002).

In line with the general careers literature, career management in IT has mainly been seen as a shared responsibility of both the organization and the individual (Appelbaum, Ayre, & Shapiro, 2002; Aryee, 1992; Bandow, 2005; Jiang, et al., 2001; Lash & Sein, 1995; Potosky & Ramakrishna, 1998). Whilst the reasons for IT organizations to engage in career management are the same as detailed above, Shore (1983) noted one more argument which specifically applies to IT: the transformation from previously triangular, pyramidal[1] to more pentagonal[2] IT workforce structures may not be achieved without appropriate organizational career management practices. Such a trend towards developing roles with higher qualifications in-house and outsourcing tasks of lesser complexity can be found in large organizations, such as Credit Suisse (Daly, 2006).

In general, IT organizations seem to acknowledge the importance of organizational career management. Colley (2008) reported that in a survey of more than 4,000 IT security professionals from about 100 countries, 40% of the organizations were said to increase their training and development activities in 2007, compared with an average increase in other industries of 31% in the same year. Organizations taking a proactive stance towards providing individualized organizational career management practices were reported to be attractive employers for highly qualified IT professionals (Heer, 2008). These findings from Swiss IT companies were supported by Beechler and Woodward (2009), who called for new, creative approaches in order to attract, develop and retain employees with scarce skills.

However, it seems as if this view was not yet fully acknowledged across the IT industry. Amongst small and medium-sized enterprises (SME) in various European countries, 60% reported that concerns regarding customer satisfaction were their primary motivation to engage in career management activities (Scholarios, et al., 2008). Most of these companies

[1] i.e. many people in roles with little complexity, fewer people in roles with higher complexity
[2] i.e. few people in jobs with little complexity, more in roles with higher complexity and few in very high positions

only had very narrow and limited career management processes in place. According to Scholarios and colleagues, the nature of the IT industry with its rapid technological changes that dictate the competencies required in the labour market may explain such findings to some degree. About half of the UK companies acknowledged that poor career management might make their employees likelier to leave. Still, in about a third of the companies – regardless of their size – skill and career development played an important role. These companies did invest in their employees despite the danger of having them poached. Scholarios et al. (p. 1051) concluded:

> *"This finding indicates that the 'new deal', which is thought to have replaced traditional obligations of job security, career prospects, training and development (Herriot & Pemberton 1996), especially in knowledge-intensive industries, is not necessarily the dominant model in the developed economies."*

So, they argued, companies may well express an interest in supporting their employees but specific policies and real action seemed to lag well behind. Also the economic crisis in 2008 may well have decreased the amount of investment in organizational career management practices.

Such findings seem to indicate that Cappelli's (2001) earlier claims about major deficiencies in organizational career management in IT still exist – despite potential improvements – as shown above. He argued that bad career management practices may well exacerbate the shortage of IT professionals and their high turnover rates. According to Cappelli, IT organizations tend to underpay excellent performance whilst overpaying mediocre or bad performance. Also, instead of trying to retain and retrain especially older IT professionals with obsolete skills, they tend to replace these workers with new staff and new skills. Because retraining is often perceived as being too costly, such an approach may well increase overall turnover in the industry, put greater pressure on recruiting efforts and, eventually, push overall salary levels up.

Career anchors and dual ladders

Despite the general interest in career anchors in IT (see section 3.6.2), it has been argued that they may be of limited practical value for the organizational career management of IT professionals (Crook, et al., 1991). Only a few studies have explored how career anchors might inform career management in IT. Nevertheless, such research has shown that career anchors may, indeed, be a highly valuable tool for IT career management. For instance, career anchors have been found to be linked to software engineers' willingness to accept internal mobility opportunities (Mignonac & Herrbach, 2003). Coombs (2009) highlighted

the importance of "service and dedication" aspects in a study on retention strategies for IT professionals in the National Health Service (NHS) in the UK. Also, career anchors are most helpful for understanding and explaining advantages and potential disadvantages of "dual ladders".

The dual ladder system is a frequently used organizational career management practice in IT. It provides two major career paths for individuals, a managerial and a technical one – hence the metaphor of the dual (career) ladder. Such systems have been in use since the 1950s and are mainly designed for technically oriented employees in order to provide them with career advancement opportunities outside the traditional managerial career path (Igbaria, et al., 1995; Ridings & Eder, 1999). They are based on the assumption that IT professionals are either technically or managerially oriented. This view can be found both in research (e.g. Aryee, 1992; Gerpott, et al., 1988) and practice, where dual ladders remain a commonly used approach to organizational career management, mainly in large organizations, such as Shell, Philipps (Van Wees & Jansen, 1994), IBM (El-Sawad, 2002), Ford (Anonymous, 2006) and Credit Suisse (Gubler, 2004).

Ridings and Eder (1999, p. 8) characterized the technical career path in a dual ladder as follows:

> *"A technical career path is a formal organizational advancement path that provides career progression to positions without increasing management responsibility.[...] These technical positions usually provide all the incentives normally associated with the management career path, such as increasing compensation, bigger offices, extended training opportunities, bonuses, titles, and recognition."*

Several authors reported positive findings about dual ladders (e.g. Crepeau, et al., 1992; Ridings & Eder, 1999; Van Wees & Jansen, 1994). For example, from an organizational point of view, technical career paths help motivate people and reduce turnover (Igbaria, et al., 1995). They prevent specialists from being forced into managerial roles if they seek advancement (Ginzberg & Baroudi, 1988; Van Wees & Jansen, 1994). Also, such career structures might support targeted organizational development (Smith, 2003). Individuals may benefit from more flexibility, challenge and career advancement opportunities (Igbaria, et al., 1995).

However, empirical studies of dual ladders in organizations showed that the positive findings may not be universally applicable. Ridings and Eder (1999) conceded that several conceptual weaknesses have to be overcome to make dual ladders an effective tool. Aryee

(1992) argued that dual ladders are inadequate mechanisms to motivate technical performance. Crepeau et al. (1992) found that the dual ladder may only work well for people with certain career anchors. Indeed, career anchors provide a strong argument as to why dual ladders may not be an effective solution for many IT professionals (e.g. Igbaria, Kassicieh, et al., 1999). The broad variety of career anchors in IT may just not be adequately met by a system that is exclusively based on the simple dichotomization between managerially and technically oriented employees (see section 3.6.2). Gerpott et al. (1988) showed that "technical competence" and "managerial competence" are not simply opposites on one single dimension. Also, Crepeau et al. (1992) cautioned that ignoring the diversity of career anchors in an IT organization may have negative effects on motivation. Jiang et al. (1995, p. 9) highlighted that it could be "[…] dangerous, and perhaps costly, to build career structures into the organization based on oversimplistic models of [IT] personnel needs". The variety of career anchors suggests that various practices may be required in order to manage careers of IT professionals adequately. If studies repeatedly find that more than half of the IT professionals have career anchors other than "technical" or "managerial" competence (e.g. Chang, 2010), the traditional IT HRM focus on people with technical or managerial anchors – and hence, the basic assumption of dual career ladders – seems to be inadequate. This view is consistent with other research that cautioned against an overly simplistic approach to organizational career management which does not take into consideration the variety of individual needs (e.g. De Vos, et al., 2008; Diaz Research, 2008a; Enns, et al., 2006; Igbaria, et al., 1995).

Schein's (1978) organizational cone, as depicted in Figure 5, helps explain an additional potential shortcoming of dual career ladders. Technical paths may well provide some kind of hierarchical mobility (e.g. promotions based on technical competence) and sometimes even cross-functional mobility (e.g. horizontal moves between different departments). However, such paths often lack the corresponding mobility towards the organizational centre, which would grant senior specialists more organizational inclusion. For example, senior technical experts may be denied access to adequate strategic information or they may not be granted decision power comparable to that their peers on the managerial path exert (e.g. Allen & Katz, 1988; Bailyn, 1991; Ginzberg & Baroudi, 1988). This can eventually either force them into managerial roles (Brousseau, et al., 1996) or make them leave an organization (Shepard, 1988).

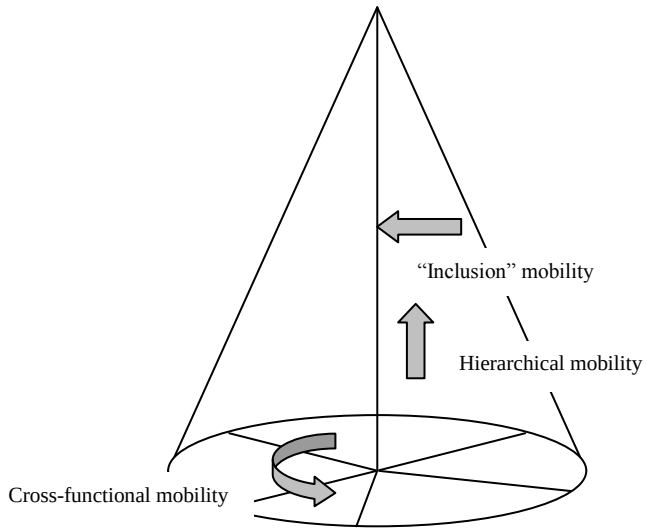


Figure 5: Three dimensions of mobility in an organization
(based on Schein, 1978, p. 39)

On top of these arguments, the literature provides a wide range of shortcomings of the technical career path in a dual ladder system, as shown in Table 20. Shepard (1988) suggested a variety of ways to respond to such weaknesses. For example, he highlighted the importance of a very careful selection of candidates for the technical path.

Apart from the prominent role of dual ladders in IT career management, general practices as listed in Table 19 are used to manage the IT workforce in organizations. Due to the rapid technological changes, training and development activities are usually of high importance to IT organizations and to IT professionals (see section 2.3.4.2). Internal mobility is seen as an effective career management practice to support IT professionals and organizations in the process of constantly learning and acquiring new skills (Diaz Research, 2008a; Mignonac & Herrbach, 2003; Van Wees & Jansen, 1994), which also corresponds to the assumptions of contemporary career concepts. Various organizational career management practices are found to support individuals in their transition to other roles, for example, in taking on more business-oriented functions (Reich & Kaarst-Brown, 1999) or in moving into different roles at later career stages (Diaz Research, 2006a; Hsu, et al., 2003). In line with the findings on motivation in IT (see section 2.3.5.2), McLean et al. (1996) highlighted the importance of creating challenging jobs that provide a sense of accomplishment. Lee (2002b) supported this view, not least as a means to avoid career plateauing and its negative aspects. The developmental needs of IT professionals seem to change with age.

Whilst younger workers' priorities tend to be focused on immediate action and tangible results, such as pay or training, older workers were found to be more concerned with strategic issues (Diaz Research, 2008a).

Weaknesses of technical career paths	Authors
Technical career paths are not enough to cover all IT employees' needs given their variety of career anchors.	Ginzberg & Baroudi (1988), Igbaria, Greenhaus, & Parasuraman (1991), Igbaria, Kassicieh, & Silver (1999), Jiang, Klein, & Balloun (1995), Tremblay, Wils, & Proulx (2002)
Technical career paths do not offer rewards valued by the organization.	Allen & Katz (1988), Ginzberg & Baroudi (1988)
Technical career paths do not provide the power, autonomy, influence and responsibility valued and expected by these professionals.	Allen & Katz (1988), Bailyn (1991), Ginzberg & Baroudi (1988), Tremblay, Wils, & Proulx (2002)
Technical career paths are sometimes misused as a means of reward for organizational loyalty rather than technical contribution.	Allen & Katz (1988), Shepard (1988)
Technical career paths can be misused as a "shelf" for people who are promoted away from the managerial ladder.	Bailyn (1991), Shepard (1988)
Technical career path positions can be ambiguous status symbols as the positions are not easily recognizable and comparable.	Shepard (1988)
Technical career path positions can be seen as proof of inadequacy ("If I had all relevant skills, I would have become a manager...").	Shepard (1988)
Promotion in the technical ladder can be seen as mobility up and out (no real career perspective compared to managerial career).	Shepard (1988)
There is usually a shortage of hierarchical steps in the technical ladder compared with the managerial ladder.	Shepard (1988)
Technical career path positions tend to be less secure (more exposure than managers, easier to be assessed with regard to performance etc.).	Shepard (1988)
Technical career paths often still force people into some kind of managerial responsibility instead of letting them remain real experts in their fields with increasing latitude and autonomy.	Brousseau, Driver, Eneroth, & Larson (1996)
Technical career paths are often seen as being second-class.	Brousseau, Driver, Eneroth, & Larson (1996)
Technical career paths often have higher thresholds for promotion than managerial ladders.	Bailyn (1991), Shore (1983)

Table 20: Weaknesses of technical career paths

4.4.2 Individual career management in IT

As in the general literature, career self-management in IT was also found to be related to more positive career outcomes (Ferratt & Fogel, 1998; Lee, 2002a). In addition, Morgan (1987) discussed the importance of individual career histories for predicting future career success in IT. Several authors highlighted the importance of taking responsibility for one's own career in IT (Aryee, 1992; Smits, et al., 1992). In support of this view and in line with

contemporary career concepts, Lee (2002a) cautioned IT professionals against relying on organizational career management practices and encouraged them to take a proactive stance towards individual career management. Recently, Bidwell and Briscoe (2010) empirically demonstrated how individual career management across various organizations supported IT professionals in enhancing their skills and in achieving more subjective career success.

4.5 Summary

Today, a majority of researchers seem to acknowledge that successful career management needs input from both the organization and the individual. According to various authors, organizational career management is capable of improving various organizational variables (e.g. turnover, performance) as well as individuals' objective and subjective career success. It has also been found that individuals themselves may positively influence their own careers, for instance, by proactively managing them. However, some studies caution not to overestimate the effects of career management practices and to avoid the assumption that more money spent on career management automatically improves career management outcomes.

Specific career management practices have to be carefully implemented in order to be effective. Yet, even some widely used practices, such as the dual career ladder in the IT industry, may not provide the desired results. This seems partially to be caused by too simplistic assumptions about individuals' career motivators. In the case of dual career ladders, career anchors provide a valuable tool to understand such discrepancies between individual needs and organizational career management tools more thoroughly. However, despite their widespread use, the role of career anchors in career management needs to be explored further. Little empirical research exists regarding the potential benefits of career anchors for organizations. Yet, in support of Schein (1996), the scarce evidence from studies in the IT industry suggests that career anchors are a potentially powerful tool for managing careers, both from an organizational and an individual point of view. As discussed in chapter 5, this study aims at exploring the potential benefits of career anchors as a career management tool further.

In line with the discussion in chapter 3, although several elements of contemporary career concepts can be observed in career management activities, various findings indicate that careers are not simply protean or boundaryless. In accordance with these concepts, self-directedness seems to have increased in importance and may well have various positive effects for individuals. However, an individual's proactive stance towards his/her own career cannot just be taken for granted – not every employee is values-driven and self-directed. As a consequence, organizations may be well advised not just to let their employees on their own with regard to career management. Commitment in this area clearly seems to serve organizational interests as well. Due to their high interdependence, however, it appears as if organizations and individuals both need to find a balance in managing careers. What do organizations need to provide? What do individuals need to contribute? Standardized responses may not work well (e.g. Gattiker & Larwood, 1986), especially not in the IT industry. Rather, an individualized approach to career management seems much more beneficial, but also requires considerable effort from organizations and individuals alike.

Yet, to date, little is known about what career management tools are available in the IT industry and what career management tools are most valued by IT professionals in Europe, which is why this study addresses that gap in research in order to provide a valuable basis for a more individualized approach to career management in the IT industry. Also, as shown in the next chapter, this study aims to provide a better understanding of individual expectations and requirements regarding careers, based on individual career orientations, career success definitions, career anchors and career management tool preferences. This may help organizations and individuals, alike, to tailor their career management more effectively.

5 Research questions

As discussed in the previous chapters, various economic, technological and societal developments have triggered changes for organizations as well as for individuals. Arguably, the interaction between them has also been affected, such as the negotiation of employment contracts or career management. However, the extent of such changes is still a controversial subject of discussion. For instance, as shown in sections 3.3.2.2 and 3.5, there is substantial evidence that traditional career patterns can still be found frequently despite academic claims to the contrary. Hence, there is a lack of research regarding potential adjustments in individual mobility patterns as a consequence of wider economic, societal or organizational developments. Furthermore, even less is known about how such changes may have affected individuals' thinking about their careers – or about how individuals are now forced to think about them.

This study further explores these gaps in the research. As discussed, the protean and boundaryless career concepts may serve as useful tools to examine such questions. Yet, they both need some conceptual adjustments in order to capitalize on their strengths more effectively. The two concepts, therefore, are first refined and then used to explore career orientations of IT professionals in Europe. Combining the protean and boundaryless concepts with additional perspectives allows for an even broader and potentially richer exploration of these open questions. As shown below, this is reflected in the overarching research objectives of this study (see section 1.1 for details).

RO 1) To refine and use the protean and boundaryless career concepts in order to identify career orientations amongst IT professionals in Europe

RO 2) To observe the potential interplay between career orientations of IT professionals in Europe and

a) their individual definition of career success
b) their career anchors
c) their preference for career management tools

RO 3) To use career orientations, individual definitions of career success, career anchors and preferences for career management tools to explore additional characteristics of IT professionals' careers in Europe

Based on these research objectives, and on the extensive literature review in the previous chapters, the detailed research questions for this study are presented in the following sections.

5.1 Protean and boundaryless career orientations

As discussed in section 3.7, several steps are necessary to maximize the potential of the protean and boundaryless career concepts as lenses to explore individual careers, for example, to provide answers regarding mobility or personal values in individual careers. First, further conceptual clarification is required for both concepts. Then, a new operationalization of the two concepts needs to be developed, building on a conceptually refined view of protean and boundaryless career orientations. The available scales with which to measure these orientations do not seem to reflect the original meanings and facets of the two concepts adequately (see section 3.4). So, instead of applying existing scales, new items that more closely reflect the original definitions of the concepts need to be developed and empirically applied. Finally, as a third step, an empirical study may thoroughly address the current shortage of empirical data regarding the existence – or absence – of these career orientations (see sections 3.2 and 3.3).

This study aims at providing such empirical data. It is conducted amongst IT professionals in Europe. The focus on individuals in Europe takes into account the debate on the transferability of career concepts and their generalizability across different cultures, which needs further empirical examination (see section 3.5). First, this approach makes it possible to examine whether the protean and boundaryless concepts, both of which are rooted in American culture, can be empirically observed in Europe as well. Second, by collecting data in three different European countries, it also sheds light on potential cultural differences regarding career orientations within Europe.

In addition, the focus on the IT industry takes into account that IT professionals are often considered as being prototypical for contemporary careers (see sections 2.3.5 and 3.7). To date, however, little is known about how protean and/or boundaryless career orientations of

IT professionals are and how the requirements of the IT industry are mirrored in their careers. Only a few studies have looked at such topics (e.g. Ituma & Simpson, 2006; Joseph, et al., 2005; Khapova, et al., 2005). Thus, the first research question is in line with De Vos et al. (2008), who called for empirically sound operationalizations of the two career concepts, as well as for an empirical assessment of how embedded these concepts already are in employees' and organizational career-related thinking and acting.

RQ 1.1) Refining and using the protean and boundaryless career concepts, what career orientations can be identified amongst IT professionals in Europe?

As discussed in section 3.4.1, the matrix presented by Briscoe and Hall (2006a) provides a promising approach towards further conceptual clarification of the protean and boundaryless careers. The matrix covers a wide range of potential individual career orientations. Not only does it include very traditional and highly protean or boundaryless career orientations but it also allows for potential combinations thereof. This is in line with concerns that the dichotomy between traditional and contemporary careers may be too simplistic (see section 3.5).

The matrix structure lends itself well to a potential clustering of career orientations even if, like any model, this results in a reduction and simplification of "reality". From an organizational perspective, identifying certain clusters of employees with similar career orientations potentially allows for more targeted and therefore more effective career management practices. This may be especially relevant for IT organizations, where specific career management has been found to be a powerful retention tool for the scarce workforce in the industry (see section 4.4).

However, to date, Briscoe and Hall's matrix has hardly been empirically examined; and the existing research on the matrix has not rigorously operationalized protean and boundaryless career orientations according to their original definitions. Hence, based on the redefined scales from research question 1.1, this study empirically examines whether career orientations of IT professionals in Europe match the career profiles presented by Briscoe and Hall.

RQ 1.2) How closely do the career orientations of IT professionals in Europe match those proposed by Briscoe and Hall (2006a)?

Due to the scarcity of empirical data on protean and boundaryless career orientations, little is known specifically about the demographic characteristics of individuals holding such career orientations. Hence, the study also aims at uncovering the potential interplay between demographic characteristics and various career orientations.

Regarding age, for example, it has been repeatedly reported that career needs change over the span of one's life (e.g. Diaz Research, 2006a; Feldman, 2007; Hsu, et al., 2003; Ornstein, Cron, & Slocum Jr., 1989). Research on generational differences has further supported such views (e.g. Smola & Sutton, 2002; Sullivan, et al., 2009; Twenge, et al., 2010). As traditional career stage models (e.g. Levinson, et al., 1978; Super, 1957) posit, an individual's needs vary depending on his/her life stage. According to these theories, career exploration is an important theme for a young individual. This may result in relatively high scores on the four protean and boundaryless dimensions (see section 3.4.1). At later stages an individual's focus is said to shift to maintaining the status quo and eventually to preparing for retirement, which could be reflected by lower individual aspirations on the four dimensions. Yet, the opposite effect seems conceivable as well. Namely, it could be argued that individuals at later career stages might feel increasingly liberated from the organizational agenda and may become more self-directed. Such an effect was confirmed in studies on major mid-career transitions of American men (Mahler & Hoare, 2010; Mintz, 2003). Other empirical results tentatively support links between age and changes in protean and boundaryless career orientations (Briscoe, et al., 2006; Segers, et al., 2008). Contradictory as such findings are, they highlight the potential influence of age on career orientations and the need for further research.

Gender may also influence an individual's career orientation. Research findings here seem contradictory, too. Gender-specific differences have not been confirmed in some studies on boundaryless and protean career orientations (e.g. Briscoe, et al., 2006), but they have occurred in others (e.g. Segers, et al., 2008).

Whilst several studies have claimed that women may experience contemporary careers differently and often in a more positive way than men (e.g. MacDermid, et al., 2001; McDonald, et al., 2005; Reitman & Schneer, 2003; Sullivan, et al., 1998; Valcour, et al., 2007), other studies found women to display even more traditional career patterns than men (e.g. Ackah & Heaton, 2004).

In addition to age and gender, a wide range of potentially influencing demographic variables exists. Based on their differences in personality test scores (see section 2.3.6), for example, it seems conceivable that different professional groups within IT have distinct career orientations. Hence, in order to allow potentially new relationships between career orientations and demographic characteristics to emerge, this study takes a mainly exploratory approach to the following research question.

RQ 1.3) What interplay, if any, can be observed between IT professionals' demographic characteristics (e.g. age, gender) and their career orientation?

To date, hardly any research in the career literature is available that examines potential differences in the narratives of individuals depending on their individual career orientations. Yet, based on the characteristics that are typically ascribed to individuals following either traditional or contemporary careers (see section 3.1.2), one might well expect that such differences exist. Also, including a qualitative approach allows for further validation of quantitatively analyzed individual career orientations. Giving individuals the opportunity to describe their individual career orientations may provide valuable input for the debate about the assumed dichotomy of traditional and contemporary careers (see section 3.5).

This study addresses these points and explores career accounts of IT professionals. In particular, the focus is on themes that emerge when individuals with different career orientations talk about various aspects of their careers. Hence, the study qualitatively explores career narratives and puts them in relation to individual career orientations. This addresses the dearth of contextualized empirical research on career orientations (see section 3.5). In addition, by focusing on IT professionals, the next research question also contributes to the scarce body of knowledge in qualitative research on IT careers (see section 2.3.4.1).

RQ 1.4) What themes can be observed in the career accounts of IT professionals with different career orientations?

5.2 Career success

As detailed in section 3.1.3, despite the fact that many researchers acknowledge the importance of adopting an individual perspective when studying career success, there is a scarcity of empirical research asking individuals to define career success in their own words. Also, existing research is still predominantly rooted in the USA even though it is widely acknowledged that taking into account the cultural context is relevant to study career success. Finally, there is a lack of studies giving a large sample of individuals the opportunity to define what career success means to them. Yet, this would be helpful to overcome the shortcomings of existing research, such as limited generalizability or the simplistic usage of career success proxies. The next research question addresses these three points. It allows a large sample of IT professionals in Europe freely to express what career success means to them.

RQ 2.1) How do IT professionals in Europe define “career success”?

The individual career success definitions will be contextualized with demographic characteristics of the IT professionals. The large sample size allows for a detailed exploration of the interplay between individual career success definitions and demographic variables. Given the current scarcity of corresponding research, such data have not been readily available so far. Based on literature regarding the impact of age and gender on individual careers (see section 5.1), these are two variables worth examining. Yet, the next research question is not limited to these two characteristics. Instead, like research question 1.3, it is of an exploratory nature.

RQ 2.2) What interplay, if any, can be observed between IT professionals’ demographic characteristics (e.g. age, gender) and their definition of career success?

Finally, the potential interplay between career orientations and individual definitions of career success is explored. The different roles career success is believed to play for individuals who follow either traditional or contemporary careers (see section 3.1.2) suggest that career orientations may, indeed, have an influence on how individuals define career success. However, the link between career orientations and career success has rarely been examined so far (see section 3.2.2). In particular, previous research has hardly taken into account individual definitions of career success. The following research question seeks to provide more evidence regarding this particular gap in knowledge.

RQ 2.3) What interplay, if any, can be observed between IT professionals' individual career orientation and their definition of career success?

5.3 Career anchors

For a long time, the main focus of IT career research was on external career paths, neglecting the importance of looking at IT professionals' internal careers (Ginzberg & Baroudi, 1988). As discussed in section 3.6.2, career anchors are helpful to examine individuals' internal careers in IT. A better understanding of individual career anchors is relevant because "[…] congruence between individual anchors and work environment is thought to lead to positive career outcomes, such as job effectiveness, job satisfaction and high retention, whilst incongruence is likely to lead to job dissatisfaction and high turnover" (Ituma & Simpson, 2007, p. 979). Career anchors may also influence preferences for career management practices. For example, Aryee (1992) reported that individuals with high scores on the "managerial" anchor more actively engaged in career strategies than those with a preference for the "technical" anchor.

To date, most research on career anchors has been conducted amongst American individuals, and a few studies have focused on professionals in Asia or Africa (see section 3.6.1). Nonetheless, career anchor research in Europe is scarce, especially in the IT industry. The next two research questions, therefore, address this gap. First, the prevalence of career anchors amongst IT professionals in Europe is explored.

RQ 3.1) Which career anchors are most prevalent amongst IT professionals in Europe?

Then, the findings are put into a broader context by looking at the potential interplay between career anchors and various demographic characteristics. Tremblay et al. (2002), for example, reported that older employees may not be more managerially oriented than younger ones although they tend to be in managerial positions more often. With regard to gender, they reported ambiguous results whether or not career anchors of female engineers differed from those of their male peers, in particular in terms of the "technical/functional competence" anchor. Further research is necessary to address such questions more thoroughly. Like research question 1.3, the next research question is of an exploratory nature.

RQ 3.2) What interplay, if any, can be observed between IT professionals' demographic characteristics (e.g. age, gender) and their career anchors?

To date, hardly any literature has examined potential links between individual career orientations and career anchors. This is surprising given that career orientations and career anchors are similar concepts, both focusing on an individual's internal career (Guest & Sturges, 2007). Therefore, some interplay between an individual's career anchors and his/her career orientation seems conceivable. For example, previous research implies that there might be links between a protean career orientation and the "lifestyle" (Crowley-Henry & Weir, 2007; Sargent & Domberger, 2007), the "service and dedication" (Sargent & Domberger, 2007) and the "entrepreneurial creativity" anchors (Gasteiger, 2007a).

Feldman and Bolino (1996) considered combinations of career anchors which support and complement each other to be more likely to occur than combinations of anchors which are contradictory (e.g. equally strong security and entrepreneurial anchors). This is similar to Briscoe and Hall's (2006a) suggested difference in the likelihood of the sixteen potential combinations of career orientations (see section 3.4.1). If the proposed link between career anchors and boundaryless and protean career orientations does indeed exist, one may also expect similar patterns of career anchors and career orientations.

Evidence for a link between career anchors and Briscoe and Hall's (2006a) matrix would provide further validation for both concepts, increase the explanatory power of the matrix and contribute to its potential further application. Yet, even if little interplay between career anchors and career orientations could be observed, this would be a valuable finding. It might place more value on each of the concepts, as they may then be seen as complements rather than substitutes. The next research question explores these aspects.

RQ 3.3) What interplay, if any, can be observed between IT professionals' individual career orientation and their career anchors?

5.4 Career management tools

The last set of research questions examines organizational as well as individual career management practices and their relevance to individuals in the IT industry. First, how individuals rate career management tools with regard to their perceived usefulness is explored. Then, the tools are examined in terms of their availability to IT professionals. Simple as these two questions are, only a handful of studies have dealt with them (e.g. Benamati & Lederer, 2001; BlessingWhite, 2007). However, given the potential benefits of career management interventions and their importance in the IT industry (see section 4.4), these research questions are likely to provide new academic insights as well as highly relevant output for organizations. For example, by comparing the perceived usefulness and the availability of specific career management practices, organizations may readjust their activities and thereby increase the efficiency of the money spent. The corresponding research questions are as follows:

RQ 4.1

a) Which career management tools are regarded as most useful by IT professionals in Europe?

b) Which career management tools are most easily available to IT professionals in Europe?

c) What differences, if any, can be observed between the perceived usefulness of career management tools and their availability?

In order to increase the successful use of career management tools in organizations, a more individualized approach has repeatedly been called for (see chapter 4.2). Currently, career management practices in organizations often depend on criteria such as individuals' hierarchical ranks (e.g. whether they belong to the management team) or on job categories (e.g. whether someone works in project management). Yet, do such distinctions make sense? Do managers and non-managers really differ in their preferences for career management tools? Are there other demographic criteria, such as gender or age, that account for significant differences in career management preferences?

Exploring such links between individual preferences for career management practices and demographic characteristics are likely to provide valuable and hitherto hardly available results. They may support organizations in providing more targeted career management tools. This seems to be especially relevant in the IT industry where successful career management practices are considered key to retaining highly qualified professionals (see section 4.4).

RQ 4.2) What interplay, if any, can be observed between IT professionals' demographic characteristics (e.g. age, gender) and their preference for career management tools?

Quigley and Tymon (2006) highlighted the importance of intrinsic motivation in the context of organizational and individual career management (see section 4.3). Various authors have emphasized that acknowledging a person's individuality is key to successful career management (e.g. Boyatzis & Kolb, 2000; Feldman & Bolino, 1996; Sullivan, et al., 1998). Career orientations are, therefore, expected to have an impact on an individual's perception of career management interventions and on his/her response to them. Depending on their career orientations, individuals are likely to prefer and adopt different practices to manage and develop their careers. However, research addressing this particular topic is in short supply. The current scarcity of knowledge in this area arguably leads to a loss in efficiency in the career management interventions available to IT professionals. A better understanding of the link between individuals' career orientations and their preferred career management interventions would be beneficial to IT organizations and their staff. It may provide the basis for more individualized, more efficient and, hence, more successful career management.

In addition, empirical research regarding the potential interplay between individual career orientations and preferences for career management tools would contribute to a more thorough, contextualized understanding of career orientations and their practical relevance. Such findings could also prove helpful in increasing the cross-fertilization between academic career research and other related disciplines, which has been repeatedly called for (see section 3.1.1). The final research question, therefore, examines career management practices and explores how individual preferences are related to career orientations.

RQ 4.3) What interplay, if any, can be observed between IT professionals' individual career orientation and their preference for career management tools?

In summary, this study explores several gaps in academic career research, as discussed in previous chapters. In particular, the focus is on a thorough, empirical examination of career orientations, as has been demanded by various authors (e.g. Inkson, et al., 2010; Sullivan & Baruch, 2009). Combining such empirical exploration of career orientations with research on career success, career anchors and career management potentially leads to a richer, more contextualized understanding of careers, which may inform general career research well beyond the context of IT professionals in Europe.

As detailed in section 1.1, the focus of this study is predominantly on individuals and their careers, which is reflected in the specific research questions above. However, when exploring these themes, the general/societal, the industrial/professional, and the organizational levels are also taken into account. They provide the relevant background in order to gain a thoroughly contextualized understanding of individual careers and career orientations. In chapter 6, the detailed approach taken to explore the above research questions is discussed.

6 Methods

In this chapter, the research design and methodological approach of the study are discussed. An overview of the participating organizations is provided, considerations regarding confidentiality are presented and the components of two online surveys are described. The development of a new operationalization of protean and boundaryless career orientations, in particular, is covered in detail. Then, the data collection with two surveys and 25 semi-structured interviews is discussed. Finally, demographic data of the survey and interview participants are provided.

6.1 Research design

This section discusses the research design of this study. It also explains the corresponding methodological considerations and decisions.

6.1.1 General requirements for this study

As discussed in the previous chapters and summarized in Table 21, several research gaps needed to be addressed in the context of this study.

	Research gaps
Career orientations	Research on protean and boundaryless careers lacks solidly operationalized empirical data, especially from participants outside the USA. Additional quantitative as well as in-depth qualitative data would provide valuable input for the discourse on the two concepts (see sections 3.2, 3.3, and 3.7).
Career success	Career success research needs more input from a non-American context, and would benefit from studies that allow large samples of individuals to express their own definitions of career success (see section 3.1.3).
Career anchors	Research on career anchors has attracted considerable interest outside the USA, e.g. in Asia or Africa. Yet, conspicuously few empirical studies have examined them in a European context. Also, previous career anchor results are difficult to compare because studies have often used substantially different measures. Hence, exploring career anchors in Europe with scales applied in other studies would provide valuable data (see section 3.6).
Career management tools	Despite the generally accepted relevance of career management practices for organizations and individuals, little is known about individual preferences for specific tools and their availability in the context of the IT industry. Also, there is a lack of knowledge with regard to the interplay of career management tool preferences and other career-related characteristics (see sections 4.2, 4.3, and 4.4)
IT-specific research gaps	Research on IT professionals has predominantly been quantitative and has often simply relied on testing narrowly defined hypotheses, mainly in the US context. This has caused a variety of methodological shortcomings, not least a neglect of the contextual factors of individual careers and a dearth of empirical data of IT professionals in Europe (see section 2.3.4).

Table 21: Research gaps addressed in this study

Such gaps in existing research substantially informed the methodological considerations for this study. Taking into account the various levels of analysis discussed in section 1.1, this eventually led to several criteria the study had to meet. First, it should be based on a

large multinational sample from Europe, which would provide a solid empirical set of data from a non-US background. This approach would also allow for a detailed analysis of various variables within the sample, such as a comparison of cross-cultural differences within Europe. A large sample would also make it possible to generalize the findings, thereby providing a better understanding of phenomena at a general economic/societal level.

Second, the study needed to include a wide range of organizations, comprising various company sizes, corporate cultures or industry types from both the public and the private sectors. Acknowledging corresponding calls in previous IT research (e.g. El-Sawad, 2002; Knight, 2002), such an approach would cover a heterogeneous range of IT employment settings and provide a more detailed and nuanced understanding of career-related phenomena at an organizational level of analysis. Also, to include a balanced mix of different organizations would help to limit potential bias in the sample. For example, in large organizations traditionally oriented individuals may be over-represented (Smith-Ruig, 2008). It was a conscious decision not to include freelancers and contractors in this study but rather to focus on employed individuals. As various authors (e.g. Barley & Kunda, 2006; Dütschke & Boerner, 2008; Feldman & Bolino, 2000; Yarnall, 1998a) have shown, freelancing is a common type of work in IT and freelancers may, indeed, show some specific characteristics that distinguish them from organizationally employed IT professionals. Nevertheless, Bidwell (2010, p. 1036) recently argued why keeping a focus on the organizational level may be relevant for understanding IT professionals and their careers:

> *"[J]obs in the same occupation, carrying out ostensibly similar work, can provide very different rewards depending on the nature of the organizations they are in; similarly, the resources required to access jobs with similar responsibilities can vary substantially from one organization to another."*

Therefore, taking into account the organizational context of the respondents was considered to be highly relevant to address the research questions in this study. As this would not have been possible with freelancers, that particular group of IT professionals was not included.

Third, in line with many others, El-Sawad (2002) argued that acknowledging the individual perspective in studying careers is centrally important. This study, therefore, takes into account individuals' views of their careers. By doing so, the study provides a richer and more detailed understanding of careers at an individual level and allows insights at the organizational and the industrial/professional level.

Finally, rather than just testing narrow hypotheses as much of the previous IT career research has done (see section 2.3.4), this study concisely addresses specific research questions whilst also allowing for potentially new themes to emerge. Such an approach provides the opportunity for salient themes to surface that might have gone unnoticed in a strictly pre-defined research setting. This may be particularly beneficial in rapidly changing environments like the IT industry (Gable, 1994).

6.1.2 Methodological implications

To meet the requirements above, it soon became clear that this study needed to encompass elements from several schools of thought. Different research philosophies tend to regard different methodological approaches as appropriate and valuable. An exhaustive discussion of the various points of view and the potential implications for research methods is far beyond the scope of this thesis. However, some relevant aspects in the context of this study are outlined below.

Two important and influential schools of thought in research are the positivist and the social constructionist perspectives (Easterby-Smith, Thorpe, & Lowe, 2004). Some fundamental differences between these two philosophical points of view are outlined in Table 22. This overview shows how substantially different the two approaches are. Positivists strive for research aimed at providing as much neutrality, independence, and generalizability as possible. The individual context is not in focus; it may even be seen as distracting from more general patterns in the data. Social constructionists, on the contrary, acknowledge the wider context as a valuable and centrally important factor to understand a person's behaviour or attitudes. Just calculating statistical analyses is not regarded as an adequate means to capture such aspects. Rather, an encompassing and individual focus of those researched is at the core of that philosophy.

Both approaches and their preferred research methods have advantages and disadvantages (Bryman & Bell, 2003; Easterby-Smith, et al., 2004; Saunders, Lewis, & Thornhill, 2007). For example, positivists often apply quantitative methods, such as surveys. This usually provides large sets of data which may allow generalizing results. However, findings are often decontextualized. Social constructionists prefer qualitative approaches, such as interviews. Those methods are well suited for investigating the meanings individuals attribute to things or events (Bryman & Bell, 2003). Yet, qualitative data are often difficult to generalize and repeat (Gable, 1994).

	Positivism	Social constructionism
Role of observer	Independent	Is part of what is being observed
Human interests	Should be irrelevant	Are the main drivers of research
Explanations	Must demonstrate causality	Aim to increase general understanding of the situation
Research progresses through	Hypotheses and deductions	Gathering rich data, then inducing ideas from them
Concepts	Need to be operationalized in order to measure them	Should incorporate individual perspectives of those involved
Units of analysis	Should be reduced to terms as simple as possible	May include complex "whole" situations
Generalization through	Statistical analysis	Theoretical abstraction
Sampling requires	Large, randomly selected samples	Small numbers of cases specifically chosen for a particular purpose
Techniques used	Measurement	Conversation
Preference for	Quantitative methods	Qualitative methods
Perspective on validity	Do measures correspond closely to reality?	Does study clearly gain access to the experiences of those in the research setting?
Perspective on reliability	Will the measures yield the same results on other occasions?	Is there transparency in how sense was made from the raw data?
Perspective on generalizability	To what extent does the study confirm or contradict existing findings?	Do the concepts derived from this study have any relevance to other settings?

Table 22: Positivism versus social constructionism

(based on Easterby-Smith, et al., 2004, Tables 3.1, 3.4 and 3.6)

Whilst advocates from each school of thought tend to argue that only their own perspective may provide valid results (Easterby-Smith, et al., 2004), the point of view taken in this study is that both research philosophies may well be combined, thereby capitalizing on the strengths of each. A positivist approach, for instance, seems promising to investigate phenomena on a large scale, such as the potential existence of protean and boundaryless career orientations, and to provide findings that can be generalized. A social constructionist perspective may be helpful when it comes to getting a deeper understanding of how individuals make sense of their careers, what they perceive as being important and so on. Such topics may only be inadequately covered and addressed by a positivist approach. This view is justified by arguments from several authors who claimed that a combination of both research philosophies can be beneficial. Easterby-Smith et al. (2004, p. 57) put it as follows:

> *"Although there is a clear dichotomy between the positivist and social constructionist world views [...] the practice of research involves a lot of compromises between these pure positions."*

In the same line of thought, Miles and Huberman (1994, p. 5) argued:

> *"[R]esearch is actually more a craft than a slavish adherence to methodological rules. No study conforms exactly to a standard methodology; each one calls for the researcher to bend the methodology to the peculiarities of the setting."*

As regards research in the IT context, Coombs (1999) provided a solid argument in support of a combination of positivist and constructionist approaches. Gable (1994) also highlighted the relevance and the advantages of a multi-method approach in IT research. According to Gable, such an approach is not new but has hardly been used in studying careers in IT.

6.1.3 Considerations regarding the research design

Based on the considerations above and a comprehensive overview of various commonly used research methods for studying IT professionals provided by Coombs (1999), it was decided to apply a mixture of quantitative and qualitative methods in this study. A dual approach would make it possible to compare quantitative and qualitative findings and to embed them in a wider, more holistic context. This is considered important to gain a better understanding of careers in IT (e.g. Ginzberg & Baroudi, 1988; Ituma & Simpson, 2006). A dual approach, namely a combination of an online survey and personal interviews, would allow an assessment of the research questions presented in chapter 5 and also meet the requirements outlined in section 6.1.1.

With an online survey, a large number of individuals across various European countries and several organizations could easily be reached. Hence, it would be possible to collect data from a broad and varied sample of participants. A quantitative approach, drawing on a large, diverse sample seemed likely to provide the data required for all research questions except question 1.4. Also, working with online surveys would make it easy to test for reliability and stability. For example, a second survey could easily be distributed at a later point in time. Given that the study was aimed at IT professionals, the use of web-based surveys seemed appropriate. These individuals were experienced computer users, and in their workplaces the hardware, software and the internet access required to participate was accessible to all. For this particular sample, therefore, Dillman's (2007) concerns regarding a potential bias due to computer-illiteracy or a lack of access to required resources did not apply. On the contrary, approaching IT professionals with a paper-based survey may arguably have had a negative impact on the response rate because they were so used to working and communicating with electronic media.

Research question 1.4, however, called for a qualitative approach to provide the intended results. In the debate of one of the key dichotomies in career research (see section 3.1.1), various authors have claimed that individuals construct their own reality and are deeply embedded into their social and cultural background (e.g. Barley, 1989; Collin & Young, 2000b; Duberley, Cohen, & Mallon, 2006; Duberley, Mallon, & Cohen, 2006; Stead, 2004; Young & Valach, 2000). Wrzesniewski (1997) highlighted the importance of using interviews to understand individuals' attitudes pertaining to their work environment. Therefore, conducting personal interviews was regarded as a suitable approach to understand how IT professionals construct their career reality, which may also help unveil more contextualized aspects of protean and boundaryless career orientations in IT.

In addition, a qualitative approach was perceived as helpful to answer research question 2.1. Whilst addressing the research question in a survey would allow for data collection from a large sample of respondents, providing individuals with the opportunity to define career success in their own words would also make it possible qualitatively to examine the data. A qualitative approach to evaluating career success would address a specific gap in research (see section 3.1.3) and may arguably provide relevant findings especially with regard to individual definitions of career success, one of the key elements of the protean career (see section 3.2.1).

The qualitative approach to research questions 1.4 and (partly) 2.1 also reflected El-Sawad's (2002) criticism of career research. The quantitative components in this study were clearly of a positivist nature, as has been most research in this area. Yet, by thoroughly taking into account the participating organizations, the frequently found decontextualization of IT research could be minimized. On top of this, the combination with a qualitative approach allowed for an even more contextualized view of the results from the quantitative part of the study. Especially with respect to career orientations and career success, the study also included a social constructionist stance, letting themes emerge from the data rather than imposing them in advance, as has been called for by El-Sawad (2002). By collecting data at more than one point in time and by using different methodological approaches, the research design also helped minimize the risk of common method variance (Mackenzie Davey, 2009). Figure 6 provides an overview of the research design.

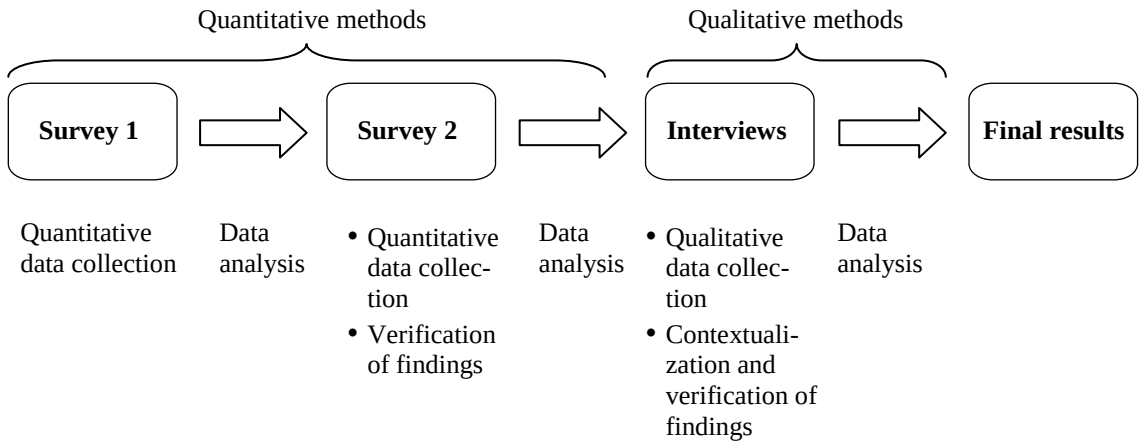


Figure 6: Research design

First, an online survey was used to collect data from a large sample of respondents. Then, based on a thorough data analysis, a second survey was launched. The second survey served a dual purpose. On the one hand, it was intended to verify findings from the first survey; on the other hand, it was used to collect additional quantitative data, which would also allow some longitudinal analyses. Once the second set of data had been analyzed as well, semi-structured interviews were conducted with selected individuals who had participated in both the first and the second survey. Qualitative data from the interviews were considered as useful in terms of validating, explaining and interpreting the quantitative findings (Bryman & Bell, 2003; Miles & Huberman, 1994). Building on an integrated view of both the quantitative and the qualitative data, final conclusions were drawn. The next few sections provide a detailed description of each of these steps.

In Figure 7, an overview of the timeline for the data collection and subsequent communication activities with organizations and participants is presented.

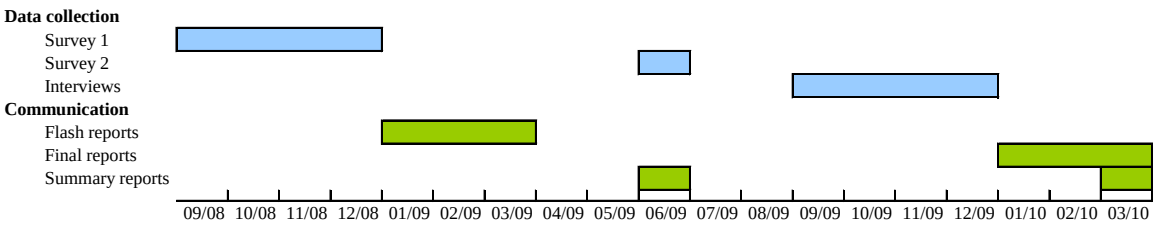


Figure 7: Timeline of data collection and communication activities

The first survey was launched between September and December 2008. Once survey 1 had been analyzed in detail, data for survey 2 were collected in June 2009. The interviews took place between September and December 2009. Throughout the data collection and data analysis process, participating organizations and individuals had the opportunity to learn about the progress and the findings of the study, which resulted in three different types of reports. Details of those reports are presented in section 6.2.4.

6.2 Participating organizations and individuals

This section covers the selection of the participating organizations. A brief overview of each organization is provided. Finally, considerations regarding confidentiality and anonymity of both the participating organizations and individuals are described.

6.2.1 Selection of organizations

Based on the second requirement described in section 6.1.1, an early step in the project was to convince a variety of IT organizations to participate in the survey. In total, 33 organizations in Switzerland, Germany, the UK, the Netherlands and the USA were contacted. 11 of the organizations were IT companies, and 22 were IT departments in non-IT organizations. The organizations were deliberately selected from a broad range of industries, from the private and the public sector and ranged from small start-up companies to large multinational corporate firms.

Contact was made by sending emails to senior HR or line managers. 18 of them were personal acquaintances of the author, mainly former business contacts. The names of the other 15 managers were provided by a senior member of SwissICT, a Swiss body of IT professionals, who was supportive of this study and willing to name selected contacts in organizations he thought would be interested. The email those people received briefly explained the key purpose of the study, provided an attached research outline (see Appendix 1) and asked them for their support. With the HR and line managers who were interested in learning more, personal meetings or telephone conferences were held to present the objectives and the design of the study and to answer any remaining questions. Eventually, the management in eleven organizations agreed to participate in the survey.

The bankruptcy of Lehman Brothers in September 2008 also had consequences for this study because the IT department of Lehman Brothers would have participated had circumstances permitted. Having Lehman Brothers in the sample would have been valuable as it would have added an organization with two distinct groups of IT professionals to the

study: one group in the UK and one in the USA. Although the key focus of the study was on Europe, having a large group of American participants would have been welcome for cross-cultural comparisons. At short notice, no other US organization could be found without risking a severe delay in the overall project plan. Therefore, it was decided to go ahead with European IT organizations only. Each of the ten organizations participating in the study is briefly presented in the next section.

6.2.2 Organizational profiles

The profiles in Table 23 are based on an average of three personal discussions with HR representatives or line managers in each of the ten organizations as well as on publicly available information on the internet and in marketing brochures. All organizations were given the opportunity to proofread the company-specific information in Table 23.

The collaboration with the organizations was very positive throughout the entire data collection period. Their commitment and support, as well as their interest in the research topics, were obvious. The only exception was Org03. Their workforce participated in survey 1 and, as in all other organizations, the management team was presented the first results. However, as of that point in time, the HR and line management representatives did not fully collaborate any longer. For example, unlike all other organizations, they did not provide any organizational benchmark data, although they did not formally end their participation in the study. As the subsequent steps in the research design did not require involvement of the HR or line management (see section 6.2.3), survey 2 and the interviews could still be conducted amongst those IT professionals in Org03 who were willing to participate, as had been previously agreed.

Organi-zation	• Type of organization • Key business • Sector	Headquarters	No. of IT staff at time of survey	Key characteristics and context
Org01	• IT company • Software develop-ment • Private sector	Switzerland	170 (120 of them based in Switzer-land)	• Org01 is specialized in demanding security, application, and integration projects for private and public clients with special data protection requirements. • Project-driven structure with flat hierarchies, there is an office in Eastern Europe. • Org01 has a good reputation amongst IT students and, to date, has never had trouble in recruiting highly qualified IT professionals directly from university. • Career management and training mainly happen on an "as-needed" basis. Hardly any formal proc-esses are in place. Org01 has neither any predefined career paths nor a career ladder.
Org02	• IT department • Governmental IT provider • Public sector / not-for-profit	Switzerland	873 (overall 1,051 staff)	• Org02 is responsible for the operation of the communication equipment and IT applications in the Swiss federal administration. • It has almost quadrupled in size over the last ten years, mainly due to mergers of previously inde-pendent IT service departments in the Swiss government. Its organizational structure still stems from a time with far less staff, which sometimes causes process inefficiency. • Despite its size, it is still only a small unit in the governmental administration, which makes it difficult for the organization to position itself as a strategic partner for other departments. • In the wake of the financial crisis in 2008, it became easier for Org02 to find adequately qualified IT professionals for open positions. Still, recruiting people remains difficult, not least because it cannot offer much salary flexibility for highly sought-after IT skills. At the time of the survey, about 200 positions in Org02 were reported as vacant. • There are no centrally-managed career development paths in the organization. Building a compe-tency model was a major focus of the IT HR department in 2008 and 2009. The model was seen as a future basis for more strategic recruiting and career development processes.
Org03	• IT department • Energy industry • Private sector	United Kingdom	About 500	• Org03 is the IT department of a major UK-based energy provider. • The once state-owned organization has undergone substantial offshoring and outsourcing over the past few years. The rapid pace of change in the IT department is perceived as a constant challenge for the entire organization. • Most members of the management team are former IT professionals, usually programmers. • In order to attract new staff, Org03 puts an emphasis on technical job features rather than on com-pany features and highlights the fact that the offices are located outside London. • At the time of the survey, HRM and line management jointly worked on the development of a technical development framework for their organization to improve the attraction and retention of adequately skilled IT professionals.

Organi-zation	• Type of organization • Key business • Sector	Headquarters	No. of IT staff at time of survey	Key characteristics and context
Org04	• IT company • Software develop-ment • Private sector	Switzerland	95	• The key business of Org04 is the implementation of complex projects for various industries. Soft-ware engineering, consulting, coaching and reviews constitute its core competences. • To keep up with the latest technological trends, Org04 has established close links to experts in science and research. For example, the organization regularly participates in academic studies. • Org04 has developed a unique corporate culture. For example, staff is given the right to veto any decision of the board they are not satisfied with, they decide amongst themselves how to share a monetary bonus within their teams, they elect their own team leaders, they have full transparency of each others' salaries and they enjoy a paid sabbatical every five years. • It has a reputation as an attractive employer for highly skilled IT specialists. Without advertising, Org04 has always been able to staff its open positions with highly sought-after and scarce IT graduates from the most prestigious Swiss universities. • In 2008, Org04 also won an important Swiss IT award for the quality of its services.
Org05 Org05a Org05b	• IT department • Car manufacturing • Private sector	Germany and the UK	620 in Germany and the UK (plus about 500 IT contractors)	• Org05 is the European IT department of a global car manufacturer. The majority of the staff is based in the German headquarters and in locations in the UK. • Economic difficulties in the car industry have caused an almost permanent hiring freeze in Org05 over several years. Simultaneously, the organizational structure has continuously become flatter, which has resulted in fewer opportunities for promotions amongst the IT workforce. • The situation was exacerbated by the global financial crisis in the second half of 2008. For exam-ple, a complete freeze of IT training budgets was declared at the time of the survey. • However, Org05 has a mature career development framework in place. The model is widely used in the UK, whilst it is less well established in the German offices. In 2008, that framework won a prestigious IT award for professional development in the UK. • In order to differentiate further, Org05 was split into two sub-groups for the study. The criterion used to assign respondents to either group was their self-declared country of residence in the first survey. "Org05a" refers to staff living in the UK, "Org05b" to staff in Germany.
Org06	• IT company • Software develop-ment • Private sector	Switzerland	14 (plus 15 con-tractors)	• Founded in 2003, Org06 offers highly specialized software for real-time control of time-critical, cross-organizational systems and processes that are common to airports or hospitals. • At the time of the survey, the organization was hiring about one new member of staff per month. • Due to its small size and the constant challenge to survive as a young, innovative but still vulner-able company, no formal IT HR processes were in place in late 2008. The COO acted as a HR manager and, on an as-needed-basis, provided some basic HR services, such as performance re-views and career discussions.

Organi-zation	• Type of organization • Key business • Sector	Headquarters	No. of IT staff at time of survey	Key characteristics and context
Org07	• IT department • Telecommunications • Private sector	Switzerland	1,376	• Org07 is the IT department of a Swiss market leader in telecommunications. • To keep its position in a highly competitive market, the company puts much emphasis on the introduction of future-oriented technical solutions, which places high strategic value on Org07. • Still, Org07 has difficulties in recruiting highly qualified IT graduates from universities as the organization often seems to be perceived as a "boring" telecommunications organization rather than as an attractive IT employer with a wide range of job opportunities focused on leading-edge IT technologies. • In late 2008, Org07 did not have any centrally managed career development processes in place. Some small parts of the organization worked with simple career development frameworks. However, these were neither centrally managed by HR nor linked to any other firm-wide HR processes, such as compensation. • At the time of the survey, Org07 was developing an organization-wide career development model to manage and develop its IT workforce more strategically. That model was entirely business-driven (e.g. it used criteria such as project size or realized benefits) and did not include any behavioural or technical competencies.
Org08	• IT company • Networking services • Public sector / not-for-profit	Switzerland	83	• Org08 is a Swiss trust that does not pursue any commercial purposes. Its main aim is to provide internet and networking services for all Swiss universities. In addition, Org08 is responsible for the administration and handling of all Swiss internet domain addresses (".ch" domains). • Due to its relatively small size and its not-for-profit business model, employees at Org08 do not have many career opportunities in terms of hierarchical promotion or salary increases. On purpose, no formal career development system is in place but employees are offered individual support for career-related issues. • Work-life balance is said to be excellent for those working in Org08. • Turnover has traditionally been very low in Org08, ranging between 0-2% per year. Thanks to its good reputation on the market, Org08 had never had any difficulties in finding highly qualified IT staff for vacancies before 2008. However, in 2008, IT turnover reached an all-time peak of 4.6% and it was perceived as being more difficult to recruit adequately trained new staff.

Organi-zation	• Type of organization • Key business • Sector	Headquarters	No. of IT staff at time of survey	Key characteristics and context
Org09	• IT department • Financial services • Private sector	Switzerland	920	• Org09 is an IT department of a global financial services company in Switzerland. The department is responsible for the development and maintenance of services for internal clients, e.g. applications for financial transactions, as well as for the corresponding technical infrastructure. • Org09 is mainly located in Switzerland, but has an office in East Asia. Part of the programming work is outsourced to suppliers in India and China. • Numerous training and career development opportunities are available to employees of Org09. All employees are required to have a personal development plan, and there is a role-based competency model in place. For IT, however, there is no strategically managed career development process available. Those activities mostly depend on individual negotiations between managers and their employees. • The financial crisis at the time of the survey directly affected Org09. First, a hiring freeze made it impossible to staff vacant positions at a time when many people were voluntarily leaving the organization (turnover rate in 2008: 14.6%). Second, high levels of insecurity regarding the future of the entire company and corresponding bad news in the press further lowered the morale in the workforce.
Org10	• IT company • Software development and consulting • Private sector	Switzerland	235 (working in six development centres in Austria, Germany, the UK and Switzerland)	• Org10 is a Swiss IT and consulting firm, specialized in bespoke software solutions and product innovation. It also develops tailored software applications or components for new mechanical, optical or electronic products. • Org10 seeks to attract highly qualified IT professionals. It explicitly demands top performance from their staff and, in return, the organization is willing to invest substantially in their professional development. For example, Org10 spends an average of 12% of their annual turnover on training. Each employee is entitled to 20 days of paid training activities per year. • Career development is coordinated across all European centres. There is a clearly defined technical career ladder in place. However, due to the flat hierarchies in the organization, only very limited opportunities for promotion into managerial roles exist. • Org10 has an excellent reputation amongst IT graduates across Switzerland. The organization has traditionally had little difficulty in finding highly qualified IT professionals for job vacancies.

Table 23: Profiles of participating organizations

6.2.3 Considerations regarding anonymity and confidentiality

As Mackenzie Davey (2009) argued, in organizational research it is often difficult to balance the interests of individuals and the interests of an organization. In this study, organizations as well as individuals were promised complete confidentiality. They were granted full autonomy about whether or not they wanted to disclose any information that would make it possible to identify them. The research design also had to take this into account.

Organizations were assured that they could remain anonymous, hence the usage of pseudonyms in the text. After the presentation of the first results, all of them were asked whether they would like to exchange further information amongst themselves. Given the fact that several representatives of these organizations personally knew each other, but were not aware that they all participated in the same study, such an option to share and discuss their own results was considered as helpful. Seven organizations agreed to have their identity revealed. An email with the corresponding information was sent to the contact persons in those seven organizations. Whether or not they actually exchanged further information was entirely up to them.

As was the case for organizations, individuals were also given the opportunity to participate in the survey and keep their anonymity. Hence, the first survey was sent to potential participants directly by the HR department or the top management in each organization. This had two benefits: first, showing strong managerial support for the survey might have helped to increase the response rate (Dillman, 2007); and second, it also made it possible not to disclose any staff email addresses to the research team. The same procedure was used for subsequent reminder emails.

Individuals opened the survey by clicking on a link in the emails. Following Dillman's (2007) advice, access to the survey was restricted by a generic password provided in the invitation for the survey. The sole purpose of the password was to limit access to those addressed in the emails. Due to the fact that all participants in an organization used the same access details, it was not possible for the research team to identify an individual just by their login. Each organization was provided with an identical survey which only differed by the survey ID and the password. This made it possible to know the organization an individual belonged to without having to disclose all the names of the participating organizations in the survey. Also, because the survey was hosted externally (see section 6.3.4), it was not possible for organizations to track any data provided by the participants.

In order to access the detailed records on the server, the research team had to sign a statement of confidentiality and data protection.

At the end of the survey, respondents had the opportunity to provide an email address. They were free to use any email address they wanted to, which permitted those who did not want to disclose their names to use an anonymous account. By providing their email address in the respective fields, participants could explicitly decide whether they only wanted to be sent a summary of the findings (see section 6.2.4) or whether they might also be willing to be contacted for a future interview. For the distribution of the summaries, the sending out of the second survey and the requests for interviews, these email addresses were used without any further involvement of the organizations. The management teams were only informed about the content of the emails and the dates of the communication, but were not provided with any individual names of respondents. Similar to the approach used by Donnelly (2009), this allowed the participants to have full autonomy over their level of anonymity in the survey; it ensured that the organizations' representatives did not know which individuals had participated and that the research team did not need to see any names of respondents who wished to remain anonymous.

In the second survey, respondents had the opportunity to indicate whether they would allow the research team to link the data from both surveys. Without their consent, i.e. their providing the email address they had used in the first survey, this would technically not have been possible. Such an approach was a substantial risk in the data collection process, as a low rate of consent would have severely affected the options for comparing data between both surveys. However, it was decided to include that step in order to allow individuals to have full autonomy over the usage of their survey data. Eventually, 97% of all respondents in survey 2 permitted the research team to link their data sets.

Finally, in all interviews the interviewees were explicitly asked for their consent in having the interview recorded. They were assured of the complete confidentiality of the recordings. In the subsequent transcription phase, all individuals were addressed by an anonymous ID only. Any kind of information that would have permitted their identification, such as names or specific locations, was replaced by general terms to preserve the anonymity of the interviewees.

In summary, substantial efforts were made to ensure that confidentiality was kept throughout the entire study. Based on feedback from both organizations and individuals, that approach was much appreciated. It arguably helped create the trust that was needed for their constructive collaboration.

6.2.4 Communication with organizations and individuals

Over the course of the study, all organizations were contacted several times (see Figure 7). Before the survey, a personal meeting was held in each of the organizations to explain the purpose of the study and to answer any questions. In Org09, even a presentation in front of the senior management board was arranged to get their buy-in. During the actual data collection, especially, regular communication by phone or email was established. After the completion of survey 1, personal meetings were arranged to discuss a "flash report", i.e. preliminary findings from the survey that could serve as quick wins in the organizations. Finally, after the analysis of survey 2 and the interviews, a final report was presented to all organizations except Org03 (see section 6.2.2). One part of the report contained the specific results for each organization and the other, exactly in the same format, provided them with the overall results of the study (see Appendix 12).

In the first as well as in the second survey, all participants had the opportunity to indicate whether they were interested in receiving a summary report. The main purpose of these summary reports was to thank the participants for their support. The reports contained a brief general summary of the results but did not reveal any information at an organizational level. The first summary report (see Appendix 7) was sent out to 907 individuals who had asked for it in the first survey. Based on Dillman's (2007) considerations about rewarding and motivating participants, it was deliberately emailed just a few days before the request for the second survey was made. The second summary report (see Appendix 11) was sent to 162 respondents.

In order to support the communication with organizations and individuals further, a regularly updated project website, hosted on the Loughborough University server, was online between September 2008 and December 2009. It contained detailed information about the purpose of the study, the project timeline, the research team, technical information about the data hosting, and contact details in case anybody required further information.

6.3 Survey 1

This section describes the various components of the first survey. A particular focus lies on the development of a new operationalization of the protean and boundaryless career concepts and the corresponding items. Then, an overview of the other survey components is provided. Finally, the key demographic data of the respondents are summarized. The full survey is presented in Appendix 2.

6.3.1 New operationalization of the protean and boundaryless career concepts

A core element of the first survey was a new operationalization of the protean and boundaryless career concepts. Building this study on existing operationalizations and items would have made it easier to compare results with previous research. However, as has been argued in sections 3.4 and 3.7, a thorough new operationalization, solidly anchored in the original protean and boundaryless career concepts, was required to address several gaps in the current literature and to provide answers to the research questions in this study (see section 5.1).

Wherever possible, the new approach has been anchored in existing operationalizations and is largely built on Briscoe and Hall (2006a) for the protean career and on Sullivan and Arthur (2006) for the boundaryless career (see section 3.4). Yet, the new operationalization encompasses several additional elements that have not been addressed previously.

This approach is based on a positivist stance that characteristics of the protean and boundaryless concepts can to some degree be measured empirically. However, in this study neither concept is regarded as an absolute truth. Rather, in line with Arnold and Cohen (2008), they are viewed as useful lenses that may potentially help to explain phenomena in the world of careers. Also, Baruch's (2008, pp. 2-3) words of caution regarding the difficulties of measuring career concepts are fully acknowledged:

> *"Most of these conceptual frameworks [of new careers] are problematic, even elusive, when it comes to their evaluation and assessment in practical terms. Even their definitions are ambiguous and do not lend themselves to clear and simplistic measurement."*

Taking into account such considerations, it seemed even more important to base the operationalization, as well as the corresponding items to measure protean and boundaryless career orientations, solidly on existing literature and the conceptual aspects discussed in previous chapters.

Career	Dimension	Aspect #	Aspect	Source of operationalization	Covered in Briscoe & Hall (2006a)	Relevant sources for items
Protean career	Values-driven	1	Being clear on one's needs, motivation, abilities, values and interests	Hall (2002) Hall (2004)	No	Briscoe & Hall (1999)
		2	Having personal values that are both the guidance as well as the measure of success in one's career	Briscoe & Hall (2006a) Hall (1976)	Yes	Briscoe, Hall, & Frautschy DeMuth (2006) Baruch & Quick (2007)
	Self-directed	3	Being both competent and motivated to learn and to adapt to a changing environment	Briscoe & Hall (2006a) Hall (2002)	Yes	Briscoe & Hall (1999) Briscoe & Hall (2006a) Baruch & Quick (2007)
		4	Having a feeling of independence and of being in charge of one's career	Hall (2004) Hall (1976)	No	Briscoe, Hall, & Frautschy DeMuth (2006) Baruch & Quick (2007)
Bounda-ryless career	Physically mobile	5	Crossing organizational boundaries	Sullivan & Arthur (2006) Arthur (1996a)	Yes	Briscoe, Hall, & Frautschy DeMuth (2006)
		6	Crossing occupational or geographical boundaries	Sullivan & Arthur (2006)	No	n/a
	Psycholo-gically mobile	7	Feeling independent of any one employer	Sullivan & Arthur (2006) DeFillippi & Arthur (1996) Arthur & Rousseau (1996a)	Yes	n/a
		8	Developing and maintaining non-hierarchic firm-independent networks	Sullivan & Arthur (2006) DeFillippi & Arthur (1996) Arthur & Rousseau (1996a)	Yes	Briscoe, Hall, & Frautschy DeMuth (2006)
		9	Accumulating employer-independent know-how	Sullivan & Arthur (2006) DeFillippi & Arthur (1994) DeFillippi & Arthur (1996) Arthur & Rousseau (1996a)	No	Briscoe, Hall, & Frautschy DeMuth (2006) Baruch & Quick (2007)
		10	Rejecting career opportunities for personal reasons	Sullivan & Arthur (2006) Arthur & Rousseau (1996a)	No	Baruch & Quick (2007)
		11	Considering oneself boundaryless despite existing boundaries	Sullivan & Arthur (2006) Arthur & Rousseau (1996a)	No	Baruch & Quick (2007)

Table 24: New operationalization of protean and boundaryless careers – An overview

Table 24 provides an overview of the new operationalization. It shows the two key dimensions of each career and how these dimensions were operationalized. Also, it highlights the sources used to develop the new operationalization, and potential links to Briscoe and Hall's (2006a) matrix. Finally, the table indicates relevant literature that was used as a starting point for developing new items. The various elements are explained in detail below.

6.3.1.1 New operationalization of the protean career concept

In this study, the protean career is based on Hall's (1976, p. 201) original definition of the concept:

> *"The protean career is a process which the person, not the organization, is managing. […] The protean person's own personal career choices and search for self-fulfilment are the unifying or integrative elements in his or her life. The criterion of success is internal (psychological success), not external."*

As suggested by Briscoe and Hall (2006a) and detailed in section 3.4.1, the new operationalization of a protean career orientation consists of two dimensions, called "values-driven" and "self-directed". Each dimension comprises two aspects, as shown in Table 24.

Aspect 1 ("Being clear on one's needs, motivation, abilities, values and interests") is based on the description of "identity" as a metacompetency for the protean career (Hall, 2002, 2004). Hall (2002, p. 172) put it as follows:

> *"A strong sense of identity is a prerequisite for pursuing a successful protean career. If the person is not clear on his or her needs and motivation, abilities, values, interests, and other important personal elements of self-definition, it would be very difficult to know where to head in life."*

Briscoe and Hall (2006a) did not explicitly integrate this aspect in their matrix. However, Hall's repeated references to the importance of this metacompetency make it a crucial element that needs to be included in a broader operationalization of the concept. As Briscoe et al. (2006) did not cover this aspect in their scale, new items have been developed. They are based on Briscoe and Hall's (1999) suggestions how to support and recognize individuals' "identity" in an organization.

Aspect 2 ("Having personal values that are both the guidance and the measure of success in one's career") is well covered in Briscoe and Hall's (2006a) matrix and anchored in Hall's (1976) original definition of the protean concept. However, the new operationalization clearly differs from that of Briscoe et al. (2006). Their items seemed to imply that personal values are inevitably opposed to organizational values. Yet, being "values-driven"

does not mean that personal values have to contradict organizational values (Arnold & Cohen, 2008). Therefore, the term is viewed and operationalized here as following one's own inner guidance instead of someone else's, regardless of whether this is in line with or opposed to any organizational values.

Aspect 3 ("Being both competent and motivated to learn and to adapt to a changing environment") is also based on Briscoe and Hall's (2006a) matrix. As discussed in section 3.4.2.1, there is some inconsistency between their definition of "self-directed" and the way they operationalized it. The new operationalization is mainly based on earlier work by Briscoe and Hall (1999) and their suggestions about the development of an individual's ability to learn. This reflects both the idea of being "self-directed" (Briscoe & Hall, 2006a), as well as the second protean career metacompetency of "adaptability" (Hall, 2002).

Aspect 4 ("Having a feeling of independence and of being in charge of one's career") finally, mirrors an original key aspect of the protean career (Hall, 1976, 2004). As shown in Table 24, this aspect is not explicitly covered in Briscoe and Hall's (2006a) matrix but is nevertheless included in their operationalization (Briscoe, et al., 2006). Those items have been taken as a basis for the new operationalization.

Overall, the new operationalization of the protean career captures the concept more broadly and is more solidly rooted in conceptual definitions than previous operationalizations. Most importantly, the two metacompetencies "identity" and "adaptability" have been included as elements of the protean career orientation. The metacompetencies allow addressing two crucial aspects of the protean career – the simultaneous existence of stabilizing forces ("identity") and the capability to adapt easily to changes in the environment ("adaptability"). Not only are these aspects repeatedly highlighted by Hall and Briscoe (e.g. Briscoe & Hall, 1999; Hall, 2002, 2004) but they are also supported by Lifton (1993, p. 9), who labelled "[p]roteanism […] a balancing act between responsive shapeshifting, on the one hand, and efforts to consolidate and cohere on the other."

6.3.1.2 New operationalization of the boundaryless career concept

The new operationalization of the boundaryless career is mainly based on Arthur and Rousseau's (1996a) original six meanings (see section 3.3.1). It also takes into account DeFillippi and Arthur's (1996, pp. 123-124) definition of the boundaryless career:

> *"[The] typical boundaryless career is characterized by a career identity that is independent of the employer [...]; the accumulation of employment-flexible know-how [...]; and the development of networks that are independent of the firm [...], nonhierarchic [...], and worker enacted."*

This makes it possible to focus less exclusively on the crossing of organizational boundaries than previous research has often done (see section 3.3.2).

The new operationalization of the boundaryless career contains seven aspects (see Table 24). Building on Sullivan and Arthur's (2006) two mobility dimensions (see section 3.4.1), two aspects cover a dimension labelled "physical mobility", and five aspects describe a dimension called "psychological mobility". It is important to note that psychological mobility is operationalized in accordance with Briscoe et al. (2005, p. 5), who defined it as "being curious and open-minded", rather than with Khapova et al.'s (2005, p. 15) much more narrow definition of psychological mobility as "readiness of individuals to move in their careers".

Aspect 5 ("Crossing organizational boundaries") is the most frequently named aspect of physical mobility, as discussed in section 3.3.2. It is the first of the six boundaryless meanings described by Arthur and Rousseau (1996a). Sullivan and Arthur (2006) also covered this aspect in their operationalization and Briscoe et al. (2006) included it in their survey. The new operationalization is based on those items.

Aspect 6 ("Crossing occupational or geographical boundaries") reflects the meaning attributed by Sullivan and Arthur's (2006) operationalization regarding physical mobility. Whereas Briscoe et al. (2006) only covered the crossing of organizational boundaries, the initial concept had a wider scope. By including occupational and geographical mobility, Sullivan and Arthur (2006) took this into account; however, in their paper they did not clearly distinguish between these two types of mobility. In order to differentiate between occupational and geographical mobility, the two types of mobility have been operationalized separately in this study. The corresponding items have been newly developed because they were not covered in previous scales.

Aspect 7 ("Feeling independent of any one employer") captures a core element of the boundaryless career – an individual's subjectively perceived independence of an employing organization (e.g. Arthur & Rousseau, 1996a; DeFillippi & Arthur, 1994, 1996; Sullivan & Arthur, 2006). Briscoe and Hall (2006a) covered this aspect in their matrix as well. However, Briscoe et al. (2006) did not provide any corresponding items; they have been newly developed for this study.

As discussed in section 2.3.5, IT professionals are sometimes thought to be more loyal to their profession than to their organization. This has also been taken into account for the development of these items.

Aspect 8 ("Developing and maintaining non-hierarchic firm-independent networks") again reflects a central aspect of the boundaryless career that has repeatedly been highlighted in the literature (e.g. Arthur & Rousseau, 1996a; DeFillippi & Arthur, 1994, 1996; Sullivan & Arthur, 2006). It captures the second and the third meaning of Arthur and Rousseau's (1996a) original description and the "knowing-whom" career competency (DeFillippi & Arthur, 1994, 1996). Aspect 8 is covered both in Briscoe and Hall's (2006a) matrix as well as in the survey items that are linked to it (Briscoe, et al., 2006). So, the new items are based on the existing ones.

Aspect 9 ("Accumulating employer-independent know-how") is based on the "knowing-how" competency that is considered crucial for individuals to be successful in a boundaryless career (DeFillippi & Arthur, 1994, 1996; Eby, et al., 2003). This aspect was not covered in Briscoe and Hall's (2006a) matrix but has been included in the new operationalization. However, at least some items by Briscoe et al. (2006) addressed this aspect and have been used for the new scale.

Aspect 10 ("Rejecting career opportunities for personal reasons") focuses on the third boundaryless career competency, the "knowing-why" (DeFillippi & Arthur, 1994, 1996). It covers the fourth and fifth of Arthur and Rousseau's (1996a) six meanings (see section 3.3.1). Whilst it is closely related to the "values-driven" protean dimension, this aspect specifically focuses on the rejection of career opportunities, particularly the rejection of hierarchical advancement. Such behaviour defies traditional assumptions of a career as a steady upward movement. Neither Briscoe and Hall's (2006a) matrix nor the corresponding items (Briscoe, et al., 2006) explicitly reflected this aspect.

Aspect 11 ("Considering oneself boundaryless despite existing boundaries"), finally, captures the sixth of Arthur and Rousseau's (1996a) meanings and, like aspect 10, focuses on the "knowing-why" competency (DeFillippi & Arthur, 1994, 1996). This aspect clearly shows that the individual perception – the psychological element – is crucial to the original notion of a boundaryless career. Again, neither Briscoe and Hall's (2006a) matrix nor the corresponding items (Briscoe, et al., 2006) took this aspect into account. It has therefore been added to the new, broader operationalization of a boundaryless career orientation.

This aspect is closely related to other aspects of the operationalization. However, the focus on the acknowledgement of existing boundaries distinguishes it from other aspects.

6.3.2 New items to measure protean and boundaryless careers

In an iterative process, several items were defined for each of the eleven aspects of the new operationalization. Whenever possible, they were based on Briscoe et al.'s (2006) survey items. Despite the shortcomings of some of these items (see section 3.4.2.1), it would have been negligent not to build on the only available tested and validated protean and boundaryless scales to date. The eight-item scale by Baruch and Quick (2007) was also thoroughly examined for potential items and, as shown in Table 24, provided some useful input.

The selection of existing items took into account their respective factor loading reported by Briscoe et al. (2006). However, due to additional considerations regarding the conceptual compatibility with the new operationalization, the items with the highest factor loading have not always been included in the new scales. Sometimes, existing items were slightly adjusted to reflect some of the criticism of the protean and boundaryless concepts. For example, to make the concepts more widely applicable, their normative, American-centred focus needed to be minimized, which has resulted in an adjusted wording of some items. In each of the eleven aspects, items about an individual's past behaviour as well as about his/her future openness for a certain aspect were included. Although Baruch (2008) suggested a seven-point Likert scale, it was decided to use a five-point Likert scale to indicate the level of approval for each item (strongly disagree, disagree, neither agree nor disagree, agree, strongly agree). This made it possible to use the same format as Briscoe et al. (2006) and Gasteiger (2007a). Intentionally, some items were reverse-coded in order to mitigate the risk of response bias (Bryman & Bell, 2003).

Table 25 provides an overview of all items used in the survey. It shows the dimension and the aspect each item is linked to as well as the sources each of them is based on. As a further means to minimize potential response bias, these 54 items were presented in random order rather than grouped based on the eleven aspects (see Appendix 2).

Career	Dimension	Aspect #	Aspect	Item #	Item	Sources
Protean career	Values-driven	1	Being clear on one's needs, motivation, abilities, values and interests	1	I think I know myself well	New, no precursor
				2	I regularly assess my strengths and my weaknesses.	New, based on Briscoe & Hall (1999, p. 49ff)
				3	I seek out and seriously consider feedback about me from other people.	New, based on Briscoe & Hall (1999, p. 49ff)
				4	I can define what is important to me in life.	New, no precursor
				5	I know which parts of my work interest me most.	New, no precursor
		2	Having personal values that are both the guidance as well as the measure of success in one's career	6	My own career development should be based on my personal values, not on what society values.	New, no precursor
				7	I have made decisions about job opportunities that were guided by expectations of myself rather than what some other people expected of me.	New, based on Briscoe, Hall, & Frautschy DeMuth (2006, p. 45), item 9
				8	What is really important to me is how I personally feel about my career success.	Adjusted from Briscoe, Hall, & Frautschy DeMuth (2006, p. 45), item 11; factor loading 0.265 (Briscoe, et al., 2006, p. 34)
				9	Career success is something I define for myself – no one else can do this on my behalf.	New, no precursor
				10	I have turned down jobs or assignments because they would have gone against what is important to me in life.	New, no precursor
	Self-directed	3	Being both competent and motivated to learn and to adapt to a changing environment	11	If I am not sure whether a job or task will suit me, I give it a try so that I can find out.	New, no precursor
				12	I can easily adjust to changing situations and environments.	New, based on Briscoe & Hall (1999, p. 49ff)
				13	I prefer job assignments that require me to use the skills and competencies I am already good at rather than assignments that would require me to develop new ones.	New, no precursor, reverse-coded
				14	I am eager to accept new challenges.	New, based on Briscoe & Hall (1999, p. 49ff)
				15	I see changes at work as opportunities to change things for the better.	New, no precursor
		4	Having a feeling of independence and of being in charge of one's career	16	Whenever possible, I try to do my job in the way I think best, rather than "by the book".	New, no precursor
				17	I take responsibility for my own career development.	Adjusted from Baruch & Quick (2007, p. 491)
				18	In the past, I have relied more on myself than others to find a new job.	Adjusted from Briscoe, Hall, & Frautschy DeMuth (2006, p. 45), item 8; factor loading 0.414 (Briscoe, et al., 2006, p. 34)

Career	Dimension	Aspect #	Aspect	Item #	Item	Sources
Protean career	Self-directed	4	Having a feeling of independence and of being in charge of one's career	19	I navigate my own career, according to what is important to me.	Adjusted from Baruch & Quick (2007, p. 491)
				20	Ultimately, I depend upon myself to move my career forward.	Original from Briscoe, Hall, & Frautschy DeMuth (2006, p. 45), item 6, factor loading 0.797 (Briscoe, et al., 2006, p. 34)
Boundaryless career	Physically mobile	5	Crossing organizational boundaries	21	I like the predictability that comes with working continuously for the same organization.	Original from Briscoe, Hall, & Frautschy DeMuth (2006, p. 46), item 9; factor loading 0.505 (Briscoe, et al., 2006, p. 35); reverse-coded
				22	I would feel very lost if I could not work for my current organization.	Original from Briscoe, Hall, & Frautschy DeMuth (2006, p. 46), item 10; factor loading 0.660 (Briscoe, et al., 2006, p. 35); reverse-coded
				23	I prefer to stay in an organization I am familiar with rather than look for employment elsewhere.	Adjusted from Briscoe, Hall, & Frautschy DeMuth (2006, p. 46), item 11; factor loading 0.436 (Briscoe, et al., 2006, p. 35); reverse-coded
				24	If my organization provided lifetime employment, I would never seek work in other organizations.	Adjusted from Briscoe, Hall, & Frautschy DeMuth (2006, p. 46), item 12; factor loading 0.748 (Briscoe, et al., 2006, p. 35); reverse-coded
				25	In my ideal career I would work for only one organization.	Original from Briscoe, Hall, & Frautschy DeMuth (2006, p. 46), item 13; factor loading 0.715 (Briscoe, et al., 2006, p. 35); reverse-coded
		6a	Crossing occupational boundaries	26	I could feel comfortable in work other than IT.	New, no precursor
				27	I have already considered changing jobs into a different occupation.	New, no precursor
				28	I like the predictability that comes with working continuously within IT.	New, no precursor, reverse-coded

Career	Dimension	Aspect #	Aspect	Item #	Item	Sources
Boundaryless career	Physically mobile	6b	Crossing geographical boundaries	29	I prefer to stay in a geographical location I am familiar with rather than look for employment elsewhere.	New, no precursor, reverse-coded
				30	I would find it motivating to take on a job in another geographical location.	New, no precursor
				31	In the past, I have considered changing jobs and moving to a different geographical location.	New, no precursor
	Psychologically mobile	7	Feeling independent of any one employer	32	I usually define myself in terms of my profession rather than in terms of my employer (e.g. "I am a software engineer" rather than "I work for company X")	New, based on DeFillippi & Arthur (1996)
				33	I see myself as a member of my occupational group.	New, no precursor
				34	Being part of my current organization means a lot to me.	New, no precursor, reverse-coded
				35	If I had to choose, I would rather change my profession than change my current employer.	New, no precursor, reverse-coded
				36	In my opinion, changing jobs between organizations is a sign of disloyalty towards employers.	New, no precursor, reverse-coded
		8	Developing and maintaining non-hierarchic firm-independent networks	37	I like being able to call on external contacts to solve problems.	New, no precursor
				38	I enjoy job assignments that require me to work outside of the organization.	Original from Briscoe, Hall, & Frautschy DeMuth (2006, p. 46), item 3; factor loading 0.766 (Briscoe, et al., 2006, p. 35)
				39	I look for tasks at work that require me to work beyond my own department.	Adjusted from Briscoe, Hall, & Frautschy DeMuth (2006, p. 46), item 4; factor loading 0.698 (Briscoe, et al., 2006, p. 35)
				40	I enjoy working with people outside of my organization.	Original from Briscoe, Hall, & Frautschy DeMuth (2006, p. 46), item 5; factor loading 0.843 (Briscoe, et al., 2006, p. 35)
				41	In the past, I have sought opportunities that allowed me to work outside the organization.	Adjusted from Briscoe, Hall, & Frautschy DeMuth (2006, p. 46), item 7; factor loading 0.646 (Briscoe, et al., 2006, p. 35)

Career	Dimension	Aspect #	Aspect	Item #	Item	Sources
Boundaryless career	Psychologically mobile	9	Accumulating employer-independent know-how	42	I actively seek job assignments that allow me to learn something new.	Adjusted from Briscoe, Hall, & Frautschy DeMuth (2006, p. 46), item 1; factor loading 0.563 (Briscoe, et al., 2006, p. 35)
				43	Whenever possible, I try to develop skills and competencies that can be used in various organizations.	New, no precursor
				44	My skills are highly specialized to the needs of my current employer.	New, no precursor, reverse-coded
				45	I am confident that I could move to another organization fairly easily if I needed or wanted to.	New, no precursor
				46	Staying in my current job for a long time would hamper my future development inside or outside my organization.	New, no precursor
		10	Rejecting career opportunities for personal reasons	47	If I were offered a job at a higher hierarchical level tomorrow, I would take it, regardless of my current personal situation.	New, no precursor, reverse-coded
				48	In the past, I have rejected career opportunities for personal reasons.	New, no precursor
				49	In order to move up the organization I am willing to make sacrifices in terms of my personal work-life balance.	New, no precursor, reverse-coded
				50	I would reject a new job if it did not allow me to contribute something meaningful to society.	New, no precursor
				51	I make my career choices based primarily on financial considerations.	Original from Baruch & Quick (2007, p. 491), reverse-coded
		11	Considering oneself boundaryless despite existing boundaries	52	I have made career moves that most people would consider too radical.	New, no precursor
				53	If I stay in the same job for a long time, it is because it suits my purposes, not because I am wary of change.	New, no precursor
				54	I am excited by the thought of making unconventional career moves.	New, no precursor

Table 25: New items to measure protean and boundaryless career orientations

6.3.3 Additional components of survey 1

In addition to the items on protean and boundaryless career orientations, survey 1 consisted of several other components that are briefly explained below. The survey introduction, the instructions for the various items, the help menus as well as the overall structure of the survey were largely based on advice by Dillman (2007). For example, questions asking for demographic information were deliberately placed towards the end of the survey. The questionnaire started with protean and boundaryless items which the research team – based on an entirely subjective assessment – considered to be both salient and easy to answer for most respondents. A status bar on the screen indicated how far each participant had already proceeded in the survey, which should help minimize the drop-out rate. At the end of the survey, respondents were provided with the option to comment freely on the survey and they had the option to indicate their email address (see section 6.2.3).

Career anchors

In order to capture the respondents' career anchors, Igbaria and Baroudi's (1993) measure with 25 items was used in its original form. No changes were made in the item order and in the response format, a five-point Likert scale. This decision was based on various considerations; the scale had been developed, thoroughly tested and validated in the context of the IT industry. By using the original scale, direct comparisons to previous studies of career anchors in the IT industry would be possible, which would help address the current lack of comparability of various career anchor studies (see section 3.6.2). In addition, given the overall length of the survey it was a welcome side-effect that only 25 instead of Schein's (1990) 40 items were needed.

Career management tools

Based on a broad range of literature on organizational career management (see section 4.2) as well as on personal experience in the IT industry, 19 commonly used career development tools in IT organizations were listed. Each tool was briefly explained in a help menu. Respondents had to tick the five tools they felt would be most useful – regardless of whether those instruments were actually available to them. Then, they had to indicate the five tools that were most easily available to them – regardless of their personal preference. That multiple-check item list was presented in random order to each participant to avoid potential response bias, such as the ticking of just the first five items in the list (Dillman, 2007).

The online tool did not allow the participants to select more than five tools either regarding the usefulness or the availability; however, it was technically possible to select fewer tools.

Career success

Career success was assessed by two elements. First, following Heslin's (2005) arguments, it was evaluated by two items adapted from Gasteiger (2007a), using self- and other-referent comparisons. In line with Lawrence's (e.g. 1988; 2011) work on age-related beliefs about careers, one item asked the respondents whether they felt their career was on schedule compared with what they considered as "normal" in their profession. The other item asked respondents how successful they felt about their career in comparison with their peers. Second, participants were asked to finish the sentence "Career success means…" in their own words. This item was intended to address several of the shortcomings discussed in section 3.1.3.

Additional items

Two items were added directly after the section on protean and boundaryless careers. They focused on participants' preferences for teamwork and were both taken from Gasteiger (2007a). Those items might allow examining the reportedly low social need strength of IT professionals (see section 2.3.5.2).

A substantial amount of demographic data was collected, such as nationality, country of residence, educational background, age, gender, marital status, number and age of children etc. Also, more information regarding the current job was gathered, such as IT job categories, terms of employment, hierarchical position or number of subordinates. It was decided not to directly ask respondents about their salary. Much as this would have been interesting, it might also have deterred some individuals from answering or even from filling in the rest of the questionnaire. Also, precise financial information was not deemed crucial for the key purpose of this study, and comparing salary levels reliably across various countries would have been highly complex. Instead, an alternative item asked whether an individual felt that his/her salary was not adequate, adequate or more than adequate.

Job mobility was evaluated in terms of intra- and inter-organizational as well as geographical changes over the past five years. The time frame of five years was chosen to provide the same reference period for all respondents and to make results comparable. In line with Gasteiger (2007a), data on hierarchical mobility were collected in terms of number of past promotions. Also, tenure in the IT industry, with the current employer and in the current

job was surveyed. Intention to quit was assessed by two items: one used by Gasteiger (2007a), asking for the likelihood that the person would be in the same job in twelve months time and the other asking whether they were actively looking for a new job at the time of the survey.

A single item was used to evaluate individual preferences for a managerial or a specialist career, which would provide input for the discussion regarding career anchors and dual career ladders (see section 4.4.1). Finally, future career prospects and overall career satisfaction were assessed by two single items, asking respondents for their respective overall assessment. This approach was chosen based on several authors (Heslin, 2003; Ironson, et al., 1989; Verbruggen & Sels, 2008) who have argued that a single item may capture the essence of "career satisfaction" more effectively than facet scores.

6.3.4 Selection of the online survey tool

The online survey tool for this study had to meet various criteria. It was essential that it had a modern, user-friendly appearance. The tool had to cope with large sets of data and many concurrent users. That was important, especially when sending the survey out in large organizations. As data protection was a critical aspect in this survey (see section 6.2.3), the data needed to be hosted professionally. Other key requirements were a direct data export to SPSS and the option to work with multi-lingual surveys.

After a thorough evaluation of various tools (e.g. 2ask, Inquisite, SurveyMonkey, OpenPSY), it was decided to use EFS Survey, a professional software package provided by Unipark (www.unipark.de). EFS Survey (versions 5.2 and 6.0) met all the criteria required for this particular study; its functionality, technical support and user-friendliness were excellent. During the entire data collection phase, no technical problems occurred. Also, the subsequent data export to SPSS was straightforward and did not cause any trouble.

6.3.5 Survey translations

The survey was provided in three languages, English, German and French. English and German were obvious choices to address participants in the UK, Germany and Switzerland. French was only included because Org02 explicitly asked for it; they employ several French-speaking IT professionals, and as a governmental organization they are required to send out all information in French as well. Although Italian is also an official language in Switzerland, Org02 agreed not to include it as a survey language because the potential tar-

get population would have been too small and all of the potential Italian-speaking respondents were considered to be sufficiently fluent either in German, English or French.

All items were first developed in English. The translation into German comprised four steps, basically working with translation and re-translation, as is often done in research using multi-lingual approaches (e.g. Chudzikowski, et al., 2009). First, the author of this study and two native German speakers, both with an academic background and fluent command of English, independently translated all items and instructions of the survey. Second, the three translators jointly decided on the most appropriate German translation wherever their suggestions differed. Third, a professional translator – a native English woman who had been living in Switzerland for twenty years – translated the German items back into English. As a last step, the professional translator and the author of this study discussed and eliminated any remaining ambiguous translations.

Org02 was willing to have the survey translated at its own cost. The French translation was hence provided by the internal translation services of the Swiss government. They were given both the English and the German versions of the survey. As a last step, the French version was submitted to a final check by the author of this study to make sure that all the relevant key terms had been translated correctly.

6.3.6 Pre-test and pilot study

Following Dillman's (2007) advice, the survey was developed in several steps. First, the research team thoroughly checked an online draft of the survey. Second, a pre-test was launched amongst ten of the author's colleagues and friends. That group deliberately comprised individuals from various professional backgrounds, including IT professionals, e-learning experts and psychologists. They were asked to check the survey with regard to various aspects, such as user-friendliness, functionality, and comprehensibility. No major conceptual or technical issues were detected during the pre-test phase. Yet, much helpful feedback was provided regarding survey instructions or regarding plausibility checks. Wherever possible, such checks helped ensure that respondents could only enter meaningful data, for example, regarding their year of birth. Based on the feedback, the survey was updated accordingly.

The third step was a small pilot study. Its main purposes were to find out whether the survey was comprehensible to IT professionals regarding its content and to check whether it worked properly from a technical point of view. This step was considered crucial before sending the survey to large numbers of individuals in the participating organizations. Three

IT programme coordinators at Swiss universities agreed to send their IT students and alumni an email with a link to the pilot survey. In the email, the aims of the pilot survey and the main study were explained. As was the case for the participants in the main survey, a summary of the key results was promised as a token of appreciation. As high response rates were not essential in the pilot survey, no reminder emails were sent out at that stage.

Of the 566 individuals contacted, 55 fully completed the pilot survey (9.7% response rate). As no technical or content-related problems were observed during the pilot study, and comments by the participants did not reveal any survey-specific issues, it was decided to use that version of the survey for the ten organizations. The pilot study also provided helpful input for some preliminary data analyses in SPSS. As it turned out later, the pilot data did not vary greatly from the overall results in the survey. However, it was decided not to include the pilot data in the data from the main survey. The main reasons were that, first, the pilot data contained many responses from students without any relevant work experience. Second, the data did not contain any information regarding the company an individual worked for, which would have made it impossible to analyze participants at an organizational level. And third, it appeared that several participants were freelancers, a group of IT professionals that explicitly was outside the scope in this study (see section 6.1.1).

6.3.7 Sampling and data collection in survey 1

As shown in Figure 7, the first survey was launched between September and December 2008. To grant the organizations a maximum of flexibility, each of them was allowed to choose an individual time slot of three weeks during the data collection period to participate in the survey. This made it possible for them to schedule the survey according to their own agenda and considerably increased their willingness to take part in the study. Based on suggestions by Dillman (2007), a multiple contact strategy was applied to maximize response rates, as presented in Table 26.

All organizations were provided with generic email drafts in English and German and agreed to follow that process. Just two exceptions were made: Org01 decided to grant only two weeks for the completion of the survey and therefore left out step 3; and in Org07, no reminders were sent at all. At the time of the survey, a major reorganization was under way and the new management was critical of the survey. Eventually, the HR representatives were allowed to go ahead with it but they were not given permission to send out any reminders or thank you emails.

Step	Content	Sender	Recipients	Date (x: launch date)
Step 1 – pre-notice email	• The email announced the upcoming survey • It explained the main goals of the study and why it was important for organizations. It also contained a statement about confidentiality and anonymity • The purpose was to raise awareness and leave a positive impression in order to increase response rate afterwards	Management	Selected participants	x-2/3 days
Step 2 – email with link to survey	• The email contained the link and password for the survey as well as information about the closing date • It reminded participants of the confidentiality and anonymity of the survey	HR or management	Selected participants	x
Step 3 – follow up email	• The email thanked those who had already participated and encouraged those who had not yet participated to do so • It reminded participants of the confidentiality and anonymity of the survey and mentioned the closing date again	HR or management	Selected participants	x+7 days
Step 4 – thank you and next steps	• The email thanked all participants for their support • It contained a brief outlook on the next steps in the research project and stated that this was the last email participants would be contacted with • It also included a final call for those who had not yet participated	HR or management	Selected participants	x + 18 days (3 days before closing date)

Table 26: Generic communication plan for survey 1

With the exception of Org07, all organizations agreed to send out the survey to their entire permanent IT workforce. Some of them decided to exclude individuals working in non-technical IT roles, such as IT HR and IT marketing; contractors were not included in any of the organizations. Org07 only wanted to contact 500 IT employees. The research team was provided with a list of 1,376 anonymous personal ID numbers of all their IT staff. Using SPSS, a random sample of 500 IDs was selected and sent back to Org07. They then contacted that random sample for the survey.

Overall, 3,817 emails were sent out, and 2,311 individuals accessed the survey. Eventually, 1,709 surveys were completed. In a subsequent quality check, seven surveys were excluded because they did not contain any data. In those cases, the individuals had only clicked their way through the survey without providing any answers. However, six surveys that had not been listed as fully completed were included because the respondents had filled in the entire survey but had simply not hit the “Close window” button on the very last page. This resulted in 1,708 usable responses or an overall response rate of 44.7%.

Table 27 provides an overview of the response rates per organization.

Organization	Sample population (emails sent)	Responses (completed only)	Response rate (completed only)
Org01	95	60	**63.2%**
Org02	873	233	**26.7%**
Org03	469	253	**53.9%**
Org04	85	70	**82.4%**
Org05	620	215	**34.7%**
Org05a	*not known*	*111*	*not known*
Org05b	*not known*	*104*	*not known*
Org06	14	14	**100.0%**
Org07	500	123	**24.6%**
Org08	83	62	**74.7%**
Org09	865	560	**64.7%**
Org10	213	118	**55.4%**
Total	**3,817**	**1,708**	**44.7%**

Table 27: Response rates per organization for survey 1

In most organizations more than half of all employees participated in the survey. Visible support from the top management most likely helped increase response rates. In subsequent discussions, several organizations expressed their positive surprise about the high response rates, which often exceeded their own expectations. As anticipated, response rates in Org07 were considerably below average due to the lack of reminder emails. The low response rate in Org02 had two likely causes. First, their staff had been asked to fill in a large employee survey just a month before this survey was sent out and they had not yet received any results from the employee survey. Second, contrary to the suggestions in the communication plan, the first two emails were sent from an anonymous internal email account ("communication@Org02") rather than from a senior HR or line manager's email account. Also, potential respondents were not given direct access to the survey from the email. Instead, they were asked to go to a dedicated intranet page and launch the survey from there. When the Head of HR realized this, he sent the final email and the direct link to the survey from his personal account, which helped increase the number of responses substantially. The low overall response rate in Org05 could not be explained satisfactorily. The UK and the German offices had fully adhered to the communication plan and neither the HR representatives nor the IT management team could imagine any obvious reasons for the low response rate.

6.3.8 Demographic characteristics of respondents in survey 1

This section provides an overview of some key characteristics of the respondents in survey 1. In total, the participants lived in 11 different countries. The vast majority of them were based in Switzerland (66.5%), in the UK (21.3%) and in Germany (8.7%)[3]. Overall, citizens from 41 different countries participated in the survey. 52.4% of the respondents were Swiss, 19.7% held UK citizenship and 14.5% were of German nationality. The respondents were predominantly male (83.8%), married (53.7%) and had no children (50.7%). Their average age was 39.8 years (SD=8.83) and ranged from 32.6 years in Org01 to 41.6 years in Org05a and even 46.7 years in Org05b.

Many of these IT professionals were highly educated. Almost two thirds of them (65.5%) either held a Bachelor's, a Master's or a PhD degree, with a Bachelor's being the most frequently earned degree (32.8%). IT was the most frequent subject of the highest degree (52.5%), followed by engineering (24.8%)[4]. There were considerable inter-organizational differences regarding the average level of educational qualifications. Organizations that focused entirely on software engineering or consulting (e.g. Org01, Org04, Org10) typically employed staff with higher educational qualifications than organizations that offered a broader variety of IT services (e.g. Org02, Org07, Org09).

The respondents worked in a wide range of IT functions, including consulting, business analysis, user support, security and quality management. The most widely represented IT functions were software development (27.9%) and project management (14.2%). Most of the respondents (86.5%) worked full time, predominantly as permanent employees (94.8%). About two thirds of them (65.5%) said they held a non-managerial role and did not supervise any staff (64.5%).

In their career history, respondents had worked in IT for an average of 13.6 years (SD=8.25). They had been with their current employer for 8.5 years (SD=7.78) and had held their current role for 3.5 years (SD=3.58). Major differences were found amongst organizations especially regarding the time spent with the current employer. Tenure in Org05 was particularly high. In Org05a it amounted to 16.5 and in Org05b even to 17.6 years. Over the last five years before the survey, respondents, on average, had changed jobs within an organization 1.23 times (SD=1.61), changed jobs between organizations 0.68 times (SD=1.02) and relocated geographically 0.34 times (SD=0.68) due to job changes.

[3] Percentages are calculated as percentages of the full sample (n=1,708).
[4] Multiple answers were allowed.

The majority (58.7%) said that they had been promoted at least once. On average, their last promotion had happened 5.1 years before the survey (SD=4.67). At the time of the survey, 21.5% of the respondents were actively looking for a new job, either within or outside their current organization. The estimated likelihood that the respondents would still work for their current employer in twelve months' time was 78.8% (SD=25.23). Only a few individuals (5.0%) estimated the likelihood to be below 20%, whereas 54.5% of them thought the likelihood was between 81 and 100%. Respondents in Org03 were the most sceptical about their remaining with the organization; 33.5% of them believed that they would no longer be working there in a year's time, whilst only 13.1% of Org04 thought the same.

Almost two thirds (63.1%) expressed a preference for a specialist career over a managerial career. Whilst results were similar in most organizations, Org05 was a major exception. 58.6% of the respondents in Org05a and 51.0% in Org05b expressed a desire for a managerial career. More than half of all participants (54.1%) thought that their career was on schedule. However, a large group of them (39.2%) felt they were behind schedule. When respondents were asked to compare their own careers with those of their peers, almost two thirds (62.1%) thought that they were equally successful. Only 19.7% of the participants considered themselves as being less successful.

Remuneration was mainly perceived to be adequate (69.9%). However, about a quarter of the respondents (25.4%) thought it was too low. Overall, the majority (58.8%) was either moderately or highly satisfied with their career. Only 18.4% of the participants were dissatisfied. Also, most respondents (62.6%) thought either moderately or highly positively of their future careers. Just a small group (12.4%) felt that their career outlook was negative. Again, substantial inter-organizational differences could be found with regard to career satisfaction and future career outlook. Especially respondents from Org03 reported low levels of satisfaction and of future career prospects, whilst participants from Org04 and Org10 responded substantially more positively than the average.

Despite the relatively high response rates, it was decided to check whether the respondents in the sample were representative for the entire workforce in each organization; this was not possible in Org03 which did not provide any further information (see section 6.2.2). However, the survey sample appeared to represent the entire IT workforce reasonably well when compared with the available benchmarks provided by the respective HR departments (see Appendix 3). Nationality, age, gender and the number of part-time employees did not substantially differ between the respondents and the IT population in each organization.

The ratio of managerial versus non-managerial staff, however, could not be used as a reliable benchmark. As it turned out, especially employees working in project management had often regarded themselves as “managers” in the survey even if they, from an organizational point of view, did not have any formal managerial responsibilities.

In summary, survey 1 provided a large set of data from IT professionals in Europe. Due to the high response rates, the collected data were also representative of the workforce in each participating organization. Whilst the aim of the first survey was the collection of a solid basis of empirical data, the second survey served a different purpose, as discussed in the next section.

6.4 Survey 2

This section describes the aim of the second survey, its development and components. In addition, details about the selection of the participants and the communication to them are covered. Finally, demographic characteristics of the respondents are provided. The full survey is presented in Appendix 8.

6.4.1 Purpose and components of survey 2

The purpose of the second survey was twofold. First, it was intended to test the reliability of the findings from survey 1 regarding protean and boundaryless career orientations. In particular, it was used to examine whether the items found to be relevant for measuring protean and boundaryless career orientations would provide stable results when applied again after nine months. Second, although a much smaller sample was addressed in survey 2, it would provide longitudinal data about the respondents, indicating whether some aspects of their careers had changed within a period of about nine months. The survey was much shorter than the first one and only contained a few components.

Protean and boundaryless career orientations

This section consisted of 27 items regarding protean and boundaryless career orientations. 25 of the items were found to be relevant in the factor analysis in survey 1 (see section 7.1.2). Based on various considerations, two additional items were included although they had not met the criteria used in the factor analysis. In contrast to survey 1, the items were not presented randomly but grouped according to the factor they had loaded on. It was expected that this would increase the internal reliability of the scales.

Additional items

Two additional elements were included. First, as in survey 1, two single items assessed the respondents' overall career satisfaction and their future career outlook. Second, they were asked about their intra- and inter-organizational as well as geographical mobility in the period between survey 1 and survey 2.

Finally, the participants were given the opportunity to indicate whether any major changes had happened to their careers between the two surveys. The survey concluded with the request that data from survey 1 and survey 2 may be linked (see section 6.2.3).

6.4.2 Survey translations

Most items were already available from survey 1 and were presented in exactly the same format. The new item (asking respondents about any major changes between the first and the second survey) as well as some adjustments in the survey instructions were translated applying a similar approach as in the first survey. However, as the changes were so small, it was decided not to involve a professional translator again. The minor adjustments in the French survey were translated by a bi-lingual French-German speaker and then cross-checked by the author of this study. The governmental translation service was not involved.

6.4.3 Sampling and data collection in survey 2

The sample population for survey 2 consisted of all the individuals who had indicated in the first survey that they would be willing to be contacted again for a potential interview (n=287). As in survey 1, a multiple contact strategy was adopted. Although the organizations were informed in advance about the communication with their employees, they were not involved in the data collection process any more (see section 6.2.3). Rather, the author directly contacted potential participants by email, addressing them, in BCC, from his university email account. The first email thanked the recipients for their support in the first survey, explained the purpose of the second survey and provided the corresponding link and password. In addition, the interview selection process was also briefly explained. Eleven emails were returned due to invalid email addresses. A first reminder was sent out after six days and a final reminder was sent out after twelve days to all participants, thanking them for their ongoing support. Table 28 provides an overview of the response rates per organization.

Organiza-tion	Sample popu-lation (emails sent)	Valid email addresses (actual sample size)	Responses (including those not linked to S1)	Response rate (including those not linked to S1)	Responses (linked to S1 only)	Response rate (linked to S1 only)
Org01	6	5	not known	not known	4	**80.0%**
Org02	34	33			23	**69.7%**
Org03	51	49			19	**38.8%**
Org04	4	4			1	**25.0%**
Org05	45	43			23	**53.5%**
Org05a	*26*	*25*			*11*	*44.0%*
Org05b	*19*	*18*			*12*	*66.7%*
Org06	3	3			2	**66.7%**
Org07	20	20			12	**60.0%**
Org08	9	8			7	**87.5%**
Org09	83	79			47	**59.5%**
Org10	32	32			24	**75.0%**
Total	287	276	**167**	**60.5%**	162	**58.7%**

Table 28: Response rates per organization for survey 2

Response rates were higher than in the first survey. Even though the individuals contacted in the second survey may arguably have been more supportive of the study, the fact that they were contacted directly by the research team may have negatively impacted the response rates. Under these circumstances, the 60.5% overall response rate was considered a satisfactory result. As mentioned in section 6.2.3, participants were given the opportunity to decide whether their data from both surveys may be linked. Only five respondents did not explicitly agree to that.

6.4.4 Demographic characteristics of respondents in survey 2

Those who participated in survey 2 were representative of the full sample with regard to a broad range of variables collected in survey 1. For example, no major differences could be found in terms of gender (81.4% men), age (40.0 years, SD=8.45), and the expected likelihood to be working in the same organization in twelve months time (79.1%, SD=23.60). Also, when comparing the data from the first survey, answers regarding past mobility, career satisfaction and career outlook did not substantially differ between the full sample and the respondents in survey 2.

In survey 2, the data did not reveal any major differences in terms of mobility and career satisfaction compared with what the participants had answered in survey 1. Inter-organizational, intra-organizational and geographical mobility between the two surveys had occurred at levels very similar to the ones indicated in survey 1. Work experience in

the IT industry (13.9 years, SD=7.67) was similar to the full sample. Tenure with the current employer (6.95 years, SD=6.91) was slightly, but not significantly, lower amongst participants in survey 2. Also, satisfaction was about as high as in survey 1. In survey 2, 65.5% of the respondents expressed moderate or high satisfaction with their careers, only 17.3% were dissatisfied. Regarding their career outlook, 64.0% of them had a positive outlook and just 12.4% expressed a negative view of their future career.

Using independent t-tests, just a few significant differences were found. First, the percentage of German participants was significantly higher in the second sample ($p<0.01$). Whilst in the full sample only 14.5% of the respondents were German, 22.2% of the participants in the second survey had German citizenship. Second, tenure in the current role (2.40 years, SD=2.07) was significantly lower amongst those participating in the second survey than in the full sample ($p<0.01$). Third, whereas only about a third of the full sample had expressed a preference for a managerial career, more than half of the respondents in survey 2 (51.9%) did so ($p<0.001$). Surprisingly, despite this finding, the two samples did not differ in terms of the hierarchical positions respondents worked in. Roughly two thirds of them held a non-managerial role (65.5% in the full sample, 66.7% in the second one).

In brief, the sample in survey 2 was mainly representative of all participants in the first survey. Yet, in the second survey there was a slight bias towards individuals who were German, more intent on pursuing a managerial career and who had worked in their current position more briefly than the average in the full sample.

6.5 Interviews

In this section, the purpose, the approach and the components of the interviews are covered. A brief overview of the participants is provided.

6.5.1 Purpose and components of the interviews

As detailed in section 6.1.3, interviews were selected as a methodological approach to answer research question 1.4 (see section 5.1) and to address various shortcomings in existing literature on protean and boundaryless careers as well as in IT research. Based on various types of interviews discussed by Bryman and Bell (2003), it was decided to adopt a semi-structured interview format with individual respondents. This was considered to match the specific requirements in this study best. The main purpose of the interviews was to gain input for research question 1.4. Hence, an unstructured interview format may have been difficult to analyze. However, adopting a completely structured interview format

might have prevented salient themes to emerge during the interviews. Based on such considerations, a semi-structured interview format was chosen. Also, as the interviews were intended to explore individual career orientations, individual interviews were considered to be more appropriate than group interviews.

To ensure that the interviews always followed the same format, and to minimize the risk of subsequent ambiguities when translating them, an interview guide with specific questions was developed both in English and German (see Appendix 10). The interviews consisted of three main components. The first part focused on the interviewees' careers, namely on their current role, their career histories and on good and bad aspects of working in IT. Adopting a social constructionist approach, the purpose of that part was to gain a more thorough understanding of individual career trajectories and a contextualized perspective of their career moves. As those themes were likely to be salient for the interviewees, they were discussed early in the interview, based on corresponding advice by Bryman and Bell (2003). In the second part, the interviewees were asked to describe briefly what each of the factors identified in the quantitative surveys meant to them. This was the core part of the interviews, directly addressing research question 1.4. Finally, the last part of the interviews was focused on the interviewees' perceptions of career success, career satisfaction and future career outlook. Here again, the purpose was to gain a more contextualized and more thorough understanding of how these individual IT professionals defined career success, and why they perceived themselves as either successful or not.

6.5.2 Sampling and data collection in the interviews

The sampling of the interviewees was based on three key criteria. First, potential interviewees had to have participated in both surveys. This would allow collecting a third set of longitudinal data from them. Second, at least two individuals from each organization should be interviewed. Although this might make smaller companies over-represented in the interviews, it would provide more contextual input about each organization. Third, as a key prerequisite, the career orientation clusters identified in the quantitative surveys (see section 7.1.4) needed to be represented about equally. This was deemed important in order to identify potential themes that might emerge in the responses of individuals with different career orientations.

From the 162 individuals who had completed both surveys and could be identified in both of them, a shortlist of 35 potential interview candidates was drafted in an iterative process. The list not only reflected the criteria mentioned above, it also included considerations

regarding age, gender, nationality, hierarchical position etc. These aspects should, if possible, be representative of the overall sample. The intention was to conduct at least two interviews in each organization, so the minimum sample size was 22 (Org05a and Org05b were counted separately). To determine the actual sample size, it was decided to use saturation – "the point in data collection when no new additional data are found that develop aspects of a conceptual category" (Francis, et al., 2010, p. 1230). Such an approach is widely used and accepted in qualitative research (e.g. Francis, et al., 2010; Mason, 2010).

Based on the assumption that not all individuals on the shortlist would be willing or able to participate in an interview, all of them were directly contacted by email, asking whether they wanted to participate in an interview. Eventually, 25 of the 35 persons agreed to be interviewed. Due to the fact that the 25 interviewees exceeded the minimum sample size, it was decided that additional interviewees should only be contacted if saturation was not reached after the first 25 interviews. The second part in the interviews was chosen as an indicator for saturation, as it directly addressed research question 1.4. After about 18-20 interviews, no substantially new aspects emerged in that interview section, thereby indicating saturation. So, after 25 interviews no additional interviewees were contacted. In hindsight, the final sample size also corresponds well with frequently found sample sizes in qualitative PhD studies (Mason, 2010).

Each interview lasted for about an hour and was digitally recorded after having asked the interviewees for permission (see section 6.2.3). Usually, the interviews took place in meeting rooms in the interviewees' office buildings. All interviewees had the option to meet outside their workplace if they did not want colleagues at work to know about the interview. Three of the interviewees chose that option. Following Bryman and Bell's (2003) advice, all interviews were conducted in the interviewee's mother tongue, namely in Swiss German, German and English.

Although the interview guide was used throughout the interviews, additional spontaneous questions were used to elicit more relevant information when appropriate, and to facilitate a natural flow of conversation. However, in the second part of the interviews, the one particularly addressing research question 1.4, the instructions were carefully read from the interview guide and the prompts were given exactly in the way they were phrased in the guide. This approach was chosen in order to maximize comparability of the statements provided.

As a courtesy, the interviewees were offered the option to discuss their personal career anchor results right after the interviews. Although this made the meetings about 30 minutes longer, all 25 interviewees wanted to discuss their own results. Much as it would have provided interesting input for the study, it was explicitly decided not to record that part of the meetings. The main reason for this was that the career anchor discussion should clearly be a gesture of thanking the interviewees for their support and not be used as an additional element for further research. The feedback for these career anchor discussions was overwhelmingly positive and they seemed to be much appreciated.

6.5.3 Demographic characteristics of interviewees

As described above, the 25 interviewees were as representative of the overall sample as possible. In Org04, only one employee was found who met all the criteria for the interviews. In all other organizations, it was possible to identify at least two or three individuals who were both willing to be interviewed and met all the requirements.

At the time of the first survey, i.e. about one year before the interviews took place, the average age in the sample was 40.0 years (SD=8.45). 48% of the respondents were Swiss, 24% German and 16% UK citizens. 56% of them were married, and the sample consisted of 76% male participants. They worked across all IT functions, 88% did so in full-time jobs. The interviewees had on average worked in the IT industry for 14.80 years (SD=8.53), had been with their employer for 8.32 years (SD=9.05, ranging from less than one to 35 years) and had worked in their current jobs for 2.00 years (SD=1.53). Regarding their past mobility behaviour, no substantial differences could be found compared with the overall sample.

However, there were a few notable differences compared with the full sample. The interviewees were more likely to work in a non-managerial role (76%) and for them it was more likely that they would still be working for their employers in twelve months' time (88.9%, SD=16.45). Also, 80% of them were either moderately or highly satisfied with their careers and 64% of them expressed a positive outlook of their future. Only 8% were dissatisfied with their careers and 4% thought negatively about their future careers. In brief, amongst the interviewees, there were slightly fewer individuals in managerial roles and clearly more with high career satisfaction and positive career outlook.

6.6 Summary

In this chapter, the considerations regarding the research design and the methodological approach of this study have been outlined. The study had to meet four main requirements: first, it had to be based on a large, multi-national sample; second, the sample had to include a heterogeneous group of IT organizations; third, the study had to take into account the individual perspective on careers; and fourth, it had to allow for new themes to emerge during the research process. Based on these requirements, both the positivist and the social constructionist research philosophies were likely to provide helpful approaches. Hence, a combination of qualitative and quantitative research methods was adopted, which would help to answer the specific research questions presented in chapter 5 and to address various shortcomings in existing research.

In line with the first and the second requirement, for example, working with a large quantitative sample would provide scarce empirical data regarding the existence of protean and boundaryless careers. The IT organizations in this study were deliberately heterogeneous with respect to various characteristics, such as size, location, industry type, and core business. Drawing on individuals from a wide range from professional contexts would increase the generalizability of the findings. Based on the third and the fourth requirement, for example, collecting qualitative data would make it possible to examine individual career orientations thoroughly and to contextualize them. Furthermore, it would allow for new themes to emerge during the research process, which has rarely been done in IT research. Such an approach would also provide a valuable contribution to the general career literature, especially in the context of new careers and career success.

Throughout the entire research project, protecting the anonymity of the organizations and the participating individuals was paramount. This resulted in various adjustments in the design of the surveys and the communication process. This allowed individuals to participate in the study and to remain anonymous if they did not wish to reveal their identity.

The quantitative data collection consisted of two surveys; both of them were available in English, German, and French. The core element of the first survey (n=1,708) was a new operationalization of the protean and boundaryless careers which consisted of 54 items. These items were developed based on a thorough examination of the underlying theory as well as on existing scales. However, they should also reflect the criticism and the shortcomings of previous attempts to operationalize the two concepts. The second survey (n=167) was launched amongst a sub-sample of participants from the first survey. Its aim

was to examine the reliability of the findings regarding the protean and boundaryless careers in the first survey. The qualitative data collection consisted of semi-structured interviews (n=25) amongst a sub-sample of individuals who had participated in the first and the second survey. The interviews focused on selected themes addressed in the surveys. For example, individuals were given the opportunity to explain what various protean and boundaryless factors – all of which were empirically derived from the quantitative surveys – meant to them and their careers. Despite some minor differences, the samples of the second survey and the interviews were fairly representative of the overall sample in the first survey.

In chapters 7 and 8, the data analysis process and results are presented in detail, as shown in Figure 8.

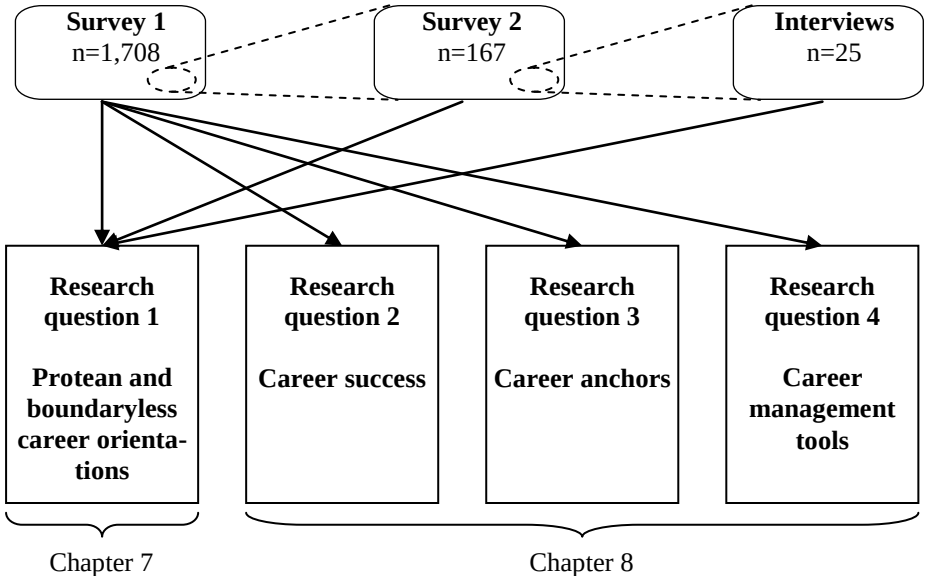


Figure 8: Chapter structure and data sources for each research question – An overview

Chapter 7 includes the analysis and the results of all components required to answer research questions 1.1 to 1.4 regarding protean and boundaryless career orientations and their interplay with various demographic characteristics of IT professionals. This chapter draws on all those elements from survey 1, survey 2 and the interviews that focused on these elements.

Chapter 8 presents the data analysis process and the results for research questions 2.1 to 2.3 regarding individual definitions of career success, research questions 3.1 to 3.3 regarding career anchors, and research questions 4.1 to 4.3 regarding career management tools. The data used for that purpose predominantly stem from the first survey.

7 Data analysis and results – Protean and boundaryless career orientations

In this chapter, the data analysis and the results regarding protean and boundaryless career orientations are presented in detail. It includes elements from both surveys as well as from the interviews and addresses research questions 1.1 to 1.4.

7.1 Survey 1 – Data analysis and results

The first section describes how various factors and clusters of protean and boundaryless career orientations were developed based on data from survey 1.

7.1.1 Factor analysis

The first main step in the data analysis was to establish whether the items used to measure protean and boundaryless career orientations (see section 6.3.2) represented the aspects they were intended to capture. For this purpose, a factor analysis was performed in several stages, as outlined by Hair et al. (2006).

Factor analysis design

As a preliminary step, only valid responses from the first survey were selected (n=1,708). In addition, respondents were excluded from further analysis if their answers contained more than one missing value for any of the eleven aspects. This resulted in 1,519 responses that were included in the factor analysis. Based on considerations provided by Hair et al. (2006), an exploratory instead of a confirmatory factor analysis was performed. In particular, no a priori constraints were defined with regard to the number or the nature of the components to be extracted in the analysis. Although the variables were, strictly speaking, measured on an ordinal scale, they were treated as if they were metric, assuming equal differences on the five-point Likert scale in the survey.

In order to minimize the risk of overfitting the data, i.e. producing sample-specific factors with little generalizability (Hair, et al., 2006, p. 112), all 1,519 respondents were included in the calculation. This resulted in a case-variable ratio of 28:1, which was well above the suggested minimum ratio of 10:1. The sample size was about 30 times larger than the minimum recommended by Hair et al. (2006). As suggested by these authors, a factor analysis should be based on a strong conceptual foundation, which was the case for the items used in the survey (see section 6.3.1). Researchers must ensure that correlations in the data matrix are sufficient to justify the application of a factor analysis (Hair, et al., 2006). Three separate tests were applied for this study, each of which provided satisfactory

results. First, Bartlett's test of sphericity ($p<0.05$) confirmed that sufficient correlations for a factor analysis existed in the data. Second, the "measure of sampling adequacy (MSA)" was 0.866, "meritorious" according to Hair et al. (2006, p. 114), and third, as required, no MSA value was lower than 0.5.

Finally, it was decided to apply a component analysis rather than a common factor analysis. As data reduction was a primary concern in this analysis, a component analysis with its less restrictive assumptions (Hair, et al., 2006, p. 118) was deemed to be the more appropriate approach.

Initial factor extraction

In order to define the appropriate number of factors to be extracted from the component analysis, several criteria were applied, as suggested by Hair et al. (2006). Given that no predetermined number of factors was known, three other indicators were used. First, only factors with eigenvalues larger than 1 were considered. According to Hair et al. (2006), this criterion works best for 20 to 50 variables, which seemed still appropriate for the 54 variables in the analysis. 13 factors met this criterion. Second, the scree plot was used as a guideline to determine the number of factors. However, the graph did not give any clear indication; it only vaguely implied that a cut-off may be made after seven or ten factors. Third, percentage of variance was used to determine the most appropriate number of factors. When including seven or ten factors as indicated by the scree plot, the variance explained would have been low (39% or 46% respectively). Yet, in social sciences, 60% of variance should be explained by the factors, although lower values may still be satisfactory (Hair, et al., 2006, p. 120). Following Hair et al.'s (2006, p. 122) advice that "[t]he researcher should always strive to have the most representative and parsimonious set of factors possible", it was finally decided to use all 13 factors with eigenvalues larger than 1. Together, they explained 53.15% of the total variance.

As a next step, the factors were rotated in order to achieve a better fit, i.e. to provide a simple, adequate and interpretable solution. Based on considerations by Hair et al. (2006, p. 126), VARIMAX rotation was applied. The factor loadings, i.e. the correlation between an original variable and its factor were then tested both for practical and statistical significance. Based on the sample size, factor loadings larger than 0.3 would have been statistically significant. Yet, to achieve practical significance as well, only factor loadings larger than 0.5 were taken into account (Hair, et al., 2006, p. 128).

Further iterations

At this stage, the initial solution with 13 factors was used as a basis for further refinements and adjustments, applying a process suggested by Hair et al. (2006). First, no cross-loadings larger than 0.5, i.e. variables with practically significant cross-loadings were accepted. Second, only variables with communalities larger than 0.5 were accepted, which meant that each variable shared at least half of the variance with the others (Hair, et al., 2006, pp. 130-131). Variables that did not meet these criteria were deleted. In an iterative process, new factor analyses were conducted with reduced sets of variables, which were all subject to the same requirements and criteria as the first one.

In total, four iterations were made: the initial factor analysis and three subsequent rounds of reducing variables. At this stage, a solution was reached that met all the criteria specified for the analysis process. It contained 25 variables and consisted of eight factors (see Table 29). That solution explained 61.37% of the variance of the 25 items (rotation sums of squared loadings), which is deemed satisfactory in social sciences (Hair, et al., 2006, p. 122). However, compared with the initial solution based on all 54 variables, the final solution only explained 32.62% (i.e. 61.37% of 53.15%) of the total variance. With so much unexplained variance, it was obvious that the eight factors did not capture all the potential themes in the data. Yet, it was the best possible attempt that could be made.

Validating the factor solution

Hair et al. (2006, p. 131) stated that:

> *"[...] the ultimate objective should always be to obtain a factor structure with both empirical and conceptual support. [...] [M]any 'tricks' can be used to improve upon the structure, but the ultimate responsibility rests with the researcher and the conceptual foundation underlying the analysis."*

Hence, two alternative scenarios were tested, applying various less stringent but, according to Hair et al. (2006), still acceptable criteria regarding eigenvalues, crossloadings and communalities. Both scenarios resulted in less conceptual fit and less explanatory power, such as the elimination of one distinct factor and poor Cronbach's alphas, and were therefore discarded. So, it seemed as if the best possible option – both empirically and conceptually – had been found based on the first factor analysis process described above. The eight factor solution appeared to match well with the underlying conceptual considerations, as shown in section 7.1.2.2. Therefore, it was decided to work with these eight factors.

In order to assess the factor structure stability, the sample was randomly split into two sub-samples (n1=769 and n2=750), as suggested by Hair et al. (2006). Applying the criteria and analysis process outlined above, both sub-samples produced nearly identical results. In particular, the factor structure was confirmed in both of them, implying that the solution found was robust across the entire sample.

As a final test, it was decided to apply even more stringent criteria in the factor analysis to include as few missing values as possible in the sample. Hence, for all respondents in the sample used above (n=1,519), a maximum of one missing value for the items in any of the factors 1 to 6 was allowed. For the items in factors 7 and 8, no missing values were deemed acceptable as both only consisted of two items (see Table 29). Based on these additional criteria, the sample size was reduced to n=1,350. The restricted sample met all requirements for the factor analysis. Bartlett's test of sphericity was significant ($p<0.05$) and MSA was still 0.761. Again, a factor analysis produced the same eight factor solution, explaining 61.65% of the variance. In order to establish the reliability of the eight factors, Cronbach's alphas were assessed for the two solutions. The more stringent solution provided slightly better alphas for each factor, although the difference was only about 1%. Therefore, it was decided to use the solution with the more stringent preconditions for further calculations.

Hair et al. (2006, p. 137) noted that although the generally accepted lower limit is 0.70, exploratory research may consider Cronbach's alphas of 0.60 as acceptable. Given the exploratory nature of this factor analysis, Cronbach's alphas of seven factors were acceptable (see Table 29). Although factor 8 had a lower alpha, it was decided to keep it based on conceptual considerations, namely due to the meaning of the two items therein. Such an approach was suggested by Hair et al. (2006, p. 156) for conceptually relevant factors, as long as their lower reliability was taken into account. Further analysis of the Cronbach's alphas showed that the deletion of any of the items included in the factors would have decreased their reliability. Thus, all 25 remaining items were kept.

Finally, each factor was attributed a name based on the items it consisted of (see section 7.1.2). This was useful to examine content validity, i.e. the subjectively assessed correspondence between the items and the underlying concepts (Hair, et al., 2006, p. 136).

In summary, the factor analysis in this study was performed following an iterative process in several stages. After a thorough consideration of various alternatives, the option based on the most stringent criteria was found to produce the best empirical and conceptual match. This finally resulted in a solution with eight factors including 25 of the originally 54 items (n=1,350). In the next section, this solution is discussed in detail.

7.1.2 Factor results

In this section, each of the eight factors is described in detail before some general aspects of them are discussed.

7.1.2.1 The eight factors

Table 29 provides an overview of the eight factors, the 25 items therein, as well as the protean and boundaryless aspects they are related to. It also indicates their factor loadings. In the following paragraphs, each of the eight factors is presented in more detail. More information regarding all 54 items is provided in Appendix 4.

Factor 1 – Organizational mobility

Factor 1 consisted of five items; all of them primarily focused on an individual's willingness to remain with his/her organization. Whilst three items stemmed from the corresponding aspect in Table 25, factor 1 also included two items that were originally intended to reflect independence from any one employer. Yet, these two items also strongly focused on whether an individual was intent on remaining with his/her current employer. Three of the five items were taken from Briscoe and colleagues' (2006) scales, whilst the other two were newly developed for this study. Based on these five items, the factor matched well with the original aspect 5 of boundaryless careers, "crossing organizational boundaries". Hence, factor 1 was called "organizational mobility", referring to an individual's willingness to cross organizational boundaries.

Factor 2 – Geographical mobility

All three items in factor 2 were newly developed for this study and clearly focused on an individual's willingness to remain in his/her geographical location. The factor could be linked well with the geographical side of the original aspect 6, "crossing organizational or geographical boundaries". Hence, factor 2 split the original aspect and confirmed the conceptual distinction between occupational and geographical mobility made in the new operationalization (see section 6.3.1.2). It was called "geographical mobility", referring to an individual's willingness to cross geographical boundaries.

Factor #	Aspect #	Aspect	Item #	Item	Sources	Factor loading
Factor 1 – Organizational mobility Variance explained: 9.947% Cronbach's alpha: 0.732	5	Crossing organizational boundaries	22	I would feel very lost if I could not work for my current organization.	Original from Briscoe, Hall, & Frautschy DeMuth (2006, p. 46), item 10, reverse-coded	0.736
			23	I prefer to stay in an organization I am familiar with rather than look for employment elsewhere.	Adjusted from Briscoe, Hall, & Frautschy DeMuth (2006, p. 46), item 11, reverse-coded	0.667
			24	If my organization provided lifetime employment, I would never seek work in other organizations.	Adjusted from Briscoe, Hall, & Frautschy DeMuth (2006, p. 46), item 12, reverse-coded	0.709
	7	Feeling independent of any one employer	34	Being part of my current organization means a lot to me.	New, reverse-coded	0.643
			35	If I had to choose, I would rather change my profession than change my current employer.	New, reverse-coded	0.686
Factor 2 – Geographical mobility Variance explained: 8.618% Cronbach's alpha: 0.773	6b	Crossing geographical boundaries	29	I prefer to stay in a geographical location I am familiar with rather than look for employment elsewhere.	New, reverse-coded	0.819
			30	I would find it motivating to take on a job in a different geographical location.	New	0.817
			31	In the past, I have considered changing jobs and moving to a different geographical location.	New	0.809
Factor 3 – Feedback and learning Variance explained: 8.198% Cronbach's alpha: 0.658	1	Being clear on one's needs, motivation, abilities, values and interests	3	I seek out and seriously consider feedback about me from other people.	New	0.756
			2	I regularly assess my strengths and my weaknesses.	New	0.697
	9	Accumulating employer-independent know-how	42	I actively seek job assignments that allow me to learn something new.	Adjusted from Briscoe, Hall, & Frautschy DeMuth (2006, p. 46), item 1	0.668

Factor #	Aspect #	Aspect	Item #	Item	Sources	Factor loading
Factor 4 – Occupational mobility Variance explained: 8.036% Cronbach's alpha: 0.648	6a	Crossing occupational boundaries	27	I have already considered changing jobs into a different occupation.	New	0.813
			26	I could feel comfortable in work other than IT.	New	0.742
	11	Considering oneself boundaryless despite existing boundaries	54	I am excited by the thought of making unconventional career moves.	New	0.625
Factor 5 – Self-knowledge Variance explained: 7.657% Cronbach's alpha: 0.623	1	Being clear on one's needs, motivation, abilities, values and interests	4	I can define what is important to me in life.	New	0.796
			1	I think I know myself well.	New	0.718
			5	I know which parts of my work interest me most.	New	0.586
Factor 6 – Self-direction Variance explained: 7.549% Cronbach's alpha: 0.650	2	Having personal values that are both the guidance as well as the measure of success in one's career	9	Career success is something I define for myself – no one else can do this on my behalf.	New	0.768
			6	My own career development should be based on my personal values, not on what society values.	New	0.706
	4	Having a feeling of independence and of being in charge of one's career	20	Ultimately, I depend upon myself to move my career forward.	Original from Briscoe, Hall, & Frautschy DeMuth (2006, p. 45), item 6	0.573
			17	I take responsibility for my own career development.	Adjusted from Baruch & Quick (2007, p. 491)	0.570

Factor #	Aspect #	Aspect	Item #	Item	Sources	Factor loading
Factor 7 – Working beyond organizational boundaries Variance explained: 5.909% Cronbach's alpha: 0.630	8	Developing and maintaining non-hierarchic firm-independent networks	40	I enjoy working with people outside of my organization.	Original from Briscoe, Hall, & Frautschy DeMuth (2006, p. 46), item 5	0.828
			38	I enjoy job assignments that require me to work outside of the organization.	Original from Briscoe, Hall, & Frautschy DeMuth (2006, p. 46), item 3	0.657
Factor 8 – Rejection of career opportunities for personal reasons Variance explained: 5.740% Cronbach's alpha: 0.519	10	Rejecting career opportunities for personal reasons	48	In the past, I have rejected career opportunities for personal reasons.	New	0.776
	2	Having personal values that are both the guidance as well as the measure of success in one's career	10	I have turned down jobs or assignments because they would have gone against what is important to me in life.	New	0.736

Table 29: Eight factors of protean and boundaryless career orientations

Factor 3 – Feedback and learning

Three items, two of them newly developed for this survey, loaded on factor 3. Whilst the first two items were concerned with an individual's openness to feedback and self-reflection, the third one was more job-related and focused on learning new things. The items were interpreted as being primarily concerned with an individual's willingness to seek feedback and opportunities to learn something new, be it related to oneself or one's job. Hence, this factor seemed to match best with aspect 3 of the operationalization, "being both competent and motivated to learn and to adapt to a changing environment", although none of the items had originally been related to it. In order to highlight the two components within factor 3, it was labelled "feedback and learning".

Factor 4 – Occupational mobility

For factor 4, all three items were newly developed ones. The first two were both related to an individual's willingness to move into a different occupation. The third item had been developed with a wider focus, generally referring to "unconventional career moves". Yet, in the survey it seemed to have been predominantly interpreted as moving out of IT. As in factor 2, the conceptual distinction between occupational and geographical mobility was confirmed empirically. Hence, it was decided to call the factor "occupational mobility", referring to an individual's willingness to change his/her occupation. Given that IT professionals are often assumed to be deeply rooted in their profession (see section 2.3.5), it was notable that occupational mobility appeared as a separate factor.

Factor 5 – Self-knowledge

All three newly developed items were concerned with individuals' clarity about what was important or what mattered to them, be it about themselves, about their work or about life in general. Therefore, this factor could be clearly linked to the protean aspect 1 and was called "self-knowledge".

Factor 6 – Self-direction

The next factor comprised four items. Two of them were newly developed for this study; one stemmed from Briscoe and colleagues (2006), and the other one was adapted from Baruch and Quick's (2007) scale. This factor not only merged items from different conceptual aspects, it also bridged the two dimensions of the protean career, being self-directed and being values-driven. In the very first iteration of the factor analysis with all 54 items (see section 7.1.1), these items had actually loaded on two different factors. However, dur-

ing the subsequent iterative analysis process, the two separate factors eventually merged into one single factor. The eventual factor included elements of both the self-directed and the values-driven dimensions.

For the respondents in this sample, it seemed as if a feeling of being in charge was linked to having underlying guiding values. In contrast to what the original protean scales might imply (see section 3.4.2.1), these values did not need to be opposed to organizational values. Hence, factor 6 was labelled "self-direction" because the focus of the items appeared to be predominantly on agency and being self-directed rather than on personal values. Yet, in order to explicitly refer to both dimensions within this factor, the factor was defined as feeling in charge of one's career, based on personal values that are both the guidance as well as the measure of success in one's career.

Factor 7 – Working beyond organizational boundaries

The two items in factor 7, both of which originated from Briscoe et al.'s (2006) scale, focused on an individual's willingness to work with people beyond his/her organization. Yet, in contrast to the items in factor 1, neither item in factor 7 implied that the individual had any intention to leave his/her employing organization. Consequently, factor 7 was called "working beyond organizational boundaries". It was defined as an individual's willingness to work with people beyond his/her own organizational boundaries. Yet, although the two items were similar, this factor did not only seem to reflect aspect 8, "developing and maintaining non-hierarchic firm-independent networks". Rather, it arguably also comprised a notion of aspect 9, "accumulating employer-independent know-how".

Factor 8 – Rejection of career opportunities for personal reasons

Factor 8, finally, consisted of two newly developed items. Both of them referred to the rejection of career opportunities. Unlike the normative nature of previous operationalizations of the protean and boundaryless concepts (see section 3.4.2), it was not prescribed here what exactly "personal reasons" might be. Hence, rejection of career opportunities may also include reasons other than those typically associated with new careers, e.g. loyalty to a company.

Factor 8 could also be seen as related to the "values-driven" dimension. However, in the factor analysis, it repeatedly appeared as an isolated factor, unrelated to factors 5 and 6 which both comprised some "values-driven" elements. The boundaryless aspect about rejection of career opportunities for personal reasons seemed to provide the best fit for this factor and it was labelled accordingly. Both items in this factor exclusively referred to rejection of career opportunities in the past although several other items, focussing on such decisions in the present or in the future, had been included in the survey (see section 6.3.2).

7.1.2.2 Matching the factors with the new operationalization

Table 30 provides an overview of how the eight factors were matched with the four dimensions of protean and boundaryless careers as well as with the corresponding aspects developed in the new operationalization.

Career	Dimension	Aspect #	Aspect	Corresponding factor
Protean career	Values-driven	1	Being clear on one's needs, motivation, abilities, values and interests	F5: Self-knowledge
		2	Having personal values that are both the guidance as well as the measure of success in one's career	F6: Self-direction
	Self-directed	4	Having a feeling of independence and of being in charge of one's career	
		3	Being both competent and motivated to learn and to adapt to a changing environment	F3: Feedback and learning
Boundaryless career	Physically mobile	5	Crossing organizational boundaries	F1: Organizational mobility
		6	Crossing occupational or geographical boundaries	F2: Geographical mobility F4: Occupational mobility
	Psychologically mobile	7	Feeling independent of any one employer	none
		8	Developing and maintaining non-hierarchic firm-independent networks	F7: Working beyond organizational boundaries
		9	Accumulating employer-independent know-how	
		10	Rejecting career opportunities for personal reasons	F8: Rejection of career opportunities for personal reasons
		11	Considering oneself boundaryless despite existing boundaries	none

Table 30: Matching protean and boundaryless dimensions with the new factors

Three of the four aspects of protean career orientations were clearly represented in the factors. Aspect 1 was well covered in factor 5 as was aspect 3 in factor 3. Also, aspect 4 was strongly reflected in factor 6. Yet, aspect 2 was only partially represented in factor 6, together with strong elements of self-direction. One item originally developed for this aspect became an element of factor 8, regarding the rejection of career opportunities. Having values as guidance for one's career, therefore, did not appear as a factor on its own but elements thereof became components of two other factors.

For the boundaryless career orientations, all aspects of physical mobility were clearly represented in the factors. Organizational mobility was well covered in aspect 5. Occupational and geographical mobility emerged as two separate factors. The findings were less clear in terms of psychological mobility. Whilst aspect 10 regarding the rejection of career opportunities was represented in factor 8, its Cronbach's alpha was relatively weak. Aspects 8 and 9, both focusing on activities beyond organizational boundaries, were reflected in factor 7. Aspect 7, the feeling of independence of any one employer, was not represented in any of the new factors. Finally, no factor clearly addressed aspect 11. However, at least one of the corresponding items became incorporated in factor 4, referring to "unconventional career moves".

Potential alternative options to link the eight factors with the eleven aspects would have been less consistent with the empirical findings. For example, matching factors 6 and 8 with different aspects than shown above would have made it necessary to neglect the meaning of some items in those factors. Therefore, this matching of the factors with the eleven aspects of the new operationalization was considered the most appropriate solution. It seemed to reflect best the content of the new factors as well as the notion of each aspect and conceptual considerations therein. The main drawback was that the two dimensions of the protean career, "values-driven" and "self-directed", became blurred in factor 6.

One interesting general finding was that only four of the 25 items in the eight factors were original items from a previously used scale. Another four items had been adjusted from an existing scale. The remaining 17 items, however, were all newly developed for this study. This indicates that the new operationalization and earlier attempts to operationalize protean and boundaryless career orientations were substantially different.

7.1.2.3 Factor correlations

Table 31 provides an overview of the correlations between the eight factors. All factors were positively, and most of them significantly, correlated. Yet, the correlations were not so high as to imply a major overlap between the factors. This further supported the assumption that the eight factors were related but measured distinct dimensions.

With regard to the protean factors 3, 5 and 6, strong correlations emerged. In particular, the correlation between self-knowledge and self-direction was the strongest of all correlations. Notably, factor 3 had highly significant ($p<0.01$, two-tailed) correlations with all other factors except factor 1. This suggested that individuals who are open to feedback and learning may also be more open to both physical and psychological mobility than those with low scores on this factor.

For physical mobility (factors 1, 2, and 4), the strong and positive correlation between geographical and occupational mobility was especially notable. This might imply that those who are open to change occupations also tend to be open to relocate geographically, and vice versa.

In terms of psychological mobility, factor 8 was most strongly correlated with the three protean factors. This finding was noteworthy as it suggested that individuals who are more self-directed and clear about their own values are indeed more likely to reject career opportunities that are not in line with their own values. In addition, the correlations of factor 7 implied that there are strong and positive relationships between an individual's willingness to work with people beyond his/her organizational boundaries and this person's openness for physical mobility as well as his/her willingness to act in a values-driven and self-directed way.

		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
Factor 1 - Organizational mobility	Pearson Correlation	1							
	Sig. (two-tailed)								
	N	1,350							
Factor 2 - Geographical mobility	Pearson Correlation	0.155**	1						
	Sig. (two-tailed)	0.000							
	N	1,350	1,350						
Factor 3 - Feedback and learning	Pearson Correlation	-0.003	0.155**	1					
	Sig. (two-tailed)	0.913	0.000						
	N	1,350	1,350	1,350					
Factor 4 - Occupational mobility	Pearson Correlation	0.060*	0.268**	0.115**	1				
	Sig. (two-tailed)	0.027	0.000	0.000					
	N	1,350	1,350	1,350	1,350				
Factor 5 - Self-knowledge	Pearson Correlation	0.018	0.039	0.307**	0.049	1			
	Sig. (two-tailed)	0.504	0.154	0.000	0.072				
	N	1,350	1,350	1,350	1,350	1,350			
Factor 6 - Self-direction	Pearson Correlation	0.145**	0.011	0.198**	0.086**	0.369**	1		
	Sig. (two-tailed)	0.000	0.694	0.000	0.002	0.000			
	N	1,350	1,350	1,350	1,350	1,350	1,350		
Factor 7 - Working beyond organizational boundaries	Pearson Correlation	0.080**	0.252**	0.297**	0.340**	0.224**	0.118**	1	
	Sig. (two-tailed)	0.003	0.000	0.000	0.000	0.000	0.000		
	N	1,350	1,350	1,350	1,350	1,350	1,350	1,350	
Factor 8 - Rejection of career opportunities for personal reasons	Pearson Correlation	0.042	0.016	0.164**	0.076**	0.161**	0.196**	0.066*	1
	Sig. (two-tailed)	0.122	0.559	0.000	0.005	0.000	0.000	0.016	
	N	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350

*. Correlation significant (p<0.05; two-tailed) / **. Correlation significant (p<0.01; two-tailed)

Table 31: Factor correlations

7.1.2.4 Conclusions from the factor analysis

The eight factors extracted in the data analysis appeared to be of both statistical and practical significance. The various aspects of protean career orientations could be mainly confirmed. However, there was one important exception: the "values-driven" and the "self-directed" dimensions seemed to be closely related in this particular sample because one factor clearly comprised elements of both dimensions. For the boundaryless career, the physical mobility dimension could be well confirmed empirically and was further refined, namely by splitting occupational and geographical mobility into two distinct factors. With regard to the psychological mobility dimension, not all of the theoretically derived aspects appeared as empirically relevant in this sample. Nevertheless, elements of psychological mobility were clearly found and represented by two factors.

In terms of reliability of the eight scales, only two had Cronbach's alphas larger than 0.7. Five ranged between 0.6 and 0.7. Although alphas larger than 0.6 may be considered as sufficient (Hair, et al., 2006), they were still below the generally accepted threshold of 0.7. One of the factors even only had an alpha larger than 0.5, but it was retained based on various conceptual considerations. One potential reason for the relatively low Cronbach's alphas may have been the random order of the items in the initial survey. In the second survey, therefore, the items were grouped according to the factors they had loaded on in survey 1 to test whether reliability would improve (see section 6.4.1). Further, this multi-cultural, multi-organizational sample may have made appear the factors less clear compared with what might have been found in a more homogeneous sample. Yet, as described in section 6.1.1, the approach with such a heterogeneous sample was deliberately chosen for this study. Nevertheless, it needs to be acknowledged that themes other than those described above may have been present in the data but could neither be captured nor explained with the eight factors.

The next step in the analysis was to explore whether distinct groups of individuals with similar career orientations could be detected.

7.1.3 Cluster analysis

In order to identify groups of individuals with similar career orientations, a cluster analysis was performed. This section describes the analysis process as well as the corresponding results. Again, like the factor analysis, the cluster analysis was performed closely following a process suggested by Hair et al. (2006).

Cluster analysis design

There were two main purposes identified for this cluster analysis. First, based on research question 1.1, it aimed at developing a new typology which built on the elements of the new operationalization of protean and boundaryless careers. Second, bearing in mind research question 1.2, it was also necessary to allow a comparison of the empirical data with Briscoe and Hall's (2006a) matrix. According to Hair et al.'s (2006) advice that the selection of variables in a cluster analysis should be based on theoretical as well as practical considerations, it was decided to include all eight factors in the cluster analysis. As described in the section above, despite its limitations, the eight factor solution was the most accurate available representation of protean and boundaryless career orientations.

It was decided to apply the same selection criteria for the sample as for the factor analysis. Therefore, the sample for the cluster analysis consisted of the 1,350 individuals whose data had been used for the factor analysis. That sample size was well above any critical threshold for calculating cluster analyses (Hair, et al., 2006). In order to detect outliers that may distort the cluster results, boxplots of the eight factors were used; they revealed 40 potential outliers, only three of which were highly significant. Following Hair et al.'s (2006, p. 581) advice, the outliers were kept at this stage as it could not yet be clearly established whether or not they represented relevant groups in the population.

To measure inter-object similarity, distance measures rather than correlation measures were chosen. As in the factor analysis, distances between factor scores were treated as metric although they were based on ordinal scales. As an initial measure, Squared Euclidian distance was used. However, it was acknowledged that other distance measures may need to be applied later in the process, depending on the results (Hair, et al., 2006). The clustering variables were further used without standardization because all of them were based on identical scales and, in the context of this study, no other reason clearly implied that they should be standardized (Hair, et al., 2006, p. 580).

Two potential issues mentioned by Hair et al. (2006) did not affect this sample. Given that the size of the cluster analysis sample (n=1,350) still represented almost 80% of the whole sample, and no known bias in the sampling process had occurred, representativeness was not deemed problematic; neither was multicollinearity considered to be overly critical in this case. The eight variables were all calculated in a factor analysis which could not entirely eliminate the effect but at least had been aimed at reducing it.

Hierarchical cluster analysis

In order to avoid potential problems with one single approach to calculating clusters, a combination of hierarchical and non-hierarchical methods was applied. This was in line with Hair et al.'s (2006, p. 592) advice, namely to perform a hierarchical analysis first and then to refine it by non-hierarchical clustering methods:

> *"In this way, the advantages of the hierarchical methods are complemented by the ability of the non-hierarchical methods to refine the results by allowing the switching of the cluster membership."*

Therefore, a hierarchical cluster analysis was calculated in a first step. As suggested by Hair et al. (2006), three agglomerative algorithms were used for this purpose. Such algorithms repeatedly combine small clusters to bigger ones.

The "average link" algorithm was applied first because it is, according to Hair et al. (2006), less affected by outliers in the sample. With this algorithm and the corresponding dendogram, a total of 26 outliers were detected and removed from the sample. The algorithm did not result in meaningful clusters; it provided three clusters – two very small ones and a large one with about 1,300 observations. However, the remaining 1,324 values were used as a basis for further evaluations. As a second option, the "centroid method" was applied but this method did not produce any meaningful clusters, either.

As a third approach, Ward's algorithm was applied and resulted in several meaningfully sized clusters. Given that outliers may greatly impact this algorithm (Hair, et al., 2006), it was decided only to use the reduced sample (n=1,324). Although Hair et al. (2006, p. 588) noted some drawbacks of this algorithm, it was considered to be the most appropriate approach for calculating clusters in this sample as it was the one that produced by far the most meaningful sample sizes. Based on Hair et al.'s (2006, p. 594) advice, agglomeration coefficients, i.e. the percentage changes in heterogeneity between two cluster solutions, were used to determine the potential number of clusters. Eventually, potential solutions with three, four, and five clusters were identified. Preliminary graphical representations and one-way ANOVA results both indicated that all three solutions might be appropriate. Even the inclusion of all 1,350 values in the sample size did not affect the solutions substantially; the algorithms still produced highly similar results.

Non-hierarchical cluster analysis

At this stage, a non-hierarchical procedure was applied as the second step of the cluster analysis. The main aim was to use "seed points" for the analysis, i.e. initial cluster centres defined by the researcher. Contrary to the hierarchical cluster analysis, non-hierarchical procedures allow individual values to switch clusters at later stages of the analysis, thereby refining the solution. Hence, the cluster centres of the three potential solutions were used in non-hierarchical calculations. All three solutions, be it with three, four, and five clusters, did not substantially change. Yet, as expected, they became more "accentuated" when represented graphically. The fact that an entirely different algorithm had produced largely similar results further supported the potential validity of the initially calculated clusters.

Validating the cluster solutions

According to Hair et al. (2006, p. 595) no single objective procedure is available to determine the most appropriate number of clusters. Several alternative solutions must be evaluated based on a variety of criteria such as cluster size, differences between clusters, mathematical stopping rules, and most importantly, theoretical validity. Here, three clusters appeared to be highly similar across all solutions. The additional fourth and the fifth cluster simply differentiated one of the clusters further in terms of geographical mobility scores, whilst the scores on the other factors were almost identical.

When considering Hair et al.'s (2006) advice that differences between clusters should be significant, the solution with three clusters was deemed the most appropriate one. Further, a preliminary one-way ANOVA was performed on all eight variables for each cluster solution. As expected, the solution with three clusters showed the most distinct differences between the clusters. As, in accordance with Hair et al. (2006), it was also the most parsimonious solution, it appeared as the most likely candidate for the final cluster structure. However, because no compelling objective criterion was detected that would have completely ruled out the other two cluster solutions, they were still included in further tests to make sure a more appropriate option was not discarded too early.

As Hair et al. (2006) cautioned, the subjective nature of the cluster analysis makes the validation of the solution and establishing its practical significance paramount. Hence, various checks suggested by these authors were applied to validate the results. First, as in the factor analysis, a cross-validation was performed with two randomly split sub-samples (n1=660; n2=664). In none of the three different cluster solutions were any substantial dif-

ferences found compared with the original results. Criterion validity, however, could not be established because no variable not already included in the calculations was known to differ between the clusters.

As a further check, the seed points in the non-hierarchical part of the analysis were not predefined as in the initial approach but randomly set by SPSS. As a result, the solutions with three and four clusters both provided almost identical results compared with the initial clusters. Also, the solution with five clusters was very close. Only on factor 8, one of the clusters differed substantially in comparison with the original results.

As there was no compelling argument detected for using the cluster solutions with four or five rather than with three clusters, it was finally decided to adopt the most parsimonious option. After all the checks, the solution with three clusters appeared to represent the structure of the data most adequately. Details of this solution are presented and discussed in the next section.

7.1.4 Cluster results

As described in the previous section, the final result was a cluster solution with three clusters based on both a hierarchical and a non-hierarchical analysis process (n=1,324). Table 32 provides an overview of the mean scores and standard deviations per cluster and factor. Numbers indicate scores on the initial Likert scale, ranging from 1 (“strongly disagree”) to 5 (“strongly agree”). The three clusters did not differ greatly in terms of size because Ward’s algorithm tends to results in equally sized clusters (Hair, et al., 2006).

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
Full sample (n=1,324)	*3.422 SD=0.745*	*3.043 SD=1.077*	*3.795 SD=0.689*	*3.473 SD=0.875*	*4.325 SD=0.484*	*4.133 SD=0.553*	*4.006 SD=0.690*	*3.334 SD=1.104*
Cluster 1 (n=458)	3.547 SD=0.761	3.378 SD=0.871	4.026 SD=0.619	3.758 SD=0.760	4.440 SD=0.437	4.290 SD=0.550	4.247 SD=0.583	4.369 SD=0.496
Cluster 2 (n=468)	3.267 SD=0.715	2.019 SD=0.639	3.535 SD=0.690	2.948 SD=0.804	4.252 SD=0.491	4.052 SD=0.524	3.621 SD=0.702	3.057 SD=0.991
Cluster 3 (n=398)	3.459 SD=0.730	3.863 SD=0.685	3.836 SD=0.661	3.763 SD=0.789	4.277 SD=0.503	4.045 SD=0.552	4.181 SD=0.587	2.469 SD=0.737

Table 32: Mean factor scores and standard deviations for all three clusters

The table shows that only three cluster centres were lower than the midpoint 3 that represents a neutral attitude towards a particular factor. The majority of the cluster centres were above 3, indicating positive ratings of a specific factor. When displaying the three clusters graphically, this became even more evident, as shown below in Figure 9.

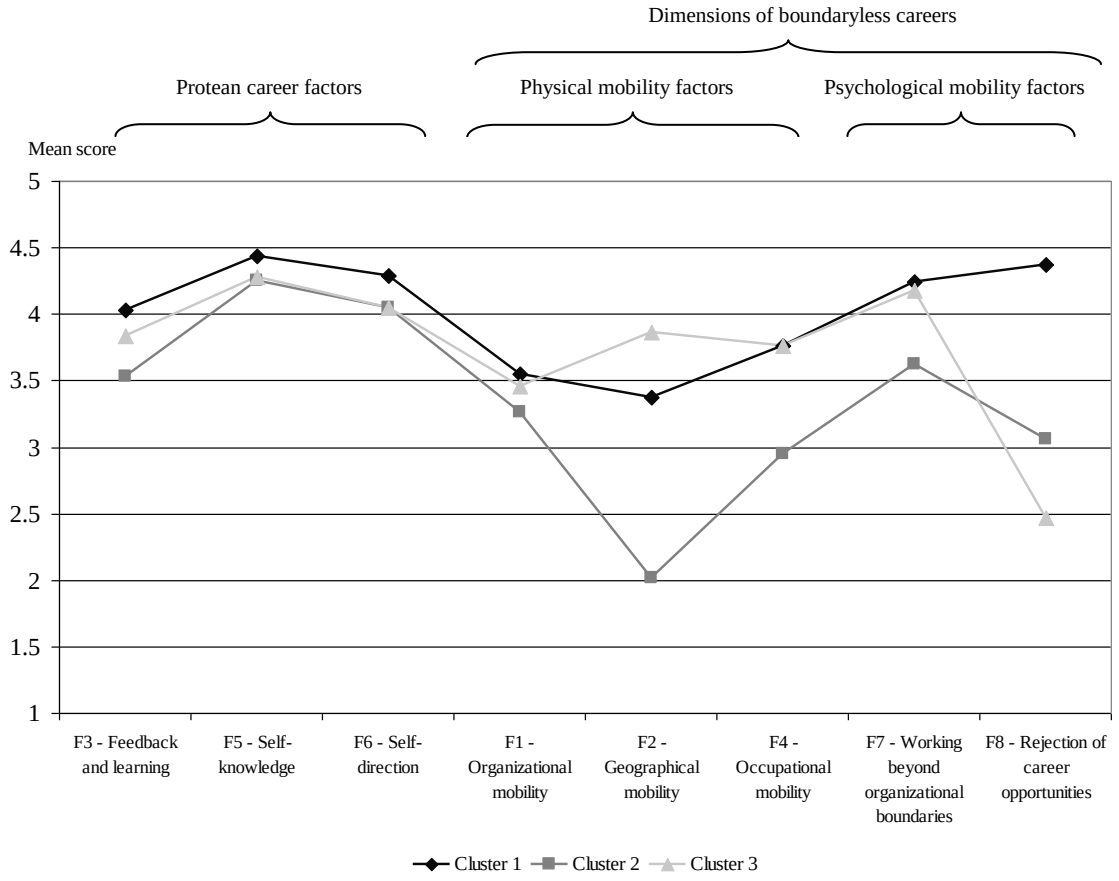


Figure 9: Three clusters of protean and boundaryless career orientations

This solution is discussed from two points of view, namely from a factor and a cluster perspective.

7.1.4.1 The factor perspective

In Figure 9, factors are sorted according to their conceptual relation to protean and boundaryless careers (see Table 30). Factors 3, 5, and 6 refer to various aspects of the protean career. The three graphs run almost in parallel, which indicates that the respondents did not differ greatly with regard to their scores on these three factors. Standard deviations revealed that the clusters were most homogeneous regarding these three factors (see Table 32). In addition, respondents generally rated themselves highly on these three factors. All cluster centres were clearly above the midpoint.

Given the discussion on the prevalence of protean careers orientations in the general workforce today (see sections 3.2.2.2 and 3.5), the absence of at least one cluster with substantially lower scores on the protean career aspects was noteworthy.

Factors 1, 2, and 4 point to the physical mobility dimension and factors 7 and 8 to the psychological mobility dimension of the boundaryless career. In terms of physical mobility, the newly found factor "geographical mobility" turned out to be one of the two major differentiators between the three clusters. "Occupational mobility", also a factor that emerged in this study, clearly distinguished one cluster from the other two. Most surprisingly, "organizational mobility" did not differentiate the three clusters substantially. As was the case with the various aspects of the protean career, the sample responded in a very homogeneous way regarding the willingness to change employers. This was notable given the emphasis on organizational mobility in the discussion on boundaryless careers (see sections 3.3.2.2 and 3.5).

With respect to the psychological mobility dimension of the boundaryless career, cluster 2 differed substantially from the other two clusters on factor 7. Factor 8 ("rejection of career opportunities for personal reasons") was the other key differentiator between the three clusters. Whilst respondents in cluster 1, on average, scored clearly above midpoint, respondents in cluster 2 scored more or less neutrally. Those in cluster 3 indicated that they tend not to reject career opportunities. These clear differences between the three clusters further provided empirical and conceptual justification for keeping factor 8 despite its weak Cronbach's alpha (see Table 29). Together with factor 2 ("geographical mobility"), this boundaryless career factor differentiated the three clusters most clearly.

7.1.4.2 The cluster perspective

As a next step, differences between the three clusters were analyzed with one-way ANOVA Scheffe post hoc tests. Significant findings ($p<0.05$) are described in the paragraphs below.

Respondents in cluster 1 (n=458) showed the highest scores on the "protean" factors. Their openness to feedback and learning, self-knowledge and self-direction were all significantly higher than in the other two clusters, although the differences on these factors were small. Regarding physical mobility, individuals in cluster 1 expressed willingness for organizational, geographical as well as occupational mobility that was significantly higher than in cluster 2. Yet, their willingness to relocate geographically was significantly lower than in cluster 3. In terms of psychological mobility, respondents in cluster 1 scored highest as

well. Their willingness to work beyond organizational boundaries was significantly higher than in cluster 2; their past rejection of career opportunities for personal reasons was significantly higher than in both other clusters.

Respondents in cluster 2 (n=468) scored significantly lower on most factors compared with participants in the other two clusters. Be it willingness for organizational, geographical or occupational mobility, openness to work beyond organizational boundaries or feedback and learning – on all those factors the scores in cluster 2 were significantly lower than in clusters 1 and 3. In addition, self-knowledge, self-direction and the past rejection of career opportunities for personal reasons were all significantly lower than in cluster 1. Only regarding the rejection of career opportunities, individuals in cluster 2 scored significantly higher than those in cluster 3. Despite the statistically significant differences, scores on the "protean" factors (feedback and learning, self-knowledge and self-direction) were much closer to the scores of the other clusters than those on the "boundaryless" factors. Respondents in cluster 2 predominantly differed from the other clusters regarding their lower physical (especially geographical and occupational) mobility as well as their lower willingness to work beyond organizational boundaries.

Cluster 3 (n=398), finally, was very similar to cluster 2 regarding the "protean" factors (feedback and learning, self-knowledge and self-direction). Only feedback and learning scored significantly higher than in cluster 2, whilst all three factors were significantly lower than in cluster 1. Again, absolute differences between these scores were low. The "boundaryless" factors on physical mobility were similar to cluster 1, being significantly higher on the organizational and occupational mobility factors than in cluster 2. The willingness to move geographically was significantly higher than in both other clusters. Whilst the willingness to work beyond one's own organization hardly differed between clusters 1 and 3, it was significantly higher than in cluster 2. The past rejection of career opportunities for personal reasons was significantly lower than in both other clusters.

7.1.4.3 Conclusions from the cluster analysis

A two-step cluster analysis including both hierarchical and non-hierarchical algorithms was performed, using the eight factors (see section 7.1.2.1) as variables. The analysis revealed that a solution with three clusters was the most accurate representation of the data. In terms of the eight factors, the three clusters showed clear differences and some unexpected similarities. "Geographical mobility" and "rejection of career opportunities for personal reasons" turned out to be the greatest differentiators between the three clusters. In

contrast, on the three factors associated with protean career orientations (see Table 30), average scores were similar in all three clusters. “Organizational mobility” did not clearly differentiate the clusters, either. Respondents in cluster 1 scored above midpoint (3) on all eight factors and had the highest cluster scores on the factors relating to protean career orientations and psychological mobility. Respondents in cluster 2, on the contrary, scored lowest on six out of eight factors. In particular, their low scores on geographical and occupational mobility distinguished them from the other clusters. Finally, cluster 3 appeared to be similar to cluster 1; however, it showed particularly high scores on geographical mobility and had by far the lowest scores with regard to rejection of career opportunities (factor 8).

From the various findings in both the factor and the cluster analyses in survey 1, several new questions emerged that could not yet be answered. Would the eight factors emerge again in a second survey at a later stage, i.e. would the factors be stable over time? Would a survey with items presented in a non-random order produce higher Cronbach’s alpha than the randomized items in the first survey? With the intention to address such questions, a second survey was launched. The next section describes both the data analysis as well as the results of survey 2.

7.2 Survey 2 – Data analysis and results

About nine months after survey 1, in June 2009, a second survey was launched to address various open questions resulting from the first survey. This section covers both the corresponding factor and cluster analyses and discusses the findings of survey 2.

For the second survey, two key decisions were made with regard to the protean and boundaryless career orientation items. First, rather than testing all 54 original items of the new operationalization again, only the 25 items that were part of the eight factor scales (see Table 29) were included. The only exception was made for factor 8. As shown in section 7.1.2.1, this factor had two main weaknesses in survey 1: its Cronbach’s alpha (0.519) was the weakest amongst all eight factors; and the two items on this factor both referred to past rejection of career opportunities and did not include any reference to future behaviour. Hence, it was decided to include two additional items from the original operationalization, namely items 47 (“If I were offered a job at a higher hierarchical level tomorrow, I would take it, regardless of my current personal situation”) and 49 (“In order to move up the organization I am willing to make sacrifices in terms of my personal work-life balance”). These two items might give factor 8 a broader meaning that was not exclusively related to

the past. The second decision was that in survey 2 all 27 items were presented according to the factors they had loaded on in the first survey. The purpose was to explore whether this would increase the internal reliability of the scales. This was in contrast to the first survey where the items had been presented in random order.

7.2.1 Factor analysis

The factor analysis of survey 2 was performed in three distinct phases, each of which comprised checking various alternative options. These phases are discussed below.

Factor analysis with 25 items

First, a new factor analysis was performed based on the 25 items included in the eight factors of survey 1. The factor analysis again strictly followed the iterative multi-stage process as outlined by Hair et al. (2006) and applied in survey 1 (see section 7.1.1). Four options with different sample sizes were tested based on different filter criteria. All four options met the minimum criteria for a factor analysis suggested by Hair et al. (2006), and all of them had sufficient sample sizes, i.e. more than 120 participants. Also, even though all case-variable ratios were below the ideal ratio of 10:1, they were still above the minimum threshold of 5:1. Further, in all four options Bartlett's test of sphericity ($p<0.05$) confirmed the existence of sufficient correlations for a factor analysis and MSA (measure of sampling adequacy) was satisfactorily high. The same criteria as in survey 1 were applied throughout the entire factor analysis process. Where possible, the resulting scales were adjusted in order to increase their Cronbach's alphas, i.e. items were removed if that improved the reliability of the scale. All four options eventually resulted in highly similar solutions with eight factors and 20 items. The newly found factors in survey 2 corresponded well with those found in survey 1 and were therefore labelled "NewF1", "NewF2" etc. to indicate that close relationship.

Overall, the option that provided the highest Cronbach's alphas was based on a sample of 161 respondents, in which a filter was applied that did not allow more than one missing value on any one variable. This option was chosen for further analyses. Table 33 provides an overview of the key figures of this solution.

n=161, 20 items	New F1	New F2	New F3	New F4	New F5	New F6	New F7	New F8
No. of items	4	2	2	3	3	2	2	2
Cronbach's alphas	0.768	0.728	0.547	0.757	0.637	0.683	0.850	0.803

73.541% of total variance explained

Table 33: Survey 2 – Reliability of preliminary solution (eight factors, 20 items)

This solution explained considerably more than the 60% of total variance deemed as sufficient by Hair et al. (2006). Compared with the factors identified in the first survey, the eight factors in the second survey were of higher reliability. Five factors had Cronbach's alphas above 0.7. In particular, the new factors 7 and 8 showed a substantially improved reliability compared with the corresponding factors in survey 1. However, the Cronbach's alpha of the new factor 3 (0.547) was substantially lower than the one in the first survey (0.658).

Factor analysis with 27 items

Then, a factor analysis was performed on all 27 protean and boundaryless items included in the second survey, i.e. the 25 ones from the initial eight factor solution plus the two additional items for factor 8. The analysis (n=161) followed exactly the same steps and applied identical rules as previous factor analyses in this study. The two additional items were both dropped in the first iteration of the factor analysis due to factor loadings lower than 0.5. Consequently, the result of this factor analysis was identical to the one based on 25 initial items (see Table 33).

Factor analysis with 20 items

As a last step, the sample (n=161) was subject to one more factor analysis to check whether the factor structure was stable when performing the analysis only with the 20 items identified in the first phase rather than the initial 25 (or 27) items. Again, the factor analysis process was applied as recommended by Hair et al. (2006) and followed the same criteria as the other analyses in this study. Two potential options resulted from this last factor analysis, as follows:

First, if eigenvalues larger than 0.95 were accepted, it resulted in exactly the same solution as presented in Table 33. An additional check revealed that all correlations between factors were well below 0.5, indicating that the factors were related but still sufficiently distinct.

Second, if only eigenvalues larger than 1 were accepted as in the other factor analyses, a solution with seven factors and 19 items resulted, as presented in Table 34.

n=161, 19 items	New F1	New F2	New F(3+5)	New F4	New F6	New F7	New F8
No. of items	4	2	4	3	2	2	2
Cronbach's alphas	0.768	0.728	0.673	0.757	0.683	0.850	0.803

71.069% of total variance explained

Table 34: Survey 2 – Reliability of preliminary solution (seven factors, 19 items)

The only difference to the previously found solutions was that the formerly separate factors NewF3 and NewF5 were merged into one single factor with four items. This resulted in a considerably higher reliability of the new factor compared with the separately calculated Cronbach's alphas. From a statistical point of view, empirical evidence and the stringent application of the factor analysis favoured the solution with seven factors. Yet, conceptual considerations, such as the nature of the resulting factors or the similarity to the factor solution of the first survey, supported the solution with eight factors. At this stage, no compelling criterion was found which would have allowed rejecting one of these two solutions. As a consequence, both options were considered further and are presented in the next section.

7.2.2 Factor results

In this section, the solutions resulting from the factor analysis are briefly described, as are the considerations and further explorations that eventually led to the decision regarding the final factor structure.

7.2.2.1 Factors in survey 2

The two factor solutions that were identified in survey 2 did not differ greatly between themselves (see Appendix 9). Also, they were highly similar to the factors resulting from survey 1. There were only three notable differences to survey 1.

Factor NewF3, which only appeared in the solution with eight factors, consisted of two items. It focused on an individual's willingness to seek and receive feedback, both from other people as well as from self-assessments. It comprised one item fewer than the original factor 3. The reference to learning, which was part of the original factor 3, was not represented in NewF3. As a consequence, NewF3 was labelled slightly differently as "feedback", exclusively referring to an individual's willingness to seek out and consider feed-

back. Another difference was the low reliability of NewF3. With a Cronbach's alpha of 0.547, the reliability was clearly below 0.6 which may be considered sufficient in exploratory settings (Hair, et al., 2006), whereas the original factor 3 had a Cronbach's alpha of 0.658. According to Hair et al. (2006), Cronbach's alphas on scales with more items tend to be higher. The fact that only two items were incorporated in NewF3 may therefore explain that deterioration to some degree. However, the reliability of most other factors substantially improved from survey 1 to survey 2, sometimes despite fewer items in the new factor scales. Thus, the loss of one item could not satisfactorily explain the significant drop in reliability on this particular factor.

Factor NewF(3+5) only appeared in the solution with seven factors and basically merged elements from two factors, NewF3 and NewF5, into one single factor. It comprised all three items from factor NewF5 and one of the two items of NewF3. This resulted in a factor with four items and a Cronbach's alpha which was considerably greater than the corresponding values of the individual factors. The higher reliability might be partially explained by the inclusion of more items in the scale (Hair, et al., 2006). All four items originally stemmed from the same protean aspect, namely, "Being clear on one's needs, motivation, abilities, values and interests". To express the link to the two factors NewF3 and NewF5, this factor was called NewF(3+5) and labelled "self-knowledge and feedback".

Factor NewF6 was clearly related to factor 6 in the first survey. However, it only consisted of two rather than the original four items. In particular, NewF6 no longer included such a clear reference to self-direction as the original factor 6. Rather, the emphasis in the remaining two items was more on the relevance of personal values in an individual's career. Consequently, the new factor was labelled "values-guided" to emphasize the values, but to distinguish it from the corresponding dimension of the protean career. Interestingly, NewF6 had a higher Cronbach's alpha than factor 6 in survey 1 even though it consisted only of half as many items.

The comparison of the correlations of the two new factor solutions did not reveal any substantial differences (see Appendix 9). Factor NewF(3+5) had similar correlations as NewF5, which can be explained by their almost identical item structure. Also, the correlations between factors were similar to those found in the first survey (see Table 31). For example, with two non-significant exceptions, all correlations were positive again. The protean factors were strongly correlated amongst themselves and there was a clear positive correlation between these factors and factor NewF8, as in the first survey.

The two most obvious differences to the factor analysis in the first survey were that, first, the number of significant correlations between factors was substantially lower in both new solutions, and second, the strength of the correlations was also generally weaker than in the first survey. These differences may – at least partially – be explained by the much smaller sample size in survey 2.

Overall, when comparing the two factor solutions in survey 2 with the original factors, and considering the eleven aspects of protean and boundaryless career orientations, they both appeared to cover the underlying operationalization less accurately than the eight factors from survey 1, particularly of the protean career. In the case of the seven factors, the entire "self-directed" dimension was no longer represented. Yet, the new factor solutions seemed to provide a slightly better coverage of the "values-driven" dimension than the factors found in survey 1 (see Appendix 9).

7.2.2.2 Comparison of various factor solutions regarding their reliability

Whilst a direct comparison between the two factor solutions in survey 2 did not reveal substantial differences, an alternative approach provided further evidence to decide which factor solution might be the most appropriate.

As argued above, the solution found in survey 1 seemed to provide a conceptually more solid view than the solutions with the new factors. To examine this further, and in order to decide which factor solution represented the protean and boundaryless career orientations most appropriately, the three solutions were compared in terms of their Cronbach's alphas, as presented in Table 35.

For that comparison, all three factor solutions were applied to the samples of the first and the second survey and Cronbach's alphas were calculated for each of the solutions. It was apparent that average reliability in the sample of survey 2 was higher than in the large sample from survey 1 regardless of the factor solution applied. For survey 2, the solution with seven factors appeared to be the most reliable one, both in terms of mean Cronbach's alphas as well as in terms of factors with alphas lower than 0.6. However, when applied to the full sample, the two solutions found in survey 2 produced less favourable results than the initial factor solution. Average Cronbach's alphas were lower and the number of factors with reliability below 0.6 increased.

	Cronbach's alphas when applied to data in survey 1 (n=1,350)	survey 2 (n=161)
Option 1 (eight factors, 25 items)		
F1 Organizational mobility	0.732	0.762
F2 Geographical mobility	0.773	0.672
F3 Feedback and learning	0.658	0.535
F4 Occupational mobility	0.648	0.757
F5 Self-knowledge	0.623	0.637
F6 Self-direction	0.650	0.653
F7 Working beyond organizational boundaries	0.630	0.850
F8 Rejection of career opportunities	0.519	0.803
Mean of Cronbach's alphas	0.654	0.709
No. of factors with high reliability (>0.7)	2	4
No. of factors with poor reliability (<0.6)	1	1
Option 2 (eight factors, 20 items)		
NewF1 Organizational mobility	0.702	0.768
NewF2 Geographical mobility	0.690	0.728
NewF3 Feedback	0.636	0.547
NewF4 Occupational mobility	0.648	0.757
NewF5 Self-knowledge	0.623	0.637
NewF6 Values-guided	0.599	0.683
NewF7 Working beyond organizational boundaries	0.630	0.850
NewF8 Rejection of career opportunities	0.519	0.803
Mean of Cronbach's alphas	0.631	0.722
No. of factors with high reliability (>0.7)	1	5
No. of factors with poor reliability (<0.6)	2	1
Option 3 (seven factors, 19 items)		
NewF1 Organizational mobility	0.702	0.768
NewF2 Geographical mobility	0.690	0.728
NewF(3+5) Self-knowledge and feedback	0.613	0.673
NewF4 Occupational mobility	0.648	0.757
NewF6 Values-guided	0.599	0.683
NewF7 Working beyond organizational boundaries	0.630	0.850
NewF8 Rejection of career opportunities	0.519	0.803
Mean of Cronbach's alphas	0.629	0.752
No. of factors with high reliability (>0.7)	1	5
No. of factors with poor reliability (<0.6)	2	0

Table 35: Comparison of Cronbach's alphas for three factor solutions

Consequently, based on the results from the factor analysis, the initial factor solution with eight factors and 25 items appeared to be the most appropriate one for this study. First, as shown in Table 35, it provided the most reliable factor structure for the full sample. Sec-

ond, that solution was derived from a much larger sample than the factor structure in survey 2. Third, from a conceptual point of view, the initial factor structure captured the underlying operationalization most adequately (see Appendix 9). And fourth, a reduction from eight to seven factors would have meant excluding learning as a factor in further analyses. Based on the assumed relevance of learning in the IT industry (see section 2.3.4.2), it seemed paramount from a conceptual point of view not to lose this element.

7.2.2.3 Conclusions from the factor analysis

The factor analysis in survey 2 provided two potential factor solutions, one with eight factors and 20 items, and one with seven factors and 19 items. The two options did not differ substantially with regard to reliability, correlation and conceptual fit. As assumed, Cronbach's alphas of the factor scales in survey 2 were, on average, clearly higher than those in survey 1 because the items in survey 2 had been presented in groups rather than randomly.

Nevertheless, when comparing the two factor solutions from survey 2 with the original eight factors based on 25 items, the initial solution appeared to represent the full sample most accurately. In addition, from a conceptual point of view, the solution found in survey 1 was the most appropriate of the three factor options. The semi-structured interviews were deemed ideal to explore this assumption further, for example, with respect to the importance of learning for these IT professionals. However, before conducting the interviews, a cluster analysis was performed, which provided further evidence regarding the most accurate factor structure for this study and allowed exploring the data of the second survey further. This is discussed in the next two sections.

7.2.3 Cluster analysis

The cluster analysis for survey 2 was performed exactly as the one in the first survey, closely following the iterative multi-stage process suggested by Hair and colleagues (2006). As a preliminary step, cluster membership in survey 1 of those who participated in survey 2 was examined. The respondents in the second survey were representative of those who had been invited to participate in survey 2. However, when compared with the full sample there was a non-significant bias in the second sample. Respondents of clusters 1 and 3 were slightly over-represented; those of cluster 2 under-represented. The cluster analysis was performed based on the same sample size (n=161) as with the factor analysis. It was decided to calculate three separate cluster analyses for the all three factor options identified above (see Table 35) to ensure that the most appropriate factor structure had been chosen.

Although the sample size was small, it was still considered "sufficiently large to adequately represent all of the relevant groups of the population", as suggested by Hair et al. (2006, p. 571). As in the first survey, an approach in two steps was taken – a hierarchical cluster analysis followed by a non-hierarchical one. In the hierarchical cluster analysis, the same criteria and algorithms were used as in survey 1. For each of the three options, this resulted in a meaningful cluster structure with reasonable cluster sizes that were further refined in the non-hierarchical cluster analysis. In each case a solution with three clusters represented the data most appropriately.

Due to the small sample size, a cross-validation with two random sub-samples could not be performed. As in survey 1, no other variables were known that could have been used to assess criterion validity. However, as discussed below, the three cluster solutions were represented graphically and compared with the findings in survey 1.

7.2.4 Cluster results

As described above, all three cluster analyses resulted in solutions with three clusters. Here, they are presented and compared with the clusters found in survey 1. All findings are based on a sample size of n=161.

7.2.4.1 Clusters based on eight factors and 25 items

Table 36 provides an overview of the factor mean scores and standard deviations of the first option, which applied the factor structure from survey 1 on respondents in survey 2. Numbers represent scores on the initial Likert scale, ranging from 1 ("strongly disagree") to 5 ("strongly agree").

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
Full sample (n=161)	*3.527 SD=0.756*	*3.184 SD=0.926*	*3.902 SD=0.635*	*3.521 SD=0.927*	*4.248 SD=0.549*	*4.209 SD=0.589*	*4.189 SD=0.739*	*3.197 SD=1.318*
Cluster 1 (n=52)	3.831 SD=0.623	3.821 SD=0.603	4.167 SD=0.501	4.040 SD=0.743	4.346 SD=0.489	4.442 SD=0.436	4.510 SD=0.519	4.235 SD=0.688
Cluster 2 (n=63)	3.308 SD=0.770	2.460 SD=0.784	3.667 SD=0.627	3.106 SD=0.895	4.175 SD=0.545	4.115 SD=0.679	3.921 SD=0.819	3.580 SD=0.761
Cluster 3 (n=46)	3.477 SD=0.777	3.457 SD=0.718	3.920 SD=0.671	3.500 SD=0.883	4.239 SD=0.611	4.068 SD=0.535	4.193 SD=0.701	1.465 SD=0.516

Table 36: Survey 2 – Mean scores and standard deviations for all three clusters (eight factors, 25 items)

Due to the application of Ward's algorithm, cluster sizes did not differ greatly. Again, the majority of cluster centres were above midpoint. Only two of them were lower than 3 ("neither agree nor disagree"), which would indicate a neutral attitude towards a particular factor. When represented graphically, clear similarities between this option and the original solution in survey 1 could be detected, as shown in Figure 10.

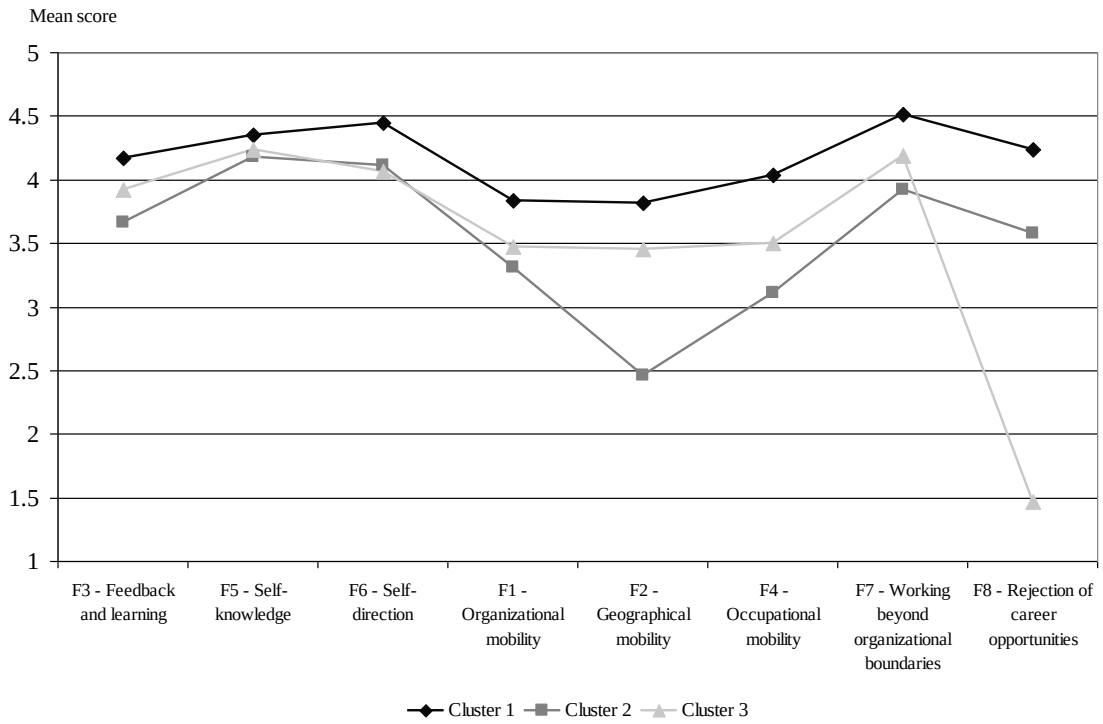


Figure 10: Survey 2 – Three clusters (eight factors, 25 items)

As with the initial cluster solution (see Figure 9), this option also followed a distinct pattern. The graphs of the three factors relating to a protean career orientation, i.e. factors 3, 5, and 6, again ran almost in parallel and clearly above midpoint. Factors 1, 2, and 4, relating to physical mobility were slightly lower than the protean ones. Also, geographical mobility and the rejection of career opportunities for personal reasons appeared as the two major differentiators between the clusters again.

As in the original solution, respondents in cluster 1 scored high, on average, on all factors, whilst those in cluster 2 scored lowest on all except two factors. Although the pattern of cluster 3 was clearly identifiable as well, two minor differences were apparent in comparison with the initial solution. First, cluster 3 did not represent the highest average score on geographical mobility and, second, the score on factor 8 was considerably lower than originally. Despite this, the clusters found in this option were overall strikingly close to the ones developed in the first survey.

7.2.4.2 Additional cluster solutions

The clusters resulting from the analyses of the other two options (eight factors/20 items and seven factors/19 items) were highly similar to the clusters shown in Figure 10. They also provided similar results compared with the cluster structure from survey 1 (see Appendix 9). However, whilst the three clusters were clearly identifiable in both additional solutions, their graphical representation appeared to be slightly distorted. Overall, the cluster solution based on 8 factors and 25 items seemed to be closer to the cluster structure in survey 1 than the other two options. Also, various conceptual and practical considerations (see section 7.2.2.2) suggested that the options with fewer items might not be as appropriate for this study as the one based on 25 items.

7.2.4.3 Conclusions from the cluster analysis

Even though the analyses were performed with different sets of factors and on a much smaller sample than in the first survey, they all resulted in highly similar cluster results. In all three options, a solution with three clusters resulted as the most appropriate representation. When displayed graphically, the various clusters were clearly identifiable, regardless of the factor structure applied. In addition, the clusters from survey 2 were not only similar amongst themselves, but could also be easily linked to the corresponding clusters in the first survey.

These findings led to several conclusions. First, the findings in survey 2 provided further support that the three clusters in the first survey might be the most appropriate solution and that alternatives with more clusters would not have represented the data in the sample more accurately. Second, the cluster analysis further supported the decision to adopt the factor structure with eight factors and 25 items as the most appropriate solution for this study. As shown in section 7.2.2, that solution was identified as the most reliable and conceptually most suitable representation of the new operationalization of protean and boundaryless careers. Third, given that approximately nine months had elapsed between the two surveys, the results indicated that the clusters and the underlying factors may be relatively stable over time. However, to explore this conclusion further, additional analyses were required, which are presented in the next section.

7.2.5 Stability and change over time for factor scores and cluster membership

Three different analyses were performed in order to address the extent to which the factors and clusters had changed over nine months. First, individual cluster changes of those who had participated in both surveys were examined. Then, correlations between the eight factors in survey 1 and survey 2 were calculated. Finally, the stability of factor score means was analyzed with paired t-tests. The corresponding results are discussed below.

7.2.5.1 Cluster membership changes between survey 1 and survey 2

The first analysis examined the extent to which cluster membership of individuals who had participated in both surveys and who had been clustered twice remained stable between survey 1 and survey 2. In total, 129 respondents met all the criteria for both cluster analyses. As shown in Table 37, cluster sizes for these 129 individuals varied substantially between the two surveys.

	Survey 1	Survey 2
Cluster 1	62	46
Cluster 2	22	50
Cluster 3	45	33

Table 37: Cluster classifications of participants in survey 1 and survey 2 (n=129)

The number of individuals in cluster 2 had more than doubled between survey 1 and survey 2 whilst the numbers for clusters 1 and 3 had decreased. This seems noteworthy although Ward's method has a tendency to produce clusters of equal size (Hair, et al., 2006). Further analyses revealed that 52.7% of the participants stayed in the same cluster in both surveys, whilst all others had changed cluster membership.

However, it soon became apparent that this way of looking at stability over time had severe limitations. Although the overall cluster patterns in survey 2 were similar to the ones in survey 1 (see section 7.2.4), some cluster centres had considerably shifted between the two surveys. For example, the cluster centres for factor geographical mobility (F2) went down for cluster 3 by 0.41 points and increased for cluster 2 by 0.44 points. For factor rejection of career opportunities (F8), changes were even bigger. In survey 2, cluster centres for cluster 3 were 1.00 point lower and 0.52 points higher for cluster 2 (see Appendix 9).

These changes in the cluster centres may have been largely caused by the exploratory nature of the cluster analysis process applied. As a consequence, thresholds for the clustering of individuals were different in the two surveys. So, although the clusters were still similar, they were not identical and could not be compared directly.

7.2.5.2 Correlations between factors in survey 1 and survey 2

In a second analysis, factor correlations were calculated to examine whether the factors were similar relative to each other across the two surveys. For each factor the sample size was defined separately to ensure maximum sample sizes. The samples consisted of all the individuals who had participated in both surveys and who met all the corresponding factor criteria. For example, the 144 individuals included in the sample for F1 did not have more than one missing value on that factor in survey 1 and in survey 2. *. Correlation significant ($p<0.05$; two-tailed) / **. Correlation significant ($p<0.01$; two-tailed)

Table 38 provides an overview of these correlations. All eight factors had correlations between 0.54 and 0.72. These correlations confirmed a considerable degree of stability for each factor in the two surveys and indicated that, relative to each other, the factors were reasonably similar across the two surveys.

		Factor 1 (S1)	Factor 2 (S1)	Factor 3 (S1)	Factor 4 (S1)	Factor 5 (S1)	Factor 6 (S1)	Factor 7 (S1)	Factor 8 (S1)
Factor 1 - Organizational mobility (S2)	Pearson Correlation	**0.622****	0.225**	0.191*	0.020	0.202*	0.126	0.116	0.152
	Sig. (two-tailed)	**0.000**	0.007	0.022	0.813	0.015	0.133	0.168	0.072
	N	**144**	144	144	144	144	144	144	142
Factor 2 - Geographical mobility (S2)	Pearson Correlation	-0.032	**0.631****	0.131	0.241**	0.062	0.039	0.251**	-0.054
	Sig. (two-tailed)	0.698	**0.000**	0.112	0.003	0.451	0.638	0.002	0.513
	N	149	**149**	149	149	149	149	149	147
Factor 3 - Feedback and learning (S2)	Pearson Correlation	0.025	0.028	**0.549****	0.114	0.311**	0.137	0.156	0.189*
	Sig. (two-tailed)	0.762	0.735	**0.000**	0.167	0.000	0.096	0.058	0.022
	N	149	149	**149**	149	149	149	149	147
Factor 4 - Occupational mobility (S2)	Pearson Correlation	-0.037	0.034	0.143	**0.686****	0.123	0.166*	0.230**	0.090
	Sig. (two-tailed)	0.663	0.687	0.089	**0.000**	0.142	0.047	0.006	0.291
	N	143	143	143	**143**	143	143	143	141
Factor 5 - Self-knowledge (S2)	Pearson Correlation	-0.055	-0.044	0.255**	0.052	**0.591****	0.172*	0.082	0.088
	Sig. (two-tailed)	0.506	0.596	0.002	0.526	**0.000**	0.036	0.319	0.287
	N	149	149	149	149	**149**	149	149	147
Factor 6 - Self-direction (S2)	Pearson Correlation	0.152	-0.016	0.125	0.018	0.311**	**0.538****	0.130	0.163*
	Sig. (two-tailed)	0.066	0.850	0.130	0.829	0.000	**0.000**	0.116	0.050
	N	148	148	148	148	148	**148**	148	146
Factor 7 - Working beyond organizational boundaries (S2)	Pearson Correlation	0.047	0.144	0.122	0.126	0.166*	-0.008	**0.543****	0.001
	Sig. (two-tailed)	0.577	0.085	0.145	0.131	0.047	0.926	**0.000**	0.992
	N	145	145	145	145	145	145	**145**	143
Factor 8 - Rejection of career opportunities (S2)	Pearson Correlation	0.131	-0.025	0.141	0.063	0.114	0.205*	0.066	**0.719****
	Sig. (two-tailed)	0.139	0.781	0.109	0.474	0.197	0.019	0.457	**0.000**
	N	130	130	130	130	130	130	130	**130**

*. Correlation significant (p<0.05; two-tailed) / **. Correlation significant (p<0.01; two-tailed)

Table 38: Correlations between factors F1-F8 in survey 1 and survey 2

7.2.5.3 Factor score comparison between survey 1 and survey 2

In a third analysis, paired t-tests were performed to assess whether the overall factor score means had changed between survey 1 and survey 2. Based on the same criteria as for the correlations (see above), sample sizes were again defined separately for each factor. Table 39 provides the details of the results.

	N	Mean	Difference	t	df	Sig. (two-tailed)
Factor 1 - Organizational mobility	144	3.480	-0.057	-1.048	143	not significant
Factor 1 - Organizational mobility (S2)	144	3.538				
Factor 2 - Geographical mobility	149	3.251	0.069	1.034	148	not significant
Factor 2 - Geographical mobility (S2)	149	3.181				
Factor 3 - Feedback and learning	149	3.991	0.081	1.488	148	not significant
Factor 3 - Feedback and learning (S2)	149	3.911				
Factor 4 - Occupational mobility	143	3.647	0.150	2.496	142	$p<0.05$
Factor 4 - Occupational mobility (S2)	143	3.497				
Factor 5 - Self-knowledge	149	4.322	0.060	1.564	148	not significant
Factor 5 - Self-knowledge (S2)	149	4.262				
Factor 6 - Self-direction	148	4.217	-0.011	-0.248	147	not significant
Factor 6 - Self-direction (S2)	148	4.228				
Factor 7 - Working beyond org. boundaries	145	4.169	-0.041	-0.726	144	not significant
Factor 7 - Working beyond org. boundaries (S2)	145	4.210				
Factor 8 - Rejection of career opportunities	130	3.492	0.185	2.289	129	$p<0.05$
Factor 8 - Rejection of career opportunities (S2)	130	3.308				

Table 39: Mean factor scores in survey 1 and survey 2 (paired t-tests)

Mean scores on two factors had changed significantly. For occupational mobility (F4), the mean score had dropped considerably between the two surveys. This implied that the openness to occupational mobility of these individuals was clearly lower at the time of the second survey than it had been nine months before. Likewise, the mean score of F8 was also significantly lower in the second survey than in the first one. Therefore, the respondents seemed to be less willing to reject career opportunities than nine months earlier.

7.2.5.4 Conclusions regarding factor and cluster changes over time

Whilst the initial comparison of the cluster structures in survey 1 and survey 2 provided support for a reasonable stability of the clusters (see section 7.2.4), these analyses revealed a much more detailed picture. Cluster centres differed considerably between the two surveys, which meant that different thresholds were used for the clustering of individuals. Thus, the clusters in the two surveys were similar but not identical. This may help explain why almost half the individuals had changed clusters between the two surveys. So, whilst

the overall cluster characteristics had remained fairly similar, this was not true at the level of individual cluster membership. The clusters, therefore, may be more useful to describe the overall sample than individual study participants.

With regard to the factors, they were correlated reasonably well between survey 1 and survey 2. Nevertheless, the t-tests revealed that two factor mean score levels had significantly changed. Between the two surveys, individuals seemed to have become less intent on changing occupations, i.e. leaving the IT industry, and less inclined to reject career opportunities.

Potential causes for the changes between the two surveys are discussed in section 9.1.4. However, before that discussion, it is possible at this stage to summarize the findings in relation to research questions 1.1, 1.2, and 1.3, as presented in the next section.

7.3 Findings regarding career orientations

Based on the results in the first and the second survey, answers to research questions 1.1, 1.2, and 1.3 (see section 5.1) regarding career orientations of IT professionals in Europe are presented below.

7.3.1 Career orientations of IT professionals in Europe (RQ 1.1)

Research question 1.1 was concerned with the career orientations that could be identified amongst IT professionals in Europe when using a new operationalization of the protean and boundaryless career concepts. As discussed in the previous sections, three different clusters of career orientations were found, each based on eight distinct factors (see Figure 9).

Three factors, namely, “self-direction”, “self-knowledge”, and “feedback and learning”, were closely related to aspects of the protean career (see Table 30). As it turned out, these three factors did not clearly differentiate the clusters. On average, participants all scored highly on these factors, and little variance within each cluster was detected. An interesting finding was that one of the three factors merged the two dimensions of the protean career, being “self-directed” and “values-driven”. Although these dimensions are conceptually distinct, they were linked by one of the empirically developed factors.

With regard to the boundaryless career, five factors were detected. Three of them referred to the physical mobility dimension. Organizational mobility did not emerge as a factor that substantially differentiated the three clusters. However, geographical mobility clearly distinguished them. Finally, one cluster was distinct from the other two regarding occupational mobility. In terms of psychological mobility, two factors emerged. On one of them, "willingness to work beyond organizational boundaries", the clusters did not differ greatly. However, they showed major differences on the last factor, "rejection of career opportunities for personal reasons", which emerged as one of the two key differentiating factors, together with geographical mobility. These findings were then compared with the clusters suggested by Briscoe and Hall (2006a), as referred to in research question 1.2.

7.3.2 Comparison of empirically found career orientations with those proposed by Briscoe and Hall (RQ 1.2)

This research question was concerned with the comparison of the career orientations suggested by Briscoe and Hall (2006a) and those empirically found amongst IT professionals in Europe.

One of the difficulties in comparing the various career orientations was that Briscoe and Hall had not defined what being "high" or "low" on any of the four protean and boundaryless dimensions might mean. Due to this lack of conceptual guidance, it was decided to opt for a simple rule in this study, that is, all cluster centres above midpoint were classified as "high" and those below midpoint were considered as "low". Based on this arbitrary guideline, all except three cluster centres (factors 2 and 4 for cluster 2, and factor 8 for cluster 3) were labelled as "high" (see Table 32). As a next step, cluster centres were grouped according to their conceptual dimension and again categorized as "high" or "low". This resulted in the structure shown in Table 40.

	Cluster 1	Cluster 2	Cluster 3
Protean dimensions	high	high	high
Physical mobility dimension	high	low	high
Psychological mobility dimension	high	high	low

Table 40: Classification of cluster centres

The classification was straightforward for cluster 1; all of the corresponding cluster centres were clearly above midpoint. For cluster 2, it was decided to classify the physical mobility dimension as "low" because two of the three related cluster centres were below midpoint

and these low values seemed to be key characteristics of cluster 2 (see Figure 9). Finally, for cluster 3, the psychological mobility dimension was classified as "low" because when comparing cluster 3 with cluster 1, this dimension was the key differentiator between the two. Also, the cluster analyses performed with data in survey 2 had provided even more accentuated differences on that dimension (see section 7.2.4). As a next step, the three clusters were matched with Briscoe and Hall's (2006a) matrix, as shown in Table 41.

Due to its high scores on all four dimensions, cluster 1 matched the group of "protean career architects". Based on its low scores on physical mobility and the high scores on both psychological mobility and the protean dimensions, cluster 2 corresponded well with the "solid citizens" suggested by Briscoe and Hall. Cluster 3, however, did not match any of their profiles. Given its low scores on psychological and high scores on physical mobility, this cluster had similarities with the "wanderers". However, the clear difference was that "wanderers" were defined as having low scores on the protean dimension whilst cluster 3 had high scores there as well. As cluster 3 was similar to the "wanderers" in terms of mobility scores, it was labelled "roamers". This should indicate that the cluster shared similarities with "wanderers" except for the protean dimensions.

			Protean career dimensions				
			Values-driven	Low	High	Low	High
			Self-directed	Low	Low	High	High
Boundaryless career dimensions	Physical mobility	Psychological mobility					
	Low	Low		"Lost / trapped"	"Fortressed"	-	-
	High	Low		"Wanderer"	-	-	"Roamer"* (Cluster 3)
	Low	High		-	"Idealist"	"Organization man/woman"	"Solid citizen" (Cluster 2)
	High	High		-	-	"Hired gun"	"Protean career architect" (Cluster 1)

☐ clusters identified in this study
* new label developed in this study

Table 41: Matching the three clusters with Briscoe and Hall's (2006a) matrix

In summary, two of the three clusters found in this study could clearly be linked to career profiles suggested by Briscoe and Hall (2006a), namely the “protean career architects” and the “solid citizens”. The third cluster, however, had not been previously described in the literature although it shared several characteristics with the “wanderers”. It was therefore called “roamers”. Briscoe and Hall’s (2006a) five other career profiles could not be confirmed empirically. As their matrix was used as a basis for the exploration of protean and boundaryless career orientations in this study, the three clusters found were labelled in reference to their conceptual work and are referred to with these labels further in this thesis.

Briscoe and Hall (2006a) provided a description of each of their eight profiles. That being the case, more input was needed for a thorough comparison of the three clusters found in this study with those suggested by Briscoe and Hall. Based on the findings regarding further research questions, that comparison is presented and discussed later in this thesis (see section 9.1.3.2).

7.3.2.1 Interplay between various characteristics and career orientations (RQ 1.3)

Research question 1.3 was concerned with the potential interplay between various demographic characteristics of IT professionals and their career orientations.

Interplay between various characteristics and the eight factors

As indicated in Table 42, analyses with selected variables from survey 1 revealed several significant correlations with the eight factors. For example, regarding age, younger respondents indicated a significantly higher willingness for organizational and geographical mobility than older ones. Self-knowledge and the rejection of career opportunities, however, were both positively correlated with age.

In terms of physical mobility, several notable correlations were found. For example, job changes across organizations over the past five years were mainly positively correlated with factors 1, 2, 3, and 8, whilst internal job mobility showed a different pattern. Participants with more internal changes over the past five years were less organizationally mobile and less intent on rejecting career opportunities. However, there was a significant positive correlation with their willingness to cooperate beyond organizational boundaries as well as to change occupations. This suggests that the drivers for job changes within or across organizational boundaries may be substantially different.

		Age	Years worked in IT	Years with current employer	No of job changes within org.	No of job changes across orgs.	No of geographical changes	Likelihood of remaining here	Overall career satisfaction	Overall career outlook^
Factor 1 - Organizational mobility	Pearson Correlation	-0.086**	-0.002	-0.283**	-0.067*	0.134**	0.033	-0.336**	-0.202**	0.048
	Sig. (two-tailed)	0.003	0.931	0.000	0.014	0.000	0.231	0.000	0.000	0.078
	N	1,199	1,344	1,343	1,334	1,331	1,331	1,338	1,341	1,340
Factor 2 - Geographical mobility	Pearson Correlation	-0.106**	-0.120**	-0.078**	0.055*	0.085**	0.283**	-0.218**	-0.114**	0.012
	Sig. (two -tailed)	0.000	0.000	0.004	0.043	0.002	0.000	0.000	0.000	0.663
	N	1,199	1,344	1,343	1,334	1,331	1,331	1,338	1,341	1,340
Factor 3 - Feedback and learning	Pearson Correlation	-0.027	-0.033	-0.042	0.103**	0.096**	0.145**	-0.073**	-0.011	0.111**
	Sig. (two -tailed)	0.356	0.231	0.120	0.000	0.000	0.000	0.008	0.680	0.000
	N	1,199	1,344	1,343	1,334	1,331	1,331	1,338	1,341	1,340
Factor 4 - Occupational mobility	Pearson Correlation	-0.029	-0.111**	-0.011	0.087**	0.015	0.052	-0.209**	-0.232**	-0.082**
	Sig. (two -tailed)	0.318	0.000	0.676	0.002	0.592	0.056	0.000	0.000	0.003
	N	1,199	1,344	1,343	1,334	1,331	1,331	1,338	1,341	1,340
Factor 5 - Self-knowledge	Pearson Correlation	0.117**	0.091**	0.075**	0.085**	0.013	0.067*	-0.078**	0.044	0.067*
	Sig. (two -tailed)	0.000	0.001	0.006	0.002	0.637	0.015	0.004	0.108	0.014
	N	1,199	1,344	1,343	1,334	1,331	1,331	1,338	1,341	1,340
Factor 6 - Self-direction	Pearson Correlation	-0.039	-0.001	-0.071**	-0.025	0.043	0.047	-0.030	0.120**	0.173**
	Sig. (two -tailed)	0.173	0.971	0.009	0.361	0.115	0.084	0.267	0.000	0.000
	N	1,199	1,344	1,343	1,334	1,331	1,331	1,338	1,341	1,340
Factor 7 - Working beyond organizational boundaries	Pearson Correlation	0.015	0.012	0.080**	0.122**	-0.029	0.064*	-0.126**	-0.049	0.000
	Sig. (two -tailed)	0.592	0.652	0.003	0.000	0.288	0.019	0.000	0.074	0.995
	N	1,199	1,344	1,343	1,334	1,331	1,331	1,338	1,341	1,340
Factor 8 – Rejection of career opportunities	Pearson Correlation	0.117**	0.134**	-0.017	0.048	0.062*	0.052	-0.027	-0.001	0.028
	Sig. (two -tailed)	0.000	0.000	0.539	0.082	0.023	0.060	0.315	0.968	0.298
	N	1,199	1,344	1,343	1,334	1,331	1,331	1,338	1,341	1,340

^ Respondents were asked to assess their individual future career prospects on a five-point Likert scale (1: very negatively – 5: very positively)
*. Correlation significant (p<0.05; two-tailed) / **. Correlation significant (p<0.01; two-tailed)

Table 42: Correlations between the eight factors and demographic variables

Additionally, the estimated likelihood of remaining in one's current job and individual career satisfaction were both strongly negatively correlated with organizational, geographical and occupational mobility. This suggests that negative career satisfaction may act as a key motivator for individuals to move to a new organization, location or even occupation. Interestingly, factor 6 (self-direction) was significantly positively correlated with overall career satisfaction and future career outlook, which might mean that more self-directed individuals are more satisfied and think more positively about their careers both in the present and in the future.

Interplay between various characteristics and the three clusters

When comparing the gender distribution, no significant differences between the three clusters were found. The expected count of female roamers almost matched with their actual count. Amongst protean career architects, there was a slight over-representation and amongst solid citizens a slight under-representation of women. However, these differences were not statistically significant (Chi-Square test, $p=0.224$, two-tailed).

In terms of age, one-way ANOVA Scheffe post hoc tests ($p<0.05$) revealed that roamers were significantly younger than participants in the other two clusters, but the difference was small. At the time of the survey, roamers were 38.64 (SD=8.81) years old, on average. Protean career architects (40.74 years, SD=8.11) and solid citizens (41.26 years, SD=8.89) were only about two years older, on average. In order to gain a more detailed understanding of the three clusters and their characteristics, several additional variables from survey 1 were analyzed with one-way ANOVA Scheffe post hoc tests. Significant findings ($p<0.05$) are described in the paragraphs below.

Protean career architects were significantly better educated than solid citizens and had been more mobile over the last five years within and across organizations as well as geographically; they were more likely to be looking for a new job at the time of the survey and had spent less time in their current position than solid citizens. Comparatively, protean career architects perceived their remuneration as less adequate and were less satisfied with their careers; they expressed a lower preference for a specialist career than solid citizens but a higher one than roamers. Also, they were older, had more dependents, had spent more time in IT, were less likely to be working full time, and rated their careers compared with their peers more positively than roamers.

Solid citizens had significantly lower levels of educational qualifications than individuals in the other clusters. Over the past five years, they had moved less within and across organizations (compared with protean career architects), as well as geographically (compared with both other clusters). Not only were they significantly more satisfied with their careers than the other respondents, they had also been in their current position for longer, were less likely to be looking for a new job at the time of the survey, considered the likelihood of remaining in their jobs as higher, and perceived their remuneration as more adequate. Solid citizens had a higher preference for specialist careers than the others. Furthermore, some significant differences compared with roamers were found. The average solid citizen was older and responsible for more dependents. They had earned their last educational qualification longer ago than roamers, and, at work, they managed fewer employees, had worked longer both in the IT industry as well as for their employer, but had not been promoted as recently as the average roamer.

And finally, roamers had significantly higher levels of educational qualifications, had more staff reporting to them and had more often moved geographically over the past five years than solid citizens. They were also more likely to work full time than protean career architects and, as shown above, they were the youngest of the three clusters. At the same time, they scored lower on many other aspects. Roamers had the fewest dependents, had worked the least in IT and showed the lowest preference for a specialist career. They ranked their own careers compared with those of their peers significantly lower than protean career architects. Compared with solid citizens, their last promotion was more recent and they had spent less time with the employer as well as in their current position. They thought it was less likely they would remain in their current job and they were more likely to be looking for a new one. Individuals in this cluster perceived their remuneration as less adequate and felt less satisfied with their career situation than solid citizens.

Further analyses using Chi-Square tests revealed additional highly significant ($p<0.001$, two-tailed) differences between the clusters. For example, the clusters clearly differed in terms of nationality and organizations. Protean career architects were most prevalent amongst UK citizens. This was consistent with the finding that protean career architects were the largest cluster in Org03 and Org05a, both of which are UK-based. Solid citizens were most frequently found amongst Swiss citizens. They were the most common cluster in Org02, Org04 and Org07. Roamers were most prevalent amongst German IT professionals. In Org01, Org05b and Org10, this was the most commonly found cluster.

7.3.2.2 Conclusions regarding research questions 1.1, 1.2, and 1.3

At this stage, it was possible to address the first three research questions. Research question 1.1 asked what career orientations may be identified amongst IT professionals in Europe. Based on thorough factor and cluster analyses in two surveys, three clusters of career orientations were found. These clusters were based on eight factors, three of which were conceptually anchored in the protean career concept. The other five factors were related to the boundaryless career concept. The key differentiators between the three clusters were individuals' geographical mobility and their willingness to reject career opportunities for personal reasons. Comparisons between survey 1 and survey 2 showed that these career orientations were moderately stable over time.

Research question 1.2 focused on the potential match between the empirically developed career orientations and those proposed by Briscoe and Hall (2006a). These three clusters, therefore, were compared with the eight career profiles suggested by Briscoe and Hall. In the absence of any existing conceptual definition of what "high" and "low" scores on the various dimensions might mean, the clusters were assigned to the cells in the matrix simply based on their cluster centre scores. As a result, two of the three clusters could clearly be matched with career profiles described by Briscoe and Hall, namely with "protean career architects" (cluster 1) and with "solid citizens" (cluster 2). The third cluster did not match any of Briscoe and Hall's profiles. However, it shared distinct characteristics regarding physical and psychological mobility with one of their profiles ("wanderer") and was consequently labelled "roamers", referring to this similarity in mobility.

Finally, research question 1.3 addressed the interplay between IT professionals' demographic characteristics and their career orientations. Consequently, various characteristics of the three clusters were explored. Contrary to expectation, no significant differences regarding gender were observed between the clusters. In terms of age, roamers appeared to be slightly but significantly younger than respondents in the other clusters. Further analyses revealed a range of significant differences between the three clusters in terms of various demographic variables.

However, based on the findings in the two surveys, several questions arose and could not be answered with the quantitative data. For example, would roamers report more willingness for geographical mobility than solid citizens as the stark differences in their factors scores implied?

Would protean career architects, solid citizens and roamers all talk about feedback and learning in highly similar ways, as may be expected based on their similar scores in the cluster analysis? These were questions which were addressed in the interviews, as described in the next section.

7.4 Interviews – Data analysis and results

As the third and final part in the exploration of protean and boundaryless career orientations, this section describes both the analysis and the results of the semi-structured interviews with IT professionals. The qualitative findings are also put into context with the quantitative results presented above.

7.4.1 Data analysis

As discussed in section 6.5.2, 25 interviews were conducted for this study. Table 43 provides some key information about the interviewees.

Interviewee	Gender	Age	Nationality	Children	Managerial role	Cluster (Survey 1)
Int01	m	50	Swiss	No	No	Protean career architect
Int02	m	45	German	Yes	No	Roamer
Int03	m	40	German	No	No	Protean career architect
Int04	m	52	British	Yes	Yes	Roamer
Int05	m	41	British	Yes	No	Solid citizen
Int06	m	32	Austrian	No	No	Protean career architect
Int07	m	46	Swiss	Yes	No	Solid citizen
Int08	m	45	Swiss	Yes	Yes	Roamer
Int09	m	30	Swiss	No	No	Roamer
Int10	f	33	Irish	No	No	Roamer
Int11	f	49	German	No	Yes	Roamer
Int12	m	25	Swiss	No	No	Solid citizen
Int13	m	43	Swiss	Yes	No	Solid citizen
Int14	m	37	Swiss	No	No	Protean career architect
Int15	f	26	Austrian	No	No	Roamer
Int16	f	59	British	Yes	No	Protean career architect
Int17	m	42	Swiss	Yes	No	Protean career architect
Int18	m	27	Swiss	No	No	Roamer
Int19	m	46	German	Yes	No	Solid citizen
Int20	f	48	Swiss	No	No	Solid citizen
Int21	m	42	Swiss	Yes	No	Protean career architect
Int22	m	38	German	No	No	Solid citizen
Int23	m	36	British	Yes	Yes	Protean career architect
Int24	f	39	German	Yes	No	Protean career architect
Int25	m	52	Swiss	No	Yes	Protean career architect

Table 43: Details of the 25 interviewees

In order to preserve the anonymity of the interviewees (see section 6.2.3), they are only referred to by a pseudonym. In Table 43, age at the time of the first survey is listed. Given that the interviews took place about nine months after the first survey, the average age of the interviewees had increased accordingly. In total, ten protean career architects, seven solid citizens, and eight roamers participated in the interviews. Based on the findings regarding cluster centres in survey 1 and survey 2 (see section 7.2.5.1), it was decided to base the selection of the interviewees on their cluster membership in survey 1 and not on their more recent classification in survey 2 (see Appendix 9). This made sure that the interview results could be compared with the findings from the large sample in survey 1.

Selection of interview sequences for transcription

An in-depth analysis of the entire 25 interviews, each lasting for about an hour, would have exceeded the scope of this study and the resources available. It was therefore decided to focus on those parts of the interviews that allowed answering research question 1.4. The section in which the individuals were asked what each of the eight factors meant to them was considered to be the most appropriate one for that purpose. Not only would a focus on that interview section shed further light on the relevance of the eight factors for IT professionals in Europe, it would also make it possible to gain more insight into the potential differences between the three clusters. Hence, following a suggestion by Bryman and Bell (2003), only the 25 middle sections, each covering about 10-15 minutes, rather than the entire interviews were transcribed.

Language issues in the transcription process

Fifteen interviews were conducted in Swiss German, five in German and five in English, which allowed all interviewees to speak in their mother tongue (see section 6.5.2). In a first step of the transcription, the German and English interviews were transcribed verbatim. The interviews conducted in Swiss German, however, already required a first translation into German because Swiss German is only a spoken language. As a second step, the transcripts were anonymized. Any references to names, places or events that would have allowed identifying an interviewee were removed and replaced by neutral terms, such as “my company”, or “in this city”. Third, as all transcripts needed to be available in English, the anonymized German transcripts were translated.

The translation process posed several difficulties similar to those that other academics have reported when conducting research in cross-cultural settings (e.g. Chudzikowski, et al., 2009). Sometimes it was difficult to find the most adequate translation because a German word might be translated into English in various different ways. The translation process across one (for German) or even two (for Swiss German) language barriers also resulted in a potential loss of richness in the transcripts. Whilst the general meaning of individual statements could be preserved, it was almost impossible not to lose the specific flavour of quotations. Particularly in the interviews conducted in Swiss German, interviewees would sometimes use colloquialisms or dialect terms that do not exist in German, let alone in English; such nuances could hardly be preserved during the translation process.

The entire transcription and translation of the interviews was conducted by the author of this study, who is a native Swiss German speaker and fluent both in German and English. Whenever an ambiguity occurred in transcribing the Swiss German or German statements or in translating them into English, a native German speaker who is fluent in Swiss German and English was consulted and the most adequate option for a transcription or translation was discussed. Any ambiguity when transcribing the English interviews was discussed and solved with the native English speakers in the research team. This process was followed to ensure a maximum of accuracy in the final transcripts despite the potential loss of richness due to the translations.

Data reduction and coding

The English transcripts were then used for data reduction and coding. As explained in section 6.5.1, the main purpose of the interviews was to "illuminate […] quantitative data gathered from the same setting" (Miles & Huberman, 1994, p. 10). These authors argued that data reduction, the "process of selecting, focussing, simplifying, abstracting, and transforming the data that appear in […] transcriptions" (p. 10), does "not necessarily mean quantification" (p. 11) of the data. To reduce the amount of data, therefore, no attempt was made to develop sophisticated codes that could have been exactly measured across all interviews. Instead, the transcripts were used to identify emerging qualitative themes.

Variants of three techniques suggested by Miles and Huberman (1994) were applied for that purpose – reflecting remarks, pattern coding and case summaries. As a first step, the transcripts were examined by the research team for any themes considered relevant in the context of this study. The statements about each of the eight factors were compared across

all interviews. Each statement was examined by the author of this thesis and one additional member of the research team. Notes were then compared, which for each of the eight factors resulted in 25 paragraphs with comments and remarks, grouped per interviewee. The approach with two researchers who independently analyzed the transcripts, one of them without previous contact with the interviewees, was chosen to minimize potential bias in the evaluation of the qualitative results. Ideally, the original transcripts would have been used here, which was not always possible due to language barriers. However, given the careful translation process, the risk of missing important themes in the English transcripts was considered as low.

As a next step, once the 25 transcripts had been examined for emerging themes, all themes were listed in a table, including information about which interviewee had contributed to a particular theme. The complete table was then used to aggregate themes and to find overarching patterns in the data. This was done by the author of this thesis, and any ambiguities were discussed and solved in the research team. Finally, as a last step, an extensive case summary was written based on that table, as suggested by Miles and Huberman (1994). This allowed the description of the overarching themes and their illustration with quotes from individuals. The next section provides an overview of the key findings from the interviews, based on that case summary.

7.4.2 Results

In this section, the findings for each factor are presented and illustrated with quotes from the interviews with the ten protean career architects, seven solid citizens and eight roamers (see Table 43). The differences between the clusters are discussed from a qualitative point of view. Due to the small number of interviewees, the differences are not statistically significant. This section addresses research question 1.4 regarding the themes that could be observed in career accounts of IT professionals with different career orientations.

7.4.2.1 Factor 1 – Organizational mobility

The interviewees were approximately equally divided into people who were open and willing to change organizations and into respondents who did not want to change. The most prevalent reason mentioned by interviewees for wanting to stay with their current employer was the availability of internal job opportunities. Other reasons were that individuals simply felt comfortable in their current role, that they appreciated continuity, and feelings of loyalty for their employer. In addition, family, the lack of job alternatives and age were brought up as reasons not to change employers.

Also, several reasons for being organizationally mobile were discussed. These included pull factors, such as learning new things or getting a new perspective, as well as push factors, for example, the lack of recognition and fear of redundancy. Several interviewees mentioned that their preference for organizational mobility had changed over time, be it that mobility had become lower with age or that it had increased due to economic pressure. In addition, several employees of large organizations referred to intra-organizational mobility as a substitute for changing employers. Internal changes were perceived as equal to changes across organizational boundaries in terms of variety, challenge, and benefits.

Factor 1 – Protean career architects

According to their career accounts in the first part of the interview, all ten protean career architects had previous experience of inter-organizational mobility. Six of them expressed a high openness to change their employer.

> *"Well, I am not afraid of such a change. […] I am not somehow bound to a company. […] I have consciously selected this company because I know that I can look into various projects and gain much experience. But […] I have actually remained very open for a change." (Int21)*

Three of them said they would, if possible, rather not change for the time being.

> *"I would not have, at the moment, […], any interest in changing the employer even if there was another offer from another company somewhere [in this town]. […] I once said: 'They have to kick me out to make sure I leave'* [laughs]*." (Int24)*

None of them referred to any negative aspects of their current employer as a reason for a potential change. Four individuals said that positive aspects of a new employer worked as pull factors and someone mentioned their preference for challenge as a reason to change. Also, four protean career architects felt positive aspects of working for their current employer might retain them.

> *"[This organization's] career structure is such that […] you rotate and you move around a lot. So, it's almost like you changed jobs quite often. So, I think, that keeps it quite refreshing in the way that it is. But you have the benefit of having an organizational knowledge that you build up over time. So, you get the benefit of being able to move but you also get the familiarity of staying within the organization and it's quite a nice blend." (Int23)*

Three of the protean career architects explicitly spoke about their positive feelings or even loyalty for their current employer as a reason not to change.

Factor 1 – Solid citizens

According to their career accounts in the first part of the interview, five solid citizens had previous work experience with a different employer, one had only changed within an organization and one young person was still in their very first job. Only two solid citizens said that they would be open for a change. One of them argued with the lack of technical challenge if he remained with an employer for too long.

> *"In some ways, change is good for me because […] I mean, I've worked on [this computer programme] for five or six years. Once you start knowing all about [it], then, yeah, things start getting a bit more boring and easy." (Int05)*

One solid citizen was undecided and three of them clearly felt they would not want to change if it could be avoided.

> *"[My low organizational mobility] comes from my upbringing. […] I will stay with an employer as long as possible. Well, […] I am not a 'job hopper', I have to tell you honestly." (Int12)*

Internal opportunities for new jobs were mentioned three times as a reason to stay, whilst only one protean career architect had mentioned them. Also, three solid citizens spoke about their loyalty for their employer as a reason not to change to a different organization.

Factor 1 – Roamers

Half of the interviewed roamers explained that they were either already looking for a new job or at least perfectly open to changing employers. Two of them brought up the issue of age.

> *"I would be very willing to change employers, yeah, but there's a constraint on my part. […] I've been with [this organization] [for several decades], I am [older than fifty], I don't have a degree. So, yeah, I'd be willing but I don't expect many people would be that interested. I SHOULD have moved before." (Int04)*

The other four roamers, however, said that for the time being they would like to stay with their current employer. Three roamers mentioned negative aspects of their current employer as a reason to change, as compared to only one solid citizen and none of the protean career architects. Loyalty was only mentioned once as a reason to stay. One other roamer explained how his loyalty had decreased due to the reaction of his employer during the economic crisis in 2008.

> *"I think, I now need to look around a bit […] Quite a few people here were sacked and […] I assume, that this has not been the last time that people were made redundant […]. Personally, I find this uncertainty really gruelling […]. And I am definitely no longer fully, well, loyal. […] I can actually stand behind [this organization] and behind what I do. […] But despite this, I have seen people who were dismissed, who had worked here for twenty years, who had been loyal to the company, too, and in the end they were there without a job." (Int09)*

According to their career accounts, three roamers had changed at least once between organizations, and four of them had only changed within their current organization without ever working for a different employer. Finally, one young roamer was still in his first job without any internal or external experience of changing organizations.

Factor 1 – Differences between clusters

Regarding the readiness to change their organization, the three clusters did not seem to differ greatly. In all clusters there were individuals with an open attitude to change and in all three groups there were people who tried to avoid a change if possible. This was perfectly in line with the survey results where hardly any difference in the mean scores was found for this factor. However, in the interviews, the clusters showed some nuances in how individuals justified their openness to change or their low preference for organizational mobility. Despite their greater self-reported experience in changing jobs between organizations, protean career architects and solid citizens seemed to express a higher degree of loyalty and positive attitudes towards their current employer than the roamers did.

7.4.2.2 Factor 2 – Geographical mobility

Most interviewees stated a clear preference either for or against being geographically mobile. The job was most frequently mentioned reason for being geographically mobile. Further, personal preferences for new places were brought up, as well as two examples in which family reasons had encouraged geographical mobility. However, these seemed to be exceptions because the most frequently named reason why people considered themselves as not being geographically mobile was their family. Nine interviewees mentioned their spouses, children or relatives as a hindrance for geographical mobility. In addition, reasons such as having one's own house, the current job, or the difficulties of working in foreign cultures were further mentioned as reasons for not being geographically mobile.

Interviewees also referred to the range of their geographical mobility. International moves were mentioned twice as often as domestic relocations. Yet, most interviewees tended to view such moves as temporary, typically for one or two years. Finally, although the question in the interview clearly referred to relocations (see Appendix 10), several interviewees considered commuting as an element of being geographically mobile.

Factor 2 – Protean career architects

The ten protean career architects showed a somewhat mixed picture regarding the preferences for or against geographical mobility. Three of them clearly expressed a positive attitude, five a negative one and two individuals were neutral about it. The reasons for staying in a particular location as well as for moving away were mainly family-related. Five individuals mentioned their family as the main reason for not moving, whilst two interviewees said they had actually relocated or would do so because of their family.

> *"I'd LOVE to [be geographically mobile], is the simple answer. But because of my [family] situation […] I am locked because I am not going to leave the child that I don't have living with me. I see him [several times] every week and I am not prepared to give that up until he is old enough to understand." (Int23)*

> *"I have also looked for [a job in this region] because my wife said she wanted to continue her studies here." (Int01)*

Houses or jobs did not emerge as a justification neither for high nor low geographical mobility. One interviewee was perfectly aware of the cost of his low geographical mobility but still did not want to change it.

> *"I know I could probably move faster in my career if I was a bit more geographically mobile, perhaps. […] It hasn't held me back, actually. […] So, maybe I will get to a place where I am held back at some point. But then, saying that, I am not driven to really progress anymore, either." (Int23)*

Factor 2 – Solid citizens

Overall, solid citizens expressed a low interest in geographical mobility. Six out of seven interviewees clearly spoke of their low geographical mobility. Only one individual was neutral about it. The reasons for their low mobility were diverse; they ranged from family, houses, jobs, and feeling rooted in the area to various individual aspects.

> *"Well, now I have [several] kids. And there is the school we know and so on. I have my own house and this makes it more difficult, of course, to be mobile." (Int07)*

> *"And, you know, […] I like being in the same office, as well. I like to come to the same office here and I know the route to work, I know how to get here and how to get home or the best ways where to go when there's roadwork. I like having my desk, you know. I like, you know, knowing where everything is." (Int05)*

In the interviews, none of the solid citizens mentioned any individual experience of being geographically mobile.

Factor 2 – Roamers

The eight roamers clearly had the most positive attitudes towards geographical mobility.

> *"That's easy, I would go anywhere!* [laughs] *Literally! And want to! […] I think I became nomadic, perhaps, when I was working as an engineer. I just LOVE arriving in new places and new situations. And, it doesn't faze me, it excites me. […] That to me is a major driver." (Int04)*

For roamers, their jobs rather than family or houses appeared to be the key driving force. Five interviewees mentioned their current or future jobs as the reason for geographical mobility. Interestingly, two roamers expressed a low preference for geographical mobility. However, either keeping their current or getting a better job would make both of them consider becoming geographically mobile.

> *"I naturally depend on what [my employer] does. [P]robably my job with [this organization] would be more precious to me than my residential location. I would then relocate." (Int02)*

Five roamers spontaneously referred to geographical mobility in terms of moving around internationally.

> *"There are countries I would not move to. I wouldn't move to the US, I wouldn't move to the Middle East. But within Western culture, yes, I would certainly move around." (Int10)*

Amongst the three clusters, roamers also reported the most past experience of geographical mobility. In the first section of the interviews, four of them mentioned that they had been or were currently living and working abroad, whilst only two protean career architects and none of the solid citizens had such experiences.

Factor 2 – Differences between clusters

The three clusters showed clear differences when speaking about geographical mobility. These findings were consistent with the quantitative data where geographical mobility emerged as a key differentiator between the clusters. Solid citizens scored low on willingness for geographical mobility in the survey. In line with this, interviewees from the solid

citizens' cluster also expressed clearly negative feelings towards geographical mobility and had the least past experience with it, according to their career accounts in the interviews. Roamers, on the contrary, scored highest on geographical mobility in the survey and also were the interviewees with the most positive attitudes and the highest self-reported experience regarding this factor. Their current or future jobs appeared to be the main driver for roamers' geographical mobility.

Lastly, protean career architects ranked between the other two clusters both regarding their overall scores in the survey as well as regarding the interviewees' accounts on geographical mobility. Whilst solid citizens and roamers were quite consistent in the way they spoke either positively or negatively about geographical mobility, protean career architects were more divided. Some interviewees from that cluster were highly positive about being geographically mobile but others did not want to move at all. However, protean career architects' motivation for or against moving geographically was clearly more driven by considerations regarding their family than it was in other clusters. Job-related considerations did not seem to play a major role for protean career architects.

7.4.2.3 Factor 3 – Feedback and learning

Responses to this factor revealed that the interviewees had widely differing views about what they actually considered as "feedback" and "learning". For example, learning for some individuals meant "personal development", whilst for others it was a synonym for "technical training". However, most interviewees clearly distinguished between learning and feedback, and spoke about one or both of these themes separately. Only seven individuals made a direct link between getting feedback and subsequent learning based on that feedback. In general, both feedback and learning were considered as very important for these IT professionals.

With regard to feedback, thirteen interviewees explicitly said that feedback was important for them, but only seven mentioned that they would proactively seek it at work. The single most often mentioned source for getting feedback was an individual's direct line manager. Organizational processes and peers were mentioned as further sources.

With regard to learning, on-the-job learning was most frequently mentioned as an excellent source for learning. In addition, training courses were named, and a few individuals explicitly mentioned learning from senior experts as a further source. The focus of learning was clearly more on acquiring new technical skills than on non-technical training.

One recurring theme was the role of the organization in providing learning opportunities and the perceived availability of training within an organization. Several interviewees explicitly expressed the importance of constant and ongoing learning in IT. Intrinsic motivation and external pressure were both named about equally as the key drivers for individual learning.

Factor 3 – Protean career architects

Protean career architects strongly agreed that feedback (six individuals) and learning (eight persons) was key to them.

> *"I am a person who needs feedback. Well, I wither if I don't hear for a long time how things are about me. This is why I go and get it proactively." (Int17)*

> *"I would never want to know all the answers. So, […] driving myself forward to acquire more knowledge and more information is key. I think it would be pretty boring to be excellent at something, to be honest. […] So, learning and evolution for me is the biggest driving force of my career." (Int23)*

Three of the ten interviewees in this cluster said that learning was mainly driven by their own will but only one solid citizen and one roamer said the same.

Factor 3 – Solid citizens

Six of the seven solid citizens spoke of learning as technical, especially on-the-job training. In contrast, only three out of ten protean career architects and three out of eight roamers adopted such a technical notion of learning.

> *"I much prefer learning on-the-job and then, […] when you've been doing the job a little while, then going on the course so that you understand some of what's in the course and then the course fills in the gaps and you come back and you can apply it, yes, to what you're doing. That's great." (Int05)*

Yet, learning did not always happen voluntarily, it could also be driven externally.

> *"You have to [keep learning] as an IT professional. Well, if you always stay on the same track, the development will leave you behind at some point." (Int22)*

Only one solid citizen said that he was open to constructive feedback, whilst three protean career architects and four roamers mentioned that.

Factor 3 – Roamers

Four roamers mentioned the importance of organizational support for learning.

> *"It is important for me that a future employer will provide these [learning] opportunities. […] And this was also a reason for [choosing this organization]." (Int09)*

Also, four of them referred to their bosses as a source for feedback, whilst only two individuals in each of the other clusters did so.

> *"[F]eedback, in fact, I find is often difficult to get even in [this organization]. Well, we do have year-end reviews [with our boss]. […] But I would wish to have rather more [feedback]. Well, maybe sort of mentoring or coaching." (Int15)*

Finally, one roamer clearly felt that feedback was a precondition for learning in the sense of self-development.

> *"I don't like if people don't tell me if they think I have done something bad. Or if they think I have done something wrong. You cannot improve unless you learn from that. If people are too polite to tell you, that's REALLY annoying because you continue as if you think you are doing the right thing and you're not. And that damages you and it damages everybody else." (Int10)*

Factor 3 – Differences between clusters

Overall, no clear picture emerged from the answers of each career orientation cluster. The differences regarding feedback and learning remained unclear both in terms of how individuals referred to these topics as well as in terms of differences between the three clusters. This corresponded well with the quantitative results on this factor which did not clearly differentiate the clusters, either, as well as with the rather loose and elusive nature of the factor itself. In line with their relatively low scores in the quantitative data, solid citizens seemed to place the highest emphasis on technical learning and the least openness to feedback amongst the three clusters.

7.4.2.4 Factor 4 – Occupational mobility

Regarding occupational mobility, a mixed picture emerged. On the one hand, thirteen interviewees expressed a positive attitude towards an occupational change. Their answers ranged from a vague declaration that they were open to it to statements that they were currently seeking a job outside IT. The most commonly mentioned reasons for moving away from IT were pull factors, e.g. the interest in a new area or new challenges. Yet, push factors were also mentioned. For instance, external pressure, such as job loss, might make some interviewees move out of IT. Other interviewees said they were fed up with working in IT, tired of the constant technical development or felt that there were more future-oriented places to work for them.

On the other hand, twelve people said that they would rather or even definitely not move away from IT. The key reason for most people to remain in IT was that they liked working in the discipline, especially because of the challenging working environment. Others said that moving away from IT would present obstacles, such as a lack of necessary skills or the risk of failure in an unknown area. Finally, financial considerations were also mentioned as a major obstacle to moving away because salaries in IT were perceived as being higher than in other occupations.

Factor 4 – Protean career architects

Six out of ten protean career architects expressed moderately or highly positive views regarding an occupational change, even though they did not necessarily think such a change away from IT might be easy.

> *"I would love to move into a business area. […] [However,] it is very difficult to actually make [an occupational change] happen because you are branded an IT person." (Int23)*

Protean career architects were the only ones to refer to their interest in new areas as a reason for changing their occupation. None of them said they did not know any alternatives to working in IT. Also, according to their career accounts in the interviews, six of the ten interviewees in this cluster had previous experience of working in another occupation.

Factor 4 – Solid citizens

According to their career accounts in the interviews, solid citizens had the least experience of working outside IT. Only one person had completed an apprenticeship in a different profession, the other six did not have any experience of working outside IT. Whilst three individuals in this group were moderately open to moving away from IT, four interviewees explicitly wanted to stay in the discipline.

> *"I feel so at ease in IT, I am really sorry* [laughs]. *At the moment I don't really see anything else that would really appeal to me to such a degree that I would change." (Int12)*

Two interviewees said that economic pressure might make them consider leaving IT.

> *"When I was going through the redundancy at [a former employer], the IT jobs were all going to, you know, offshore locations – India, Eastern Europe, Ireland. […] And, you know, I did talk to my wife about doing something which, you know, these people couldn't do. So something, you know, like accounting, which is [domestic] law, or that kind of stuff* [laughs]*." (Int05)*

Solid citizens were the only cluster to refer to economic reasons as a potential reason for forcing them out of IT.

Factor 4 – Roamers

Roamers, four of whom were open to an occupational change, also reported much previous experience of working in other occupations. Five out of eight interviewees in this cluster had already worked outside of IT, according to their career accounts. Moving out of IT again did not seem to be difficult for these individuals.

> *"I have the necessary qualifications as well as the interest. And in IT [as well as in engineering] there are some achievements I can account for." (Int02)*

Only one respondent in this cluster mentioned potential risks of moving out of IT whilst protean career architects and solid citizens both referred three times to that aspect.

Factor 4 – Differences between clusters

A comparison of the answers from each cluster revealed more subtle differences between the clusters than might have been expected based on the survey results. Regarding the reasons for staying or for moving away, no huge differences could be found as all groups quite equally referred to the aspects above. Yet, the findings supported the survey results in as much as the solid citizens were the group with the least intention to leave IT. For them, it would take mainly external, e.g. economic, pressure to look for a job outside IT. Protean career architects and roamers, on the contrary, not only accounted for more previous work experience outside IT, they also expressed a more positive attitude towards a potential future change of occupation.

7.4.2.5 Factor 5 – Self-knowledge

Seven individuals did not immediately understand the question about the importance of self-knowledge for their careers and they hesitated with their answers. Eventually, a clear majority of twenty interviewees said that self-knowledge was an important factor in their careers. However, it became apparent that everybody did not have the same definition of the term. Whilst most of the interviewees meant knowing facets of their personality, motivation etc., a minority explained self-knowledge in terms of job-related, technical skills even though the interview question had clearly referred to aspects of personality.

According to the interviewees, the single most important advantage of having self-knowledge was job-related. Self-knowledge was perceived as beneficial in avoiding bad job decisions and in choosing the right job. Self-knowledge was seen as important in order

to achieve a good fit between one's personality and a job, especially in the long term. Additional benefits of self-knowledge included the perceived impact on personal development and that it may lead to better job performance. Repeatedly, individuals felt that acquiring self-knowledge was a long process that may never be considered complete.

In the interviews, a variety of sources for acquiring self-knowledge were mentioned. The most frequently named sources were organizational feedback processes and a good relationship with one's line manager. Further, interaction with others and being clear what these people thought was perceived as helpful, as were building on past experience or off-the-job training courses.

Factor 5 – Protean career architects

Eight out of ten protean career architects spontaneously mentioned that self-knowledge was important and seven thought that they knew themselves well.

> *"You have to know your weaknesses before you can go above them, anyway." (Int16)*

When speaking about self-knowledge, only one person clearly referred to skills whilst five exclusively spoke about aspects of personality. The importance of a fit between job and individual was mentioned five times, more frequently than in the other clusters.

> *"If I can't be myself in the job, then I might probably fall ill, go drinking in the evenings or whatever. Therefore the identification of the job with the values I have is extremely important." (Int14)*

Five interviewees spoke about developing one's self-knowledge over time.

> *"I have been [working on my self-knowledge] for [many] years. […] Well, I guess, there is no end of this process* [laughs]*." (Int17)*

No protean career architect spoke about his/her boss as a source for self-knowledge whilst personal action and interaction with others were both mentioned three times. These aspects did not surface at all in the interviews with solid citizens and roamers.

Factor 5 – Solid citizens

Only four solid citizens said that self-knowledge was important to them and that they knew themselves well. The three interviewees who felt that this topic was either not important or at least had not been important for them until recently all belonged to the solid citizen cluster. Only two interviewees said that self-knowledge helped them find the right or avoid the wrong job.

> *"I am sort of quite happy about where I am in terms of what I'm after. Knowing that I'm quite happy to sort of carry on in a technical role. I haven't got any sort of desire to climb the career ladder." (Int05)*

The importance of a good fit between job and personality was only mentioned once.

Factor 5 – Roamers

Seven of the eight roamers felt that self-knowledge was important to them and five individuals said that they knew themselves well.

> *"[U]nless you explore your weaknesses you don't improve. You'll never get rid of them altogether because we are human beings, and we are going to make mistakes, and you learn to live with them." (Int10)*

In two interviews self-knowledge was about skills, and three times the term was used to describe aspects of personality. Only two roamers mentioned the potential improvement of self-knowledge over time.

> *"Over the years [self-knowledge] has helped me to improve the way I behave. I am less aggressive now but no less demanding. I'm assertive but I try to be polite. I'm comfy with myself." (Int04)*

Finally, a total of five roamers said that self-knowledge was useful for them either to find the right or to avoid a wrong job.

Factor 5 – Differences between clusters

For protean career architects and roamers, the interview results matched the quantitative factor results well. The high importance of this topic for these two clusters, as expressed in the survey, was also confirmed in the interviews. Solid citizens, however, appeared to be much less enthusiastic and driven by this factor in the interviews than in the survey, where their mean score on this factor was as high as that of the roamers. Yet, based on their responses in the interviews, self-knowledge amongst solid citizens seemed to be of much lower importance and relevance than it was for roamers.

7.4.2.6 Factor 6 – Self-direction

When the interviewees spoke about self-direction, it was apparent that everybody was not talking about the same topic. Fifteen people mentioned self-direction in terms of their past, current or future jobs or of career planning. Others referred to self-direction in terms of training and skills development, of pushing their careers forward hierarchically, of staying in control and of job-role innovation. Only one person mentioned self-direction in terms of personal development.

About half of the interviewees said that they felt reasonably in charge of their careers and that they had at least some degree of self-direction in their careers. However, in many interviews, potential reasons for limited self-direction were discussed. Most frequently, these reasons were related to the employing organization. Some examples included line managers and senior management as gatekeepers, too detailed career structures in an organization or even active hindrance by the organization. Other interviewees, however, explicitly said that their own personality was the key reason for not showing more self-direction.

Self-direction was mainly perceived to be an individual's own duty. There was a general consensus that it was not the employer's task to take the lead in shaping an individual career, but that it was down to each individual to become active and do something about his/her career.

Factor 6 – Protean career architects

Six protean career architects felt that it was well possible to exert self-direction, whilst only one solid citizen and two roamers said the same.

> *"I only do the things I want to do. So, it's as simple as that. So, you know, I will turn down things that I don't want to do." (Int23)*

> *"Well, I actually feel that I am still reasonably at the wheel, yes. I don't have the feeling that I have ended up here randomly." (Int21)*

No protean career architect said his/her own personality was a hindrance to being self-directed, but two solid citizens and two roamers did. Five of the ten protean career architects explicitly said that it was their own duty to be self-directed.

> *"This is highly important. So, I [am self-directed] and I like it precisely because one exerts some self-control. If one doesn't do it, anything will just happen, and that does not need to be what one wants* [laughs]*." (Int03)*

Half of the roamers said something similar but only one of the seven solid citizens did.

Factor 6 – Solid citizens

The seven solid citizens seemed to be the most sceptical and the most passive about self-direction.

> *"Well, [my self-direction] is small […]. I do have ideas but then […] I don't take the initiative and I don't look for ways to do something. Eventually, it then peters out again in the back of my head." (Int13)*

In total, nine different reasons for limited self-direction were mentioned in this cluster, as compared to six from roamers and only four from protean career architects. Interestingly, one solid citizen thought he had become less self-directed due to the extensive career development programme in his organization.

> *"So […] from my point of view, it is a career pre-defined by the company. And there I become, of course, […] let's say, a bit more passive. Well, I don't bring in that much self-direction because I know that these are the steps in this company. I cannot really influence it much anymore." (Int12)*

Three solid citizens explained that they would easily cope with circumstances they did not really like and try to make the best of it. Here, self-direction was seen as proactive behaviour within boundaries one might not necessarily have chosen personally, such as a change in technology or even a move out of IT to avoid redundancy.

Notably, two solid citizens explained that although they felt, indeed, restricted in terms of their self-direction, they were happy with their situation.

> *"[To] a certain degree I feel restricted, […] too. Well, I would have needs and ideas, in whatever direction, but one is restricted, somehow. […] But in a sense, […] at the moment it is not a problem for me that I would be too restricted [...]. Well, at the moment I actually feel at ease there with what I can do and with the opportunities I have." (Int07)*

Protean career architects and roamers did not bring up such statements.

Factor 6 – Roamers

Out of the eight roamers, three individuals felt that they only had limited opportunities to exert self-direction.

> *"You're never in control in a company like this. End of story. You're not! […] It is event-driven. […]. So, you can't guarantee, you can't really expect to achieve in a company and I don't expect to achieve. Hence, you need to get lucky sometimes. And I HAVE, I have been very lucky* [laughs]*." (Int04)*

Also, two roamers were the only ones in the entire interview sample to express the desire for more organizational support for their own self-direction.

> *"Yes, [being self-directed] is actually difficult because I feel I am well a type who lets myself drift a bit. […] So I am, at the moment at least, little active myself […]. There is […] a certain trust in [this organization] that I say […]: 'Yes, they also have a certain interest [in my career] and will guide me there.' But I rarely do it myself." (Int15)*

However, two other roamers clearly felt they needed to be self-directed personally. Lastly, only one roamer clearly linked self-direction and personal values.

> *"I think [values-based self-direction] is important and it's not always possible in an IT career depending on where you work. Which [...] is why I'm careful about where I work and pick things that do match my values. […] I would find it quite hard to compromise myself." (Int10)*

Overall, such statements were very rare. Only two protean career architects linked self-direction and values in a similar way.

Factor 6 – Differences between clusters

In the survey data, there was only a small difference in the mean scores of the clusters regarding self-direction. However, in the interviews, a wider gap between the three groups emerged. In line with the survey findings, protean career architects appeared to be the most proactive, self-directed and self-reliant cluster. Roamers, too, spoke about self-direction in a way that was consistent with their scores in the survey. Based on the interviews, however, solid citizens emerged as the most passive group regarding self-direction. This discrepancy between interviews and survey data was not quite expected because of their high self-declared scores on this factor in the quantitative results.

Overall, it seemed as if the term "self-directed" was interpreted in various different ways. Further, the link between self-direction and personal values did not resonate strongly with the interviewees. Only three of them referred to it, although in the interview question the link was clearly stated and implied.

7.4.2.7 Factor 7 – Working beyond organizational boundaries

Overall, seventeen interviewees referred to the external contacts they worked with, i.e. people outside their employing organization. External contacts usually referred to external customers but vendors, contractors, other IT professionals, and IT networking groups were also mentioned. In eleven interviews, internal contacts were referred to, i.e. people working for the same employer but outside their own organizational unit. These internal contacts were mainly internal customers, such as business departments and other units within the IT department.

The majority of the interviewees had to work beyond their organizational boundaries as part of their jobs, and they liked doing so. In twenty-one interviews there were positive statements about reaching out to people beyond one's own organizational boundaries. In several of these interviews, there were more or less direct references that working beyond organizational boundaries was simply part of working in IT.

A variety of benefits of collaborating with people outside one's organizational boundaries were mentioned in the interviews. The most frequently named benefit was that it helped get different points of view. In five interviews, potential difficulties of working beyond one's organizational boundaries were mentioned. It was said, for example, that working with external customers was perceived as exhausting, that it required a fair amount of effort to build up good relationships, that much tact was necessary, and that it might sometimes be difficult not to breach confidentiality.

Factor 7 – Protean career architects

All ten protean career architects referred to external contacts when they referred to 'people outside their organizational boundaries'.

> *"I have customers outside. I have a network I am about to build up, […] a European one, with people who all work on the same thing." (Int25)*

In addition, two of them also mentioned internal contacts. Nine protean career architects explicitly said that they liked working with people outside their organization, and one person wanted to have more such contacts. When speaking about the benefits of external contacts, meeting other people, learning from them and getting a different point of view were the most frequently mentioned aspects.

> *"I like meeting other people, like learning from them what they do, how they work. It gives you feedback what else there is and it also teaches you to appreciate even more what you have." (Int03)*

Hence, protean career architects appeared to be open to external contacts and generally to appreciate them.

Factor 7 – Solid citizens

Solid citizens, in contrast, referred to internal contacts much more frequently than the protean career architects. Five of the seven solid citizens primarily meant internal customers, such as business departments, when they spoke about people outside their organization.

> *"Yeah, we've worked with internal customers when we started doing [the] agile method. That's interesting in terms of finding out, you know, how they use the system and what they do and what the impact of what we do is on the end customer." (Int05)*

Only three of them also referred to people outside their company. Five solid citizens were positive about working with "outsiders". However, two of them made it clear that they

simply did so because it was part of their jobs, and no one in this cluster clearly expressed a desire to work more closely with people outside their organization.

> *"If it is necessary for the job, then it is no problem." (Int22)*

In terms of benefits of working beyond organizational boundaries, there was no clear pattern. Solid citizens referred to similar potential benefits as protean career architects did.

Factor 7 – Roamers

Roamers, finally, were equally divided when referring to internal and external people to work with. Both groups were mentioned four times. Seven roamers explicitly expressed a positive attitude towards working beyond their organizational boundaries.

> *"It's an unavoidable part of work, I think, no matter what you do in IT. Because in a lot of cases, as a minimum, you're having to deal with vendors. And you have to have a good working relationship with your vendors. […] And the same [applies] to customers. They're not the enemy; they're who you're there to serve. You don't exist without them." (Int10)*

In particular, the relationship between IT and business was mentioned.

> *"IT's role is to support and enable the business. If you don't get outside of IT, how the hell are you ever going to know how to do that?[…] Quite too many IT people seem to think that IT […] has a right to exist in its own right. No, it DOESN'T. Absolutely not. If it's not serving the business, there's no point." (Int04)*

Roamers mentioned fewer benefits from working with people outside their organization than interviewees in the other two clusters. Also, roamers were the cluster most likely to speak about the difficulties of reaching out to others.

Factor 7 – Differences between clusters

These findings supported the high scores in the survey regarding working with people beyond one's organizational boundaries. Although all clusters seemed to have a generally positive attitude towards it, there were some subtle differences. Solid citizens were the group that was least intent to reaching out to others and if they had to do it, they mainly did so within their organization. Also, they were more likely to perceive such activities simply as a mandatory element of their jobs. This corresponded well with the fact that solid citizens had the lowest quantitative scores on this factor amongst all clusters. Roamers appeared to be more sceptical about working beyond organizational boundaries in the interviews than in the survey. Some of them were clearly willing to engage in such contacts but others were not interested in them.

7.4.2.8 Factor 8 – Rejection of career opportunities

When asked what rejection of career opportunities meant to their careers, most interviewees discussed whether or not they would reject a career opportunity in the future. Fifteen interviewees said that they would do so, depending on the circumstances. In addition, fifteen individuals mentioned that they had already rejected career opportunities for personal reasons. Although fifteen interviewees answered positively regarding both past and potential future rejection, these were not exactly the same individuals.

A broad variety of explanations for rejecting career opportunities were offered in the interviews. By far the most frequently mentioned reason for past or future rejection was the family. Ten interviewees said that they either had rejected or would reject a career opportunity that was incompatible with their family life. Other reasons included low geographical mobility, personal values, the desire to remain in a technical rather than a managerial role, a currently intact work-life balance, plans to travel around the world, and health considerations.

Several reasons were mentioned for not rejecting past or future career opportunities; however, no common theme emerged. For example, one interviewee simply could not think of any reason to reject a career opportunity. Several interviewees spoke about the costs of rejecting career opportunities and about the trade-offs to be made if such offers were turned down.

Factor 8 – Protean career architects

Protean career architects were the cluster that would most readily reject career opportunities. Seven out of ten interviewees clearly said they would do it, and someone felt he might do it. No one thought they would accept a career opportunity at any price. Eight out of ten interviewees in this cluster spoke about past rejection of career opportunities.

> *"I have already made such decisions where I felt it was not right to do it that way, even though in the context of the industry it would have been perfectly ok. But it would not have been compatible with my personal values […]." (Int06)*

In total, protean career architects referred to fifteen different reasons why they would reject career opportunities, whereof family was most frequently named.

> *"No, at the moment my family is still more important and [my child] will grow up soon enough. […] It just happened to me now that I declined and said: 'No, I would actually not want [this new role] because I know that I would then have too little TIME'." (Int24)*

Yet, protean career architects were also aware that there might be a price to pay for rejecting career opportunities.

> *"I have the feeling it sometimes is a double-edged sword to turn down opportunities. And I also have the impression that a second opportunity will not come so soon again and even less with the same employer." (Int14)*

Four of them referred to such aspects, whilst three solid citizens and two roamers mentioned similar arguments.

Factor 8 – Solid citizens

Four solid citizens said they would reject career opportunities, two of them thought they might do it, and two solid citizens clearly said they would not do so. In terms of actual rejection, four solid citizens reported that they had already rejected career opportunities. In several interviews, reasons for rejection referred to the desire to remain in a technical role.

> *"When they said, you know: 'Do you want to do a team leadership role?', I could say: 'No, I don't really want to do a team leadership role.' […] Yeah, my main sort of personal reason is not wanting to move off of my sort of specialism, my IT work." (Int05)*

Solid citizens were the only group that did not refer to work-life balance as a reason for rejecting career opportunities.

Factor 8 – Roamers

Although the eight roamers did not differ much from the other clusters in terms of potential rejection, they were the only cluster that did not refer to a promotion into a managerial role as a reason to reject a career opportunity. Still, they were also aware of potential drawbacks.

> *"So, this is kind of a compromise. The further down [in the hierarchy] I am, the better it works with the family – the further up I get, the more money I get* [laughs] *[…], and the more interesting the job gets in the sense of managerial tasks. And the compromise is somewhere in between." (Int02)*

Yet, one roamer mentioned his father as a negative role model that made him think twice about future promotions.

> *"I think, it is maybe […] 'work-life balance' that comes into play here. […] My father was […] a member of the Board and I saw him relatively little when I was a child. […] And when I ask him today, then he says, yes, today he might not do it the same way again. And this makes me kind of think. […] I guess, career at any price, no!" (Int09)*

Those roamers who were willing to reject career opportunities mainly named their family as a reason.

> *"I would always put my family first is the answer. So, recently I was asked if I would consider going to [a country in Eastern Europe]. And I said: 'Sure I would – but if my wife says 'no' then we won't be coming'* [laughs]*." (Int04)*

Roamers were the only ones not to speak about values as a potential reason for not wanting to accept a new role.

Factor 8 – Differences between clusters

Overall, these findings supported the survey results. According to the interviews, protean career architects, on the one hand, were clearly the cluster that most readily rejected career opportunities for personal reasons both in the past and potentially in the future. On the other hand, roamers were the cluster with the least self-reported past experience in turning down job opportunities, and they also showed much less intention to do so in the future. Finally, solid citizens ranged in between the two other clusters. However, in the interviews the differences between the three clusters were not quite as stark as they emerged in the quantitative data analysis. This might be due to the fact that the items in the questionnaire exclusively focused on past rejection of career opportunities. According to the interviews, past rejection seemed, indeed, to differ greatly between protean career architects and roamers.

7.4.2.9 Conclusions regarding research question 1.4

In response to research question 1.4, several underlying themes emerged when individuals referred to each of the eight factors. Various subtle differences between the clusters surfaced that had not been apparent in the quantitative data. The qualitative part of the study thus made it possible to gain a much more detailed understanding of individuals' career orientations.

The interview responses of the ten protean career architects matched well with this cluster's scores in the online survey. They appeared as a group to be directing their careers fairly consciously. They were open to feedback and to personal development. Also, they were the ones most likely to change jobs if their personal expectations were not satisfied in an organization. However, changing jobs was also seen as something positive or as an opportunity to learn something new. Regarding their geographical mobility, this cluster comprised both individuals with high and low mobility preferences. In contrast to the other

clusters, family rather than their job was the primary key to understanding protean career architects' geographical mobility preferences.

The seven solid citizens confirmed several of the expectations based on the quantitative results. In the interviews, this was the cluster with the least willingness for geographical mobility, with the highest preference for technical training, the least appetite for managerial jobs and the least intent to leave the IT industry. In terms of the protean factors, the qualitative differences between solid citizens and the other clusters seemed to be greater than the quantitative results had implied. According to their narratives, solid citizens were considerably less self-directed than the other two clusters. Also, they attributed the least importance to aspects of self-knowledge. Finally, regarding feedback and learning, they were as willing to learn new things as were the others. However, their focus of learning mainly centred on their current jobs and the technical knowledge required there rather than on personal development in a wider, non-technical sense as was the case especially for the protean career architects.

The interviews with the eight roamers also matched the cluster's scores from the quantitative survey. They appeared as the cluster with the highest geographical mobility preference. The interviews also confirmed that roamers may be the least inclined to reject career opportunities for personal reasons. Also, it seemed as if job-related aspects were of high importance to them. According to the interviews, roamers were more willing than individuals in other clusters to adjust themselves to external requirements at work in order to progress in organizations. This was well in line with their low scores on rejection of career opportunities in the first survey.

Overall, the interviews confirmed the results from the quantitative data. Despite substantial inter-individual differences, the interviewees' narratives matched the patterns discovered in the cluster analysis reasonably well. The interviews further confirmed that the eight factors were practically meaningful constructs for the individuals. The interviewees hardly ever needed any clarification when asked about the relevance of these factors for their careers. However, the interviews also revealed that especially the factors related to the protean career were sometimes interpreted ambiguously and may need further conceptual refinement. Finally, the interviews highlighted clear qualitative differences in the career accounts of individuals from the three different clusters, thereby providing further support for the relevance of these clusters.

7.5 Summary

Based on a new operationalization of the protean and boundaryless career concepts applied in two quantitative surveys and in 25 semi-structured interviews, this study explored career orientations of IT professionals in Europe. In a thorough factor analysis of the data from survey 1, eight factors of protean and boundaryless career orientations were identified. Using these eight factors, the participants were grouped into three distinct clusters. Both the second survey and the interviews provided further support for these factors and clusters.

Eight factors of protean and boundaryless career orientations

In the two quantitative surveys, eight factors were identified that were relevant for career orientations of IT professionals in Europe. Based on the factor analysis it was apparent that these eight factors could not entirely capture all the themes prevalent in the sample. However, they appeared to be of practical relevance as further analyses and the interviews showed.

Three of the factors were related to the protean career concept ("self-knowledge", "self-direction", "feedback and learning"). Three factors referred to physical mobility ("organizational mobility", "geographical mobility" and "occupational mobility") and two factors focused on psychological mobility ("working beyond organizational boundaries" and "rejection of career opportunities for personal reasons"). The interviews confirmed that these eight factors were meaningful constructs and revealed several nuances about each factor that would not have been evident based on the quantitative data. However, the factors related to the protean career may need further conceptual refinement, as they were sometimes interpreted ambiguously in the interviews.

From a longitudinal point of view, factors remained moderately stable between the two surveys. Nevertheless, the participants' openness for occupational mobility and their rejection of career opportunities for personal reasons had significantly decreased between survey 1 and survey 2. The mean scores of all the other factors had not changed significantly.

Three clusters - protean career architects, solid citizens and roamers

The three clusters that emerged based on the eight factors were labelled in reference to Briscoe and Hall's (2006a) eight career profiles. Two of the three clusters clearly matched such profiles and were named accordingly ("protean career architects", "solid citizens"). The third cluster, however, was not described by Briscoe and Hall but it showed obvious

similarities with one of their profiles, the "wanderers". Consequently, the new cluster was labelled "roamers" to indicate that these two were related but distinct profiles. The key differentiators between the three clusters were geographical mobility and rejection of career opportunities.

The overall pictures from the quantitative results and from the interviews matched well. Factors with large score differences between the clusters, such as "geographical mobility" or "rejection of career opportunities for personal reasons", resulted in considerably different answers between each cluster in the interviews. Likewise, narratives about factors with much more similar factor scores in the quantitative survey, such as "feedback and learning", did not differ so greatly between the clusters. However, some subtle additional differences between the clusters were discovered in the interviews. For example, despite the fact that protean career architects and roamers had a comparable level of geographical mobility, their motivation was different. For roamers, the key reason to move (or not to move) geographically appeared to be their job, whilst for protean career architects it tended to be their family. Also, in terms of organizational mobility, roamers showed a similar openness to change as did protean career architects. However, they used intra-organizational moves much more frequently than the protean career architects. Compared with the other clusters, roamers were the group most likely to call for organizational support for their careers.

In a longitudinal comparison, highly similar – yet, not identical – cluster patterns were found in both surveys. Therefore, the overall cluster patterns appeared to be reasonably robust over time. However, a comparison of individual cluster membership in both surveys did not provide meaningful results. This suggested that the clusters may well be helpful to describe groups of individuals but may not be suited for studying changes in career orientations at an individual level.

Conclusions

Based on these results regarding the eight factors and three clusters of protean and boundaryless career orientations, the focus was now on exploring respondents' views on career success, career anchors and career management tools. The analyses and the results of these themes are covered in the next chapter. Answers to the corresponding research questions may also contribute to an even more detailed understanding of the three clusters of protean and boundaryless career orientations.

8 Data analysis and results – Career success, career anchors, career management tools

This chapter covers three further components from the first survey, namely career success, career anchors and career management tools. For each topic, the data analysis and detailed results are presented.

8.1 Career success – Data analysis and results

In the first section, the analysis process and the findings related to career success are described. Based on this, the corresponding research questions can be answered. Research question 2.1 asked how IT professionals in Europe defined career success. Research question 2.2 addressed the interplay between demographic characteristics and individual definitions of career success. Finally, research question 2.3 focused on the interplay between career orientations and individual definitions of career success.

8.1.1 Data analysis

In the first survey, participants were asked to finish the following statement in their own words: "Career success means…". A free text box was provided for the responses, allowing a maximum of 128 characters. In total, 1,328 (77.75%) of the participants provided a usable career success statement. These responses were further edited and analyzed in several steps.

Translation and editing of the statements

First, all statements were translated into English. As this analysis required the coding of single words, the translated statements needed to keep their original meaning and wording as closely as possible. It was assumed that a professional translator might be able to preserve the original notion of each statement most accurately. Hence, the German statements were translated by a professional German-English translator, a native English speaker. In total, 939 German statements were translated. To ensure a maximum of quality, each of them was subsequently double-checked by the author of this study. In that process, a few obvious spelling errors in the English versions were amended.

About a dozen statements were provided in French. Given the small number and the fact that the translator did not speak French, these statements were translated by the author of this study and double-checked by a native German speaker who is fluent both in English and French. Most of the remaining comments were in English. In these statements, obvious spelling errors were adjusted but no further changes were made. Finally, a few statements

just contained question marks rather than text. These were deemed expressions of individuals who may just not know what career success means to them; consequently, they were kept in the sample.

Despite the thorough translation and editing process, it became apparent that ambiguities could not be completely avoided. Whilst most of the translations were straightforward, others remained ambiguous. For example, depending on the context, the German word "Zufriedenheit" can either be translated as "satisfaction" or "happiness". As some statements consisted of only a couple of words, context that might have helped to decide on the most accurate translation was not always available.

Coding procedure

Once all statements were translated and edited, the actual coding process started. The main objective was to let themes and potential categories of career success emerge from the data. However, given the large number of statements, it was decided to use an existing career success framework as a starting point. This would allow an initial coding and could easily be expanded and adjusted if necessary. Several academics who had previously published categorizations of career success criteria were contacted. Three of them kindly sent the research team their coding schemes. Based on that input, it appeared as if Dries et al.'s (2008) framework provided the most appropriate structure for the statements in this study. Not only was their model comprehensive and built on a wide range of previous research, their coding scheme also suggested several sub-categories that seemed to reflect the nature of the statements in this study well.

The coding process was conducted in an iterative multi-stage process, as summarized in Table 44. During the first three stages, randomly selected statements were jointly coded and discussed by the research team. Thereby, it soon became apparent that the categories provided in Dries et al.'s (2008) framework were a most useful starting point, but did not allow an adequate categorization of all statements. Additional categories were needed. If necessary, such new categories were added after each stage of the coding process. The development of the categories was entirely driven by the content of the statements, not by any predefined model of the research team.

Early on, a coding scheme was developed and continuously updated. It contained all the categories and provided empirical examples of statements for each category. This document allowed the researchers to code the statements within an increasingly solid and en-

compassing framework. Depending on its content, one single statement could be coded in multiple categories. For example, the statement "…being happy and recognized" would be coded in two categories, named "happiness" and "recognition".

	Activities
Stage 1	Three researchers together: • Coding of 60 randomly selected statements (4.5% of all statements), based on Dries et al.'s (2008) framework • Discussion and expansion of the existing categories where necessary
Stage 2	Three researchers together: • Coding of another 60 randomly selected statements (4.5% of all statements), based on Dries et al.'s (2008) framework and the adjustments made at stage 1 • Discussion and expansion of the existing categories where necessary • Based on that discussion, development of a coding scheme and of an Excel spreadsheet containing all the statements and categories
Stage 3	Two researchers together: • Coding of a further 60 randomly selected statements (4.5% of all statements), based on the coding scheme developed at stage 2 • Discussion and further adjustments to the coding scheme and the spreadsheet
Stage 4	Three researchers independently: • Coding of a further 130 randomly selected statements (10% of all statements), based on the refined coding scheme • First check of inter-rater reliability (too low at this stage) • Discussion of the findings, further refinement of coding scheme and spreadsheet

Stage 5	Two researchers independently:
	• Coding of a further 100 randomly selected statements (7.5% of all statements), based on the refined coding scheme
	• Inter-rater reliability
	  o Number of full agreements per statement : total number of statements = 74 : 100 = 74%
	  o Number of all agreed codes : number of all codes set in all statements = 250 : 299 = 83.6%
	• Discussion of the findings, further refinement of coding scheme and spreadsheet

Stage 6	One researcher: • Coding of all remaining statements, thereby highlighting all potentially ambiguous codes and suggesting further refinements of the coding scheme
Stage 7	A second researcher: • Coding of all statements marked as "ambiguous" • Discussion, reaching agreement on question marks together with the first researcher
Stage 8	One researcher: • Checking of all statements for consistency (within and across coding categories), providing suggestions for potential readjustments
Stage 9	Four researchers together: • Final review of the results and final decision regarding the categories and sub-categories

Table 44: Stages in the career success coding process

To cope with the large number of statements, an Excel spreadsheet was created as a coding tool. That spreadsheet allowed marking all the categories a statement belonged to and was most helpful as it enhanced the quality of the coding. For example, independently coded statements could easily be compared and any remaining ambiguities were automatically highlighted.

Also, statements with any combination of success categories could be quickly filtered and compared, which was critical at later stages of the coding process when the codes were checked for consistency.

Only after the coding of almost a quarter of the statements was sufficient inter-rater reliability achieved. At that stage, dozens of different categories needed to be considered for each statement; therefore, 74% of absolutely identically coded statements were deemed as satisfactory. When comparing the number of all agreed codes with the number of all codes in all statements, the ratio was even 83.6%. Thus, it was decided that the author of this study should code the remaining statements on his own. However, all potentially ambiguous codes were flagged and then coded separately by a second researcher. Any remaining inconsistencies were then discussed and the most appropriate solution was sought for each statement. Once all the statements were coded and agreed upon, they were thoroughly double-checked to ensure a maximum of consistency and quality.

As a final step, the entire research team jointly reviewed all the categories and discussed how they could be most adequately grouped. The statements and their categorization were then transferred into SPSS for further analyses. These results are presented and discussed in the next section.

8.1.2 Results

The coding process resulted in a total of 41 categories, which allowed the accommodation of all 1,328 career success statements. As described above, coding had started with nine categories as defined by Dries and colleagues. The vast majority of categories only emerged during the data analysis. A minimum of ten statements was set as a threshold to define a category. Given the large number of categories, it was decided to bundle them further. As a result, 16 major categories, which comprised the 41 “sub-categories”, were defined. These categories, sub-categories and the number of statements referring to each of them are presented in Table 45. The order and numbering of the categories and sub-categories is arbitrary. Details of each category as well as more sample statements are presented in the coding scheme (see Appendix 5). Here, only a few categories and sub-categories which may require further explanation are briefly discussed.

Category		Sub-category		No. of statements		Sample statements "Career success means…"
1	Performance and achievement			100		
		1a	Performing well		23	• Always striving to do my best
		1b	Achieving goals/targets		77	• Completing my work successfully • Reaching and exceeding targets
2	Advancement			101		
		2a	Advancement (generic)		26	• Getting ahead
		2b	Hierarchical advancement		24	• Obtaining a management role
		2c	Power and influence		51	• Having the authority to make decisions • Being able to change things
3	Self-development			181		
		3a	Self-development (generic)		50	• Continually developing yourself • Achieving my potential
		3b	Personal goal attainment		56	• Achieving the goals I set out for me
		3c	Continuous learning		28	• Continuously updating my knowledge
		3d	Using one's skills		31	• Making the most of my skills
		3e	Career self-management		16	• *[Achieving goals]* in accordance with my career plan
4	Satisfaction and happiness in general			220		
		4a	Being satisfied (generic)		65	• Personal satisfaction • Contentment
		4b	Being happy (generic)		155	• Being happy with myself • Feeling good
5	Satisfaction and happiness at work			294		
		5a	Enjoying work (generic)		183	• Working with pleasure • Enjoying my work
		5b	Being happy at work		91	• Happiness in my job • Finding professional happiness
		5c	Achievement satisfaction		20	• Satisfaction with the work done

Category		Sub-category		No. of statements		Sample statements "Career success means…"
6	Life outside work			215		
		6a	Valuing life outside work (generic)		94	• Being able to enjoy my out of work life • Having a life when I go home
		6b	Balance		98	• Being satisfied with one 's work-life balance • Work-life balance
		6c	Family and friends		23	• Having a happy family life
7	Independence and freedom			37		
		7a	Independence and flexibility		22	• Working independently
		7b	Freedom		15	• Freedom to choose my own role
8	Cooperation			45		
		8a	Cooperating with others		32	• Passing knowledge on to others
		8b	Relationship with others		13	• Getting on well with my boss and my team
9	Contribution			106		
		9a	Contribution (generic)		65	• Making a difference • Doing something meaningful
		9b	Contribution to organizational success		41	• Adding value to our company
10	Challenge			165		
		10a	Having interesting work		57	• Being given exciting assignments
		10b	Being challenged		108	• Constantly facing new challenges • Solving the problems presented to me
11	Motivation			50		
		11a	Being motivated		50	• Looking forward to going to work on Mondays
12	Security			41		
		12a	Security (generic)		27	• Feeling secure
		12b	Job security		14	• Having a secure job
13	Recognition			181		
		13a	Recognition (generic)		84	• Being adequately recognized
		13b	Non-material recognition		97	• Being respected and appreciated by my team • Being recognized as a specialist in my field

Category		Sub-category		No. of statements		Sample statements "Career success means…"
14	Remuneration			222		
		14a	Financial rewards (generic)		37	• Financial rewards
		14b	Financial security		33	• Not to worry about money
		14c	Financial independence		25	• Having the freedom to buy what one desires
		14d	Enough/satisfactory financial rewards		35	• Being satisfied with my salary
		14e	High rewards / more money		58	• Getting pay rises • Being well paid
		14f	Appropriate rewards		34	• Being paid for what I do at work
15	Importance of career success			125		
		15a	Career success - high importance		65	• Much to me
		15b	Career success - some importance		42	• Quite important but other things are more important
		15c	Career success - low importance		18	• Nothing to me
16	Other			98		
		16a	Miscellaneous		98	• Avoiding too much stress • Good health

n=1,328 (multiple answers were possible)

Table 45: Career success categories and sub-categories

Several categories comprise a sub-category with the label “generic”. These sub-categories contain statements which clearly belonged to a certain category but could not be further differentiated within that category. For example, the term “money” was classified as sub-category 14a “financial rewards (generic)” as it did not allow any more fine-grained classification.

Given the number of statements referring to happiness and satisfaction, it was decided to make a distinction between individuals who had referred to these terms in the context of their job (category 5) and those who had mentioned satisfaction or happiness more broadly (category 4). The initial idea to split the statements into a “satisfaction” and a “happiness” category was not feasible because of translation ambiguities in the originally German texts (see above).

A further decision made in the coding process was to separate statements that clearly referred to forms of non-material recognition (category 13) from statements making some reference to money (category 14). Within the monetary statements, various sub-categories could be identified, each of them with a slightly different notion.

Category 15, called “importance of career success”, emerged completely unexpectedly. 125 individuals made a statement regarding the degree they felt career success was important to them instead of providing their definition of career success. Although the prompt in the survey was not intended to elicit such responses, almost 10% of all respondents seemed to understand it as asking about the importance of career success. Hence, these statements were kept as a separate category.

Category 16, “other”, was created to accommodate all references to themes that were mentioned fewer than ten times in the entire sample. Here, for example, topics such as stress avoidance, health, working according to one’s values and making one’s employees happy were found.

8.1.2.1 Definitions of “career success” (RQ 2.1)

In response to research question 2.1, various observations were made. Individual definitions of career success were often a complex combination of several themes. 634 statements (47.7%) contained elements of more than one single sub-category. On average, each statement made reference to 1.6 sub-categories. Figure 11 shows the 16 categories sorted according to their size.

Career success was by far most frequently defined in terms of happiness and satisfaction. Even after splitting the general and the work-related statements, these categories were still the largest and the third largest ones. Also, “enjoying work” and “being happy” were the two sub-categories most frequently referred to. With regard to category 10, “challenge”, it was notable that although the category only ranked seventh when compared with other categories, “being challenged” as a sub-category was the third most frequently named theme. This may indicate that for many IT professionals in this sample being challenged in their jobs was key.

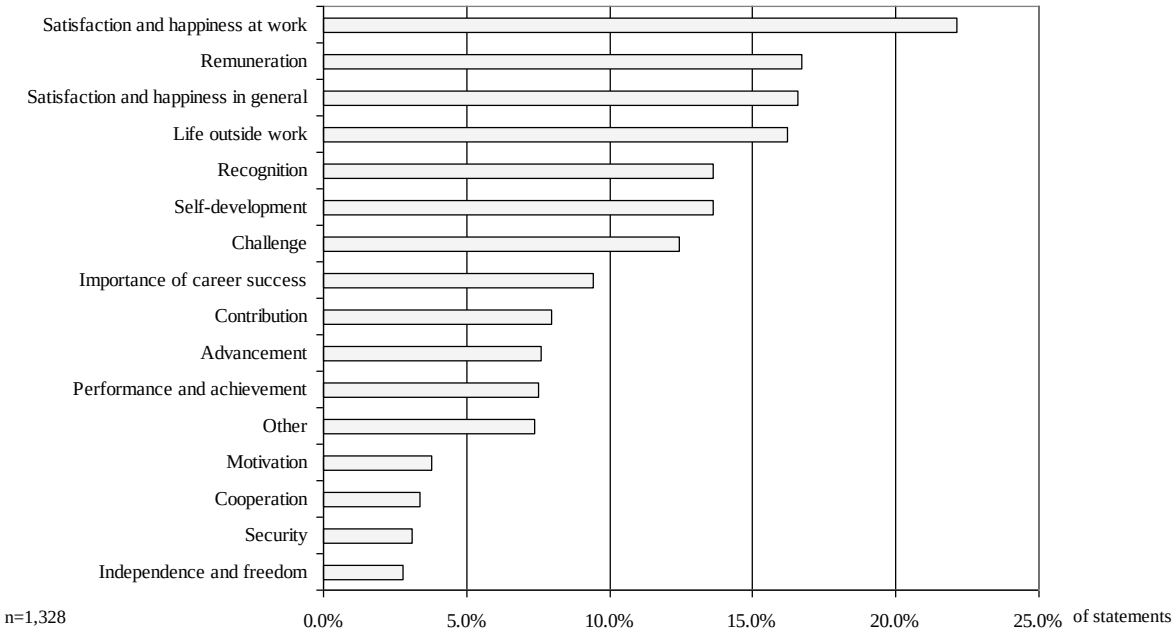
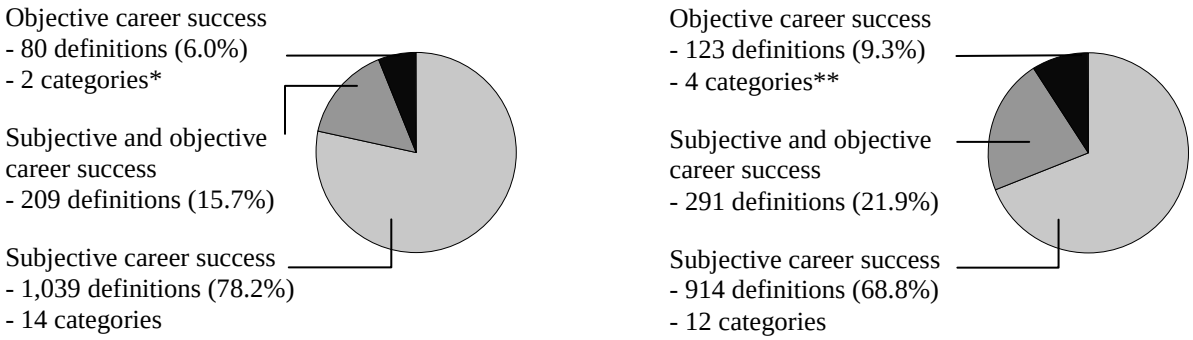


Figure 11: Career success – 16 categories

Even though the category “remuneration” was the second largest in terms of frequency, a majority of those who referred to money as an element of career success did not define it in terms of being paid a high salary or getting more money. Only 26.1% of the “remuneration” statements referred to such themes. Instead, most of the statements in category 14 mentioned aspects like “financial security”, “earning enough money” or “being appropriately paid”. Also, when looking at the sub-categories, references to the importance of non-material recognition were made more frequently than references to any single sub-category of financial rewards.

Overall, the distribution of objective and subjective career success references was striking. The number of subjective career success statements was far higher than the number of statements referring to objective success, as shown in Figure 12. A clear majority of 1,039 statements (78.2%) and 14 categories exclusively referred to aspects of subjective career success. Only 80 definitions (6.0%) were restricted to either "advancement" or "remuneration", the two commonly-used objective career success measures (see section 3.1.3) without further reference to any elements of subjective career success. 209 statements (15.7%) comprised both objective and subjective aspects of career success (e.g. "Career success means being happy with your job and being paid well").



* advancement, remuneration
** advancement, remuneration, security, performance and achievement

Figure 12: Career success – Objective versus subjective statements

Even when objective career success was defined more broadly and categories 1 ("performance and achievement") and 12 ("security") were included, both of which may arguably be considered as covering objective aspects of career success as well, the overall picture did not change substantially. Still, 914 statements (68.8%) in twelve categories exclusively referred to subjective career success. Only 123 statements (9.3%) had an exclusive focus on elements of objective success and 291 statements (21.9%) mentioned both elements of objective and subjective career success.

8.1.2.2 Interplay between demographic characteristics and definitions of career success (RQ 2.2)

Regarding research question 2.2, the career success categories were linked to various variables and demographic characteristics of the respondents. Table 46 gives an overview of the significant relationships in these cross-tabulations (Chi-Square tests, $p<0.05$, two-tailed).

			Age (n=1,503)	Career outlook (n=1,685)	Career satisfaction (n=1,692)	Nationality (n=1,694)	Cluster (n=1,324)	Educational qualific. (n=1,688)	Dependents (n=1,708)	Gender (n=1,678)	Hierarchical position (n=1,694)	Mmgt vs. specialist (n=1,678)	Organi-zation (n=1,708)
1	**Performance and achievement**		0.004			0.015	0.008					0.000	0.003
	1a	Performing well		0.004							0.040		
	1b	Achieving goals/targets	0.001			0.002					0.048	0.000	0.004
2	**Advancement**				0.034	0.012		0.016				0.000	0.023
	2a	Advancement (generic)	0.020				0.029				0.046	0.004	0.040
	2b	Hierarchical advancement		0.001	0.002	0.000		0.030				0.000	0.000
	2c	Power and influence						0.010					
3	**Self-development**						0.000					0.011	
	3a	Self-development (generic)					0.022			0.010			
	3b	Goal attainment					0.000					0.011	
	3c	Continuous learning					0.010						
	3d	Using one's skills											
	3e	Career self-management											
4	**Satisfaction / happiness in general**					0.000	0.035	0.008					0.000
	4a	Being satisfied (generic)											
	4b	Being happy (generic)				0.000	0.043	0.002					0.000
5	**Satisfaction / happiness at work**		0.011						0.043	0.002			0.000
	5a	Enjoying work (generic)	0.001	0.014					0.013	0.013			0.008
	5b	Being happy at work											
	5c	Achievement satisfaction			0.033								
6	**Valuing life outside work**												
	6a	Valuing life outs. work (gen.)											
	6b	Balance											0.033
	6c	Family & friends					0.018		0.005		0.031		
7	**Independence and freedom**			0.050									
	7a	Independence and flexibility											
	7b	Freedom											
8	**Cooperation**					0.004							
	8a	Cooperating with others				0.002						0.013	
	8b	Relationship with others				0.007		0.035					
9	**Contribution**					0.016							
	9a	Contribution (generic)		0.027		0.005							
	9b	Contribution (to org. success)									0.000		0.036
10	**Challenge**		0.018					0.005					
	10a	Having interesting work											
	10b	Being challenged					0.046	0.026					
11	**Motivation**					0.001							
	11a	Being motivated				0.001							
12	**Security**		0.019	0.034				0.009		0.030		0.037	
	12a	Security (generic)		0.025				0.004					
	12b	Job security	0.005										
13	**Recognition**			0.013									
	13a	Recognition (generic)				0.020							0.006
	13b	Non-material recognition							0.021				
14	**Remuneration**			0.000	0.047	0.000				0.009			0.000
	14a	Financial rewards (generic)		0.002	0.036	0.019							0.013
	14b	Financial security				0.001			0.019				0.044
	14c	Financial independence											
	14d	Enough/satisfactory fin. rew.				0.010		0.038				0.012	0.000
	14e	High rewards / more money				0.000						0.015	0.003
	14f	Appropriate rewards					0.026						
15	**Importance of career success**		0.001	0.049		0.000		0.000					0.012
	15a	Career succ. - high importance	0.021			0.008		0.009				0.034	0.039
	15b	Career succ. - some importance											
	15c	Career succ. - low importance				0.043		0.034				0.023	
16	**Other**												
	16a	Miscellaneous											

Table 46: Career success categories compared with other variables (χ^2 significance levels)

Some key findings are described below, whilst details for each relationship are provided in Appendix 6. Given the high number of significant relationships, an in-depth interpretation of all the individual results would hardly be possible here. Therefore, only the overall patterns are addressed below. The interplay between career success and cluster membership is covered separately in the next section.

As Table 46 shows, three groups of variables could be distinguished here. In the first group, nationality and membership of a particular organization emerged as the two variables which were most likely to differentiate participants with significantly different definitions of career success. In a second group, consisting of career satisfaction, the number of dependents a participant was responsible for, gender, and hierarchical position, each variable only accounted for a few significant relationships. In brief, individuals' career success statements did not differ greatly with regard to these variables. The remaining variables, namely, age, career outlook, the highest educational qualification a participant had achieved, preference for a managerial or a specialist career track as well as career orientation cluster membership, ranged in between the other two groups of variables in terms of number of significant relationships.

The fact that nationality appeared to be the greatest differentiator regarding career success definitions was unexpected. For example, there was an overall significant Chi-Square with UK citizens scoring above the expected frequencies, and the others, particularly the Swiss, scoring below the expected frequencies for objective success criteria ("advancement", "remuneration"). The Swiss, on the contrary, referred to "recognition" significantly more often than the UK citizens and mentioned "satisfaction and happiness in general" significantly more frequently than both German and UK citizens. German citizens, together with UK citizens, significantly more often referred to "contribution" than the Swiss. Germans also mentioned "performance" significantly more frequently than the Swiss and "cooperation" than UK and Swiss citizens.

Men and women, however, did not appear to differ greatly in the way they defined career success. Still, some significant gender differences emerged from the data. On the one hand, women defined success significantly more frequently in terms of self-development and satisfaction and happiness at work than men. Male participants, on the other hand, referred to security and remuneration significantly more often than women when they defined career success. With regard to age, several significant differences between IT professionals in different age groups could be observed. Those under 35 years of age defined success sig-

nificantly more often in terms of advancement and achieving professional goals than those aged 36 and above. Similarly, success definitions referring to satisfaction and happiness at work were significantly more frequent amongst participants under 35 years of age compared with those aged 56 and above. In contrast, respondents 46 years of age and above significantly more often defined career success in terms of security than did those aged under 35.

From a career success category perspective, performance and achievement, advancement, and remuneration appeared as the categories which most frequently accounted for significant differences on other variables. Advancement, for example, was significantly more often used as a definition of career success of respondents who were moderately dissatisfied in their careers, those with Bachelor's degrees, UK citizens, and those with a preference for managerial career tracks. Likewise, advancement was significantly less frequently included in career success definitions of respondents who were satisfied with their careers, those with low educational qualifications, Swiss citizens or those with a preference for specialist career tracks. Also, with regard to remuneration, respondents were significantly more likely to refer to that category in their success definition if they had a negative career outlook or were dissatisfied with their careers, if they were UK citizens or if they were male. Conversely, women, or those with a positive career outlook, positive career satisfaction, or Swiss citizenship used remuneration significantly less frequently to define career success.

To investigate these relationships further, several additional analyses were performed. In particular, because nationality and organizational membership had emerged as major differentiators, these variables were explored in more detail. For example, to examine the influence of nationality, whilst holding organization constant, Chi-Square tests were performed for UK employees compared with Germans in Org05, Swiss employees compared with Germans in Org09, and Swiss citizens compared with German employees in all Swiss organizations. To analyze the organizational impact further, Org03 was compared with Org05a, and Swiss organizations were compared amongst themselves.

Despite the relevance of nationality and organization as differentiators in the full sample, and although these analyses resulted in various significant relationships (see Appendix 6), no clear and comprehensive pattern emerged that would have illuminated the nature of the relationships in the general sample in more detail.

For example, when comparing German and Swiss employees in Org09 (n=355), only two significant relationships ($p<0.05$) emerged. Further, when comparing Swiss citizens across all Swiss organizations (n=699), only eight significant relationships ($p<0.05$) were found. However, several of these relationships were not significant in the full sample.

8.1.2.3 Interplay between career orientations and definitions of career success (RQ 2.3)

In response to research question 2.3, differences between the three clusters of career orientations were explored, as shown in Table 46. The paragraphs below describe significant findings, based on Chi-Square tests ($p<0.05$, two-tailed) in which frequencies of career success statements were compared with several other variables.

There was an overall significant Chi-Square with protean career architects scoring above, and the others below, the expected frequencies for self-development, personal goal attainment, continuous learning as well as family and friends. With regard to advancement and satisfaction and happiness in general, protean career architects scored below the expected frequencies whilst the others scored above.

When they defined career success, solid citizens scored above and the other clusters below the expected frequencies for satisfaction and happiness in general. Yet, solid citizens were below the expected frequencies in terms of performance and achievement, self-development, personal goal attainment, continuous learning and being challenged.

Finally, there was an overall significant Chi-Square with roamers scoring above the expected frequencies, and the others below, for performance and achievement, advancement, self-development, personal goal attainment, continuous learning and being challenged. However, for satisfaction and happiness in general, as well as family and friends, the roamers' scores were below the expected frequencies.

In brief, the way individuals defined career success seemed to reflect adequately the characteristics of the three clusters found in both surveys and the interviews (see section 7.5). Based on the data analysis, it appeared that the features of each cluster were clearly related to how they defined career success. For example, the statements mirrored the importance of self-development and family for the protean career architects, the solid citizens' rather low levels of self-direction and self-development, as well as the roamers' work-centred focus with their appetite for advancement in organizations.

8.1.2.4 Conclusions from the career success statement results

In response to research question 2.1, a thorough analysis of 1,328 career success definitions was performed which resulted in a framework with 16 categories and 41 subcategories. The most frequently used definitions of career success referred to satisfaction and happiness at work, remuneration, satisfaction and happiness in general, life outside work, recognition, self-development, and challenge. Overall, the new framework allowed a fine-grained and comprehensive categorization of all the career success statements. One striking finding was that about three quarters of all statements exclusively referred to aspects of subjective career success whilst less than ten percent were exclusively focused on categories of objective career success.

Addressing research question 2.2, the interplay between several variables and individual career success definitions was examined. Nationality and organizational membership appeared as the two variables which most frequently accounted for significant differences amongst the career success categories. Given that organizational membership and nationality were linked but partially separable, additional analyses were conducted with smaller and more specific samples. However, no comprehensive, more detailed picture of these relationships could be detected. Finally, in response to research question 2.3, the three career orientation clusters also showed various significant differences in terms of their career success definitions. The findings corresponded well with the characteristics of these clusters (see section 7.5). Before a further discussion of all these findings in section 9.2.2, the analysis and the results regarding career anchors are presented in the next section.

8.2 Career anchors – Data analysis and results

This section provides a description of the analysis and the results regarding career anchors. Based on these findings, research questions 3.1, 3.2, and 3.3 are addressed. Research question 3.1 asked which career anchors were most prevalent amongst IT professionals in Europe. Further, the research questions focused on the interplay of career anchors with demographic characteristics (research question 3.2) and career orientations (research question 3.3).

8.2.1 Data analysis

In order to minimize the number of missing values in the career anchor analysis, respondents from the main sample (n=1,708) were excluded if their data comprised more than one missing value on any of the anchor scales. This resulted in a sample of 1,632 respondents for the career anchor analysis.

A factor analysis was performed, applying the same criteria as for the career orientations (see section 7.1.1). As a result, a solution with eight factors emerged. Seven of the eight anchors were identical to those suggested by Igbaria and Baroudi (1993). However, the three items of the "technical/functional competence" and the two items of the "job security" anchors loaded onto one single factor. Subsequent reliability analyses revealed that both anchors had a higher reliability when calculated separately than as a combined scale. Based on these reliability results, it was decided to use the original structure with nine anchors in this study. Due to the fact that Igbaria and colleagues (Igbaria & Baroudi, 1993; Igbaria, Kassicieh, et al., 1999) had thoroughly tested and validated the nine anchors based on 25 items, it seemed legitimate to apply them here as reported by these authors. This decision also took into account that a key purpose for using these 25 items was to allow a direct comparison of the findings with previous studies.

That being the case, the factor analysis results suggested that there may be room for further improvement and conceptual refinement of these items and the corresponding anchor structure. However, such aims were beyond the scope of this study. For each of the nine career anchors, therefore, scores were calculated as the mean of the corresponding items as suggested by Igbaria and Baroudi (1993). These results are presented in the next section.

8.2.2 Results

In this section, various perspectives on the career anchor results are described, thereby providing answers to research questions 3.1, 3.2, and 3.3.

8.2.2.1 Prevalence of career anchors (RQ 3.1)

The Cronbach's alphas and the mean scores of each anchor are presented in Table 47. In addition, the percentage of respondents who scored highest on a particular anchor is indicated. In that column, the sum exceeds 100% because respondents with multiple strongest anchors are counted on each anchor.

"Security and stability" comprises the four items of the job security and geographical security anchors. It is only included here to permit a better comparison with career anchor studies that do not differentiate "job security" and "geographical security". Whilst its reliability was calculated based on all four items, the anchor scores represent the mean of the respective separate anchor scores.

Using the criteria suggested by Hair et al. (2006), the reliability of five anchors was above the threshold of 0.70; three of them even had alphas of 0.80 and higher. For four anchors the reliability was still sufficient between 0.60 and 0.70, and none of them had a Cronbach's alpha below the critical limit of 0.60. It seems noteworthy that whilst the reliability of the separate job security and geographical security anchors was high, the combination of these two anchors resulted in a substantially lower, albeit sufficient Cronbach's alpha.

Anchor	Cronbach's alpha	Mean score	Strongest anchor
Technical/Functional Competence (TF)	0.679	2.592	2.88%
Managerial Competence (MC)	0.801	2.749	7.97%
Geographical Security (GS)	0.832	2.987	15.01%
Job Security (JS)	0.758	3.801	34.01%
Security and Stability (SS)	*0.675*	*3.394*	*5.64%*
Entrepreneurial Creativity (EC)	0.877	2.429	7.41%
Autonomy and Independence (AI)	0.661	3.384	10.29%
Service and Dedication (SD)	0.765	3.751	27.27%
Pure Challenge (PC)	0.620	3.291	8.64%
Lifestyle (LS)	0.658	3.921	32.78%

n=1,632

Table 47: Career anchors – Reliability and mean scores

Overall, the findings showed that the IT professionals in the sample held a wide range of career anchors. To illustrate this point further, the mean scores shown in Table 47 are represented graphically in Figure 13. "Security and stability" again only represents the calculated mean of the job and geographical security anchors, and is therefore shaded differently.

Five anchors, namely "lifestyle", "job security", "service and dedication", "autonomy and independence" and "pure challenge" all scored above midpoint (3). This means that respondents attributed a high importance to these anchors. "Geographical security" scored just below midpoint. The mean scores of "managerial competence", "technical/functional competence", and "entrepreneurial creativity" were all substantially lower. Hence, the participants did not appear to rate these anchors as very important. Based on these findings, it seemed as if the participants especially appreciated challenging and meaningful jobs with high job security and much autonomy that allowed them to pursue their own lifestyle.

Two findings are particularly notable. First, there was a clear and distinct difference between "geographical security" and "job security" anchors. Simply based on these mean

score results and the corresponding Cronbach's alphas, it appeared as if distinguishing between these two dimensions of security was worthwhile. Second, mean scores of the "managerial competence" as well as the "technical/functional competence" anchors were clearly below midpoint. This suggests that most IT professionals in that sample were not primarily motivated by technical specialization or by a switch to management roles. The implications of this finding are discussed separately (see section 9.3).

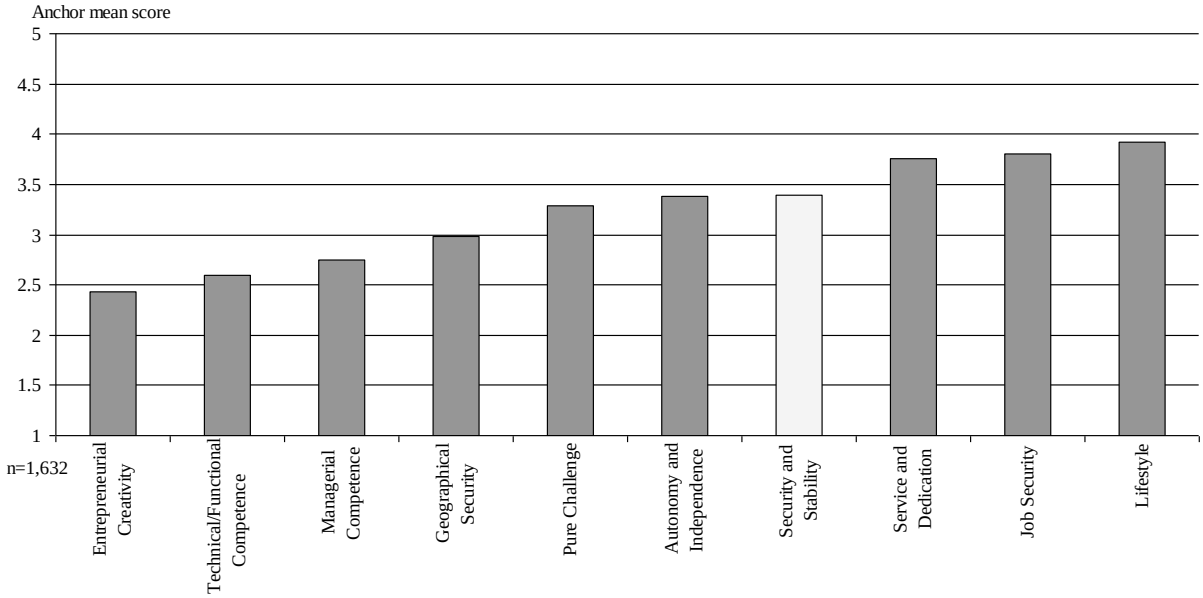


Figure 13: Career anchors – Mean scores

The view above provides the anchor structure of an "average" respondent but it does not reveal the strongest anchor for each individual. In addition, therefore, how many of the respondents scored highest on each of the anchors was also examined. Based on the numbers shown in Table 47, Figure 14 provides an overview of these results.

As may have been expected based on the mean scores, "service and dedication", "lifestyle" and "job security" were the three anchors that appeared most frequently as the respondents' strongest anchors. Here, a slight change compared to the mean score view could be observed. "Job security" was the career anchor most frequently scored as the strongest anchor. "Lifestyle" only ranked second. Figure 14 reveals some more accentuated and notable differences compared with Figure 13. "Technical/functional competence" was the strongest anchor only for a very small group of respondents. Similarly, "autonomy and independence" and "pure challenge" both appeared less frequently as strongest anchors than what may have been assumed based on Figure 13.

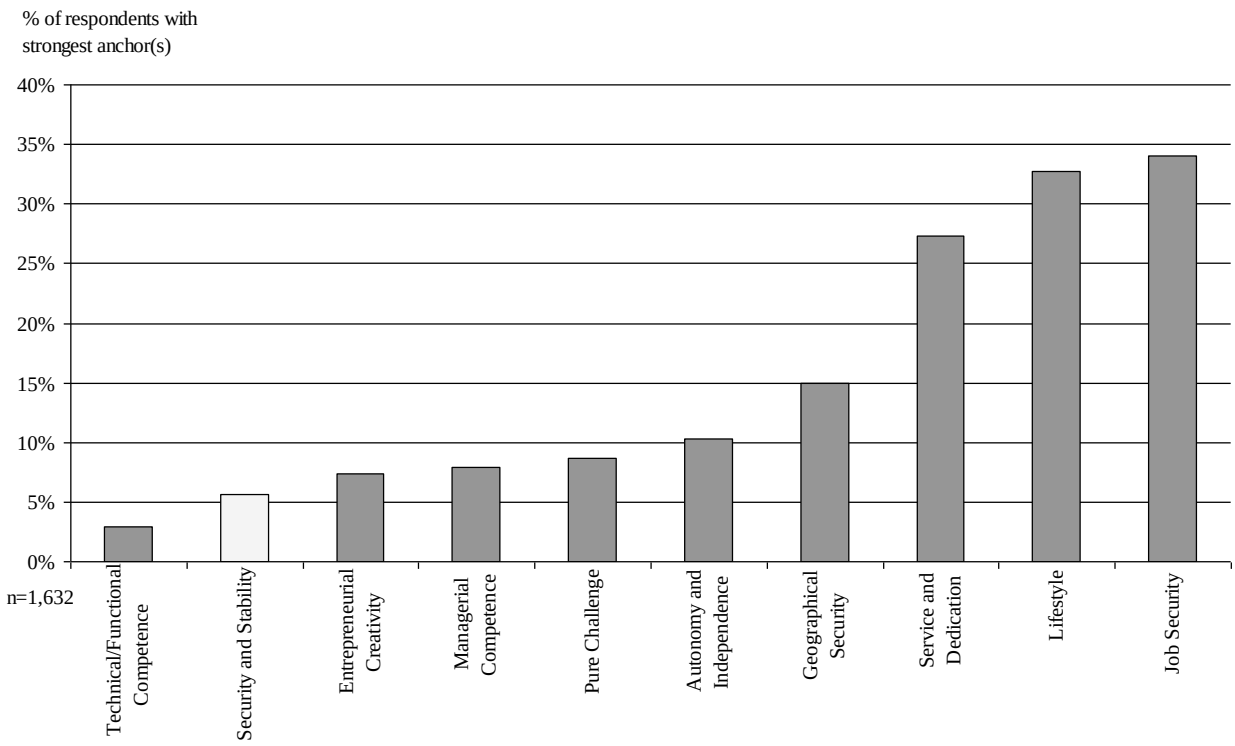


Figure 14: Career anchors – Strongest anchors

Nevertheless, given their high mean scores, these anchors seemed to play an important role for many respondents, arguably as secondary or tertiary anchors. Conversely, "geographical security" ranked as the fourth most frequent strongest anchor but was only sixth in terms of mean scores. This may imply that "geographical security" was highly important to the 15% of the participants who rated it as their strongest anchor. However, to all the others, this anchor may not have played a very relevant role, hence its relative low mean score. "Security and stability" in this figure indicates individuals who had both "job security" and "geographical security" as their equal strongest anchors.

Lastly, correlations between the career anchors were examined, as presented in Table 48. The findings show that most correlations were highly significant. Given that "stability and security" consisted of the other two security anchors, the strong correlations between them were not surprising. Nonetheless, some other correlations are worth mentioning. "Entrepreneurial creativity" and "pure challenge", both of which arguably require some degree of risk-taking, were negatively correlated with the security anchors.

		TF	MC	GS	JS	SS	EC	AI	SD	PC	LS
Technical and Functional Competence (TF)	Pearson Correlation	1									
	Sig. (two-tailed)										
	N	1,632									
Managerial Competence (MC)	Pearson Correlation	-0.192**	1								
	Sig. (two-tailed)	0.000									
	N	1,632	1,632								
Geographical Security (GS)	Pearson Correlation	0.332**	-0.247**	1							
	Sig. (two-tailed)	0.000	0.000								
	N	1,632	1,632	1,632							
Job Security (JS)	Pearson Correlation	0.243**	0.025	0.219**	1						
	Sig. (two-tailed)	0.000	0.306	0.000							
	N	1,632	1,632	1,632	1,632						
Security and Stability (SS)	Pearson Correlation	0.375**	-0.167**	0.849**	0.701**	1					
	Sig. (two-tailed)	0.000	0.000	0.000	0.000						
	N	1,632	1,632	1,632	1,632	1,632					
Entrepreneurial Creativity (EC)	Pearson Correlation	-0.111**	0.419**	-0.210**	-0.196**	-0.260**	1				
	Sig. (two-tailed)	0.000	0.000	0.000	0.000	0.000					
	N	1,632	1,632	1,632	1,632	1,632	1,632				
Autonomy and Independence (AI)	Pearson Correlation	0.077**	-0.016	0.036	-0.006	0.023	0.183**	1			
	Sig. (two-tailed)	0.002	0.521	0.148	0.793	0.361	0.000				
	N	1,632	1,632	1,632	1,632	1,632	1,632	1,632			
Service and Dedication (SD)	Pearson Correlation	-0.002	0.151**	0.034	0.149**	0.105**	0.148**	0.135**	1		
	Sig. (two-tailed)	0.921	0.000	0.171	0.000	0.000	0.000	0.000			
	N	1,632	1,632	1,632	1,632	1,632	1,632	1,632	1,632		
Pure Challenge (PC)	Pearson Correlation	0.049*	0.265**	-0.113**	-0.094**	-0.133**	0.239**	0.188**	0.243**	1	
	Sig. (two-tailed)	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
	N	1,632	1,632	1,632	1,632	1,632	1,632	1,632	1,632	1,632	
Lifestyle (LS)	Pearson Correlation	0.098**	-0.205**	0.218**	0.162**	0.247**	-0.083**	0.327**	0.075**	-0.040	1
	Sig. (two-tailed)	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.002	0.102	
	N	1,632	1,632	1,632	1,632	1,632	1,632	1,632	1,632	1,632	1,632

*. Correlation significant (p<0.05; two-tailed) / **. Correlation significant (p<0.01; two-tailed)

Table 48: Career anchor correlations

Between “technical/functional competence” and “managerial competence”, there was a significant negative correlation. However, it was weaker than may have been expected. “Technical/functional competence” was more strongly positively correlated with both aspects of security. “Managerial competence”, on the contrary, was negatively correlated with “geographical security” as well as with “lifestyle”, but it showed a high positive correlation with “entrepreneurial creativity”, “pure challenge” and “service and dedication”. This may suggest that respondents with a high managerial anchor tend to be more open to geographical changes or new challenges but that their commitment may be coupled with less emphasis on lifestyle.

To investigate such assumptions further, the career anchors were put into context with various other variables, as shown in the next section.

8.2.2.2 Interplay between demographic characteristics and career anchors (RQ 3.2)

In response to research question 3.2, the interplay between career anchors and several variables was explored. The corresponding correlations are shown in Table 49.

Age was found to be positively correlated with “geographical security” and negatively correlated with “managerial competence”, “entrepreneurial creativity”, “autonomy and independence”, and “lifestyle”. It is remarkable that younger respondents tended to be both managerially as well as lifestyle-oriented although the two anchors themselves were clearly negatively correlated (see Table 48).

In addition, various career mobility variables were analyzed. The analyses revealed that different types of physical mobility may be related to different individual career anchor preferences. Changes within organizations over the past five years were primarily negatively correlated with “technical/functional competence” and positively with “managerial competence”. Changes between organizations over the past five years, however, were negatively correlated with “job security”, and positively with “entrepreneurial creativity”. Geographical moves over the past five years, finally, were strongly negatively correlated with “geographical security” and positively correlated with “managerial competence”, “entrepreneurial creativity”, and “pure challenge”. These findings corresponded well with participants’ estimates regarding the chance that they would still be working for their employer twelve months later. High estimates were significantly positively correlated with both security anchors and significantly negatively correlated with “managerial competence”, “entrepreneurial creativity”, and “autonomy and independence”.

		Age	Years worked in IT	Years with current employer	No. of job changes within org.	No. of job changes across orgs.	No. of geographical changes	Likelihood of remaining here	Overall career satisfaction	Overall career outlook
Technical and Functional Competence (TF)	Pearson Correlation	0.051	0.110**	0.086**	-0.076**	-0.021	-0.055*	0.111**	0.075**	-0.043
	Sig. (two-tailed)	0.053	0.000	0.001	0.002	0.394	0.027	0.000	0.003	0.084
	N	1,450	1,623	1,622	1,612	1,607	1,608	1,615	1,623	1,619
Managerial Competence (MC)	Pearson Correlation	-0.102**	-0.071**	-0.025	0.147**	0.069**	0.091**	-0.109**	-0.118**	0.060*
	Sig. (two-tailed)	0.000	0.004	0.320	0.000	0.006	0.000	0.000	0.000	0.016
	N	1,450	1,623	1,622	1,612	1,607	1,608	1,615	1,623	1,619
Geographical Security (GS)	Pearson Correlation	0.094**	0.110**	0.099**	-0.095**	-0.091**	-0.231**	0.186**	0.095**	-0.038
	Sig. (two-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.123
	N	1,450	1,623	1,622	1,612	1,607	1,608	1,615	1,623	1,619
Job Security (JS)	Pearson Correlation	0.031	0.016	0.201**	0.026	-0.164**	-0.069**	0.172**	0.031	-0.129**
	Sig. (two-tailed)	0.244	0.514	0.000	0.295	0.000	0.006	0.000	0.207	0.000
	N	1,450	1,623	1,622	1,612	1,607	1,608	1,615	1,623	1,619
Security and Stability (SS)	Pearson Correlation	0.086**	0.089**	0.181**	-0.055*	-0.155**	-0.207**	0.229**	0.087**	-0.098**
	Sig. (two-tailed)	0.001	0.000	0.000	0.027	0.000	0.000	0.000	0.000	0.000
	N	1,450	1,623	1,622	1,612	1,607	1,608	1,615	1,623	1,619
Entrepreneurial Creativity (EC)	Pearson Correlation	-0.127**	-0.103**	-0.143**	0.025	0.145**	0.139**	-0.215**	-0.156**	0.085**
	Sig. (two-tailed)	0.000	0.000	0.000	0.318	0.000	0.000	0.000	0.000	0.001
	N	1,450	1,623	1,622	1,612	1,607	1,608	1,615	1,623	1,619
Autonomy and Independence (AI)	Pearson Correlation	-0.118**	-0.066**	-0.063*	-0.020	0.042	0.012	-0.114**	-0.087**	-0.016
	Sig. (two-tailed)	0.000	0.008	0.011	0.412	0.095	0.632	0.000	0.000	0.524
	N	1,450	1,623	1,622	1,612	1,607	1,608	1,615	1,623	1,619
Service and Dedication (SD)	Pearson Correlation	-0.003	-0.031	0.013	-0.015	-0.009	-0.006	0.043	0.007	0.088**
	Sig. (two-tailed)	0.899	0.215	0.596	0.539	0.729	0.795	0.085	0.783	0.000
	N	1,450	1,623	1,622	1,612	1,607	1,608	1,615	1,623	1,619
Pure Challenge (PC)	Pearson Correlation	0.009	0.026	-0.011	0.076**	0.065**	0.094**	-0.063*	-0.053*	0.045
	Sig. (two-tailed)	0.725	0.293	0.668	0.002	0.009	0.000	0.012	0.034	0.070
	N	1,450	1,623	1,622	1,612	1,607	1,608	1,615	1,623	1,619
Lifestyle (LS)	Pearson Correlation	-0.090**	-0.056*	0.005	-0.006	-0.021	-0.043	0.010	-0.010	-0.053*
	Sig. (two-tailed)	0.001	0.023	0.830	0.799	0.401	0.084	0.681	0.682	0.034
	N	1,450	1,623	1,622	1,612	1,607	1,608	1,615	1,623	1,619

*. Correlation significant (p<0.05; two-tailed) / **. Correlation significant (p<0.01; two-tailed)

Table 49: Correlations between career anchors and demographic variables

Further, interesting differences between individuals' current career satisfaction and their perceived outlook on their future careers were revealed, as presented in Table 49. Those who expressed positive career satisfaction scored significantly higher on "technical/functional competence" and "geographical security" but lower on "managerial competence", "entrepreneurial creativity", "autonomy and independence", and "pure challenge". The results for career outlook were almost the reverse. That is, a preference for the "managerial competence" anchor was positively correlated with a positive rating of one's future career outlook. For the "technical/functional competence" anchor, there was no significant correlation. This finding adds a further facet to the distinction between those who prefer either a managerial or a specialist career and requires further discussion (see sections 9.3.4 and 10.2.1.3).

Then, independent t-tests were performed. With regard to gender, various significant differences emerged ($p<0.01$, two-tailed). Compared with women, men scored clearly higher on "technical/functional competence", "entrepreneurial creativity", "autonomy and independence", and "pure challenge". However, scores of female participants on "service and dedication" and "lifestyle" ($p<0.05$) were significantly higher than those of male respondents.

Independent t-tests also revealed several significant differences ($p<0.01$, two-tailed) between individuals with a preference for either a managerial or a specialist career. Those with a preference for a specialist career scored significantly higher on "technical/functional competence", "geographical security", "autonomy and independence" and "lifestyle", as well as significantly lower on "managerial competence" and "entrepreneurial creativity", than those with a preference for a managerial career. Interestingly, scores did not differ significantly either on the "job security" or on the "pure challenge" anchor.

Finally, several variables were analyzed with one-way ANOVA Scheffe post hoc tests ($p<0.05$). For example, education primarily seemed to differentiate participants regarding their security preferences. Those with apprenticeships or high school as their highest educational qualification showed a significantly higher preference for both "job security" and "geographical security" than those with Bachelor's, Master's or PhD degrees, as well as a significantly lower preference for "pure challenge" than those with a Bachelor's degree. It was also revealed that respondents who thought they were more successful than their peers scored significantly higher on "managerial competence" and "pure challenge" and significantly lower on "job security" than those who felt less successful than their peers.

Similarly, respondents who felt their career was ahead of schedule scored significantly lower on “geographical security” and “job security” but higher on “entrepreneurial creativity”, “autonomy and independence”, and “managerial competence”. However, amongst respondents who felt that they were behind schedule, “managerial competence” was significantly more frequently found than amongst those who felt they were “on schedule”.

Further, one-way ANOVA Scheffe post hoc tests ($p<0.05$) showed that UK citizens scored significantly higher than the Swiss on “managerial competence” and “job security”. The Swiss, however, scored significantly higher on “autonomy and independence” than the UK citizens and significantly higher on “geographical security” than both UK and German citizens. Also, “service and dedication” anchor scores were significantly higher for Swiss and German citizens compared with those of UK participants. These differences were further supported in an analysis of organizations with one-way ANOVA Scheffe post-hoc tests ($p<0.05$). Here, the high scores on “managerial competence” and, in particular, the low scores on “service and dedication” in Org03 and Org05a, the two UK-based organizations were notable. Org03 ranked this anchor significantly lower than six other organizations (Org02, Org05b, Org07, Org08, Org09, Org10); Org05a did so compared with four organizations (Org02, Org05b, Org07, Or09). It was, nonetheless, noteworthy that no significant differences between the participating organizations were found for the “technical/functional competence”, “geographical security”, “autonomy and independence”, “pure challenge”, and “lifestyle” anchors. These results were broadly in line with the cultural differences found in the analysis of the career success statements (see section 8.1.2.2) and require further discussion (see section 9.5.4).

8.2.2.3 Interplay between career orientations and career anchors (RQ 3.3)

To address research question 3.3 regarding the potential interplay with career orientations, the career anchors were compared both with the factors and the clusters discussed in chapter 7.

Interplay between the eight factors and career anchors

First, correlations between career anchors and the eight factors were calculated, as presented in Table 50. Most of the resulting correlations were highly significant. A notable finding was that the “technical/functional competence” and “managerial competence” anchors were clearly correlated in opposite directions on several factors.

		F1 – Org. mobility	F2 – Geographi-cal mobility	F3 – Feedback and learning	F4 – Occupa-tional mobility	F5 – Self-knowledge	F6 – Self-direction	F7 – Working beyond org. boundaries	F8 – Rejection of career opp.
Technical and Functional Com-petence (TF)	Pearson Correlation	-0.218**	-0.204**	-0.097**	-0.424**	-0.018	-0.035	-0.272**	0.003
	Sig. (two -tailed)	0.000	0.000	0.000	0.000	0.507	0.207	0.000	0.914
	N	1,324	1,324	1,324	1,324	1,324	1,324	1,324	1,324
Managerial Com-petence (MC)	Pearson Correlation	-0.074**	0.204**	0.374**	0.193**	0.113**	0.005	0.306**	-0.019
	Sig. (two -tailed)	0.007	0.000	0.000	0.000	0.000	0.844	0.000	0.490
	N	1,324	1,324	1,324	1,324	1,324	1,324	1,324	1,324
Geographical Security (GS)	Pearson Correlation	-0.174**	-0.678**	-0.119**	-0.170**	-0.060*	-0.026	-0.253**	0.093**
	Sig. (two -tailed)	0.000	0.000	0.000	0.000	0.030	0.340	0.000	0.001
	N	1,324	1,324	1,324	1,324	1,324	1,324	1,324	1,324
Job Security (JS)	Pearson Correlation	-0.467**	-0.150**	-0.015	-0.084**	0.101**	-0.037	-0.034	-0.052
	Sig. (two -tailed)	0.000	0.000	0.593	0.002	0.000	0.173	0.221	0.059
	N	1,324	1,324	1,324	1,324	1,324	1,324	1,324	1,324
Security and Stability (SS)	Pearson Correlation	-0.381**	-0.579**	-0.095**	-0.170**	0.011	-0.040	-0.204**	0.040
	Sig. (two -tailed)	0.000	0.000	0.001	0.000	0.688	0.150	0.000	0.143
	N	1,324	1,324	1,324	1,324	1,324	1,324	1,324	1,324
Entrepreneurial Creativity (EC)	Pearson Correlation	0.099**	0.269**	0.213**	0.249**	0.054*	0.074**	0.206**	0.066*
	Sig. (two -tailed)	0.000	0.000	0.000	0.000	0.049	0.007	0.000	0.016
	N	1,324	1,324	1,324	1,324	1,324	1,324	1,324	1,324
Autonomy and Independence (AI)	Pearson Correlation	0.147**	0.043	0.027	0.123**	0.053	0.172**	0.073**	0.077**
	Sig. (two -tailed)	0.000	0.117	0.328	0.000	0.056	0.000	0.008	0.005
	N	1,324	1,324	1,324	1,324	1,324	1,324	1,324	1,324
Service and Dedication (SD)	Pearson Correlation	-0.110**	-0.029	0.325**	0.132**	0.148**	0.173**	0.206**	0.057*
	Sig. (two -tailed)	0.000	0.297	0.000	0.000	0.000	0.000	0.000	0.038
	N	1,324	1,324	1,324	1,324	1,324	1,324	1,324	1,324
Pure Challenge (PC)	Pearson Correlation	0.017	0.140**	0.310**	0.045	0.180**	0.156**	0.187**	0.138**
	Sig. (2-tailed)	0.532	0.000	0.000	0.098	0.000	0.000	0.000	0.000
	N	1,324	1,324	1,324	1,324	1,324	1,324	1,324	1,324
Lifestyle (LS)	Pearson Correlation	0.036	-0.089**	-0.065*	0.102**	0.131**	0.223**	-0.016	0.185**
	Sig. (2-tailed)	0.194	0.001	0.018	0.000	0.000	0.000	0.561	0.000
	N	1,324	1,324	1,324	1,324	1,324	1,324	1,324	1,324

*. Correlation significant (p<0.05; two-tailed) / **. Correlation significant (p<0.01; two-tailed)

Table 50: Correlations between career anchors and career orientation factors

Whilst those with a strong managerial anchor appeared to score highly on geographical and occupational mobility, on feedback and learning as well as on the willingness to work with people beyond their organizational boundaries, those with a strong technical anchor expressed exactly opposite preferences. Looking at the correlations more broadly, two groups of career anchors emerged with almost opposite correlations on most factors. One group consisted of the "technical/functional competence" and both security anchors. The other group comprised the "managerial competence", "entrepreneurial creativity", "service and dedication", and "pure challenge". This might have implications for HRM practices in organizations (see section 10.2.1.3).

From a factor perspective, organizational, geographical and occupational mobility were not the only factors strongly negatively correlated with the security anchors, as may have been assumed; such a negative correlation also appeared with the "technical/functional competence" anchor. This is notable given that IT professionals are often believed to be highly organizationally and geographically mobile (see section 2.3.5). Conversely, the mobility factors were mainly positively correlated with the anchors associated with management, entrepreneurship, and – to a lesser degree – challenge.

The three "protean" factors were similarly correlated with the career anchors. However, whilst most correlations were quite strong for factor 3 (feedback and learning), the correlations for self-knowledge and self-direction were less accentuated. However, the strong correlation between self-direction and the "lifestyle" anchor seems noteworthy. Factor 7 (working beyond organizational boundaries), again, matched the pattern of the physical mobility factors well, showing high positive correlations with the managerial anchor and strong negative correlations with the technical anchor. Finally, factor 8 (rejection of career opportunities) did not differentiate those with a managerial or a technical preference. Nevertheless, especially the positive correlations with the "pure challenge" and "lifestyle" anchors are worth highlighting.

Interplay between the three clusters and career anchors

As a next step, differences between the three clusters were analyzed with one-way ANOVA Scheffe post hoc tests. For each cluster, significant findings ($p<0.05$) are described in the paragraphs below. Figure 15 provides a graphical comparison of the average scores per anchor for each cluster.

Protean career architects scored significantly higher than the other clusters on the four anchors “autonomy and independence”, “service and dedication”, “pure challenge” and “lifestyle”. Compared with solid citizens, respondents in this cluster showed significantly higher scores on “entrepreneurial creativity” and “managerial competence” but significantly lower scores on “technical/functional competence”, “geographical security” and “job security”. In comparison with roamers, protean career architects had significantly higher scores on “geographical security” but lower scores on “managerial competence”.

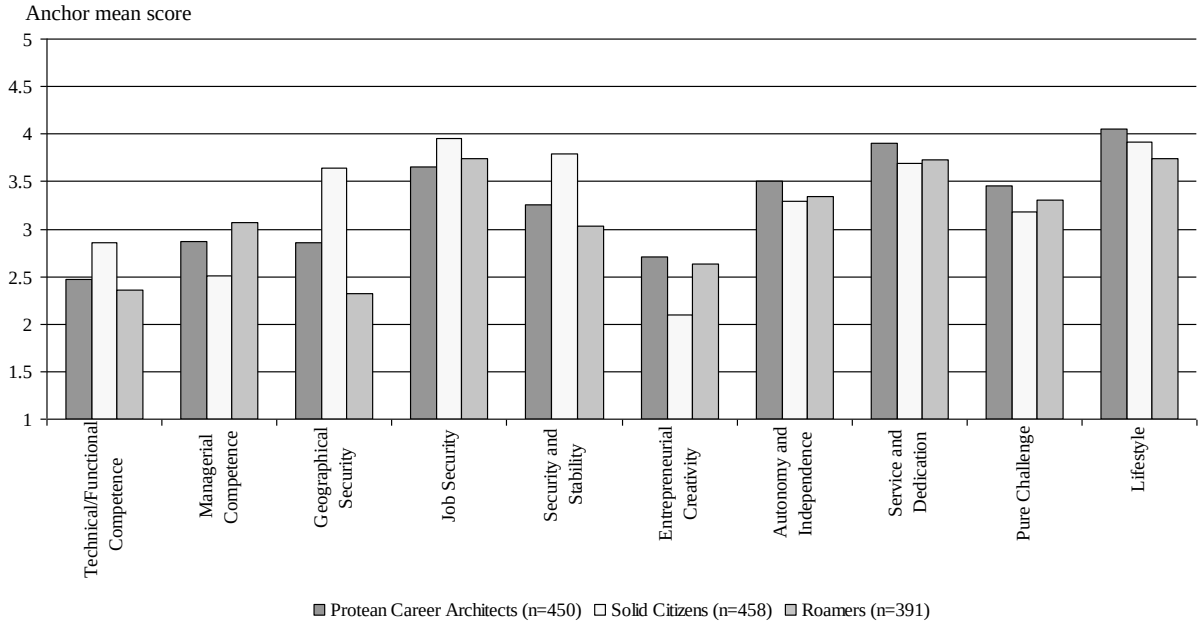


Figure 15: Career anchors – Comparison of the three clusters

Solid citizens scored significantly higher than both other clusters on “technical/functional competence”, “geographical security” and “job security”. Also, “lifestyle” was ranked significantly higher than by the roamers. “Managerial competence” and “entrepreneurial creativity”, however, were both ranked significantly lower than in the other two clusters. In addition, “autonomy and independence”, “service and dedication”, “pure challenge” and “lifestyle” also scored significantly lower compared with protean career architects.

Roamers, finally, had significantly higher scores on managerial competence than respondents in both other clusters and higher scores on “entrepreneurial creativity” than solid citizens. “Geographical security” and “lifestyle” were rated significantly lower than in both other clusters whilst “pure challenge”, “autonomy and independence” and “service and dedication” were scored significantly lower than amongst protean career architects. “Job security” and “technical/functional competence” both were rated significantly lower than amongst solid citizens.

8.2.2.4 Conclusions from the career anchor results

The analysis of the career anchor data revealed numerous findings regarding the nature of the anchors and the correlations amongst them, as well as their interplay with a broad variety of other variables.

Regarding research question 3.1, five anchors, namely “lifestyle”, “job security”, “service and dedication”, “autonomy and independence” and “pure challenge”, appeared as particularly relevant for the participants in this study. “Managerial competence”, “technical/functional competence” and “entrepreneurial creativity” were the three anchors with the lowest scores.

When addressing research question 3.2, the link between career anchors and other variables mainly corresponded with what may have been expected based on the conceptual description of each anchor. The results also provided empirical evidence that individuals with different anchor preferences actually behave differently in their careers. For example, over the past five years before the survey, respondents with high scores on the “geographical security” anchor had relocated significantly less than those who did not rate that anchor highly.

A comparison with the career orientation clusters, as called for by research question 3.3, generally matched well with the characteristics of the factors and clusters described in chapter 7. For example, solid citizens appeared as the cluster with the highest scores on “technical/functional competence”, “geographical security” and “job security”, which clearly corresponded with the previously revealed characteristics of the cluster.

More generally, two particularly notable points emerged from the career anchor results. First, it repeatedly appeared that certain groups of career anchors showed very similar correlations or ANOVA results. “Technical/functional competence” and “geographical security” had highly similar scores in many of the analyses. Likewise, scores of the “managerial competence” and “entrepreneurial creativity” anchors were often in line. Regarding “service and dedication”, “lifestyle”, “autonomy and independence”, and “job security”, the results were much less clear and appeared to be more nuanced depending on the comparison made.

This leads to the second notable general finding regarding career anchors: “managerial competence” and “technical/functional competence” repeatedly emerged as very opposed anchors with regard to various variables. The preference for either a technical or a manage-

rial career path seems to differentiate individuals substantially. However, when looking at the scores of these anchors, they were amongst the weakest in the sample (see Figure 13), whilst anchors that did not differentiate clearly regarding other variables scored much higher. So, on the one hand, anchors with low average scores in this sample appeared as key to understanding differences in the sample with regard to various variables. On the other hand, the anchors with the highest scores in the sample seemed to be much more equally distributed across the participants. These points both call for further discussion and potential explanations (see section 9.3).

First, however, in the next section the findings regarding career management tools are presented as the third and final part of this results chapter.

8.3 Career management tools – Data analysis and results

This section covers the data analysis and the results regarding the career management tools and addresses the corresponding research questions. Research question 4.1 asked which career management tools were regarded as the most useful and were most readily available to IT professionals in Europe. Research question 4.2 focused on the interplay between the perceived usefulness of career management tools and demographic characteristics. Lastly, research question 4.3 investigated the interplay between preferences for career management tools and individual career orientations.

8.3.1 Data analysis

In the first survey, respondents were presented with a list of 19 commonly used career management tools. They had to select those five tools they felt would be most useful to them, as well as those five tools that were most easily available to them (see section 6.3.3). For the data analysis, only participants with valid responses were included in the sample. 22 participants who had not indicated at least one career management tool as either useful or available were excluded. This resulted in a sample size of n=1,686 for subsequent analyses. In addition to various descriptive analyses, such as frequencies, several Chi-Square tests were performed to address the research questions related to the career management tools. The findings of these analyses are presented in the next section.

	Tool useful (total)	Tool available (total)	*Tool useful, and available*	*Tool useful, but not available*	*Tool not useful, but available*
Career coaching (e.g. individual coach for developing certain skills)	507	89	*34*	*473*	*55*
Career counselling (e.g. option to get individual advice on personal career development)	359	84	*18*	*341*	*66*
Career workshops (e.g. sessions about self-management)	175	44	*10*	*165*	*34*
Clear criteria for advancement (e.g. transparent and freely accessible definitions of promotion criteria)	595	141	*56*	*539*	*85*
Clear description of career paths and job levels (e.g. transparent and freely accessible descriptions of internal IT career paths)	371	273	*63*	*308*	*210*
Formal career discussions (e.g. mid-year and year-end discussions with line manager)	274	350	*74*	*200*	*276*
Formal feedback (e.g. regular 360° feedback from managers, peers, clients and team members)	300	661	*153*	*147*	*508*
Functional/technical skills training (e.g. course on a programming language or a hardware component)	754	680	*364*	*390*	*316*
Informal career discussions (e.g. option to discuss career issues outside the formal mid-year and year-end review)	344	412	*116*	*228*	*296*
Informal feedback (e.g. spontaneous praise or criticism from managers, peers, clients or team members)	531	745	*268*	*263*	*477*
Interpersonal skills training (e.g. course on conflict-solving)	392	268	*79*	*313*	*189*
Mentoring programme (e.g. option to be assigned to an internal mentor or to become a mentor oneself)	452	208	*56*	*396*	*152*
Online networking/communities (e.g. option to discuss career issues online with a group of IT professionals in a similar position or with similar interests)	149	272	*59*	*90*	*213*
On-the-job learning opportunities (e.g. opportunity to develop new skills through active participation in a new project)	939	823	*531*	*408*	*292*
Outplacement (e.g. support to find a new position outside the current organization)	94	47	*6*	*88*	*41*
Performance appraisal (e.g. yearly discussion with manager about individual performance and goal achievement)	580	1,167	*440*	*140*	*727*
Personal development plans (e.g. yearly revised plan on personal development activities)	733	673	*295*	*438*	*378*
Temporary assignments/secondments (e.g. international assignment or job rotation to another function)	350	182	*44*	*306*	*138*
Transparent internal job market (e.g. option to apply for all internally available positions)	420	654	*171*	*249*	*483*

n=1,686; multiple answers were possible

Table 51: Career management tools (frequencies)

8.3.2 Results

The following sections provide details of the career management tool results and address the corresponding research questions. It is important to bear in mind that survey participants could not select more than five tools. All analyses are therefore based on a maximum of five items selected per respondent and need to be interpreted accordingly.

8.3.2.1 Usefulness and availability of career management tools (RQ 4.1)

As a first step, various types of frequencies were calculated for each of the 19 tools. As shown in Table 51, a distinction was made between three groups of respondents: first, those who felt that a particular tool was both useful and available to them; second, respondents who thought a particular tool would be useful to them but who did not have access to it; and third, respondents who had access to a particular tool but did not perceive it as useful. Table 51 also provides brief descriptions for each of the tools, exactly as they were available to the respondents in the survey.

Based on Table 51, the perceived usefulness of each tool was contrasted with its availability to the respondents. Figure 16 provides that comparison, showing which tools were perceived as the most useful ones. Figure 17 gives a different perspective on the same data. It shows the list sorted based on the availability of the tools.

Overall, on-the-job learning opportunities were considered as the most useful career management tool. Functional/technical skills training and personal development plans were rated as the next most useful tools. For all three of them, the perceived usefulness matched well with their availability. The fourth and fifth most frequently named tools, however, showed major gaps between perceived usefulness and availability. Clear criteria for advancement were considered to be highly useful but they were much less available. Conversely, performance appraisals appeared to be widely available whilst respondents rated their usefulness much lower. Outplacement, online communities and career workshops were ranked as the three least useful career management tools. It was noteworthy that informal feedback and informal career discussions were both considered to be more useful than feedback and career discussions in pre-defined, formal settings. Also, it appeared that functional/technical skills training was regarded as much more useful than interpersonal skills training.

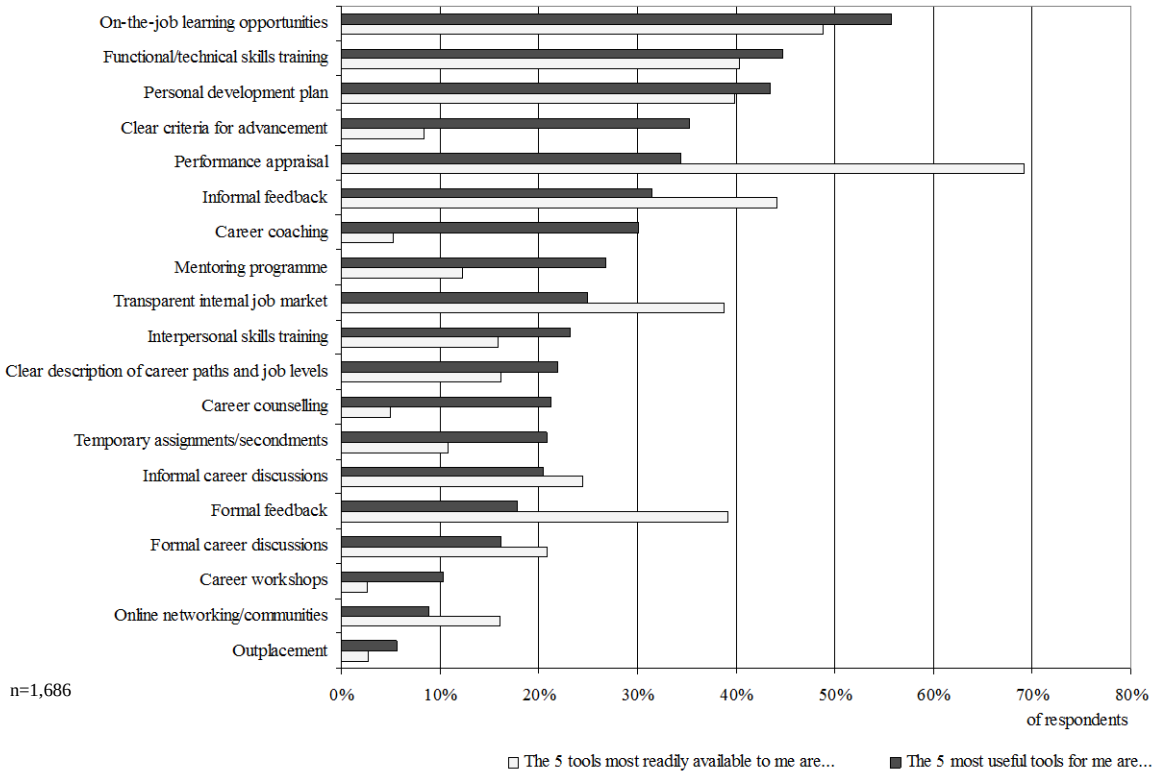


Figure 16: Career management tools – Frequencies, sorted based on perceived usefulness

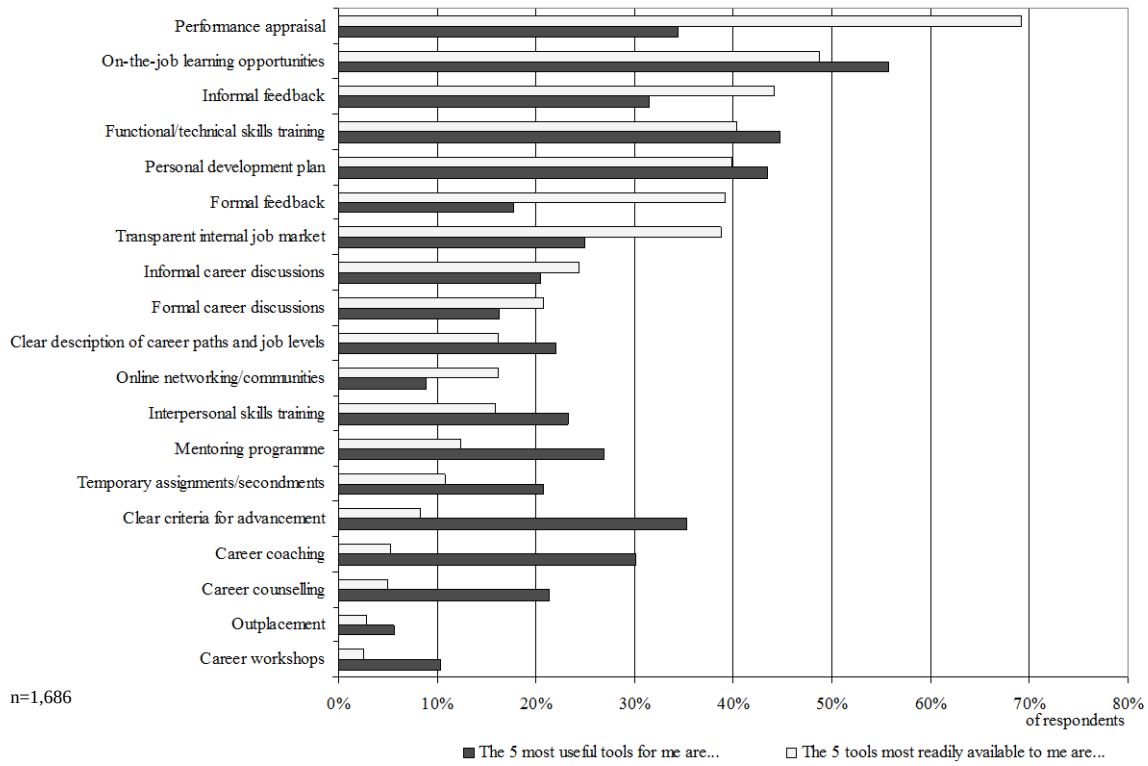


Figure 17: Career management tools – Frequencies, sorted based on availability

In Figure 17, the high availability of performance appraisals and their much lower perceived usefulness are clearly visible again. Further, this view shows that the eight career management tools with the least availability were all considered to be much more useful than available. All of them have substantial gaps between relatively high perceived usefulness and relatively low availability.

To explore such gaps further, an additional view was created. Figure 18 presents the differences between perceived usefulness and availability of the career management tools in a different way. Rather than looking at the totals of perceived usefulness and availability, only the gap between them is displayed. A negative value indicates that a tool was perceived as more useful than available. Vice versa, positive values indicate that the availability of a tool was higher than its perceived usefulness.

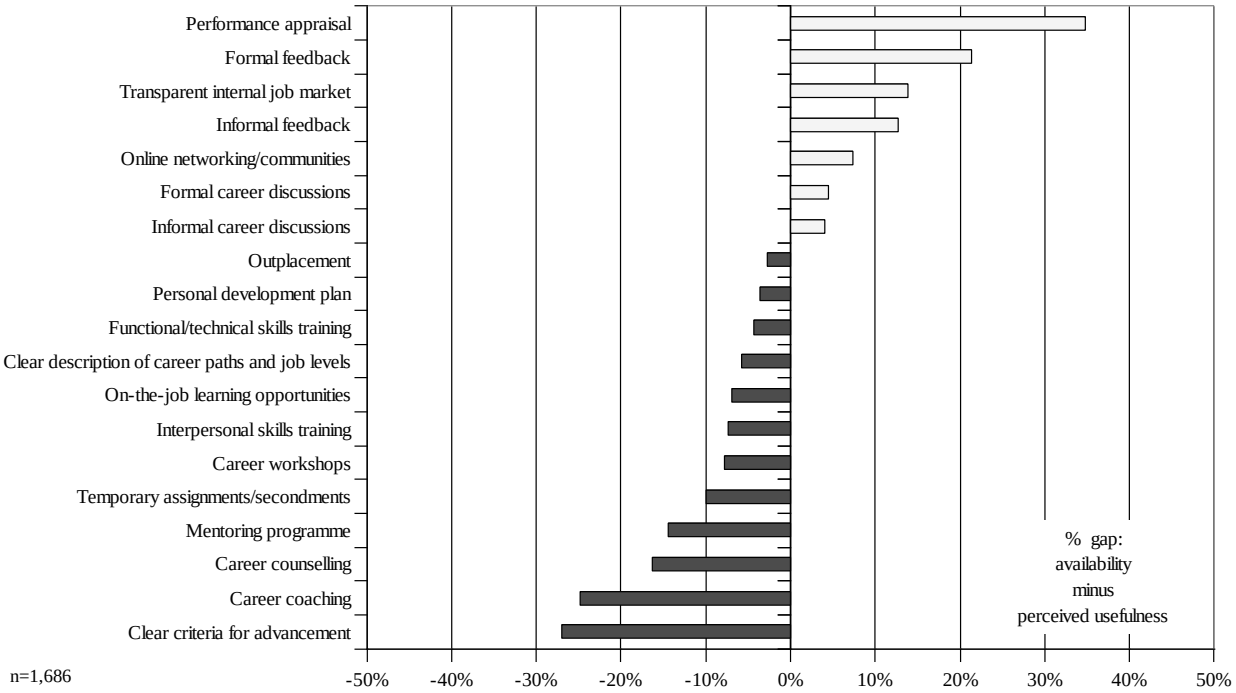


Figure 18: Career management tools – Differences between perceived usefulness and availability

The largest gap between high perceived usefulness and low availability emerged with regard to clear criteria for advancement. This may imply that the participating organizations only partially met the respondents' expectations regarding clarity of their future career paths. It is therefore notable that the gap for technical/functional training was quite small. This indicates that the amount of (costly) training seemed to correspond well with what these IT professionals considered as useful. Looking at Figure 18 more generally, it appeared that more standardized tools, such as performance appraisals, formal feedback or

internal job markets, were perceived as clearly more available than useful. In contrast, tools such as career counselling, career coaching or mentoring, all of which provide highly individualized support, showed distinct differences between relatively high perceived usefulness and relatively low availability.

In all the figures above, however, one crucial piece of information is lacking. It is not clear whether the individuals who felt a particular tool was useful to them actually had access to it. Likewise, none of the figures above indicates whether the individuals who had access to a particular tool were also those who felt that it was useful. This point is addressed in the next two figures.

Unlike the figures above, Figure 19 does not compare frequencies of perceived usefulness between the 19 tools. Rather, amongst those participants who selected a particular tool, a distinction is made between those who felt this tool was both useful and available to them, and those who thought it was useful but not available. Figure 20 provides the corresponding view with regard to availability. It shows the ratio between those who indicated that a particular tool was both available and useful to them and those who had access to that tool without considering it as useful.

Figure 19 shows that performance appraisals, on-the-job learning opportunities, as well as both formal and informal feedback, were all considered as useful and available by at least 50% of the respondents who selected these career management tools amongst their five most useful ones. Remarkably for IT professionals, technical skills training appeared not to be available to slightly more than half of the respondents who indicated that it would be useful to them. This picture was even more accentuated for tools that provide highly individualized support, such as career counselling, coaching, outplacement, or mentoring. Those who felt such a tool would be useful to them without having access to it far outnumbered those who thought it was both useful and available. A similar situation could be observed for those who felt clear criteria for advancement would be useful to them. In brief, the majority of the respondents did not seem to have the tools available that they considered useful.

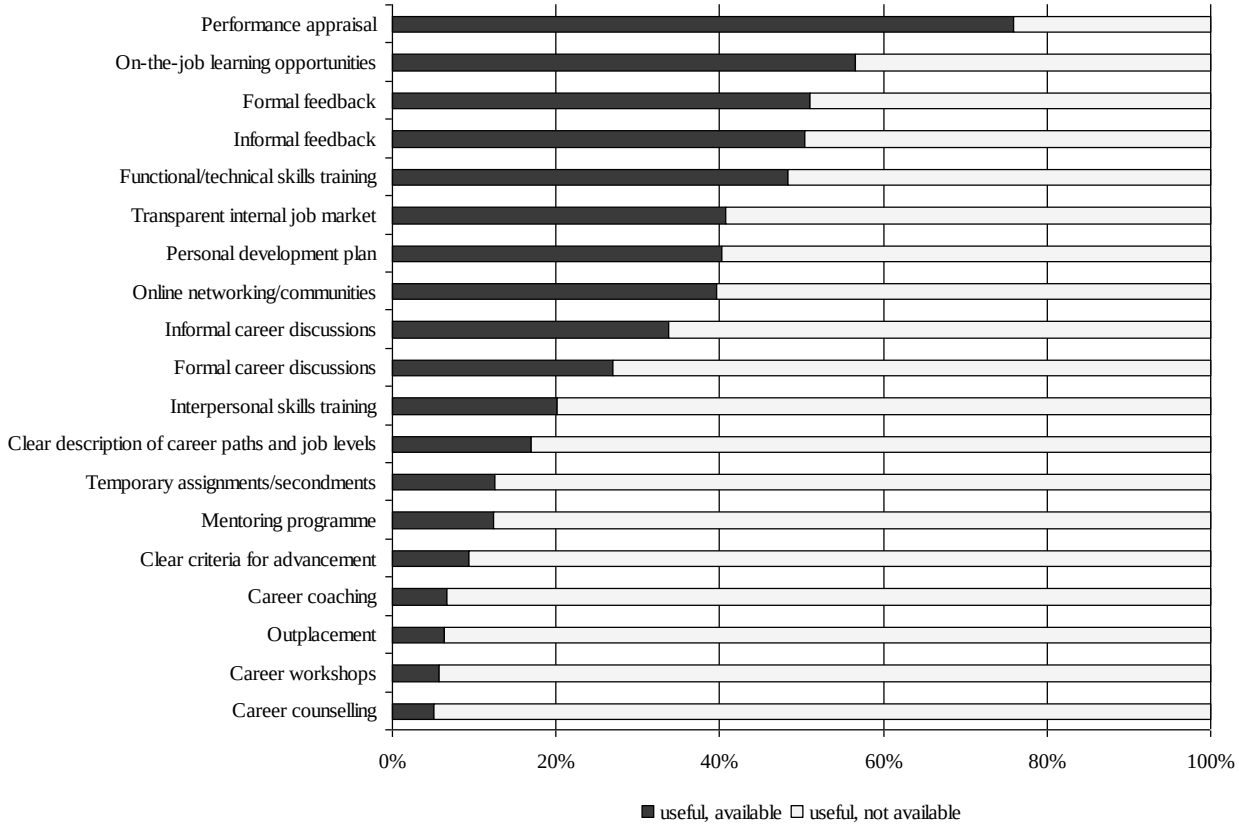


Figure 19: Career management tools – Perceived usefulness compared with availability

(Only covers respondents who included a particular tool in the list of their five most useful tools)

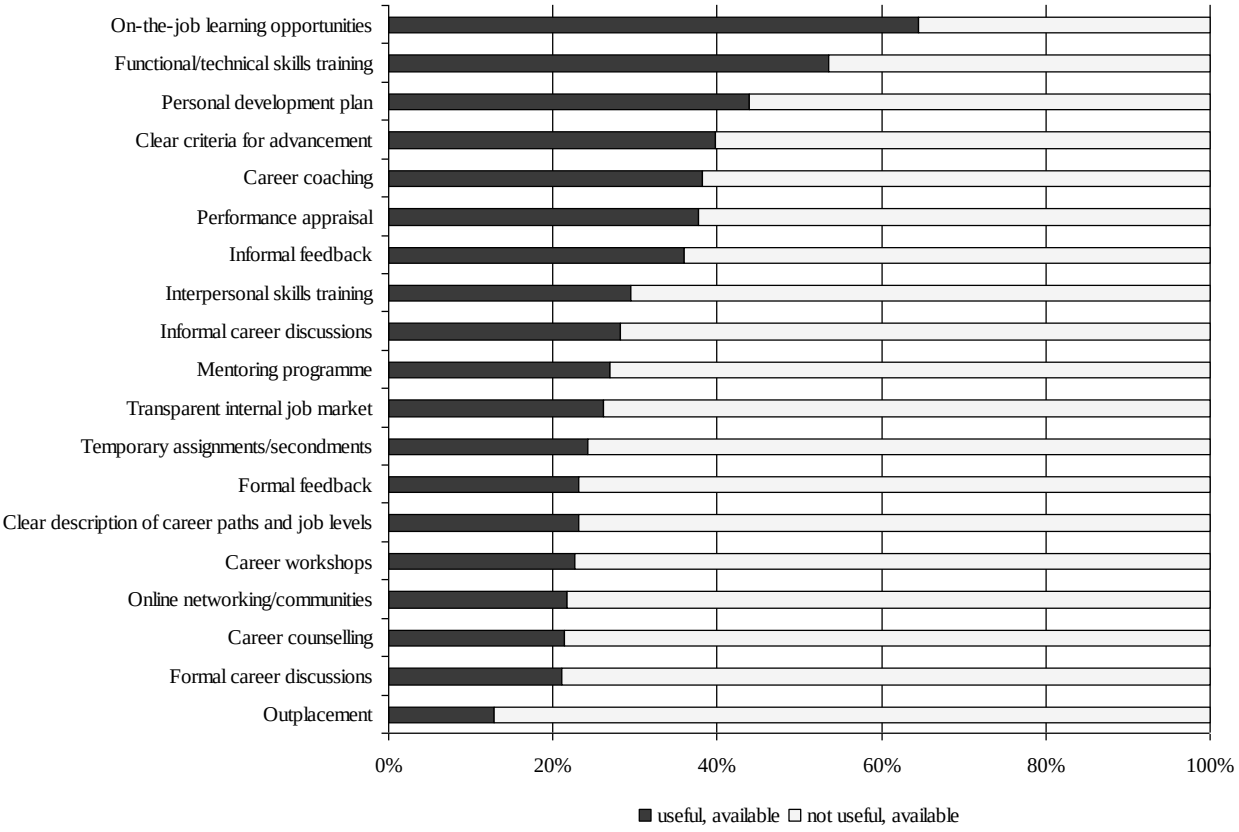


Figure 20: Career management tools – Availability compared with perceived usefulness

(Only covers respondents who included a particular tool in the list of their five most available tools)

Figure 20 provides similar noteworthy findings. Of all 19 tools, only on-the-job learning opportunities and functional/technical skills training were perceived as useful by a majority of those who had access to them. In other words, most career management tools did not seem to be perceived as very useful by those employees who had access to them. When comparing Figure 19 and Figure 20, there seemed to be major gaps in the perceptions of those with access to a particular tool and those without access. For example, mentoring programmes were available to only about 10% of those respondents who thought mentoring would be useful. However, about 75% of those who indicated that they had access to mentoring did not feel it was useful. A similar picture could be found for most other tools. However, before potential reasons and implications of this finding are discussed, the interplay between the career management tools and several other variables is examined.

8.3.2.2 Interplay between demographic characteristics and career management tools (RQ 4.2)

Regarding research question 4.2, preferences for the 19 career management tools were compared with various characteristics of the respondents. Table 52 provides an overview of the significant relationships based on Chi-Square tests ($p<0.05$, two-tailed). Some key findings are covered below. Cluster membership is described separately in the next section. For each significant relationship, details are provided in Appendix 6.

Two criteria emerged as the key differentiators regarding preferences for career management tools: an individual's employing organization and his/her career satisfaction. For 16 out of 19 career management tools, employees in the various organizations significantly differed in their view of whether or not a particular tool was useful. Current career satisfaction also appeared to play a major role regarding the perceived usefulness of a particular tool. Individuals with low satisfaction favoured tools like outplacement, transparent job markets, clear descriptions of career paths and clear criteria for advancement. However, those satisfied with their careers had different preferences. They considered tools like performance appraisals, personal development plans, both formal and informal feedback and interpersonal skills training as substantially more useful than their dissatisfied peers. This might imply that respondents who were dissatisfied with their careers tended to look outward, favouring tools which provide clear guidance on how their situation might be changed. Satisfied individuals, in contrast, seemed to take more responsibility for proactively developing their careers.

	Age (n=1,487)	Career outlook (n=1,669)	Career satisfaction (n=1,675)	Nationality (n=1,638)	Cluster (n=1,316)	Educational quali-fication (n=1,672)	Dependents (n=1,686)	Gender (n=1,661)	Hierarchical position (n=1,676)	Mmgt vs. specialist career (n=1,663)	Organization (n=1,686)
Career coaching			0.000					0.031		0.000	0.009
Career counselling				0.000							0.000
Career workshops											0.002
Clear criteria for advancement		0.000	0.006		0.015	0.000		0.044			0.025
Clear description of career paths		0.000	0.000	0.000		0.011					0.000
Formal career discussions	0.035				0.024					0.003	0.030
Formal feedback		0.000	0.030			0.008			0.011		
Functional/technical skills training				0.000					0.000	0.000	0.000
Informal career discussions						0.011					0.027
Informal feedback			0.043			0.000		0.003			0.000
Interpersonal skills training			0.009								0.013
Mentoring programme		0.049			0.000	0.035			0.009	0.000	0.000
Online networking/communities				0.018				0.033		0.000	
On-the-job learning opportunities			0.001		0.008				0.011	0.000	0.000
Outplacement			0.000	0.040	0.000						0.049
Performance appraisal		0.001	0.000	0.012		0.049					
Personal development plan		0.004	0.028	0.000		0.034				0.001	0.001
Temporary assignments/secondm.				0.001	0.046						0.000
Transparent internal job market		0.015	0.031								0.000

Table 52: Usefulness of career management tools compared with other variables (χ^2 significance levels)

Other variables, such as career outlook, nationality, the highest educational qualification achieved or the hierarchical position, appeared to make a difference in the preferences for some tools. Yet, the number of significant relationships was clearly lower than for organizational membership and career satisfaction. With regard to preferences for managerial or specialist career paths, those with a preference for a managerial career indicated that career coaching, formal career discussions, mentoring programmes and personal development plans were significantly more useful to them than did those with a preference for a specialist career. However, those individuals said significantly more frequently that functional/technical skills training, online networking, and on-the-job training were useful to them.

Age did not appear to make a great difference whether or not a particular tool was considered as useful. Only formal career discussions were considered as significantly more useful by respondents aged between 36 and 45, compared with both their younger and older peers.

Also, gender was not a major differentiator with regard to perceived usefulness of career management tools. Men found informal feedback and online communities significantly more useful than women. On the contrary, female respondents significantly more often indicated that career coaching and clear criteria for advancement were useful to them. As may have been expected, the fact whether or not someone had children did not seem, at all, to be reflected in their preference for career management tools.

In addition to these demographic variables, preferences for career management tools were also compared with individuals' career anchor scores. 1,619 participants met all the necessary criteria for these analyses. As shown in Table 53, the "technical/functional competence", "managerial competence", "geographical security" and "job security" anchors accounted for most of the significant differences regarding individuals' perceived usefulness of career management tools. Preferences of respondents with a strong technical anchor were often the opposite of those with a strong managerial anchor, which was in line with the previous findings regarding career anchors (see section 8.2.2). For example, scores on the "technical/functional competence" anchor were significantly positively related to the frequency in which functional/technical skills training and on-the-job learning opportunities were considered as useful tools. Mean scores on the "managerial competence" anchor were negatively correlated with perceived usefulness of these tools. In contrast, high scores on the "managerial competence" anchor were significantly positively associated with a high perceived usefulness of mentoring programmes and career coaching. However, mean scores on the "technical/functional competence" anchor were negatively related to the perceived usefulness of these tools. Notably, no significant relationship could be found on which respondents with high scores on either of these two anchors had similar career management tool preferences.

Those with high scores on "geographical security" ranked the usefulness of various tools in a very similar way compared with individuals with a strong "technical/functional competence" anchor. Conversely, significant relationships with the "entrepreneurial creativity" anchor were mainly in line with the corresponding findings for the "managerial competence" anchor. Namely, those with high scores on the entrepreneurial anchor ranked career coaching as highly useful whilst they did not consider functional/technical training as useful for them. Interestingly, the significant relationships of the "job security" anchor did not clearly correspond to those of any other anchor. "Lifestyle", "autonomy and independence" and "pure challenge" all only accounted for a few significant relationships. However, no clear pattern could be detected there, either.

	TF	MC	GS	JS	EC	AI	SD	PC	LS
Career coaching	0.001/-	0.000/+	0.017/-		0.001/+		0.003/+		
Career counselling			0.024/+					0.001/-	
Career workshops							0.015/+		
Clear criteria for advancement		0.006/+		0.000/+					
Clear description of career paths	0.001/+			0.001/+					
Formal career discussions		0.000/+	0.027/-						
Formal feedback		0.023/+					0.001/-		
Functional/technical skills training	0.000/+	0.000/-	0.005/+	0.004/+	0.000/-		0.006/-		
Informal career discussions				0.017/-					
Informal feedback				0.001/-					
Interpersonal skills training			0.002/+	0.030/-				0.016/-	
Mentoring programme	0.000/-	0.000/+	0.000/-	0.000/-	0.006/+			0.001/+	0.007/-
Online networking/communities	0.001/+	0.001/-	0.034/+			0.003/+			
On-the-job learning opportunities	0.000/+	0.000/-	0.000/+		0.008/-				
Outplacement	0.001/-		0.000/-	0.001/-	0.046/+				
Performance appraisal									0.043/-
Personal development plan		0.007/+		0.018/+			0.000/+		
Temp. assignments/secondments	0.003/-		0.009/-						
Transparent internal job market	0.014/-			0.022/+	0.046/-		0.016/-		

+: positive relationship -: negative relationship
n=1,619

Table 53: Perceived usefulness of career management tools compared with career anchor scores

(independent t-test significance levels, two-tailed)

Finally, from a tool perspective, some characteristics of individuals with a preference for a certain tool could be outlined. For example, on-the-job learning opportunities were considered as significantly more useful by those with high scores on “technical/functional competence” and low scores on “managerial competence”. Similarly, functional/technical skills training was mainly favoured by individuals with high scores on “technical/functional competence” and low scores on “managerial competence” and “entrepreneurial creativity”. Interestingly, “interpersonal skills training” did not appear to be perceived as the simple opposite of technical training. In particular, there was no significant relationship either to “technical/functional competence” or “managerial competence”.

For career coaching, the findings were exactly the opposite as those for functional/technical skills training. Also, mentoring was considered as significantly more useful by individuals with high scores on “managerial competence” and low scores on “technical/functional competence”, “geographical security” as well as “job security”.

8.3.2.3 Interplay between career orientations and preferences for career management tools (RQ 4.3)

In order to address research question 4.3, differences between the three career orientation clusters regarding their preferences for career management tools were explored, as indicated in Table 52. The paragraphs below describe significant findings, based on Chi-Square tests ($p<0.05$, two-tailed).

Protean career architects considered mentoring programmes, on-the-job learning opportunities, and outplacement as significantly more useful than the other two clusters. Conversely, considerably fewer protean career architects than what would have been expected statistically indicated that formal career discussions and clear criteria for advancement were useful to them.

Solid citizens indicated a significantly higher usefulness than statistically expected for on-the-job learning opportunities and clear criteria for advancement. Formal career discussions, mentoring programmes, outplacement, and temporary assignments were selected substantially less frequently compared with what would have been expected statistically.

Roamers, finally, indicated a substantially lower preference for on-the-job learning opportunities than the other two clusters. However, the numbers of roamers who indicated formal career discussions, mentoring programmes, temporary assignments, clear criteria for advancement and outplacement as useful, were substantially higher than the statistically expected numbers.

In general, protean career architects appeared to appreciate forms of organizational support in which individuals may play an active role, for example, in mentoring. Solid citizens seemed to favour especially tools with a clear technical, job-related focus. Roamers, finally, appeared to perceive tools as useful which either offer individuals job mobility or provide organizational guidance. Job-related tools were perceived as less useful. In brief, the way individuals indicated their perceived usefulness of various career management tools matched reasonably well with the characteristics of the three clusters found in both surveys and the interviews (see section 7.5).

8.3.2.4 Conclusions from the career management tool results

The examination of various career management tools provided rich and detailed results about the perceived usefulness and the availability of these tools as well as regarding their interplay with various demographic characteristics and individual career orientations.

Research question 4.1 asked for those career management tools that were most useful to IT professionals. On-the job learning opportunities, functional/technical skills training and personal development plans were perceived as the three most useful tools. With regard to availability, performance appraisals, on-the-job learning opportunities and informal feedback were the three most widely available tools. However, one striking finding was that those who had access to a particular tool mostly did not perceive it as useful. Only on-the-job learning opportunities and functional/technical skills training were considered as useful by more than half of those who had access to these tools.

With regard to research question 4.2, the interplay between various demographic variables and preferences for career management tools was analyzed. It appeared that organizational membership and career satisfaction were the variables that accounted by far for the most significant relationships with career management tools. This means that individuals' assessments regarding the usefulness of career management tools seemed to differ clearly depending on their level of career satisfaction and the organization they worked for. In contrast, variables such as age, number of children, or gender hardly accounted for significant differences. Preferences for career management tools were therefore fairly equally distributed across age groups, men and women, as well as those with or without children. Career anchors were also taken into account. In particular, the "technical/functional competence", "managerial competence" and the two security anchors accounted for many significant relationships. Individuals with differences on these anchors also seemed to find different types of career management tools useful. For example, technically oriented individuals tended to rate on-the-job experience and technical training highly and did not regard mentoring or coaching as very useful. Those with high scores on "managerial competence", however, rated these tools exactly in the opposite way.

Finally, the three career orientation clusters were linked with preferences for career management tools. Although cluster membership did not account for as many significant differences as did career satisfaction or organizational membership, some clear differences between the three clusters could be found. These differences all matched well with the characteristics revealed earlier in this study. For example, solid citizens expressed the

highest preference for technical, job-related tools and a low preference for tools that may make job mobility necessary, such as temporary assignments. Roamers, on the contrary, indicated a high preference for temporary assignments as well as for tools with strong organizational support, such as clear criteria for advancement.

Overall, whilst some career management tools were clearly perceived as more useful than others, the interplay between preferences for them and other variables was complex and did, in particular, differ substantially between organizations. Further, the findings indicate that many individuals did not seem to perceive as useful those career management tools that are available to them. These aspects need further consideration and discussion (see section 9.4).

8.4 Summary

In this chapter, individual career success definitions, career anchor scores and both perceived usefulness and availability of career management tools were examined in detail.

It appeared that most participants defined career success in highly individual ways, often referring to various themes. One striking finding was that the majority of the definitions exclusively referred to subjective career success criteria and did not include the typical proxies for objective career success, remuneration and hierarchical advancement. With regard to career anchors, it was remarkable that “technical/functional competence” and “managerial competence” scored very low despite the fact that most IT organizations rely on the dichotomization between specialists and managers. Yet, other anchors, such as “lifestyle”, “autonomy and independence”, “service and dedication” but also “job security”, appeared to be of much higher relevance to the respondents. Lastly, various career management tools were examined. On-the-job learning opportunities were the tool most participants considered to be useful and performance appraisals were the tool most available to them. The data revealed that, generally speaking, more individualized tools appeared to be lacking in organizations whilst standardized tools were well available but hardly considered as highly useful.

In addition, for the success definitions, career anchors and preferences for career management tools, the interplay with various variables and demographic characteristics as well as with the three career orientations clusters was explored. Based on a wealth of detailed findings from these analyses, four noteworthy observations could be made, as follows:

First, the distinction between those with a preference for either managerial or specialist career tracks repeatedly resulted in significant but opposite relationships with regard to various variables – be it in terms of preferences for certain career management tools, definitions of career success, or scores on the "technical/functional competence" and "managerial competence" anchors. It appeared that the distinction between these two career tracks may be useful and highly relevant to distinguish two groups of employees with different needs and preferences. However, the finding that both the "technical/functional competence" and the "managerial competence" anchors scored low in the sample, despite the apparently meaningful distinction they make, requires further discussion.

Second, organizations appeared as a key differentiator with regard to career success definitions, career anchors, and career management tools. Other variables, such as age or gender, did not result in as many significant differences as did organizational membership. In all three analyses, this variable accounted either for the most or the second most significant relationships, which means that individuals in each organization appeared to view the three different themes very differently. This highlights the relevance of organizations as a distinct level of analysis, as argued for in this study, and requires further discussion as well.

Third, despite the interplay with various additional variables, it appeared that definitions of career success, scores on career anchors, as well as preferences for certain career management tools, are highly individual. For example, the findings regarding the availability and perceived usefulness of career management tools caution against any simplistic views about which groups of individuals may prefer certain career management tools. Rather, in addition to the influence of various demographic criteria, it may be that individuals' exposure to a certain tool may also have an impact on whether it is perceived as useful or not. However, it remains an open question, awaiting further discussion, as to why those who had access to a particular tool and those who did not differed so greatly in their perceptions regarding the usefulness of that tool.

Fourth, the characteristics of the three career orientation clusters as described in chapter 7 were broadly confirmed by the additional analyses. Be it regarding career success, career anchors or preferences for career management tools, the findings from the cluster analysis and the characteristics developed in the qualitative part of the study were supported. Protean career architects appeared as a group with a more managerial rather than specialist career orientation, open to various types of mobility and with a high emphasis on personal values and self-direction. Solid citizens, in line with the interview findings and the cluster

results, were mainly focused on technical rather than managerial topics, and did not favour geographical and occupational mobility. Roamers, ultimately, appeared to be more driven by objective success criteria and to appreciate organizational support more strongly than the other clusters.

Now that all the results are presented, many open questions remain and several of the findings require further discussion. For example, how do the results regarding career orientations, career success, career anchors and career management tools correspond with the current literature? In chapter 9, these questions are covered and discussed in detail.

9 Discussion

This chapter provides a thorough discussion of the study results. The main part of the discussion is dedicated to career orientations – the core theme in this study. Further, the findings regarding career success, career anchors and career management tools are discussed. Each of these sections starts with a brief summary of the findings, as presented in chapters 7 and 8. Finally, whether the various levels of analysis – individual, organizational, industrial/professional, and economic/societal – were useful perspectives in the context of this study, and for the examination of careers in general, is explored.

9.1 Career orientations

This section discusses the career orientation results. First, the findings pertaining to the corresponding research questions are briefly summarized. Then, the eight factors as the core components of career orientations in this study are examined. To follow, the three clusters are compared with Briscoe and Hall's (2006a) suggested classifications of career orientations. In addition, the findings regarding career orientation changes over time are discussed. And finally, conclusions from the eight factors, the three clusters as well as protean and boundaryless career orientations in general are presented.

9.1.1 Summary of the research findings

Based on the protean and boundaryless career concepts, research question 1.1 asked what career orientations may be identified amongst IT professionals in Europe. In the data analysis, three different career orientation clusters were found. They were built on eight factors. Three of these factors ("feedback and learning", "self-knowledge", "self-direction") were anchored in the protean career concept, the other five factors in the boundaryless career concept. Three of the boundaryless factors referred to physical mobility ("organizational mobility", "geographical mobility", "occupational mobility") and two factors focused on psychological mobility ("working beyond organizational boundaries", "rejection of career opportunities for personal reasons"). Individuals' geographical mobility and their willingness to reject career opportunities for personal reasons emerged as the key differentiators between the three clusters. These career orientations appeared to be reasonably stable over time. However, the participants' openness for occupational mobility and their rejection of career opportunities for personal reasons significantly decreased between the first and the second survey.

Research question 1.2 explored the link between the empirically developed career orientations and those suggested by Briscoe and Hall (2006a). Two of the three clusters could clearly be matched with career profiles Briscoe and Hall had described, namely with the "protean career architects" and the "solid citizens". The third cluster, however, did not match any of their profiles. Nevertheless, it shared several characteristics with one of Briscoe and Hall's profiles ("wanderer") in terms of physical and psychological mobility. The third cluster was therefore labelled "roamers" in order to show the distinct, yet related, nature of the two clusters.

Research question 1.3 addressed the interplay between IT professionals' demographic characteristics and their career orientations. Various characteristics of the eight factors and the three clusters were examined and a range of significant, sometimes surprising differences in terms of various demographic variables was revealed. For example, nationality and organizational membership appeared as strong differentiators between factors and clusters. Gender and age, however, did not account for many significant differences.

Finally, research question 1.4 asked what themes could be observed in the career accounts of IT professionals with different career orientations. Addressed in 25 semi-structured interviews, several underlying themes emerged when individuals referred to the eight factors. For example, despite the fact that protean career architects and roamers had a comparable level of geographical mobility, their motives were different. So, several subtle differences between the clusters became apparent which would have gone unnoticed simply by relying on the quantitative data. In general, however, the interviews confirmed the quantitative results. Despite substantial inter-individual differences, the interviewees' narratives matched the patterns discovered in the cluster analysis reasonably well.

In the next sections, these findings are discussed in detail, and they are compared with the corresponding academic literature.

9.1.2 The eight factors

This section sets the stage for the subsequent discussion within this chapter, as it critically examines the eight factors. In Table 54, the key findings for each are summarized. When looking at all eight factors, the key question is how well they represented the original protean and boundaryless concepts.

Factor	Key observations
Factor 1 – Organizational mobility	• The factor included three items that were intended to capture an aspect of physical mobility, and two items with a focus on an aspect of psychological mobility. Hence, the original conceptual distinction between organizational mobility and individual feelings of independence of any one employer in the boundaryless career (Arthur & Rousseau, 1996a) may have been overstated. • Despite the emphasis on inter-organizational mobility in contemporary careers, the surprisingly homogeneous individual scores on this factor implied that it may not be the essential criterion when it comes to explaining differences in physical mobility.
Factor 2 – Geographical mobility	• Geographical mobility emerged as a new factor in this study that had not been empirically confirmed in previous literature. Yet, it appeared to be a strong differentiator between various clusters of career orientations. • Sullivan and Arthur's (2006) conceptual definition of geographical mobility explicitly had an international focus. This view was supported in the interviews. However, it was also revealed that this factor may well have a domestic scope.
Factor 3 – Feedback and learning	• The factor combined items that had originally been intended to capture aspects of the protean and the boundaryless career. This seems to support claims that the two concepts can be regarded as "independent, yet related" constructs (Briscoe, et al., 2006, p. 32). • Further conceptual clarification is required to minimize potential ambiguities regarding the meaning of this factor. In line with Mallon and Walton (2005), the interviewees sometimes perceived learning as technical training, sometimes as self-development. Yet, supporting Beecham et al. (2008), learning was predominantly perceived as motivating and worth striving for.
Factor 4 – Occupational mobility	• Occupational mobility also emerged as a new, distinct factor in this study on which many individuals scored highly. Yet, the findings showed that past experience of occupational mobility may well facilitate similar moves in the future, and that the lack of such experience may also result in less openness to future occupational mobility. Also, openness to occupational change does not necessarily seem to translate into corresponding behaviour. • In support of Arnold and Cohen (2008), it was found that inter-occupational, intra-organizational career moves may well occur. This is remarkable as one of the basic tenets in most contemporary career concepts is that individuals tend to be more loyal to their profession than to their organization (e.g. Hall, 2002).
Factor 5 – Self-knowledge	• In the interviews, ambiguities in individual definitions of "self-knowledge" emerged. Most interviewees interpreted it as being related to one's personality. Yet, a minority spoke about self-knowledge in terms of job-related, technical skills. This suggests a need for further conceptual clarification. • Also, substantial gaps between the quantitative and the qualitative data were detected. Especially solid citizens appeared to be much less driven by this factor than they had indicated in the survey.
Factor 6 – Self-direction	• This factor clearly bridged the two dimensions of the protean career. Given the emphasis on the differences between these two dimensions and the related metacompetencies (e.g. Hall, 2002), it was surprising that they merged into one single factor. • Hence, the distinction between the two dimensions may arguably be less clear for individual careers than assumed in theory. Given the central role of this distinction in the protean career concept, further conceptual work is required to address this point in more detail.
Factor 7 – Working beyond organizational boundaries	• The majority of the respondents seemed to have a neutral or positive stance towards such forms of inter-organizational collaboration. Only 5.3% of the respondents (n=1,350) scored negatively on this factor, i.e. below 3 on a five-point Likert scale. • The findings were in line with DeFillippi and Arthur's (1994, 1996) claims regarding the relevance of the "knowing-whom" competency today's world of work.
Factor 8 – Rejection of career opportunities	• The factor also bridged items that had originally been intended to address aspects of the protean career and the boundaryless career. • Further, it was notable that both items on this factor referred to past rejection of career opportunities. Factor 8 was the only one with an exclusive focus on past behaviour. Given that it emerged a key differentiator between different clusters, this factor with its currently exclusive focus on the past also needs further examination.

Table 54: Key observations regarding the eight factors

With regard to the protean career, the three corresponding factors seemed to cover the protean dimensions reasonably well (see Table 30). However, on closer inspection, the three protean factors appeared to be quite woolly and not clearly defined. Hence, the distinction between the two protean dimensions may be empirically much less clear-cut than conceptually. Further, the differences between narratives and survey scores, especially on the protean factors, call for an explanation. Two potential causes may have contributed to this finding. First, there could be a bias in the self-reported survey data with a tendency for high scores on factors about individual values and proactivity. Respondents might have felt that such answers were socially more acceptable. Second, different clusters may simply have used different yardsticks to assess themselves regarding themes such as "learning", "self-knowledge" etc. In their own perception, solid citizens may well have considered themselves as being highly self-directed. However, when directly compared with the other clusters, they did not display the same level of self-direction in their careers. This leads to some interesting questions. If, for example, self-perceived self-direction and actual behaviour differ substantially for some individuals, what does this mean? Does such a mismatch between individual self-assessment and actual behaviour lead to tensions when careers develop over time? How do individuals cope with such a discrepancy? This study has therefore made it possible to raise such questions, which have scarcely been addressed before. It highlights a gap in previous research, and although the questions may not be answered with the data in this study, the findings suggest some promising avenues for future research.

In terms of the boundaryless career, the empirical results fully confirmed the conceptual aspects of physical mobility. In particular, they provided support for various authors (e.g. Becker & Haunschild, 2003; Inkson, et al., 2010; Lazarova & Taylor, 2009) who have argued that the strong focus in the boundaryless career on organizational mobility may be misleading. Reducing the boundaryless career to inter-organizational mobility is clearly too narrow a perspective which cannot be justified based on the empirical results in this study. Intra-organizational mobility, not necessarily linked to hierarchical advancement, seemed to play a relevant role for many individuals and their careers as well. Thus, by calling factor 1 "inter-organizational mobility" in future research, this distinction between the two types of organizational mobility could be shown more clearly. Further, geographical and occupational mobility emerged as strong and distinct factors, both of which have scarcely been covered in the boundaryless career discourse so far.

Nevertheless, the strong and positive correlation between the two factors might imply that individuals who are open to an occupational change also tend to be open to geographical relocation, and vice versa. Findings from the few empirical studies that have investigated the role of geographical mobility in contemporary careers (e.g. Bidwell & Briscoe, 2010; Chen, et al., 2011; Darchen & Tremblay, 2010) suggest that geographical boundaries are important for individuals, which has been confirmed in this study.

In terms of occupational mobility, however, some words of caution need to be mentioned. First, independent t-tests showed that participants without a degree in IT scored slightly but significantly ($p<0.01$) higher on occupational mobility than those with a degree in IT (mean scores: 3.54 and 3.39, n=1,350). On the one hand, this indicates that individuals without a degree in IT may have lower "sunk costs" in the IT profession, which could result in a lower commitment to the profession. On the other hand, in line with recent research (Dokko & Gaba, 2011), past experience of occupational mobility may well facilitate similar moves in the future. The lack of such experience may therefore also result in less openness to future occupational mobility. Second, in a representative survey of Swiss employees (Grote & Staffelbach, 2009) about 40% of the participants indicated that their willingness for an occupational change was "rather high". However, the actual total mobility rate in Switzerland is far lower. In 2005, slightly less than 10% of all Swiss employees changed their jobs, and only about half of them also moved between different industries (Henneberger & Sousa-Poza, 2007). As changing job or industry does not necessarily require a change of occupation, the actual number of occupational changes is arguably considerably lower. Therefore, openness to occupational change only rarely seems to translate into corresponding behaviour. Lastly, as this factor does not capture intra-occupational mobility, e.g. moves between different IT functions, factor 4 could be called "inter-occupational mobility" to address mobility across different occupational fields. Together with a re-labelling of factor 1, this would allow future research to use more precise labels when addressing these two types of physical mobility.

With regard to psychological mobility, the coverage of the various aspects was less complete than for physical mobility (see Table 30). However, although two of these aspects ("Feeling independent of any one employer", "Considering oneself boundaryless despite existing boundaries") were not explicitly represented in the final factor structure, items that had originally focused on those aspects became included in other factors (see Table 29). However, the two psychological mobility factors provided empirical evidence that not all career boundaries need to be objectively observable even though, from an individual point

of view, they may well be "[...] as real as the actors experiencing or managing them make them" (Gunz, et al., 2007, p. 474). So, whatever their nature, personal reasons may act as strong boundaries which prevent individuals from becoming (physically) mobile. One might therefore question whether "psychological mobility" (Sullivan & Arthur, 2006) is an appropriate term to capture the notion of factor 8 adequately. Individuals with high scores there were exactly those who decided *not* to be mobile in a particular situation but to remain in their current role.

When looking at the eight factors more generally, two noteworthy points emerged. First, whilst much of the academic career debate has focused on elements such as values or self-direction, the key differences in careers seem to occur along very practical criteria. When it comes to considering potential career moves, many individuals appear to be more concerned with basic questions, such as whether or not they want to relocate for a new job, rather than with the consideration of more abstract constructs like self-knowledge or self-direction. Second, various factors combined items that had originally been intended to capture aspects of either protean or boundaryless careers. Also, aspects of protean careers seemed to be closely related to several elements of "psychological mobility". This provided support for Briscoe et al.'s (2006a) comments regarding the distinct but related nature of the two concepts.

Based on this discussion of the eight factors, the three clusters can now be covered in detail.

9.1.3 The three clusters

The next section discusses the three career orientation clusters. Based on a structured summary of the characteristics of each cluster, they can then be compared in detail with Briscoe and Hall's (2006a) career orientation profiles.

9.1.3.1 Detailed description of the three clusters

Table 55 brings together all the results presented in various sections of chapters 7 and 8, and provides a complete, structured picture of the three clusters. In summary, these may be briefly characterized as described below.

	Protean career architects	Solid citizens	Roamers
Protean factors Research questions 1.1/1.4	Protean career architects appeared to be the most open cluster for feedback and learning. Also, their self-knowledge and self-direction were higher compared with the other two clusters. These findings were confirmed in the interviews. When speaking about their careers, protean career architects seemed to value feedback and learning, and acknowledge the importance of self-knowledge, as well as self-direction, for their careers more clearly than interviewees from other clusters.	Solid citizens scored significantly lower on feedback and learning than the other two clusters. Scores on self-knowledge and self-direction were both significantly lower than for protean career architects. However, despite the statistically significant differences, scores on protean factors were close to those of the other two clusters. In the interviews, however, the gap between solid citizens and the other clusters appeared to be much wider. For example, solid citizens' career accounts implied that they perceived self-knowledge as much less relevant than indicated in the survey. Also, they appeared to be considerably less self-directed than what might have been expected based on their relatively high scores in the survey. When they spoke about learning, solid citizens predominantly focused on their current jobs and the technical knowledge required there rather than on personal development in a wider, non-technical sense.	Regarding the protean factors, roamers scored very similarly to the solid citizens. Only on feedback and learning their scores were significantly higher. Although absolute differences were small, roamers scored significantly lower than protean career architects on all three factors. The interview results suggested that self-knowledge and self-direction appeared to be of lower relevance for roamers than what might have been expected based on their scores in the survey.
Physical mobility factors Research questions 1.1/1.4	Protean career architects scored significantly higher on all three types of physical mobility than did solid citizens. However, their geographical mobility was significantly lower than the roamers' willingness to relocate for a new job. These results were in line with their actual past mobility. Over the five years before the survey, protean career architects had been more mobile than solid citizens within and across organizations, as well as geographically. The interviews further confirmed these findings. Regarding occupational mobility, protean career architects reported more work experience outside IT and more positive feelings about future occupational changes than solid citizens. Interestingly, although their survey scores on organizational mobility did not differ significantly, protean career architects more clearly expressed feelings of loyalty or gratitude towards their employer in the interviews than roamers.	Solid citizens scored significantly lower on all physical mobility factors than individuals in the other two clusters. In line with this, over the five years before the survey solid citizens had shown the lowest intra- and inter-organizational as well as geographical mobility amongst the three clusters. Also, they had been in their current position for longer, significantly fewer of them were looking for a new job at the time of the survey, and they considered the likelihood of remaining in their jobs as significantly higher than respondents in the other clusters. The interviews further supported these findings. Solid citizens more often referred to feelings of loyalty and gratitude towards an employer than did roamers. Also, they appeared to have the lowest intention of all clusters voluntarily to leave the IT industry. In addition, the solid citizens' low scores on geographical mobility were clearly reflected in the interviews.	Roamers' willingness to move geographically was significantly higher than in both other clusters. This was well reflected in their past behaviour. Over the five years before the survey, they had significantly more often moved geographically than solid citizens. Further, their scores on the organizational and occupational mobility factors were significantly higher than those of solid citizens. Interestingly, roamers used intra-organizational moves more frequently than protean career architects. The interviews clearly supported these findings. Roamers expressed the most positive attitudes and the highest self-reported experience regarding geographical mobility. Also, they expressed less positive feelings about their employers than interviewees of the other two clusters.

	Protean career architects	Solid citizens	Roamers
Physical mobility factors	In terms of geographical mobility, the key reason for protean career architects to move or to remain in a particular place appeared to be their family rather than their job.	Not only did they express a negative attitude towards this factor, they also had the least past experience of being geographically mobile.	Further, like protean career architects, roamers appeared to have more work experience outside IT and a more positive attitude with regard to potential future occupational changes than solid citizens.
Psychological mobility factors Research questions 1.1/1.4	With regard to psychological mobility, protean career architects scored highest as well. Their willingness to reject career opportunities for personal reasons was significantly higher than in both other clusters, and their willingness to work beyond organizational boundaries was significantly higher than amongst solid citizens. Again, the interviews confirmed the quantitative scores. In particular, the protean career architects appeared to be those interviewees who had most readily rejected career opportunities for personal reasons in the past and would hesitate the least do so in the future again.	Solid citizens' openness to work beyond organizational boundaries was significantly lower compared with the other clusters. Only regarding the rejection of career opportunities, individuals in this cluster scored significantly higher than roamers, yet still significantly lower than protean career architects. Again, these findings were confirmed in the interviews, where an interesting nuance emerged. Solid citizens appeared to engage in working across organizational boundaries mainly if it was as a necessary part of their job. Also, they predominantly cooperated with others within rather than beyond their own organization. Although the interview statements implied that this was mainly due to individual preferences, it remains an open question whether the roles solid citizens worked in required less frequent contact with individuals beyond organizational boundaries than the roles held by the other interviewees.	Regarding psychological mobility, the interviews with the roamers revealed a notable discrepancy. It appeared that roamers tended to be more sceptical about working beyond organizational boundaries in the interviews than they had indicated in the survey. Yet, their low survey scores on rejection of career opportunities for personal reasons were fully confirmed in the interviews. Namely, roamers reported the least past experience of all three clusters in turning down career opportunities.
Career success Research question 2.3	Protean career architects defined career success more frequently than the other two clusters in terms of self-development, personal goal attainment, continuous learning as well as having time for family and friends. Advancement and happiness in general were success criteria they used less frequently than the other clusters.	Solid citizens referred to satisfaction and happiness in general more frequently than the other two clusters. However, career success categories, such as performance and achievement, self-development, personal goal attainment, continuous learning and being challenged, were all significantly less frequently referred to than by the other clusters.	When defining career success, roamers frequently referred to performance and achievement, advancement, self-development, personal goal attainment, continuous learning and being challenged. In contrast, general satisfaction and happiness as well as family and friends were career success categories roamers used less frequently than the other clusters.
Career anchors Research question 3.3	"Autonomy and independence", "service and dedication", "pure challenge" and "lifestyle" were the four anchors on which protean career architects scored significantly higher than the other two clusters. Compared with solid citizens, respondents in this cluster had significantly higher scores on "managerial competence" and "entrepreneurial creativity" whilst scoring significantly lower on "technical/functional competence" and the two security anchors.	"Technical/functional competence", "geographical security" and "job security" were the three anchors on which solid citizens scored significantly higher than the other two clusters. In addition, they ranked "lifestyle" significantly higher than the roamers. However, solid citizens scored significantly lower on "managerial competence" and "entrepreneurial creativity" than the other two clusters.	Roamers had significantly higher scores on the "managerial competence" anchor than both other clusters and higher scores on "entrepreneurial creativity" than solid citizens. Yet, on all other career anchors, roamers scored lowest. "Geographical security" and "lifestyle" were rated significantly lower than in both other clusters.

	Protean career architects	Solid citizens	Roamers
Career anchors	Protean career architects had significantly higher scores on “geographical security” than roamers but lower scores on “managerial competence”.	Also, their scores on the “autonomy and independence”, “service and dedication”, “pure challenge” and “life-style” anchors were all significantly lower compared with protean career architects.	Compared with protean career architects, their scores on “pure challenge”, “autonomy and independence” as well as “service and dedication” were significantly lower. In addition, they rated both “job security” and “techni-cal/functional competence” significantly lower than did solid citizens.
Career manage-ment tools Research question 4.3	Protean career architects considered mentoring pro-grammes, on-the-job learning opportunities, and out-placement as significantly more useful than did respon-dents from the other two clusters. Yet, formal career discussions and clear criteria for advancement were not regarded as very useful. In brief, protean career archi-tects appeared to appreciate forms of organizational support in which individuals may play an active role rather than being guided by organizational processes.	Solid citizens rated on-the-job learning opportunities and clear criteria for advancement as highly useful. In contrast, tools like formal career discussions, mentoring, outplacement, and temporary assignments were ranked as much less useful. This indicated that solid citizens seemed to favour tools with a clear technical, job-related focus that do not require geographical mobility.	Roamers perceived the usefulness of on-the-job learning opportunities as significantly lower than the other re-spondents. Instead, they felt that tools like formal career discussions, mentoring programmes, temporary assign-ments, clear criteria for advancement as well as out-placement were more useful to them than did the other participants. In general, whilst job-related tools were perceived as less useful, roamers seemed to consider tools as useful that either offer individuals job mobility or provide organizational guidance.
Signifi-cant findings on additional variables Research question 1.3	Protean career architects were most prevalent amongst UK citizens. They had higher levels of educational qualifications than solid citizens, were more likely to be looking for a new job at the time of the survey and had spent less time in their current position than solid citi-zens. Interestingly, protean career architects not only perceived their remuneration as less adequate than solid citizens, they were also less satisfied with their careers. Their preference for a specialist career was lower than amongst solid citizens but higher than amongst roamers. When compared with roamers, finally, protean career architects were older, had more dependents, and were less likely to be working full time. In addition, when comparing with their peers, they rated their careers significantly more positively than roamers.	Solid citizens were the cluster most frequently found amongst Swiss citizens. They had lower levels of educa-tional qualifications than individuals in the other clus-ters. Solid citizens had a higher preference for specialist careers than individuals in the other clusters. In addition, some significant differences compared with roamers emerged. On average, solid citizens were older and responsible for more dependents. At work, they man-aged fewer employees, had worked longer both in the IT industry as well as for their employer but had not been promoted as recently as the average roamer. Most inter-estingly, however, solid citizens appeared to be signifi-cantly more satisfied with their careers than the respon-dents in other clusters. Also, they perceived their remu-neration as more adequate.	Roamers were the youngest of the three clusters and most prevalent amongst German IT professionals. They had the fewest dependents, had worked the least in IT and showed the lowest preference for a specialist career. Compared with solid citizens, they had significantly higher levels of educational qualifications and had more staff reporting to them. Their last promotion had been more recently, and they had spent less time with the employer as well as in their current position. Roamers indicated that they were less likely to remain in their current job and more likely to be looking for a new one than solid citizens. Also, they felt their remuneration was less adequate and were less satisfied with their career situation than solid citizens. In addition, roamers were more likely to work full time, and they ranked their own careers compared with those of their peers lower than protean career architects.

Table 55: Characteristics of protean career architects, solid citizens and roamers – An overview

Protean career architects appeared to be fairly self-directed with regard to their careers. Feedback and personal development were perceived as important elements in career development. In line with their quantitative results, protean career architects in the interviews clearly were the ones most likely to change jobs in case their personal expectations remained unmet in an organization. Generally, job changes were perceived as opportunities to learn something new. In contrast to the other clusters, family rather than their job was the primary criterion to understand protean career architects' geographical mobility preferences. The high scores on the "service and dedication" and "lifestyle" anchors matched such characteristics of this cluster well, as did their preference for career management tools that allow individuals to play an active role in their further development.

Solid citizens predominantly differed from the other clusters with regard to their lower geographical and occupational mobility, as well as their lower willingness to work beyond organizational boundaries. The interviews broadly confirmed the quantitative results, for example, regarding the low willingness for geographical mobility, the high preference for technical training, the low appetite for managerial careers and the low intention to leave the IT industry. However, especially regarding the protean factors, differences between solid citizens and the other clusters appeared to be bigger in the interviews than in the quantitative results. A noteworthy finding was that solid citizens were the most satisfied of the three clusters.

Lastly, roamers emerged as a new, previously unknown career orientation cluster in this study. They clearly had the highest geographical mobility preference amongst the three clusters. Their current or future jobs appeared to be the main driver for roamers' geographical mobility. Of all three clusters, they had the least intention to reject career opportunities for personal reasons. In line with this, roamers appeared to be more willing than individuals in other clusters to conform to external requirements at work in order to progress in organizations, especially in managerial careers. In order to pursue their career goals, roamers seemed to be more driven by objective success criteria and to appreciate organizational support more strongly than the other clusters.

Based on these details of the three clusters, they can now be compared with the profiles suggested by Briscoe and Hall (2006a).

9.1.3.2 Comparison with Briscoe and Hall's career orientation clusters

Briscoe and Hall (2006a) briefly characterized each of their eight profiles. In addition, they noted the challenges individuals might meet "to maintain their career status quo" (p. 10) and the challenges organizations might encounter when supporting individuals from each cluster in their development. Given the strong emphasis on individual agency in both underlying concepts (see sections 3.2 and 3.3), it is notable that Briscoe and Hall provided suggestions how organizations might support individuals in their career development. Table 56 provides a summary of these three themes for protean career architects, solid citizens and wanderers. As Briscoe and Hall did not describe roamers as a distinct cluster, and wanderers were considered as close – yet not equal – to roamers (see section 7.3.2), they are used here for the comparison with roamers.

Protean career architects

Rather than providing detailed characteristics of this cluster, Briscoe and Hall gave two examples of individuals who, in their view, might be seen as protean career architects. In particular, the reference to an exceptional individual like Gandhi shows that protean career architects were the cluster Briscoe and Hall considered most worthwhile striving for, as argued by Inkson et al. (2010). Also, with that reference Briscoe and Hall set a very high bar for protean career architects. It is therefore not surprising that they felt such individuals would be very rare in organizations; nevertheless, Briscoe and Hall did not try to translate the assumed virtues of this cluster further into the world of work.

The empirical findings made it possible to verify Briscoe and Hall's claim that protean career architects would combine "all of the potential of both protean and boundaryless career perspectives" (p. 15). Indeed, the empirically found characteristics of this cluster seemed to match well with that statement (see Table 55). With regard to the protean career, both the values-driven and the self-directed dimensions appeared to be of high relevance to protean career architects. In the surveys as well as in the interviews, protean career architects consistently ranked themes like learning (also in the sense of self-development), feedback, self-knowledge, and self-direction as important elements in their careers. They also appeared to be fairly mobile, both physically and psychologically. If protean career architects decided not to be mobile – geographically or by rejecting career opportunities, for example – the reasons for doing so were often linked with their personal values.

	Protean career architects	Solid citizens	Wanderers
Characteristics	• Combine "all of the potential of both protean and boundaryless career perspectives" (p. 15). • Are a rare phenomenon in organizations. • Potential archetypes: ○ Mahatma Gandhi ○ Percy Barnevik (CEO Asea Brown Boveri)	• Are capable of and willing to embrace a broad range of career opportunities, yet physically immobile. Reason for not being physically boundaryless "may be due to preference or to circumstance" (p. 14). • "Blooms where planted" (p. 14), i.e. solid citizens define values for themselves and add value for others within a clearly specified geographical context. • Have strong values and need autonomy. • Are curious and have a work-related motivation to learn.	• Are willing to accept whatever career opportunities may arise. • Organizational or geographical boundaries are not perceived as barriers in this pursuit. • Psychological appreciation across boundaries is not as sophisticated as wanderers' ability to be physically mobile. They are "essentially controlled by opportunities instead of directing them" (p. 12).
Individual challenges	• Capability needs to be leveraged into meaningful impact. • Decision where to use one's abilities may be difficult ("In what realms can their life and career have the greatest impact in terms of what they value most?" p. 15). • (Work-life) balance might be an issue.	• Person-organization fit is a must. • Need to find a place for their career that corresponds with their strong values and their motivators, e.g. work-related learning drive. • Especially geographical mobility is perceived as a threat.	• Continuously need to find "new rides to 'hitch'" (p. 12). • Need to learn "how to become attuned to their core values and not surrender to the expediency of the latest opportunity" (p. 12).
Development challenges for organizations	• Provide platforms for them "on which to shine, learn, engage" (p. 11). • Support them in managing boundaries, i.e. help them cross boundaries, whilst obtaining resources "to accomplish truly marvellous things" (p. 15). • Help them not to become "overly quixotic, or even unethical along the way" (p. 15).	• Leverage solid citizens' contributions but recognize their limitations with regard to physical mobility. • In order to remain adaptive as an organization, make sure that a variety of contributors are recruited and developed, especially individuals with higher physical mobility.	• Such individuals may be difficult to identify. • Support the development of self-direction and make sure that a good fit between person and organization is achieved. • Provide intra-organizational opportunities to "wander".

Table 56: Protean career architects, solid citizens and wanderers – As seen by Briscoe and Hall

(based on Briscoe & Hall, 2006a, pp. 11-15)

Further, the way protean career architects defined career success, their career anchors (e.g. their high "autonomy and independence", "service and dedication", and "lifestyle" anchors), as well as their career management tool preferences, matched well with this picture. It also corresponded with Briscoe and Hall's suggestion that work-life balance might be an issue for them. The empirical results, indeed, confirmed that protean career architects were willing to reject career opportunities or remain geographically immobile for their families, that they tended to define career success significantly more frequently than the other clusters in terms of work-life balance and family-related aspects, and that their "lifestyle" anchor was the highest of all three clusters.

Yet, protean career architects were not such exceptional and rare individuals as Briscoe and Hall's description implied. Not all of them seemed to be driven to "shine" (p. 10) or "to accomplish truly marvellous things" (p. 15). Such idealistic claims carry a strong normative tone typical of many contemporary career concepts (see section 3.5), which could not be justified based on the empirical results. For example, the fact that protean career architects were less satisfied with their careers than solid citizens cautions against stereotyping them as being the most ideal cluster. Rather, protean career architects seemed to be self-directed in their careers, guided by their strong values and willing to be mobile both physically and psychologically, as long as their core values were met. From that point of view, protean career architects did, indeed, have a strong protean and boundaryless career orientation, albeit a more mundane one than suggested by Briscoe and Hall.

The protean career architect cluster appeared to be broader, more inclusive and less rare than Briscoe and Hall outlined. Most importantly, in contrast to the original description, there was definitely more to being a protean career architect than just having a narrow work-related focus. Their focus seemed to be more inclusive, and they tended to be more concerned with life issues overall, rather than just with their professional career. In particular, family played an important role for many individuals in this cluster. Protean career architects used personal values as guidance well beyond work. For their values – or for their family – protean career architects were willing to reject career opportunities and to remain geographically immobile. Hence, they were also more likely than the other clusters to focus on self-development and to show proactive behaviour in line with their values. Supporting Gasteiger's (2007a) findings, protean career architects appeared as a cluster that tended to be loyal to their employer as long as their personal values were met at work, and as long as life outside work was not negatively affected by their jobs.

This corresponded well with Hall's (2002) suggestions that a combination of high loyalty and protean career might be most effective for both parties. Therefore, in line with calls for a more holistic view of careers (e.g. Savickas, et al., 2009), the term "protean *life* architect" might capture the essence of this cluster more precisely.

Solid citizens

Solid citizens empirically showed several of the characteristics described by Briscoe and Hall. In particular, their preference for remaining physically immobile was reflected in the scores on the corresponding factors in the survey, in the number of career moves in the five years before the survey, as well as in their career accounts in the interviews. The interviews also confirmed Briscoe and Hall's statement that the solid citizens' immobility may be either "due to preference or to circumstance" (p. 14). Whilst most solid citizen interviewees expressed a clear aversion against physical – in particular geographical – mobility, some of them also named very practical reasons why they were not mobile (see section 7.4.2.2 for two exemplary quotes). Briscoe and Hall's metaphor in this context ("blooms where planted" p. 14) corresponded nicely with quotes in the interviews. Also using a "horticultural" career metaphor (El-Sawad, 2005), several solid citizens explained that they would not want to move away because they felt "rooted" in their area.

Other aspects of the solid citizen description, however, did not match so well. In the surveys, solid citizens had scored highly on the protean factors, but in the interviews, it appeared that they might be less values-driven and less curious to learn than might have been expected based on their quantitative results. Still, in line with Briscoe and Hall, their motivation to learn was primarily work-related, which was confirmed by their frequent definitions of learning as technical training, as well as by their preference for job-related career management tools. Their high preference for specialist careers and the "technical/functional competence" anchor also supported this view. Further, Briscoe and Hall listed a high need for autonomy as one of solid citizens' characteristics. Indeed, based on their career anchor scores, solid citizens seemed to value autonomous work. However, the other clusters did so as well and even more clearly than solid citizens. So, of the two key characteristics of solid citizens suggested by Briscoe and Hall, the low geographical mobility was fully supported empirically. The strong emphasis of solid citizens on values, however, was only partially confirmed. It could be found in the quantitative survey results, but was not clearly reflected in the interviews.

Solid citizens appeared as a cluster with a strong focus on their current position. Be it regarding their career anchors or their preferences for career management tools, technical or job-related aspects were of great importance to them. So, solid citizens' career perspective might arguably be narrower than Briscoe and Hall's description suggested. However, the strong aversion against being geographically mobile was well reflected empirically, as was their tendency to stay with their employers for a long time. In other words, solid citizens showed many signs of "traditional" careers (see section 3.1.2), for example, in terms of their generally low mobility and low importance of self-direction and values. Hence, the term "solid citizen" appeared to be well justified by the empirical results.

Two aspects of solid citizens are particularly noteworthy. First, in contrast to what the contemporary literature has often implied, solid citizens, despite their "traditional" characteristics, were the happiest of all three clusters. Second, the fact that this cluster appeared to become more heavily populated in times of dire economic circumstances, again, is in contrast to much of the existing literature. There, it has often been claimed that only highly flexible, self-directed forms of careers might prevail under such circumstances. In this study, however, the opposite seemed to happen. In sections 9.1.4 and 9.1.5, these two points are addressed in a broader context.

Roamers

Roamers had a generally positive attitude towards physical mobility. This translated into high scores on the corresponding factors in the survey and was reflected in the number and types of their past career moves. Also, it became apparent in roamers' responses in the interviews, for example, when speaking about their tendency not to reject career opportunities. Further, their definitions of career success, their low scores on the "geographical security" anchor, as well as their preferences for career management tools, such as temporary assignments or outplacement, suggested that roamers might, indeed, be inclined to be physically mobile. In brief, in line with Briscoe and Hall's description of wanderers, roamers did not seem to perceive physical boundaries as something negative or frightening.

The conceptual key difference between wanderers and roamers is their attitude towards the protean career dimensions. In the survey results, this distinction was very clear given that roamers scored highly on all three protean factors. The interviews broadly confirmed this picture. Unlike wanderers, roamers did not seem to be "essentially controlled by opportunities instead of directing them" (Briscoe & Hall, 2006a, p. 12). However, several observations suggested that the distinction between the two clusters might not be as clear-cut as

one could assume based on the eight factor scores, and that roamers may well have characteristics which could be attributed to wanderers as well. For example, several interview quotes showed that some roamers did, indeed, feel that their careers were dictated by external forces (see section 7.4.2.6). Further, roamers appeared as a cluster with a preference for organizational support in their careers. They found career management tools that provide guidance to individuals useful, for example, formal career discussions or clear criteria for advancement. Also, in the interviews roamers repeatedly called for more organizational support in their careers. Such findings do not fully correspond with what might be expected of individuals with a strong sense of self-direction and much clarity about their own values. This was an interesting contrast between protean career architects and roamers. Whilst both clusters had similar scores on the protean factors, roamers seemed to be less consistent than protean career architects in how they actually behaved and what they preferred in their careers with regard to these factors.

So, roamers did indeed share the high preference for physical mobility with the wanderers. However, according to their quantitative scores, roamers seemed to be fairly self-directed and values-driven. Therefore, they appeared to be related to, yet distinct from, the wanderers described by Briscoe and Hall, and the term “roamer” arguably captured the notion of this cluster reasonably well. With a strong focus on their work and, often, on pursuing a managerial career path, individuals in this cluster seemed to roam for new career opportunities. However, in contrast to what their high scores on the protean factors might suggest, roamers appeared to be perfectly willing to rely on organizational support in the pursuit of their career goals. Some of them even explicitly expected such support from their employing organizations. Unless their demand was met, they seemed to be intent on moving on to the next opportunity elsewhere. Roamers mainly appeared to change jobs if it was beneficial to their career development. Considerations regarding personal values or family seemed to play a much lesser role than for protean career architects. However, it was interesting to see that roamers might well stay with their employers for a long time if they are offered development opportunities within an organization. In the interviews, roamers from Org05 provided excellent examples of such “in-house” careers. This means that being a roamer does not necessarily translate into high inter-organizational mobility. Again, much as this finding is in line with Briscoe and Hall’s suggestions for developing wanderers (see Table 56), it is in contrast to most of the contemporary career literature and its almost exclusive focus on inter-organizational careers.

9.1.3.3 General considerations regarding the three clusters

The three clusters offer a more differentiated picture of career orientations than previous classifications (e.g. Briscoe & Hall, 2006a; Gerber, Wittekind, Grote, & Staffelbach, 2009). The eight underlying factors made it possible to gain a more thorough understanding of individual career orientations. For example, expanding the existing literature, this study clearly showed that geographical and occupational mobility are two important factors in individual career orientations. Also, rejection of career opportunities has hardly been examined as an element of career orientations. Given the hitherto ambiguous findings regarding the influence of age and gender on career orientations (see section 5.1), it was interesting to see that the three clusters in this study did not significantly differ in terms of gender and that they were fairly similar in terms of age. The findings regarding career success, career anchors and career management tools provided further input to a more nuanced picture of the three clusters.

Supporting other authors' findings (e.g. Briscoe, et al., 2006; Gerber, 2009), the detailed analysis of the three clusters also confirmed that the degree of career mobility might have been overstated, even for individuals with strong protean mindsets. For example, not all protean career architects were highly mobile; however, if they chose to remain immobile, it was mainly due to their strong personal values. This, finally, challenges one of the criticisms of the protean career concept, namely, that individuals with high protean career orientations tend to be selfish (see section 3.2.2.2). Based on the empirical findings in this study, especially regarding protean career architects and their focus on family, such claims could not be supported.

Overall, the three clusters seem to serve as a rough, yet helpful, tool to assess career orientations in a workforce. They may also be a useful starting point for examining individual careers. However, the substantial differences amongst interviewees' narratives and the cluster changes over time highlighted how important it is to take into account the individual context of careers. Much as the clusters may be helpful, the findings caution against neglecting the potentially changing personal and job-related circumstances of each individual.

Before some general conclusions regarding the career orientations can be drawn, the findings regarding the factor and cluster stability over time need to be examined more closely.

9.1.4 Career orientations and their changes over time

This study provided rare empirical data regarding changes of career orientations over time. As described in section 7.2.5, the overall factor and cluster structure remained fairly stable between survey 1 and survey 2. However, several notable changes could be observed. There was an increase in individuals clustered as solid citizens. Further, the participants' occupational mobility, as well as their willingness to reject career opportunities, decreased significantly.

9.1.4.1 Potential causes for the changes over time

Two likely causes for these changes are covered below: changes in the labour markets and methodological differences between the two surveys.

The impact of labour market changes

As described in section 6.1.3, the first survey took place in late 2008, exactly when the economic crisis hit. So, when the second survey was conducted in mid-2009, individuals had to cope with a different situation in the labour markets. Indeed, data from Switzerland, Germany and the UK for that period consistently confirm that conditions on the labour markets had become more dire by mid-2009.

In Switzerland, average overall unemployment increased by 43.6% when comparing the averages of 2008 and 2009 (Staatssekretariat für Wirtschaft SECO, 2010b). For IT professionals, unemployment even increased by 61.4% in the same period. Much as these numbers are impressive, the average overall unemployment rate was only 3.7% in 2009 (Staatssekretariat für Wirtschaft SECO, 2010a). However, for Switzerland – a country traditionally used to very low unemployment rates – such increases seemed dramatic. They may arguably have led to feelings of growing uncertainty amongst employees although, objectively, the danger of becoming unemployed was fairly low. For example, a recent report (Grote & Staffelbach, 2011) found that in Switzerland one in four employees still fears that he/she might lose his/her job, despite the fact that the economy has been recovering over the past two years.

In Germany, unemployment also rose between late 2008 and mid-2009 – both in the economy overall and amongst IT professionals (Bundesagentur für Arbeit, 2010a). In 2009, average unemployment reached 8.2% (Bundesagentur für Arbeit, 2009). A similar picture could be found in the UK, where overall unemployment increased between 2008 and 2009 and reached an average of 7.8% in 2009 (Office for National Statistics, 2008, 2009). For

the first time in many years, demand for IT jobs in the UK IT labour market became bigger than the actual number of jobs available (E-Skills UK, 2010b). In brief, the economic circumstances in all three countries involved in this study worsened substantially between the two surveys.

Studies regarding occupational change can provide further input. Given their high levels of educational qualifications, participants in this study may have been more likely to consider occupational changes than the average employee in the workforce (Carless & Arnup, 2011). Nonetheless, changing occupations is often difficult for individuals (Barbulescu, 2005, 2007). Often, organizations look for employees with prior work experience similar to the current organizational needs (Rynes, Orlitzky, & Bretz Jr, 1997), and it seems plausible that in times of economic pressure recruiters tend to act like this even more. This might be especially true in the Swiss labour market with its strong segmentation based on occupational qualifications (see section 2.3.2.2).

There is some additional evidence on this topic. Inkson (1995) reported that during the recession of 1989-92, career moves of British managers changed from being mainly proactive and upward-oriented to being mainly reactive, organizationally driven, and lateral- or even downward-oriented (see section 2.2.2). Further, in 1997 a peak in the unemployment rate in Switzerland coincided with a substantial decrease in the overall turnover rate (Henneberger & Sousa-Poza, 2007). All the above findings suggest that opportunities for job changes, especially across occupations, may simply be less frequently available in economically difficult times.

The impact of methodological changes

Three methodological aspects may also have contributed to the changes between the two surveys. First, as detailed in section 6.4.1, the second survey only comprised 27 instead of 54 items. The decision only to include items of the factor scales from survey 1 was a deliberate strategy. By focusing on those items, it was possible in survey 2 to examine the key areas of interest, i.e. the eight factors, in more detail and confirm their relevance. Second, rather than being presented randomly, the items were all grouped according to the factor they had loaded on in survey 1, which was expected to result in improved factor reliability. Any decrease in reliability would have been an interesting and helpful indicator that a particular factor required further examination, as it happened to factor 3, for example (see section 7.2.2.1).

Third, the application of Ward's method in a cluster analysis tends to result in clusters of similar size (Hair, et al., 2006). Solid citizens, according to their cluster membership in survey 1, were underrepresented amongst participants in survey 2 (see section 7.2.5.1). It seems therefore plausible that some participants who had initially been assigned to a different cluster were newly clustered as solid citizens in survey 2.

9.1.4.2 General considerations regarding the changes over time

As argued above, there might simply have been fewer opportunities for occupational changes available to IT professionals in June 2009 than in late 2008. In addition, some individuals may just not have dared change occupations in economically difficult times. At least temporarily, they might have given up plans to look for employment in a different occupation because they considered the risk of failure too high. Such a view was found in the interviews where several interviewees mentioned that they would actually like to change occupations, but they felt this was too risky. These two elements might explain the significant decrease in occupational mobility between survey 1 and survey 2. Given the economic situation at that time, it also appears conceivable that individuals may have been less willing to reject career opportunities. If unemployment rises, it is arguably more difficult to decline a new job than in times when IT professionals can simply choose amongst various open positions, which was confirmed in several interviews. So, this may explain the significant decrease in respondents' willingness to reject career opportunities in the second survey.

It was therefore an interesting finding that neither organizational nor geographical mobility changed significantly between the two surveys. Given the economic changes, both factors may well have changed, too. For example, individuals might have become significantly less intent on leaving their employing organization or they might have been more ready to relocate geographically. However, in this survey their geographical (im)mobility was arguably more important to many individuals than occupational mobility. This being the case, they might have been less willing to change their corresponding attitude even in times of economic difficulties. However, it remains an open question as to why organizational and geographical mobility did not change between the two surveys.

Overall, the observed significant changes of two factors between the surveys and the potential impact of the economic circumstances on these changes imply that these eight factors and, therefore, career orientations in general, may not just be related to an individual's personality. Rather, external "shock events" (e.g. Lee & Mitchell, 1999) seem to have a

measurable impact on individual career orientations. In line with literature on survivor syndrome and broken psychological contracts, one such example was interviewee 09 (see section 7.4.2.1). After having witnessed the layoff of several older employees and fearing he may fall victim to a next wave of job cuts, he explained that his loyalty for his employer had vanished and that he had started looking for a new job outside his organization.

As shown above, in an environment of worsening economic conditions, more individuals tended to fall into the solid citizen cluster whilst, at the same time, the willingness to change occupations and the readiness to reject career opportunities declined. In brief, individuals seemed to have become more "traditional" between the two surveys. These findings were in contrast to much of the prevailing literature on contemporary careers. From that point of view, exactly the opposite should have happened. Being mobile and flexible, as well as self-directed and proactive in terms of steering one's career, is seen as key to being successful in the contemporary world of work (see section 3.1.2). Rather, the findings in this study provided empirical support for Gunz et al. (Gunz, et al., 2000, 2002; Gunz, et al., 2007) and many others who have claimed that individuals face boundaries in their careers. Fewer job opportunities and, hence, less chance of changing occupations may be one such boundary. In times of worsening economic conditions even highly educated individuals seem to face a decrease in both "positive" and "negative freedom" (Zeitz, et al., 2009, p. 388). For example, individuals may accept job opportunities they might have rejected under more prosperous economic conditions. Finally, the tendency for individuals to lead more "traditional" careers in difficult times provides support for authors claiming that not everybody embraces boundaryless careers by free will (see Table 17). At least some of the individuals who become more mobile in times of dire economic conditions might simply not have the opportunity to take refuge to the "shelter" of being employed in relatively stable organizations. In contrast to the prevailing assumptions in contemporary career concepts, individuals in this study seemed to look for immediate employment rather than for future employability when economic conditions became worse.

Finally, based on the observed changes in this study, it might be argued that only boundaryless aspects are subject to external influences. Yet, in line with Pang et al. (2008), several interviewees spoke about the external pressure they felt when it came to learning new technologies or programming languages. This should caution against simplistic conclusions that protean factors may remain unaffected from external impact. However, further research will be necessary to address this topic in more depth.

9.1.5 Conclusions from the career orientations

Based on the thorough examination of the eight factors, the detailed description of the three clusters and a discussion of potential reasons for the changes between the two surveys, two more general points can now be addressed.

High satisfaction of individuals with traditional careers

As described in previous sections, solid citizens – the individuals with the most traditional career orientation – were significantly more satisfied with their careers than individuals from the other two clusters. This is perfectly in accordance with other studies (Gerber, Wittekind, Grote, & Staffelbach, 2009; Grote & Staffelbach, 2009) which also found that the most traditionally oriented individuals were the most satisfied. However, this finding is clearly not in line with most of the normative claims in the new careers literature. There, highly positive notions of contemporary careers prevail, and the virtues of being self-directed and proactive in order to become successful and satisfied are highlighted repeatedly (see section 3.5). So, why were "traditional" solid citizens significantly happier than the "contemporary" protean career architects and roamers?

Studies on subjective and objective career success may offer an explanation. Various authors (e.g. Mayrhofer, et al., 2005; Nicholson & de Waal-Andrews, 2005) have highlighted that there are individuals whose objective and subjective career success are not congruent. "Unhappy winners" are objectively but not subjectively successful, whilst "happy losers" are subjectively but not objectively successful (see section 3.1.3). Nicholson and de Waal-Andrews (2005, p. 144) explained the occurrence of "happy losers" as follows:

> *"In free labor markets each person has to calculate the costs, risks, and benefits of alternative career strategies. For individuals with limited gifts and opportunities, costs and risks will quickly come to outweigh the benefits of striving, making it rational to settle for a suboptimal career niche, where less is enough. In a situation where one has chosen not to strive, i.e., in effect because one cannot exert the control over uncertain outcomes or alter the essential parameters […], then it makes sense to […] find ways to content oneself with one's destination. This is arguably what underlies the persistent ability of people to find pride and satisfaction in what they are doing, despite the fundamental disadvantage of their position."*

They then continued to describe the difference between "unhappy winners" and "happy losers" with a metaphor (pp. 144-145):

> *"[Unhappy winners] can continue to want to strive in their self-perceived position of being average fish in big (high-status) ponds, while quite unexceptional [happy losers] can be happy seeing themselves as big fish in their small (low-status) ponds."*

Although solid citizens had, on average, lower educational qualifications than the other two clusters, this arguably did not put them into a position of "fundamental disadvantage" in the IT labour markets at the time of the first survey. However, solid citizens seemed, indeed, to aim for less ambitious career goals in terms of hierarchical advancement than the others. It remains an open question whether this was due to a lack of opportunities, as implied by the quote above, or whether they simply did not want to strive for managerial jobs. Several solid citizens made it clear in the interviews that it was a matter of choice not to become a manager, simply because they clearly preferred their technical work. Also, in line with the notion of the suboptimal career niche in the quote above, several solid citizens mentioned that they tried to make the most of the circumstances they had to cope with.

Regardless of the reason for not following a managerial career, individuals choosing a specialist career may reach their career goals much earlier than those aspiring for continuously higher managerial ranks. Also, the risk of failure to reach one's ultimate career goal, which arguably results in lower satisfaction, may simply be lower with such a career orientation. This view was supported by additional analyses in this study. In line with Lawrence (2011), individuals feeling "behind schedule" were significantly more dissatisfied than those feeling "on" or "ahead of schedule" (one-way ANOVA Scheffe post hoc tests; $p<0.001$). In other words, solid citizens with their preference for specialist careers might more easily reach their goals, which results in higher career satisfaction; although, in terms of objective career success, they are less successful than protean career architects and roamers trying to reach the upper ranks of the organizational hierarchy. Those individuals may well experience objective success, e.g. promotions, yet many of them arguably fail to reach subjective career success because they do not arrive at the managerial level they dream of.

Therefore, especially roamers may, to a reasonable degree, be pushed rather than pulled towards taking a new job in search of fulfilment of their career goals. This might at least provide partial support for Briscoe and Hall's (2006a, p. 12) remark about such individuals being "controlled by opportunities" (see section 9.1.3.2). Yet, it would be in stark contrast to one of the basic tenets of contemporary career concepts, namely, that individuals are usually considered happily to embrace new job opportunities (see section 3.5). However,

individuals with high physical mobility in search of hierarchical advancement did not appear to be as satisfied as often claimed by the heralds of new careers. Rather, the high job satisfaction in the most immobile group of employees suggested that, to use the metaphor above, being "big fish in a small pond" may, indeed, be more satisfactory than being "average fish in a big pond". It cannot be established here whether the fact that roamers defined career success less frequently in terms of satisfaction and happiness than solid citizens was a cause or a consequence of their lower career satisfaction.

However, this highlights a potential dark side of protean and boundaryless careers. In contrast to the existing literature, it may well be that high career mobility, despite individuals' high protean career orientations, may not lead to high career satisfaction. This study cannot provide definitive answers to this point. It will require further research to address the reasons for the low satisfaction of highly mobile individuals in organizations in more depth.

The "old" versus "new" career dichotomy

Based on the findings regarding the solid citizens and various responses in the interviews, it seemed as if traditional careers could also be widely found even amongst IT professionals. In contrast to the prevailing literature on contemporary careers, this supports various authors (see Table 17) who have found similar results in different contexts. However, the results also implied that the distinction between "old" and "new" careers may not be as clear-cut as the conceptual dichotomy implies. For example, whilst roamers' high physical mobility is a clear element of contemporary careers, their focus on objective career success, notably hierarchical advancement, and the low intention to reject career opportunities are typical signs of traditional careers. In contrast, the low physical mobility of solid citizens and their (according to the interviews) lower scores on the protean factors suggest their careers are traditional. Yet, the fact that they seem to gain mainly subjective career success can be considered as an element of contemporary careers.

In brief, in support of Briscoe and Hall (2006a) this study confirms that elements of traditional and contemporary careers may well go together and can be perfectly combined in individual careers. Yet, this is in stark contrast to the core concepts of contemporary careers, many of which were defined as anti-theses to traditional careers (see section 3.1.2). However, in line with several authors (see Table 17), this study shows that the dichotomy between traditional and contemporary careers is too simplistic and not sufficient to define and describe individual careers. Such labels may simply describe "ideal types" of career concepts (King, Burke, et al., 2005, p. 982). In this study, career orientations appeared to

be complex and highly individual combinations of individual career-related attitudes and behaviour that are subject to change over time depending on external influences.

9.2 Career success

The next section discusses the findings regarding individual definitions of career success. After a brief summary of the main results, two key themes are addressed: the interplay between subjective and objective career success criteria; and the impact of various demographic variables on definitions of career success. Finally, some methodological considerations are presented.

9.2.1 Summary of the research findings

Research question 2.1 asked how IT professionals define career success. Based on 1,328 individual career success definitions, a framework with 16 categories and 41 subcategories was developed. Only two of these 16 categories addressed objective success criteria ("advancement", "remuneration"). In total, less than ten percent of all statements exclusively referred to one or both of these objective career success categories. The other 14 categories focused on aspects of subjective career success. About three quarters of all statements exclusively referred to subjectively perceived aspects of career success. The most frequently named success criterion was "satisfaction and happiness at work". Further, "remuneration", "satisfaction and happiness in general", "life outside work", "recognition", "self-development" and "challenge" were all mentioned in more than ten percent of the statements.

In research question 2.2, the interplay between several variables and individual career success definitions was examined. Nationality and organizational membership appeared as the two variables that most frequently accounted for significant differences between the career success categories. Other variables, such as age or gender, did not result in so many significant differences regarding individual career success definitions.

Research question 2.3, finally, investigated the interplay between the three career orientation clusters and individual career success definitions. The findings revealed various significant differences which corresponded well with the characteristics of the clusters. For example, the importance of self-development and family for the protean career architects was mirrored in their career success definitions, as was the roamers' work-centred focus with their appetite for advancement in organizations. In the next sections, these findings are discussed and contextualized.

9.2.2 Conclusions from individual career success definitions

Here, the relationship between subjective and objective career success is discussed and the interplay of career success with demographic variables is covered. Finally, some methodological considerations are presented.

Subjective versus objective career success criteria

The individual career success definitions in this study overwhelmingly referred to aspects of subjective career success (see section 8.1.2.1). This confirmed the view of many authors that subjective career success is important for individuals and their careers (see section 3.1.3). Also, it supported one of the basic claims of contemporary career concepts, namely, that individuals tend to measure career success subjectively (see section 3.1.2). Still, given that many participants in this study seemed to have at least some elements of traditional career orientations (see section 9.1.5), such a prevalence of subjective career success criteria was notable; it provided an additional argument that the dichotomization between "old" and "new" careers is too simplistic.

In line with several other studies (e.g. Beecham, et al., 2008; Judge & Higgins, 1999) job satisfaction ("satisfaction and happiness at work") was found to be the most relevant aspect of subjective career success. However, the results provided a range of additional subjective career success categories hardly covered in previous research. For example, the third most important success criterion was satisfaction in general, without any reference to work-related aspects. Thus, for many individuals being successful meant being satisfied, even beyond their workplace. Further subjective success categories included having an intact work-life balance, collaborating well with one's colleagues at work and contributing to something meaningful. In the literature, such criteria have hardly been considered as elements of subjective career success.

However, despite the prevalence of subjective career success definitions, the traditionally used objective criteria – remuneration and hierarchical advancement – also emerged in this study. Hierarchical advancement was not mentioned very frequently. This was in line with recent research from IT outsourcing companies in Sri Lanka, which confirmed the low emphasis many IT professionals seem to place on hierarchical advancement (Wickramasinghe & Jayaweera, 2010). Nevertheless, the role of remuneration deserves some attention. As shown in section 8.1.2.1, it was the second most frequently quoted success criterion in this study. However, only about a quarter of the remuneration statements defined success in terms of being paid a high salary or getting more money. The other re-

spondents referring to remuneration mentioned aspects like being paid fairly, earning enough money to provide for one's family or feelings of financial security. Therefore, although money appeared as an important success criterion for many respondents, only relatively few individuals seemed to be driven simply by earning more. Instead, Herzberg et al.'s (1959) claim that money acts as a hygiene factor rather than as a motivator, seemed to be true for a majority of individuals in this sample.

Whilst career success used to be regarded as an "easy concept" (Hugh Gunz, personal communication, August 2010), the findings in this study implied that this view is no longer – and arguably has never been – adequate. A simplistic focus on job satisfaction and salary apparently does not appropriately represent what career success means to individuals in the contemporary world of work. Rather, a much broader range of success criteria needs to be taken into account to understand career success more holistically. Also, in this study, as well as in previous research (e.g. Sturges, 1999), when individuals were asked to express their own definitions of career success, their answers differed considerably and were often a complex combination of several themes, which further cautions against taking an overly narrow approach to studying career success. Arthur et al. (2005, p. 194) put it like this:

> *"Subjective careers and subjective career success seem too important to be prematurely constrained to any one-dimensional interpretation."*

The findings in this study provide empirical support for Hall and Chandler's (2005, p. 157) claim that "success, by definition, has to be defined in terms of how it looks through that person's eyes".

The impact of demographic variables on individual career success definitions

With regard to the interplay of career success definitions and demographic variables, the findings could be compared with several other studies. For example, in line with Dyke and Murphy (2006), men seemed to put a higher focus on material success, i.e. remuneration, than women. Yet, in contrast to their findings, women in this study did not define career success more frequently than men in terms of balance and relationships. Rather, women emphasized self-development and satisfaction at work significantly more frequently than men. Further, in line with Cennamo and Gardner (2008), younger individuals tended to define career success significantly more frequently in terms of hierarchical advancement than their older colleagues. Yet, contrary to Dries et al.'s (2008) findings, the importance of security was not reflected in corresponding age-related career success statements.

Although direct comparisons of such results are difficult because the approach taken here has not been applied before (see section 3.1.3), it was a noteworthy finding that frequently used variables in previous career success research, such as age or gender, did not appear to differentiate individuals strongly in this study. Rather, in line with Beecham et al. (2008), membership of a particular organization and nationality were the key differentiators for individual career success definitions. As these two variables have been found to be strong differentiators across the entire study, they are discussed in a broader context (see sections 9.5.2 and 9.5.4).

Methodological considerations

Two methodological considerations are noteworthy here. First, this study empirically applied Dries et al.'s (2008) career success framework as a basis for the coding. Even though the methodological approach in the two studies was not identical, the findings confirmed several of Dries et al.'s categories. Six of their categories (advancement, self-development, recognition, cooperation, security, satisfaction) were still present in the new framework. Two categories (factual contribution and perceived contribution) could not be distinguished despite the large sample size; they just emerged as one single category (contribution). Creativity was hardly ever mentioned as a career success criterion and appeared neither as a category nor as a sub-category in the new framework. Instead, several additional categories and sub-categories emerged. For example, remuneration was included as a major and relevant category in this framework, but it was not explicitly part of Dries and colleagues' model. Overall, the findings suggested that the original framework might be refined by adding several more categories. Despite the methodological differences, this study provides various suggestions regarding such potential adjustments.

Second, job-related satisfaction and remuneration emerged as the two most frequently named success criteria in this study. Therefore, if for any reason researchers face restrictions regarding the number of success criteria they can examine in a study, focusing on these two criteria as proxies for subjective and objective success may be an acceptable, albeit very limited and narrow approach. In particular, it should be acknowledged that remuneration seems to be more often referred to in terms of adequacy and fairness than maximizing income.

9.3 Career anchors

This section discusses the career anchor results. After a brief summary of the findings regarding the corresponding research questions, notable observations regarding individual anchors are covered. Then, the results in this study are compared with previous career anchor studies. Finally, some general conclusions are drawn.

9.3.1 Summary of the research findings

Research question 3.1 asked for the most prevalent career anchors of IT professionals in Europe. Five anchors, namely "lifestyle", "job security", "service and dedication", "autonomy and independence" and "pure challenge" appeared as particularly relevant for the participants in this study. "Managerial competence", "technical/functional competence" and "entrepreneurial creativity" were the three anchors with the lowest scores.

In research question 3.2, the interplay between career anchors and other variables was explored. The findings mainly corresponded with the conceptual description of each anchor. They also provided empirical evidence that individuals with preferences for different anchors may behave differently in their careers. For example, respondents with high scores on the "geographical security" anchor had relocated significantly less over the five years before the survey than those who did not rate that anchor highly. Interestingly, both the "technical/functional competence" and "managerial competence" anchors only had low scores, yet they appeared to be key to explaining significant differences between several variables.

Research question 3.3 called for an exploration of the interplay between career anchors and career orientations. Generally, the anchor scores matched well with the characteristics of the career orientation factors and clusters. Solid citizens, for example, appeared as the cluster with the highest scores on "technical/functional competence", "geographical security" and "job security", which clearly corresponded with the previously revealed characteristics of that cluster.

9.3.2 The nine career anchors

In Table 57, the key observations regarding each of the nine career anchors are listed, and, where applicable, links are made to corresponding academic literature. Some of these findings require further comments; for example, regarding the "technical/functional competence" and the "managerial competence" anchors, two points seem particularly noteworthy.

Anchor	Key observations
TF	In line with various other studies on career anchors of IT professionals (e.g. Crook & Crepeau, 1997; Igbaria & Weaver McCloskey, 1996; Sumner & Yager, 2004), scores for the "technical/functional competence" anchor were very low.
	The TF as well as the MC anchors were both significantly related with various other variables. Almost all these relationships pointed into opposite directions for the two anchors.
	Respondents with a preference for a specialist career had significantly higher scores on the technical/functional anchor than those with a preference for a managerial career. Individuals preferring a managerial career scored significantly higher on the managerial anchor than on the "technical/functional competence" anchor. This was in line with several previous studies (e.g. Igbaria, et al., 1991; Martineau, et al., 2005; Tremblay, et al., 2002).
MC	In accordance with Tremblay et al. (2002), those with a preference for a managerial anchor defined career success significantly more frequently in terms of hierarchical advancement than those with a preference for specialist careers.
GS	The findings in this study supported Igbaria et al.'s (Igbaria & Baroudi, 1993; Igbaria, Kassicieh, et al., 1999) claims regarding the relevance of splitting of the "security and stability" anchor into a "geographical security" and a "job security" anchor.
JS	The "job security" anchor was significantly negatively related to inter-organizational but not to intra-organizational mobility.
	People who valued job security felt significantly more intent on staying in their jobs.
	The high scores on the "job security" anchor were in contrast to the low frequency of career success definitions referring to security.
EC	The significant relationships to other variables corresponded all well with what might have been expected for individuals with high scores on this anchor. This supported the practical relevance of this anchor despite its relatively low scores.
SD	The high scores on the "service and dedication" anchor showed that, for many IT professionals, working on meaningful tasks and contributing to something good seem to be highly relevant motives at work. In line with various authors (e.g. Coombs, 2009; Tremblay, et al., 2002; Wils, et al., 2010) this highlighted the importance of values to understand career anchors and career paths of the participants. Also, it was in accordance with Tams and Marshall's (2011) notion of "responsible careers".
AI	The AI and PC anchors had high scores but relatively few significant relationships to other variables. This means that these anchors were quite equally distributed across the entire sample.
PC	
LS	In line with Cennamo and Gardner (2008), younger respondents had significantly higher scores on this anchor than older ones.
	However, the negative correlation between age and these anchor scores was not strong. Therefore, individuals across all age groups appeared to consider "lifestyle" as an important anchor. The high scores on this anchor were in line with Schein (1996) and his claims about the importance of "lifestyle". They also corresponded neatly with the frequent definition of career success in terms of "life outside work" (see section 8.1.2.1), as well as with literature arguing that work-life balance becomes increasingly important for many individuals (see section 2.2.1).

Table 57: Key observations regarding the career anchors

First, scores on these anchors, particularly on "technical/functional competence", were very low in this study. However, the fact that several studies with different research approaches have come to the same conclusion implies that IT professionals simply do not seem to be driven and motivated by technical specialization as exclusively and strongly as commonly assumed in research and practice. Second, it was notable that, despite their relatively low scores, these two anchors appeared to be key differentiators with regard to various demographic characteristics (see section 8.2.2.2). Such findings provided further empirical support for Igbaria et al.'s (1999) claims that career anchors affect individual career

choices and influence the selection of specific work settings. However, the low scores on these two anchors caution against overestimating their relevance beyond the basic choice of a specialist or a managerial career path and the preference for corresponding career management tools. Other anchors were much stronger and more equally distributed across the workforce.

Further, the findings in this study supported the splitting of the "security and stability" anchor into a "geographical security" and a "job security" anchor, as suggested by Igbaria and Baroudi (1993). This distinction is worth making. Not only did the overall results show clear differences between the two anchors, the analysis of individual career anchor scores of the 25 interviewees revealed some major discrepancies between the two anchors. However, the interviewees were well able to explain the differences between their respective anchor scores by providing examples of corresponding previous behaviour in their career.

An interesting contrast was observed between the high "job security" anchor scores and the relatively low frequency of career success definitions referring to security (see section 8.1.2.1). This suggests that whilst many individuals appear to attribute a high relevance to job security, most of them do not perceive it as a success once they achieve it. Security may simply be the basis of more meaningful success. In other words, supporting Herzberg et al. (1959), job security seems to be a hygiene factor.

In line with various other authors – but in contrast to common stereotypes portraying IT professionals as antisocial geeks (see section 2.3.5) – the high scores on the "service and dedication" anchor showed that for many of them working on meaningful tasks and contributing to something good seem to be highly relevant motives at work. Recently, Tams and Marshall (2011, p. 110) wrote about responsible careers, i.e. "careers in which people seek to have an impact on societal challenges […] through their employment and role choices […]", linking them to both the protean and the boundaryless career concepts. Although Tams and Marshall did not explicitly refer to career anchors, it might be argued that such careers would be perfectly compatible with high scores on the "service and dedication" anchor. In the interviews, several individuals with high scores on that anchor seemed to perceive it as being related to professional ethics. For example, they argued how important it was to them that their professional skills contributed to a meaningful cause. So, it appeared as if for many respondents in this study having at least some "responsible" elements in their careers was important. Such preferences were well in accordance with the protean and boundaryless career concepts.

9.3.3 Comparison with Igbaria et al.'s career anchor results

One of the shortcomings in previous career anchor research is that study results have hardly been comparable due to different methodological approaches (see section 3.6.2). This study therefore offered a rare opportunity to compare empirical career anchor results directly with research by Igbaria et al. (Igbaria & Baroudi, 1993; Igbaria, Kassicieh, et al., 1999). They had applied exactly the same 25 career anchor items that were used in this study. Table 58 and Figure 21 provide an overview of the corresponding results.

Arguably the most striking point in this comparison is the similarity of the results. Igbaria et al.'s data had been collected amongst US IT professionals about 10 to 15 years earlier. Despite the major technological, economic and societal changes that had occurred in the meantime (see section 2.2), as well as the cultural differences between the US and Europe, these results were surprisingly close to the anchor scores of European IT professionals from 2008. Although their ranking order was not exactly identical, the top three anchors were the same in all studies ("lifestyle", "job security", "service and dedication"). Likewise, the three anchors with the lowest scores were identical ("technical/functional competence", "managerial competence", "entrepreneurial creativity") as were the remaining three anchors in between.

Comparing the findings from this study with Igbaria et al.'s (1999) results, several more details could be confirmed. For example, in both studies, women scored significantly higher on the "lifestyle" and "service and dedication" anchors than men, but significantly lower on "technical/functional competence". Further, a positive correlation between geographical security and job satisfaction was found in both studies.

	This study		Igbaria & Baroudi (1993)		Igbaria et al. (1999)	
Anchor	Cron-bach's alpha	Mean Score	Cron-bach's alpha	Mean Score	Cron-bach's alpha	Mean Score
Technical/Functional Competence (TF)	0.68	2.59	0.80	2.45	0.75	2.65
Managerial Competence (MC)	0.80	2.75	0.78	2.85	0.84	2.42
Geographical Security (GS)	0.83	2.99	0.88	3.27	0.88	3.24
Job Security (JS)	0.76	3.80	0.82	4.08	0.78	3.97
Entrepreneurial Creativity (EC)	0.88	2.43	0.93	2.46	0.94	2.61
Autonomy and Independence (AI)	0.66	3.38	0.69	2.96	0.70	3.08
Service and Dedication (SD)	0.77	3.75	0.79	3.67	0.70	4.06
Pure Challenge (PC)	0.62	3.29	0.62	3.13	0.70	2.88
Lifestyle (LS)	0.66	3.92	0.68	3.76	0.69	3.86

Table 58: Comparison of career anchor results with Igbaria et al.'s findings

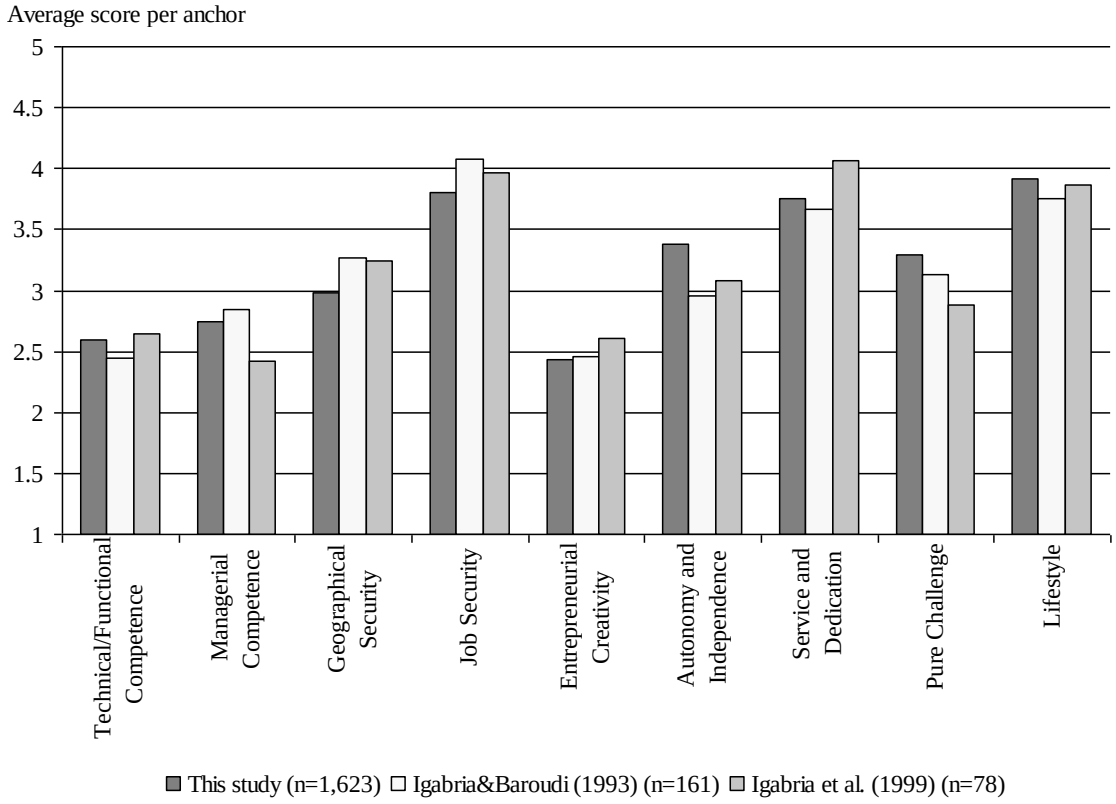


Figure 21: Comparison of career anchor results with Igbaria et al.'s findings

However, several noteworthy differences between the scores could be found as well. For example, contrary to Igbaria et al.'s findings, but in line with Tremblay et al. (2002), "managerial competence" in this study appeared to be ranked more highly amongst younger respondents than amongst their older colleagues. Further, despite the looming economic crisis in 2008, the respondents in this study attributed a lower importance to "job security" than the American respondents in the 1990s. This finding is also interesting in the

context of the discussion regarding the prevalence of contemporary careers. Contrary to claims of boundaryless career advocates (e.g. Saxenian, 1996), it suggests that even in the 1990s many US IT professionals may have regarded job security as being important for their careers. Also, the higher scores on "autonomy and independence" and "pure challenge" in this study, as well as the lower level of "geographical security", seem to be in contrast to prototypical characterizations of European and American individuals.

Some authors thought IT professionals to be more cosmopolitan than other professionals (Couger, 1996; Gerpott, et al., 1988). Arguably, the IT industry and specific skills needed therein are strongly US-driven (e.g. Microsoft, Cisco, Oracle). However, this does not explain why the differences in career anchors between US and European IT professionals were not larger. Given the more general discussions regarding cultural differences between the two continents in the context of contemporary careers (e.g. Khapova, et al., 2009), one might well have expected the anchor scores to differ more widely. Hence, the similarities between Igbaria et al.'s findings and the results in this study were even more striking, not least because several differences between European countries were found (see section 8.2.2.2). Further conclusions regarding those cultural differences are discussed more broadly in section 9.5.4.

In summary, the comparison of the study results with Igbaria et al.'s findings showed that they were by no means identical but still surprisingly similar, although the studies were conducted at different points in time and in different cultural environments.

9.3.4 Conclusions from the career anchors

Overall, the findings showed that career anchors are a useful concept in a European context. First, the long-established dichotomy between "techies" and "managers" does not seem to reflect IT professionals' main concerns. Most IT professionals may not be primarily motivated by technical specialization (see section 3.6.2), as is often assumed both in research as well as in organizations. However, although "technical/functional competence" and "managerial competence" did not emerge as the key drivers for the respondents in this study, they still appear to be very useful to understand IT professionals' career behaviour and the kinds of career intervention they appreciate (see section 8.3.2.2). Hence, Tremblay et al.'s (2002, p. 19) quote could be fully confirmed in this study:

> *"Engineers, as a professional group, are not as homogeneous as one would imagine, given their broad range of career interests. The managerial path is not viewed as the sole alternative, and the two traditional career paths (managerial and technical) apparently do not meet the needs of all engineers."*

In brief, supporting previous literature on career anchors in the IT industry (e.g. Ginzberg & Baroudi, 1992; Igbaria, et al., 1991; Jiang, et al., 1995), European IT professionals had a broad range of career anchors. Yet, their most widely held anchors were not related to the nature of their work. Rather, opportunities to maintain or enhance job security and the compatibility of work with other parts of life seemed paramount for the respondents in this study.

Second, the analyses did not reveal many completely unexpected significant relationships of career anchors with other variables. By and large, most significant relationships were found between anchors and variables where such links could be expected and plausibly explained. This was a finding in itself. The results confirmed that some career anchor preferences are, indeed, significantly related to corresponding actual behaviour or preferences for particular career development tools. However, several new and sometimes surprising relationships were detected as well. For example, it was found that different types of mobility (intra-organizational, inter-organizational and geographical) were significantly related to different career anchors.

Third, in this study, supporting previous research, some anchors appeared to be age-related. Despite the lack of longitudinal research on career anchors, this suggests that career anchors may, indeed, change over time, contrary to Schein's (1978) original notion of the career anchor concept.

Fourth, when discussing the individual career anchor results, all 25 interviewees clearly felt that the anchors matched their career-related preferences well and that they also helped explain much of their previous career moves. This not only suggested that the career anchors may be a highly relevant tool for practice (see section 10.2.1.3). As all of these individuals had several strong anchors, it also provided qualitative support for the view that individuals may well have multiple relevant anchors and that these anchors do not need to be in conflict with each other (see section 3.6.1).

Finally, career anchors corresponded well with career orientations (see Table 55). In general, the cluster characteristics were clearly reflected in the anchor scores, yet protean and boundaryless career orientations did not seem to capture fully all relevant aspects of individual careers (see section 7.1.1). Therefore, a combination of protean and boundaryless career orientations and the career anchor themes might arguably lead to a broader and more encompassing view of what matters to individuals in their careers. There is some conceptual overlap between the two perspectives. For instance, geographical mobility is covered

in both, as are self-direction ("autonomy and independence" anchor) and being values-driven ("service and dedication" anchor). However, career anchors include dimensions, such as "lifestyle" and "job security", that seem to be of great importance to individuals, but are not addressed in protean and boundaryless career orientations.

9.4 Career management tools

After a brief summary of the key research findings, this section discusses the findings regarding the career management tools.

9.4.1 Summary of the research findings

In response to research question 4.1, on-the job learning opportunities, functional/technical skills training and personal development plans were perceived as the three most useful career management tools in this study. Performance appraisals, on-the-job learning opportunities and informal feedback were the three most widely available career development tools. One notable finding was that individuals who had access to a particular tool mostly did not perceive it as useful. Further, the gap between availability and perceived usefulness was biggest for standardized tools like performance appraisals. Such tools appeared to be widely available but their perceived usefulness tended to be low. With regard to more individualized tools, such as career counselling, the situation was exactly the reverse. The perceived usefulness of such tools tended to be clearly higher than their availability.

Further, based on research question 4.2, the interplay between various demographic variables and preferences for career management tools was analyzed. Organizational membership and career satisfaction were the two variables which accounted for by far the most significant relationships with career management tools. Many individuals appeared to assess the usefulness of various career management tools depending on their level of career satisfaction or the organization they worked for. Variables such as age or gender, however, hardly accounted for significant differences. In terms of career anchors, in particular, the "technical/functional competence", "managerial competence" and the two security anchors showed several significant relationships. Individuals with different scores on these anchors also seemed to find different types of career management tools useful.

Research question 4.3, finally, focused on the interplay between the three career orientation clusters and the perceived usefulness of various career management tools. Cluster membership was a weaker differentiator than career satisfaction and organizational membership. Still, some clear differences could be found. For example, solid citizens were the

cluster with the highest preference for technical, job-related tools and a low preference for tools that may entail job mobility, such as temporary assignments. Overall, the differences between the clusters matched well with their characteristics revealed in the previous research questions. In the next section, these findings are discussed further.

9.4.2 Conclusions from the career management tools

In line with BlessingWhite (2007), a key finding was the existence of a notable gap between the wide availability and the low perceived usefulness of tools that can easily be standardized. The reverse was found for tools that can be well tailored to individuals' requirements. Also, informal approaches were perceived as more useful than formal processes. Hence, individuals tended to find tools that allow them to address their needs as timely and as individually as possible as more useful. Standardized tools may be straightforward to implement in organizations, and they arguably provide a reasonable degree of fairness to employees because everybody is treated equally; however, the findings in this study imply that, from an employee's point of view, career management needs to be much more tailored to individual needs than what organizations generally seem to provide.

A second notable finding was that functional/technical skills training was considered to be clearly more useful than interpersonal skills training. This finding challenges much of the literature claiming that business and soft skills have become highly relevant to IT professionals (see section 2.3.4.2). In this study, the focus was definitely on technical rather than interpersonal skills. This is in line with a few studies (e.g. Colley, 2008; ITAA, 2004; Scholarios, et al., 2008) reporting that technical skills are still highly important to IT professionals. Maybe, similar to claims regarding the abundance of contemporary careers, the increasing importance of non-technical skills is just not as widespread as has often been assumed. The findings from Org06 offered an additional explanation. There, interpersonal skills were ranked as more useful than technical skills. When looking at the job profiles of the employees in that small company, all of them had frequent and intensive contact with customers and external contractors. Whilst their jobs required much technical knowledge, the daily business primarily depended on their ability to interact well with their customers and external contractors. This suggests that interpersonal skills may just not be relevant to everybody in IT, but that those who need them acknowledge their importance. The fact that individuals with a preference for a specialist career path found different, more technically oriented tools useful than those following a managerial career path further supported this view. Different roles in IT may require different forms of career management tools. The

high relevance attributed to technical skills may therefore simply be a sign that technical, rather than interpersonal, training is still more important for many IT professionals in order to avoid the dangers of professional obsolescence (see section 2.3.5).

Taking professional obsolescence into account might also explain the third finding: formal career discussions were the only tool with a significant difference in terms of perceived usefulness between different age groups. All other career management tools were perceived as equally important regardless of age. This is in line with claims that age-related differences between employees may have often been overstated (see section 2.2.1). It also suggests that job-related requirements rather than age might dictate what individuals consider as useful for their careers. The fact that highly satisfied respondents tended to prefer different tools than dissatisfied ones further suggested that – in addition to immediate job requirements – the current situation in the workplace might have a strong impact on what individuals consider as useful for their careers. Hence, in this study, preferences for career management tools appeared to be driven by job-related needs and feelings rather than by non-work-related criteria, such as age or gender. Nevertheless, the strong influence of nationality and organizational membership implied that some overarching influencing factors may exist (see section 9.5.4).

Fourth, a surprising finding was that individuals with access to a particular tool mainly did not seem to find it useful. Conversely, individuals without access to that tool appeared to regard it as highly useful. To some degree, this discrepancy may have been caused by respondents' wishful thinking ("the grass is always greener on the other side"). Individuals who are familiar with a particular tool may simply have believed that tools unavailable to them could provide them with more substantial and effective support for their careers. Given that various authors (e.g. Arnold, 1997; Doyle, 2000; Södergren, 2002) have highlighted the importance of a careful implementation of organizational career management practices, one could further argue that the tools may have been implemented badly in the participating organizations and that more carefully applied tools might improve such results. Based on the data collected in this study, it was impossible to assess how well the tools were implemented in each organization. However, given the clear and consistent results across all organizations, it seems rather improbable that badly implemented tools alone can fully explain these findings.

However, in combination with the above-mentioned gap between standardized and individualized tools, psychological contracts may offer an additional explanation for this finding. In line with various other authors (see section 2.2.3), Inkson and King (2011, p. 43) described how "unspecified and implicit expectations […] lead to a degree of indeterminacy" between employers and employees, and they argued that individual negotiations of psychological contracts may be needed to minimize potential conflicts. It seems plausible that such discussions between employers and employees also ought to cover questions regarding career development opportunities because these aspects are "centrally concerned with [an individual's] future working life" (Hirsh, et al., 2001, p. 37). Yet, many organizations tend to apply standardized tools, and the availability of career management tools is hardly ever decided at an individual level. Thus, a lack of involvement in the decision process regarding individual career support may arguably lead to unmet expectations and, ultimately, to a reduced perceived usefulness of career management tools. In other words, as part of a wider discussion regarding mutual expectations and obligations, individuals should arguably be given more decision power when it comes to selecting their career management tools in their employing organizations. Such considerations may also caution against solely using career orientation clusters – or any other broad employee classification – as a decision basis for the provision of individual career management tools. Further practical implications of these findings are covered in section 10.2.1.5.

Finally, when looking at the frequencies of the selected career management tools, it was interesting that transparent internal job markets were not considered to be as highly available as might have been assumed. Two aspects may have contributed to this finding. First, there was a discrepancy between small and large organizations. Not surprisingly, the perceived availability of internal job markets tended to be higher in larger organizations than in smaller ones. It could be argued that employees in small companies may be more aware of internal job vacancies. However, the findings suggest that either such job opportunities might need to be actively advertised, as tends to be done in larger organizations, or that employees simply do not perceive a few vacancies as an internal "job market". Second, the word "transparent" may arguably also have had an impact on the results, preventing those from selecting this tool who did not perceive their internal job markets as transparent.

9.5 The four levels of analysis

This study examined careers from various perspectives (see section 1.1). The thesis started with a review of career-relevant changes at the most abstract, general economic/societal level and went on to cover the industrial/professional and the organizational levels; the core part of the thesis was dedicated to the exploration of findings at an individual level. Despite its key focus on individuals, this study also provides various insights regarding the other levels, which are presented in this section, starting with some conclusions at the individual level, then moving gradually to more abstract levels. Whilst it is worthwhile analyzing each of them independently, it is important to bear in mind that there is a complex interdependence between these levels that informs individual careers (Tams & Marshall, 2011).

9.5.1 Individual level – The relevance of the individual perspective

At an individual level, two key points emerged. First, the findings in this study clearly and repeatedly showed how important it is to adopt both an objective and a subjective individual perspective when examining careers. At an objective individual level, differences in individual career behaviour were well apparent, for example, in terms of physical career mobility. Further, the absence of major age-related correlations supported researchers who have argued that inter-individual rather than age-related differences matter (e.g. Macky, et al., 2008; Wong, et al., 2008). However, such an objective perspective is a necessary but not sufficient lens to examine individual careers. In order to gain a more complete understanding, an individual's career orientation, i.e. the subjective level of careers, needs to be taken into account as well. The major inter-individual differences in career success definitions and the various nuances found in the interviews made it apparent that just looking at objectively observable elements of careers simply does not suffice. For example, whilst several interviewees appeared to be fairly similar in terms of their physical mobility, they had substantially different motives for doing so. The findings suggested that taking into account individuals' perceptions and expectations of their careers may also be important to understand objectively observable career behaviour. For example, depending on their level of career satisfaction, individuals tended to find different career management practices useful. This is in line with other researchers (e.g. Boxall, et al., 2003; Grote & Staffelbach, 2009) who have demonstrated that, for many employees, subjectively perceived career elements affect objectively observable career decisions. Also, it supported studies highlighting the relevance of subjective careers (e.g. Arthur, et al., 2005; Ginzberg & Baroudi, 1988).

Second, the findings also provided input with regard to one of the unsettled points in the ongoing careers debate, namely, the role of individual agency in careers. The findings clearly demonstrated that, contrary to frequent claims in the contemporary careers literature (see section 3.5), organizations *do* play a highly relevant role and that they *do* make a difference in individual careers (see section 9.5.2). However, this study also provided ample evidence that individuals, at least in this sample of IT professionals in Europe, have substantial ways of influencing their careers – be it changing or maintaining – based on their personal preferences. For instance, in the interviews, protean career architects reported various examples of how their personal values had made them change jobs or even occupations. Likewise, several solid citizens spoke about their decisions to remain geographically immobile, sometimes even at the cost of losing interesting job opportunities. Overall, there appeared to be a reasonable degree of "positive freedom" (Zeitz, et al., 2009, p. 388) for the individuals in this sample. However, the economic changes between the two surveys indicated that external influences may still result in a real or perceived decrease in that kind of freedom. Further, the interviews highlighted that very practical constraints, such as kids or a newly-built house, seem to be highly relevant, albeit sometimes temporary, boundaries for many individual careers. This cautions against adopting a simplistic view of the relevance of individual agency. It suggests that additional factors beyond individual agency and organizational guidance, as well as their interplay over time, need to be taken into account to understand individual careers more fully.

9.5.2 Organizational level – The importance of organizational membership

This study did not primarily focus on organizations and there is only a limited amount that can be said about them. Still, several interesting results were found at this level of analysis. Organizational membership was consistently related to other variables. Notably, such differences not only occurred between small and large organizations, they could even be found between seemingly highly similar organizations. A prime example was the difference between Org01 and Org04. Both are medium-sized companies located in Zurich and they both specialize in software engineering in various, often similar areas. Both organizations readily recruit IT graduates from prestigious universities and, as a consequence, they have both young and highly qualified workforces. Nonetheless, several substantial differences were detected between the two organizations.

For example, in Org01 there were 36% solid citizens and 36% roamers, whilst 50% of the employees in Org04 were solid citizens and only 22% roamers. In line with this, several major differences were found with regard to individual career anchors, such as clearly lower scores on the "technical/functional competence" and "geographical security" anchors in Org01. Also, in terms of career management tools, respondents in Org01 considered formal career discussions and career counselling as clearly more useful than those in Org04.

In line with other research (e.g. Corporate Leadership Council, 2004; Gerpott, et al., 1988), this example showed that employees' perceptions of careers may be substantially different in different organizations. The attraction-selection-attrition (ASA) framework (Schneider, 1987; Schneider, Goldstein, & Smith, 1995) may partially explain this. It suggests that an organization attracts and selects individuals with attributes that are similar to those within the organization. Employees who do not fit will eventually leave the organization. Over time, this leads to a restricted, more homogeneous range of individuals within an organization (Nelson & Billsberry, 2008). Much as this seems plausible, it is surprising that even in companies with highly similar profiles, such as Org01 and Org04, employees appeared to be substantially different. Understanding such aspects in more depth would be highly relevant for organizations competing for scarce IT talent. Further research will be required to address this point more specifically (see section 10.4.5).

Still, this study clearly highlighted the value of taking the organizational level of analysis into account in order to gain a contextualized understanding of individual careers. Organizations *do* matter in individual careers – they create and offer jobs, and they form the "landscape" in which individual careers develop (Baruch, 2006). Despite some external limitations, such as economic pressure (see section 9.1.4), the participants in this study seemed to be fairly free to decide upon their own career paths within the given objective and subjectively perceived boundaries of their individual "career landscape". Overall, organizations appeared to influence but – in line with the contemporary careers literature – not to control the careers of these IT professionals.

9.5.3 Industrial/professional level – The inadequacy of IT stereotypes

This section first discusses findings about some key characteristics commonly associated with IT professionals, thereby challenging some common stereotypes. Based on the discussion, more general conclusions are drawn regarding the generalizability of the study results beyond the IT industry.

Turnover and physical mobility of IT professionals

One key characteristic associated with IT professional is their assumed high turnover rate, i.e. their high inter-organizational mobility (see section 2.3.5.1). Yet, in this study the self-reported mobility rates could hardly confirm such claims. As reported in section 6.3.8, over the five years before the study the respondents had, on average, made 1.23 intra-organizational, 0.68 inter-organizational and 0.34 geographical changes. Overall, they had been with their current employer for 8.5 years and had worked in their current role for 3.5 years, on average. Even roamers, the most mobile cluster, had an average tenure of 8.0 years with their employer and 3.1 years in their current jobs. Despite major inter-organizational and cultural differences, the overall results clearly did not show any major turnover rates amongst these IT professionals.

The results in this study caution against claims that their high physical mobility makes IT professionals a paragon of contemporary careers (e.g. Saxenian, 1996). Recent research from IT offshoring companies (Agrawal, et al., in press; Wickramasinghe & Jayaweera, 2010) has, indeed, suggested the existence of "new deals" and careers in line with contemporary career models. However, in line with various authors who have questioned the assumed prevalence of new careers (see Table 17), the mobility patterns found in this study suggest that elements of traditional careers can still be widely found amongst IT professionals in Western Europe.

Also, openness to occupational mobility was quite high despite the lower scores in the second survey. Hence, claims about individuals being more loyal to their profession than to their employer (e.g. Hall, 2002) could not be confirmed generally. Even though IT professionals, in particular, have often been portrayed accordingly (e.g. Loogma, et al., 2004; Scholarios, et al., 2008), the findings here provide a more nuanced picture; they imply that whilst some IT professionals, indeed, cling to their profession, others appear to be perfectly open to cross occupational boundaries. The interviewees in Org05, who had changed their occupations several times without leaving their employer, were a prime example of such individuals. The fact that many IT professionals were open for an occupational change arguably supported two aspects of psychological mobility in the boundaryless career concept. Namely, it might be seen as a sign of "breaking traditional organizational assumptions about hierarchy and career advancement" and "perceiving a boundaryless future regardless of structural constraints" (see section 3.3.1).

However, some findings also supported authors such as Rose (2007), who suggested that there might be an "in-built" need for mobility in IT to keep one's skills up-to-date. For example, interviewee 05 clearly stated that despite his preference for stability and predictability he felt that some organizational mobility was important because "it allows me to move around without people saying that I've been in the same job for ten years". However, the findings showed that IT professionals in Europe do not change their jobs as frequently as is commonly believed, and that their mobility is much more in line with other occupations in Europe than turnover rates reported from the IT industry in the USA. Therefore, the results suggested that general assumptions regarding the high mobility in the IT industry are not justified in the context of IT professionals in Europe. Rather, individuals and their career context need to be considered to understand their mobility behaviour.

Motivation of IT professionals

This study also provided valuable input regarding motivators of IT professionals. The results were in line with much of the previous general and IT-specific literature on motivation (see section 2.3.5.2). Couger and Zawacki's (1980) finding that IT professionals have a strong need for learning, development and challenge was confirmed. It was notable that "being challenged" was the third most frequently named sub-category in the individual career success definitions. The "pure challenge" anchor also received high scores in the survey. Further, the high emphasis on learning in the quantitative and the qualitative analyses suggested that this was a key driver for many participants. However, in line with Mallon and Walton's (2005) findings, the interview results provided a more nuanced picture. Especially solid citizens with their learning focus on technical training and the roamers' call for organizational support for training seemed to confirm the view that a utilitarian, job-focused approach to learning is still widespread amongst IT professionals. For those participants, learning in IT appeared to be predominantly perceived as honing technical skills rather than as personal development in a broader sense.

Based on their career anchor results and career success definitions, many respondents had a preference for autonomy and independence at work. However, this did not confirm one of Couger and Zawacki's (1980) key findings, namely, IT professionals' low "social need strength". For example, participants indicated a high preference for teamwork that did not significantly differ between the three clusters (one-way ANOVA Scheffe post-hoc tests, $p<0.05$). Further, the generally high scores on factor 7 (working beyond organizational boundaries) and the fact that an admittedly small, yet notable, group of participants defined

career success in terms of good cooperation suggested IT professionals should not be generally stereotyped as antisocial geeks. It remains an open question as to why these findings were in contrast to Couger and Zawacki (1980). To some degree, social desirability when filling in the survey may have played a role. The gaps between quantitative scores and qualitative statements in the interviews may point in this direction. However, in line with the changes described in section 2.3.4, it seems plausible that, over the 30 years since that pivotal study, teamwork has just become an essential part of many individual job roles in IT. In a more diverse (e.g. Diaz Research, 2008a), highly educated IT workforce working in broader, more complex and interdependent roles (e.g. Niederman, et al., 1999), teamwork seems to be perceived mainly positively today – as long as IT professionals are granted a reasonable degree of autonomy.

As discussed in section 9.2.2, the findings regarding career success definitions showed that earning much money was not a major success factor for these IT professionals. Contrary to what has often been assumed, this supported literature claiming that money is not a key motivator for IT professionals (see section 2.3.5.2). The career anchor results further suggested that other, non-monetary motivators may be much more relevant to individuals. Still, receiving an appropriate, fair remuneration was seen as an element of career success by a substantial group of participants. This was in line with findings regarding motivation in general and the role of money as a hygiene factor (e.g. Corporate Leadership Council, 2004; Herzberg, et al., 1959; Judge, et al., 2010).

Consequently, the findings in this study were in line with much of the relevant literature on motivation. As shown in section 9.2.2, job satisfaction as a key motivator was confirmed as well; however, the results provided a more nuanced picture regarding motivation in IT. For example, the career orientation findings showed the relevance of geographical (im)mobility for many individuals. The career anchor results highlighted the importance of personal values ("service and dedication") and of life outside the workplace, especially the family. Such findings implied that there are various essential elements for IT professionals that have a substantial impact on their motivation but have hardly been addressed when looking at motivation. Beecham et al. (2008) reported that need for growth and independence were the most frequently cited general motivators. The findings in this study clearly showed that there is more to motivation in the IT industry than these two core elements. This has various practical implications for organizations (see section 10.2.1).

Are IT professionals different from other professionals?

This study provided substantial evidence that some common stereotypes about IT professionals, their characteristics and their motivators are not appropriate. Rather, IT professionals seem to share much more with other professionals than is often assumed in research and practice.

Nevertheless, it remains an open question as to how easily the findings can be generalized and applied to other occupations. For example, despite some notable differences, the career anchor results in this study were well in line with several other studies (see section 9.3.3). However, most of those studies focused on highly educated individuals working in mainly technical areas, such as IT or engineering. It is therefore difficult to say whether the IT industry is more cosmopolitan than other occupations, as has been suggested by some authors (e.g. Couger, 1996; Gerpott, et al., 1988). The findings regarding the important role of nationality (see section 9.5.4) or the relevance of being geographically rooted, however, caution against overestimating the cosmopolitan elements in IT professionals' career orientations.

Also, whilst this study confirmed the importance of learning and challenge for IT professionals, such elements may arguably be key to highly educated, highly skilled professionals in other occupations as well. The fact that those with higher educational qualifications defined career success significantly more frequently in terms of being challenged than those with lower qualifications (see Table 46) and had a higher preference for the "pure challenge" anchor (see section 8.2.2.2) suggests that the generally high levels of education may help explain the importance of challenge for IT professionals. Further, as shown above, the fact that IT professionals in this study were less interested in money and more inclined to work in teams than commonly assumed shows that some of the characteristics typically said to differentiate IT professionals from other occupations may not be as strong as often implied. Finally, contrary to claims about the prevalence of contemporary careers in the IT industry (e.g. Khapova, et al., 2005; Saxenian, 1996), the findings regarding the three career orientation clusters showed that traditional career elements are still prevalent, as has been reported from various other industries (see Table 17).

Several aspects of this study suggest that the findings may, indeed, be applicable to other occupations as well. As in other studies (e.g. Gerber, Wittekind, Grote, Conway, et al., 2009), major differences could be found even within a relatively narrow community – in this case amongst IT professionals. Also, as in other industries macro features, such as or-

ganizational membership (e.g. Gerpott, et al., 1988) and culture (e.g. Khapova, et al., 2009), were confirmed as crucial for a thorough understanding of individual careers. The findings in this study were based on a large, diverse, multi-organizational and multi-cultural sample working in a broad variety of jobs, which further supports the view that the results may well be relevant in a broader context outside the IT industry. As shown in sections 2.3.3 and 2.3.4, the IT industry is heavily affected by the very changes it helps cause in today's world of work. Therefore, considering the findings, careers in the IT industry may have exemplary character for other industries that are also subject to such changes, but in which the effects arguably take longer to become as strong and apparent as in the IT industry.

In summary, given that the sample was deliberately restricted to IT professionals makes it difficult to assess the exact degree to which the findings can be simply transferred into a context outside the IT industry. However, the results in this study repeatedly showed that it is crucial to take the individual as well as the broader context into account to understand individual careers. There is no "typical" IT professional – as there is arguably no "typical" employee in any other occupation. Bearing that in mind, the findings may well be applicable to career research of highly educated non-IT professionals in a Western context.

9.5.4 Economic/societal level – The impact of culture and economy

Although the key focus of this study was not on the most abstract, economic/societal level of analysis, several interesting points can be addressed here as well. As argued in section 2.2, looking at such a general level is necessary to contextualize outcomes in individual careers. This was confirmed in this study in two ways. First, economic changes appeared to have a significant impact on individual career orientations, as discussed extensively in section 9.1.4.

Second, using nationality as a proxy, cultural differences appeared to differentiate individuals in many areas of this study. With regard to career orientations, for example, the Swiss were found to be less geographically mobile than UK citizens (see section 7.3.2.1). This was in line with representative surveys regarding the openness for geographical mobility amongst Swiss employees (Grote & Staffelbach, 2009) where about 45% of all respondents indicated a "rather low" readiness to be geographically mobile. Only 30% ranked their readiness for geographical mobility as "rather high". Also, it confirmed anecdotal evidence from the discussion with representatives in participating organizations.

For example, the HRM manager in Org07 complained that it was almost impossible for them to recruit Swiss IT professionals because hardly anyone wanted to relocate within Switzerland; however, they did not have any problems hiring German IT professionals willing to move from anywhere in Germany to Switzerland.

In terms of career success definitions, for instance, UK citizens more frequently referred to remuneration and hierarchical advancement than the Swiss. The latter, on the contrary, used satisfaction and non-material recognition more frequently than the British to define career success (see section 8.1.2.2). Together with the career anchor results (see section 8.2.2.2) this suggested that, in comparison with their Swiss and the Germans peers, UK IT professionals may be more driven by traditional beacons in careers, such as following a managerial career path, earning a lot of money and having job security, rather than the desire to do something meaningful as part of one's job. Finally, with regard to career management tools, further differences were found. For example, UK citizens tended to prefer tools such as functional/technical training, clear descriptions of career paths and temporary assignments. The Swiss favoured tools such as performance appraisals and personal development plans more highly than the British (see section 8.3.2.2).

Such results seem surprising given that Switzerland, Germany, and the UK are highly similar in many ways. Not only do their IT labour markets share some key characteristics (see section 2.3.2), but also, as summarized by Gerber et al. (2009), Switzerland and the UK are leading economies with generally individualistic, future- and performance-oriented societies and highly developed and competitive labour markets. These broad characteristics are arguably applicable to Germany as well. However, as mentioned above, several significant differences emerged with regard to how individuals in these countries regarded their careers.

Cultural diversity may well explain some of the differences. For example, the Swiss' preference for physically immobile careers has arguably been influenced by the fact that Switzerland is a small country with historically low unemployment rates. This may simply not have made it necessary for many individuals in the workforce to relocate in search of work. With regard to career success and the attributed relevance to the "service and dedication" anchor, however, UK citizens appeared to value more traditional aspects than the Swiss. On an anecdotal basis, such differences between the UK and Switzerland were repeatedly experienced by the author of this study when working in London. Hierarchical promotion and monetary rewards, rather than having meaningful tasks, appeared to be the prime crite-

ria for UK peers when considering individual career moves; whereas for Swiss peers, being able to work on meaningful tasks seemed to be a key criterion for such decisions. However, their low scores on the "service and dedication" anchor may also suggest that the British simply attributed a slightly different meaning to that anchor than did the Swiss. Based on the data in this study, the degree to which such effects may have affected the results cannot be established. Still, considering Schein's (1984) findings regarding the inter-cultural differences in career anchor interpretations, it is a possibility that needs to be considered.

Beyond cultural differences, economic realities may well have substantially affected the results. At the time of the survey, the participating UK organizations were more likely than the Swiss and German organizations to outsource parts of their workforce, mainly for cost-cutting purposes. Arguably, in line with Maslow's (1954) need hierarchy theory, this may have caused British employees to regard tangible aspects of career success, such as salaries, titles etc., as more important than subjective aspects. The findings regarding the decrease in openness to occupational change between the two surveys suggest that such an effect is well conceivable. As shown in section 9.1.4.1, the average unemployment rate in Switzerland was as low as 3.7%, even in 2009 (Staatssekretariat für Wirtschaft SECO, 2010a). Furthermore, the social security system in Switzerland is highly reliable and provides substantial contributions to those in unemployment. Hence, even if Swiss IT professionals had been affected by unemployment, they could have relied on a secure social safety net. It might therefore be argued that Swiss employees could simply afford, more easily than their British and German peers, to value intangible aspects of career success more highly. However, this assertion cannot be verified by the data in this study; it just implies that other aspects beyond cultural differences may well have affected the results.

The exact degree to which the results were influenced by cultural or economic differences between the three countries cannot be established and was beyond the scope of this study. Still, the findings strongly suggest that taking this level of analysis into account is important to contextualize findings regarding individual careers, as has been called for by many European researchers (e.g. Khapova, et al., 2009; Mayrhofer & Schneidhofer, 2009). Overall, four points seem notable here. First, the fact that UK citizens tended to have a significantly higher turnover rate than German and Swiss employees may suggest that the literature of contemporary careers may be more applicable to the UK than to Switzerland and Germany. Second, given their emphasis on objective measures of success, it seems surprising that UK citizens were most frequently clustered as protean career architects. One

can only speculate why many of them were labelled as “protean” whilst still clinging to very traditional yardsticks to measure their career success. It may simply be that there was a social desirability bias in how UK citizens scored the career orientation items. Also, as the protean and boundaryless career orientations did not fully capture all aspects of individual careers (see section 7.1.1), it could be argued that additional components, such as the relevance of money or job security, may need to be included as aspects of career orientations. In addition, it needs to be noted that although protean career architects were most prevalent amongst UK citizens in relative terms, Swiss protean career architects (n=211) clearly outnumbered British ones (n=125), which may well have an effect on the overall characteristics of this cluster. Regardless of its causes, the second point leads to a third observation: based on the results, one might argue that the Swiss were traditional in terms of mobility whilst the British were traditional in terms of what they valued in their careers. This provides further evidence that simply labelling careers as “traditional” and “contemporary” is not an adequate way of describing individual careers in the contemporary workforce.

Finally, it is important not to forget in how fundamentally different ways individuals appeared to perceive their careers. Despite the acknowledged relevance of macro level effects, such as culture or organizational membership, the key to understanding individual careers is the individual. This might also help explain why a more detailed analysis of the inter-organizational and inter-cultural differences of career success definitions did not produce any meaningful results (see section 8.1.2.2). Differences at the more general levels of analysis may be most helpful in explaining the broader context of an individual career. Yet, they may not be sufficient to understand the inter-individual differences in career orientations that ultimately and most directly affect individual careers.

9.6 Summary

In this chapter, the four core elements in this study were discussed extensively. Several findings of this study empirically supported previous research, for example, with regard to the career anchors preferences of IT professionals or the limited role of money as a motivator. Some of the results were also in contrast to what has been previously reported, for example, regarding the assumed generally high levels of job mobility in the IT industry. However, this study also resulted in many new and more detailed insights about career orientations, individual career success definitions, career anchors, and career management tools. For instance, the results provided much empirical evidence that the dichotomy between "old" and "new" careers in the academic careers debate is not adequate. In terms of career success, various additional, previously hardly acknowledged categories of subjective career success have been detected and, with regard to career management tools, the findings provided a much more detailed understanding of individual preferences than described by previous research. In particular, the interplay between the various elements of the study resulted in various new findings about IT professionals and their careers. For example, it showed that whilst the "specialist versus manager" dichotomy in IT may be a helpful guideline for organizations to provide career management tools, it is not at all sufficient to address more fundamental career-related requirements of IT professionals.

With regard to the four levels of analysis in this study – individual, organizational, industrial/professional, and economic/societal – it became clear that each of the four levels is worth considering. However, much as viewing each level on its own may provide a helpful perspective, it does not reveal the full picture. In support of a broad consensus in the current career literature, it is therefore highly important to take into account the individual perspective as well as various contextual factors in order to understand individual careers.

This leads to an overview of the key contributions of this study and several practical implications thereof. These topics are covered in the final chapter of this thesis.

10 Contributions, applications and future research

As described in section 1.1, this study had three major research objectives. The first was to refine and use the protean and boundaryless career concepts in order to identify career orientations amongst IT professionals in Europe. The second objective was to observe the potential interplay between career orientations of IT professionals in Europe and their individual definition of career success, their career anchors, and their career management tool preferences. The third was to use career orientations, individual definitions of career success, career anchors, and preferences for career management tools to explore additional characteristics of IT professionals' careers in Europe. Based on these research objectives, as well as on the results and the discussion presented in the previous chapters, the final chapter provides an overview of the academic contributions of this study. Then, a wide range of practical implications for IT organizations is described. Further, limitations of this study are discussed, which leads to various suggestions for future research. Finally, a few concluding remarks are presented.

10.1 Contributions

This study addresses various gaps in the careers literature. With its findings, it contributes to a broader, more thorough understanding of several key aspects in career research. Table 59 provides an overview of the main contributions of this study. These are based on and closely linked to the eight contributions that were briefly outlined in section 1.2. In the following sections, each of these contributions is explained more fully and related to corresponding key findings.

10.1.1 Career orientations

In terms of protean and boundaryless career orientations, two main contributions are made:

CO 1) The study contributes to research on protean and boundaryless careers as it addresses the conceptual shortcomings and the lack of empirical data regarding the two concepts.

The two concepts were thoroughly examined, conceptually refined and operationalized, based on a detailed analysis of the underlying literature. Then, the newly operationalized protean and boundaryless career concepts were empirically applied in a large survey. Overall, eight factors of career orientations and three career orientation clusters could be identified. Three of these factors were related to the protean career, the other five to the boundaryless career.

		Contributions	Contribution No. (Sect. 1.2)
Career orientations	CO1	The study addresses the conceptual shortcomings and the lack of empirical data regarding two prominent concepts – the protean career and the boundaryless career.	2
	CO2	The study contributes to career research with previously unavailable empirical findings regarding the interplay between protean and boundaryless career orientations as well as several other career-related themes.	2/6
Career success	CS1	By exploring individual definitions of career success amongst a large sample of participants, the study responds to a major gap in the career success literature.	3
Career anchors	CA1	The study addresses the scarcity of career anchor research in Europe, and it contributes to a better understanding of various unresolved points regarding career anchors.	4
Career management tools	CM1	The study contributes to the current career management discourse by exposing discrepancies between what individuals perceive as useful and what career management tools organizations actually provide.	5
General contributions to career research	CR1	Based on a large set of empirical data, the study contributes to career research by providing rare findings regarding the prevalence of "contemporary" careers in Europe.	1
	CR2	The study provides scarce findings regarding changes of individual career orientations over time.	1
	CR3	The study contributes to a better understanding of career-related differences between three European countries, namely Switzerland, Germany and the UK.	1/6
IT-specific contributions	IT1	This study contributes to the literature regarding subjective careers in the IT industry where corresponding research has been scarce.	7
	IT2	Based on a mixed-method approach, this study contributes to a more contextualized understanding of individual careers in the IT industry.	8

Table 59: Contributions of this study – An overview

With regard to the protean career, it was shown that the original work-related scope of the concept may have been too narrow. Life outside work, in particular their family, appeared to be of high importance for individuals with high scores on the protean factors. The factors related to the boundaryless career provided valuable input to the debate about the relevance and nature of career boundaries. For example, the results empirically confirmed that some career boundaries seem to be primarily of a psychological nature. In addition, this study showed that individuals interpret and judge apparently objective career boundaries in highly different ways (see sections 7.1 to 7.4). Overall, the empirical findings clearly highlighted that the eight career orientation factors are relevant in two ways. On the one hand, they are *analytically relevant* for those who study and consult about careers; these factor constructs appear to distinguish between clusters, do so in different ways, and relate to career behaviour in expected ways. On the other hand, in the interviews, it became apparent that the eight factors are also *subjectively relevant* for individuals and their careers (see section 7.4).

Further, the three career orientation clusters were compared with Briscoe and Hall's (2006a) matrix of protean and boundaryless career orientations. This addressed a gap in research, providing valuable findings with regard to the prevalence of the suggested career orientation profiles and the interplay of protean and boundaryless careers more generally. Two of the three career orientation clusters corresponded with Briscoe and Hall's suggested profiles. The third cluster had not been described previously, and although it was newly found, that cluster could be well accommodated in Briscoe and Hall's matrix (see section 7.3.2).

CO 2) The study further contributes to career research as it provides previously unavailable empirical data regarding the interplay between the protean and boundaryless career concepts and additional career-related themes, such as career success, career anchors and career management tools. This addresses calls for a more inclusive, interdisciplinary approach to studying careers (e.g. Arthur, 2008; Khapova & Arthur, 2011).

Studying the interplay of these themes resulted in detailed characterizations of the three career orientation clusters. The descriptions were far more fine-grained than those provided by Briscoe and Hall (2006a) and most other career orientation cluster characterizations in the previous literature. The three clusters were found to be clearly different with regard to their career success definitions as well as their preferences for career anchors and career management tools (see sections 8.1.2.3, 8.2.2.3, and 8.3.2.3).

10.1.2 Career success

In terms of career success, the key contribution is as follows:

CS 1) The exploration of individual definitions of career success in this study addresses both a current dearth of corresponding empirical research as well as important gaps in the literature. The study thereby contributes to a more thorough understanding of the broad and diverse ways individuals define career success, as well as to the discussion regarding the relevance of subjective career success.

The findings provided empirical evidence regarding the prominent role of subjective career success criteria, and they suggested that the importance of objective success criteria for individual careers may have been overestimated. The variety of answers provided cautions against using a small set of pre-defined success categories in empirical research.

Further, the results demonstrated how important it is to view career success from an individual point of view (see section 8.1.2.1). In addition, by empirically applying and refining Dries et al.'s (2008) framework, the study also addressed the corresponding gap in research. In total, 16 main categories and 41 sub-categories of career success were identified, many of which had not been covered by Dries et al. (see section 8.1.2.1).

10.1.3 Career anchors

Regarding career anchors, an important contribution is made:

CA 1) By addressing the scarcity of career anchor research in Europe, this study contributes to a more thorough understanding regarding the types and number of anchors an individual may have, the cross-cultural applicability of the concept, as well as the interplay of career anchors with various career-related concepts and variables.

The findings highlighted the value of treating job security and geographical security as separate anchors (see section 9.3.2). Further, quantitative and qualitative results confirmed that individuals may well have several equally strong anchors, in contrast to Schein's (1978) original claims (see section 8.2.2.1). The study also addressed the lack of comparability of career anchor studies. By using a previously tested and validated career anchor scale, the results could directly be compared with career anchor studies of US IT professionals. The results were surprisingly similar to those reported by Igabria et al. (Igbaria & Baroudi, 1993; Igbaria, Kassicieh, et al., 1999) (see section 9.3.3). Thereby, the applicability of the career anchor concept in a European context could be confirmed, despite substantial inter-cultural differences within Europe (see section 8.1.2.2). Overall, career anchors were related in expected and meaningful ways to a broad variety of variables (see section 8.1.2.2), as well as to career management tools (see section 8.3.2.2).

10.1.4 Career management tools

With regard to career management, the following contribution is provided:

CM 1) The study contributes to the current career management discourse by examining in detail discrepancies between what individuals perceive as useful and what organizations actually provide regarding career management.

Overall, the findings confirmed that organizations still play an important role in providing support for individual careers, contrary to what has often been claimed in contemporary career concepts. However, organizations were found to provide mainly standardized career management tools, whilst individuals clearly preferred tools that offer more individualized support. Further, it was shown that many individuals seem to consider career management tools they do not have access to as useful, and that they tend to regard tools they have access to as less useful (see section 8.3.2).

10.1.5 General contributions to career research

Three key contributions are made to career research in general, addressing corresponding gaps in previous research:

CR 1) This study contributes to a prominent academic discourse by providing rare empirical data about the prevalence of contemporary careers and, more generally, the complex nature of individual career paths and orientations. The fact that the data were collected in Europe makes them even more valuable because the debate on contemporary careers has mainly been led by American researchers working with American samples.

The results showed that preferences for traditional careers can still be frequently found amongst the respondents in this study (see sections 9.1.3 and 9.5.3). Yet, the empirical findings clearly suggested that a simple “old versus new career” dichotomy does not suffice to capture the complex nature of individual careers, although it is frequently used.

Rather than following either “traditional” or “contemporary” careers, most individuals seem to combine elements of both career types in their individual career paths and orientations. Also, the study showed that elements of contemporary careers are not necessarily associated with career satisfaction, i.e. subjective career success, which is in contrast to one of the basic assumptions about contemporary career concepts (see section 9.1.5).

CR 2) By exploring career orientations in a longitudinal research design, this study contributes to career research as it provides a rare opportunity to examine in detail how individual career orientations may change over time.

In the findings, significant changes on two career orientation factors could be observed; these suggested that individual career orientations may well be affected by external events, such as the economic crisis in 2008 (see section 9.1.4). Thus, although personal agency seems to play a substantial role for IT professionals in Europe, this study showed that its role may have been overestimated in contemporary career concepts (see section 9.5.1). Therefore, whilst the findings provided ample empirical evidence about the relevance of taking into account the individual perspective when studying careers, they also showed the need to embed the individual perspective in the context of the organization, the industry, as well as the social, economic, and cultural environment of individuals (see sections 9.5.2 to 9.5.4).

CR 3) Based on a large set of empirical data, the study provides rare insights with regard to career-related intercultural differences between three European countries, namely Switzerland, Germany and the UK. It thereby contributes to the debate regarding the importance of taking into account cultural differences when studying careers.

In the results, nationality repeatedly appeared as a strong differentiator on several variables (see section 9.5.4). In line with Gerber et al. (2009), the findings clearly showed that significant intercultural differences can be found even between individuals from culturally close regions, such as the German speaking part of Switzerland and Germany. This supported claims regarding the importance of taking into account the cultural diversity in Europe when studying careers (e.g. Khapova, et al., 2009).

10.1.6 IT-specific contributions

Finally, two IT-specific contributions are made:

IT 1) This study contributes to the literature regarding subjective careers in the IT industry where corresponding research has been scarce, and it empirically supports the relevance of this perspective for examining careers in IT.

The findings clearly indicated the relevance of taking the individual perspective into account when looking at careers in IT (see section 9.5.1). In particular, the results provided a broader and more nuanced understanding of the differences between individuals with a preference for either managerial or specialist careers.

Whilst the distinction between "specialists" and "managers" was found to be meaningful regarding the provision of career management tools (see section 8.3.2.2), the career anchor results strongly cautioned against overestimating the difference between the two groups (see section 9.3.4). Further, the findings made it possible to link general career research and the IT-specific context, as called for by Ginzberg and Baroudi (1988). This addressed the dearth of research combining an in-depth examination of both, the general careers literature and the IT-specific body of knowledge.

IT 2) By using a rare research approach that combined qualitative and quantitative research methods, this study contributes to a more holistic, more contextualized understanding of individual careers in the IT industry.

The quantitative approach provided a solid basis for analyzing the research questions. Yet, several nuances emerged in the qualitative data that allowed refining and contextualizing the quantitative results, for example, regarding individual motives for being geographically (im)mobile (see section 7.4.2). This showed the value of taking a broad, contextualized approach in this thesis rather than just testing a few narrow hypotheses, as has often been done in previous literature on IT professionals (see section 2.3.4.1).

Based on such an improved understanding of IT professionals and their careers, practical implications for IT organizations are presented in the next section.

10.2 Practical implications and practical impact of this study

The findings in this study have a wide range of practical implications for organizations, which are discussed in the next section. In addition, how the results have been used in the participating organizations, i.e. what practical impact this study has had so far, is briefly described.

10.2.1 Practical implications – What IT organizations may learn

First, as shown in Table 60, practical implications for IT organizations are presented with regard to each of the four main themes in this thesis. Then, a few more general implications for IT organizations are discussed. The following sections cover each of these points in more detail.

	Practical implications for IT organizations
Career orientations	• There are three main groups of career orientations amongst IT professionals. These clusters can serve as a rough guideline with regard to career-related requirements and preferences of employees.
Career success	• Individuals define career success in highly diverse and complex ways. • Subjective career success criteria are more frequent than objective ones. In particular, money is not a motivator for most employees.
Career anchors	• Career anchors can be used to provide targeted, specific HRM processes. • Dual ladder systems may be helpful, but not sufficient, in addressing individual career anchors. • Career anchors can be used as a tool for individual career support.
Career management tools	• It is worth investing money in supporting individuals' career development. • Acknowledging inter-individual differences in career management tool preferences is important.
General implications	• There are various job characteristics that are generally preferred by many IT professionals. • Simple categorizations of individuals are not adequate. • In organizations, the individual perspective needs to be taken into account for job- and career-related issues.

Table 60: Practical implications for IT organizations – An overview

10.2.1.1 Career orientations

Despite the need for further conceptual clarification of the protean and boundaryless concepts (see section 10.4.1), it was interesting how positively the participating organizations responded to them. Although none of the organizational representatives had heard of them previously, the concepts and their metaphors clearly appealed to these HRM and line managers. The notion of protean and boundaryless careers seemed to address something that they had not been able to tap into before. Maybe it was the fact that the two concepts allowed an examination of subjective careers of IT professionals rather than exclusively focusing on their objective careers, in line with what Ginzberg and Baroudi (1988) requested. Consequently, much as further conceptual refinement is required, it needs to be acknowledged that the practitioners in the organizations regarded the two concepts as highly relevant and useful. The three clusters may help HRM representatives and line managers to gain a better understanding of different career orientations amongst different groups of employees. Therefore, the clusters can serve as a rough guideline regarding the different

types of career support that may be required in the workforce. However, they must not be misunderstood as a simplistic tool for managing employees (see section 10.2.1.5).

For protean career architects, meeting personal values and expectations seems paramount. In line with Gasteiger's (2007a) findings, protean career architects appear to be loyal to their employers as long as their values are met and respected at work and as long as this does not cause any major conflict with their life outside work, especially with their family. For example, this implies that flexible work schemes, autonomy and independence in the workplace, trust and other forms of non-material recognition, as well as access to career management tools, such as mentoring, may be particularly promising in order to create a work environment suitable to protean career architects.

Most solid citizens perceived geographical mobility as something negative. Hence, organizations need to find ways how to acknowledge and deal with that immobility, especially because solid citizens also tend to be loyal and highly committed employees. The fundamental importance geographical (im)mobility appeared to have for many employees highlights that the role of embeddedness (Lee, et al., 2004; Mitchell, et al., 2001; Ng & Feldman, 2007, 2011) outside an individual's workplace may have been underestimated. This not only applies to much of the literature on contemporary careers that often portrays high mobility as something worth striving for (see section 3.5), it is also a lesson to be learnt for those in charge of managing individuals in organizations. For example, organizations may benefit from taking into account individuals' geographical mobility preferences. Unexpectedly, Org04 provided an example of how the geographical mobility needs of employees can be respected in a medium-sized organization. At the time of the survey – notably, well before they knew that half of their employees were solid citizens – the management team in Org04 were looking for new, larger offices. A large map of the wider Zurich area was pinned on a wall in the CEO's office; dozens of red needles on the map indicated where each of the employees lived. Based on the clustering of the needles, two potential locations for new offices were chosen. Both new places would have allowed most employees to reach work in about the same time as before. The employees were then allowed to vote which of the two places they would prefer – and Org04 eventually moved to the chosen location a few months later.

Roamers, finally, may especially benefit from opportunities to move between different challenging jobs that allow them to develop additional qualifications. Options for such intra-organizational moves may be limited in small organizations. In medium-sized or

large organizations, however, many opportunities are possible, as the example of Org05 clearly showed. However, this may require a better coordination across various (also non-IT) functions and, in particular, more openness from hiring managers regarding such career moves which are often considered as unconventional. When roamers who are willing to move feel overly restricted in terms of intra-organizational moves, they may well choose to leave the organization altogether. As the career histories of roamers in this study showed, crossing organizational boundaries does not seem to be a major obstacle for them.

10.2.1.2 Career success

In line with Herzberg et al. (1959), most individuals in this study did not appear to be driven by earning an increasing amount of money; many simply seemed to perceive money as a hygiene factor. Gattiker and Larwood (1986, p. 91) argued:

> *"Small improvements (e.g. more decision power) may prove more powerful with regard to improving individual feelings of success than more money."*

This study provides solid empirical evidence that this claim is still valid. However, even today many organizations arguably tend to regard monetary incentives as their key attractor for new staff and their primary retention tool for their employees. Yet, the variety of career success definitions provides a broad range of potential alternative incentives to attract, motivate and retain employees. Especially if combined with the career anchor and career management tool findings, there are numerous additional ways, beyond monetary incentives, to reward individuals and let them feel successful in organizations. However, the results also showed how important it is to acknowledge individual definitions of career success rather than to assume that the same criteria are valid for the entire workforce. This implies that individuals should have an opportunity to define their success criteria, and that, ideally, this should result in individual incentive packages. Much as this would imply more organizational effort and coordination, the potential benefits, e.g. more motivation at equal or even less cost, would arguably justify such approaches. Particularly for organizations that cannot compete with the high salaries paid in the financial services industry, this could be a promising way forward. In line with Coombs's (2009) findings about IT professionals in the NHS, representatives in Org02 and Org07 also reported that it was difficult to attract new staff because their salary levels were lower than elsewhere. However, Org08, a not-for-profit organization, was a good example that the consequent emphasis on a flexible work environment, rather than on high salaries, may serve as a powerful attractor for new staff and for retaining employees over the long term.

10.2.1.3 Career anchors

Career anchors appeared to bridge patterns of traditional and contemporary careers very well; they were applicable to all individuals in this study, regardless of their individual career orientation. The feedback from organizations and individuals was highly positive. Although career anchors had not been known in any of the participating organizations, the representatives unanimously perceived them as most valuable for their HRM processes. For example, they recognized the potential of the anchors to refine their recruiting processes, to rethink their current career development initiatives, and to use them as a tool for individual career discussions with employees. Tremblay et al. (2002, p. 19) described the organizational benefits of working with career anchors as follows:

> *"An assessment of career anchors may […] be a highly relevant career-planning tool in determining mobility. A better understanding of the career anchors may prove to be useful to both individuals who plan to make changes to their careers and organizations that have put in place tools to improve the match between career supply and demand."*

In this study, their view was supported. Career anchors generally translated well into actual or intended behaviour or preferences of individuals. Hence, knowing and acknowledging career anchors may be helpful for organizations with regard to providing more targeted career support. On a strategic level, for example, assessing the overall career anchor scores of a particular workforce might be informative for planning purposes, e.g. regarding career development tools or job mobility behaviour. The fact that "service and dedication", "lifestyle", "autonomy and independence" and "job security" appeared to be of high importance, yet were distributed fairly equally amongst the respondents, suggests that addressing these anchors by specific HRM practices may be particularly effective. However, the heterogeneous career success results caution against overly simplistic views on individual motivators and success factors (see section 10.2.1.2).

In particular, the findings have implications for organizations working with dual career ladders. Clear differences of individuals with preferences for specialist or managerial careers regarding career anchors and career development tools suggest that providing dual career ladders may not be wrong. Based on the findings in this study, using the "specialist versus manager" dichotomy is a helpful perspective when it comes to addressing career management tool preferences. Dual ladder systems may well be justified as tools that help manage careers of specialists and line managers. If implemented properly, they make it possible for organizations to provide targeted career management tools efficiently and effectively to different groups of employees. However, in line with corresponding literature

(see section 4.4), the career anchor findings clearly showed that solely relying on the "specialist versus manager" dichotomy does not suffice. According to these findings, there are relevant motivators and career-related needs amongst IT professionals that cannot be captured by that dichotomy (see section 9.5.3). Rather, the strongest career anchors were fairly equally distributed across the entire workforce. However, dual career ladders do not usually cover any of those anchors. Therefore, HRM representatives and line managers need to take into account the rich diversity of individual career anchors and acknowledge that many employees place a higher emphasis on autonomy or lifestyle, for example, than on technical specialization. Organizations with existing dual ladders should enrich their systems with such additional dimensions, for example, by introducing flexible work schemes, granting more autonomy and independence in the workplace, or by redefining work roles to give jobs more meaning. Even companies without dual ladders may benefit from addressing the stronger, more prevalent anchors well before implementing a dual ladder with a narrow focus on technical and managerial specialization. If jobs in IT, indeed, tend to be "lousy work", as claimed by Cappelli (2001, p. 94) (see section 2.3.5.2), then career anchors might not only help adjust organizational processes. In line with Igbaria et al. (1999), career anchors may well offer promising ideas for a targeted and effective redesign of individual jobs. For example, individuals with a strong preference for the "lifestyle" anchor may be offered more latitude in terms of working hours or working from home.

Finally, all 25 interviewees voluntarily discussed their individual anchor scores that matched surprisingly well with their career histories. Again, the feedback was highly positive, providing support for the metaphorical appeal (Inkson, 2002) and the practical relevance of these anchors for individual careers. Hence, at an individual level, career anchors may serve as a valuable tool for career discussions with employees. Yet, line managers are not necessarily the most suitable people in an organization for such discussions (see section 4.2.2). Also, most of them arguably lack the specific knowledge required to discuss career anchor results properly with their employees. Given the desire many individuals expressed for career coaching, it might therefore be worthwhile considering whether career coaches, be they specially trained internal HRM professionals or external coaches, should be in charge of such discussions.

10.2.1.4 Career management tools

The findings regarding career management tools lead to two main implications for organizations. First, this study provided more input regarding the question whether it is worth investing money in training and development, although this might make employees more likely to leave (see section 4.2). Some findings in this study suggested that such a relationship may exist. There was a significant, negative relationship between individuals' scores on "feedback and learning" (factor 3) and their intention to stay in an organization. Nevertheless, individuals may not simply leave once they have acquired more skills because skills are not as portable as is often feared by representatives in organizations (Dokko, et al., 2009; O'Mahony & Bechky, 2006). Also, taking a broader view on the findings in this study implies that it would be short-sighted and, arguably, even counterproductive for organizations not to invest in career management tools.

Regardless of inter-individual differences, learning appeared to be important for most participants in this study, and there was a generally high motivation for various types of learning. In line with a basic tenet of contemporary careers (see section 3.1.2), individuals who are motivated to learn and develop themselves are arguably those needed most in organizations in order to respond to future challenges, in particular in the IT industry. Several interview statements indicated that good career management tools may lead to more satisfied and loyal employees. It can also be essential for organizations to keep up with the competition, for example, by providing sufficient technical training. In addition, especially in dry labour markets, such as in the IT industry, the positive, yet non-tangible, effects of being perceived as a generous employer with regard to career development opportunities may be crucial for an organization desperately seeking to attract scarce talent.

In this study, several observations of organizations suggested that well targeted provision of career management tools might, indeed, make a difference. For example, in Org04, the three tools considered to be most useful were also those most available to the employees; there was an almost perfect match between perceived usefulness and availability. In Org03, however, there were major discrepancies when comparing the most frequently selected tools. Interestingly, various indicators suggested that satisfaction in Org04 was amongst the highest of all participating organizations, whilst employees in Org03 repeatedly appeared to be the least satisfied of all respondents. This is an observation worth contemplating although such differences in satisfaction must not be simply regarded as direct consequences of good or bad provision of career management tools – too many factors may affect the results.

The two key questions, however, are how organizations may best harness their employees' generally high motivation to learn and develop, and how they may attract new talent, based on providing opportunities for learning and development.

This leads to the second practical implication. Knowing and understanding what kind of career support individuals require is paramount. Taking the individual perspective into account may not only help reduce the "grass is always greener on the other side" effect (see Figure 19 and Figure 20). It could also lead to a higher decision quality, more individual buy-in and perceived recognition by the employees (see section 10.2.1.5). Given the large inter-organizational differences, this study also confirmed that taking the organizational perspective into account is highly relevant. Accordingly, HRM representatives must not simply resort to applying a set of career management tools that appear to work in a different organization. In line with Baruch's (2009) claims, no generally applicable "best practice" may be available, neither for organizations nor for the IT industry as a whole. Rather, HRM representatives should define their own set of career management tools. These have to match the specific needs and requirements in their organization. Hence, a thorough understanding of the specific requirements within an organization is key. Again, such an in-depth knowledge may best be gained based on a thorough understanding of individual requirements. This might explain why the representatives of all participating organizations were most interested in the career management tool results – they simply had never seen such a detailed view of their employees' requirements. The findings were considered as highly relevant for future planning purposes.

10.2.1.5 General practical implications

Overall, the findings in this study provide several helpful implications for IT organizations in Europe. As shown in section 2.3.2, many of them need to attract new talent whilst keeping their existing workforce in dry labour markets. The following three key implications may support line managers and HRM representatives in doing so.

First, providing meaningful, challenging, autonomous jobs with flexible working schemes and developing and learning opportunities is key. Such criteria appeared to be highly important for many participants in this study. Meeting these requirements arguably results in increased job satisfaction and, as this emerged as the most frequently used definition of career success, in increased feelings of career success in the workforce. Money, as could be repeatedly seen in this study, does not appear to be a key attractor and motivator for IT professionals in Europe. However, it is not irrelevant, especially in terms of providing fair

and adequate salaries. As there may be discrepancies between what people say and do regarding pay (Rynes, et al., 2004), those in charge of compensation schemes in organizations are therefore well advised not to underestimate the role of pay, but to provide monetary as well as non-monetary incentives. Ideally, incentive packages should be defined based on individual discussions with employees (see section 10.2.1.2).

Second, despite such general descriptions above, organizations must not resort to simple categorizations of individuals. The findings in this study repeatedly highlighted that broad classifications of individuals often do not correspond with commonly assumed characteristics of such groups. Hence, organizations relying on simplistic employee classifications may not be able to address the needs of their current and future workforce properly.

The three career orientation clusters found in this study are such a classification. As shown in section 10.2.1.1, they provide a rough, helpful characterization for organizations with regard to various career orientations in their workforce. However, they do not provide sufficient information regarding an individual and his/her career preferences, motives, and – ultimately – behaviour. They can therefore by no means be an adequate substitute for individual discussions and negotiations of career support requirements. Further, the "specialist versus manager" dichotomy is a frequently used, yet only partially useful, approach to distinguish different groups of employees (see section 10.2.1.3). Within IT organizations, IT functions may serve as another differentiating criterion. Yet, the mean scores of different IT functions hardly ever significantly differed in this study, despite MBTI results suggesting the contrary (see section 2.3.6). In terms of career-related topics, they did not appear to be a useful criterion to distinguish individuals with different preferences.

A further commonly used criterion to cluster individuals into different groups is age. However, age did not account for many significant differences between groups of participants in this study. Whilst it seems plausible that some career support is age-related, for example, introductory programmes for newly graduated employees or retirement preparation programmes, most other support may well be provided to individuals regardless of their biological age. Rather, in line with Hall's (1996, p. 9) claims, "career age" may be much more relevant with regard to the kind of career support individuals require. This can be seen as good news for IT organizations, in as much as they may not need to provide highly differentiated support to various age groups. However, although age seemed to be clearly less related to career-specific preferences and requirements than commonly believed, perceived age norms are arguably still prevalent in organizations (Lawrence, 1988, 2011), not

least in the IT industry (Cappelli, 2001). Such norms were found to have an impact on individuals and their careers, for example, with regard to performance ratings and access to career support. Often, open positions in organizations are filled with experienced workers even if the job does not necessarily require it (Rynes, et al., 1997). In IT, however, the trend seems to be the exact opposite. Here, many organizations tend to hire young staff (Cappelli, 2001). In this sample, Org01 and Org04 both clearly followed a policy of primarily hiring newly-graduated IT professionals. Whilst such an approach may be helpful for an individual company, e.g. to save labour costs, age norms and age-related recruiting policies have arguably negative effects on IT organizations and the IT industry in general. For example, they may strengthen stereotypes about those working in the IT industry and lead to negative consequences (see section 2.3.5). There is an urgent need to attract young employees *and* keep older workers in the IT industry in Europe (see section 2.3.2). It seems, therefore, paramount to be aware of the dangers of such age norms, not to rely on wrong assumptions about the preferences of different age groups and, finally, to treat individuals accordingly regardless of their age. This might, for example, mean that age-related restrictions to certain career management tools might be replaced by a strictly needs-based access policy or that age-biased recruiting policies may be abandoned.

This leads to a third implication for organizations: the findings in this study clearly showed that it is crucial to take the individual perspective into account and that inter-individual differences in career orientations and career-related preferences must be acknowledged. Repeatedly, major differences were found between individuals in how they felt about their careers, sometimes despite strikingly similar objective careers. The frequent definition of career success as non-monetary recognition and the relatively high importance attributed to individualized career management tools suggest that for many employees being acknowledged as an individual, rather than just as a “human resource”, is vital.

Valuing employees as individuals, and addressing their individual requirements, sounds like a small thing; yet, if taken seriously, it may require substantial changes to existing HRM processes in many organizations, for example, in recruitment, career management, and pay for performance schemes. Ultimately, it may lead to a regular renegotiation of psychological contracts, as suggested by several authors (see section 2.2.3). Particularly in large organizations, taking an individualized approach to career management may also challenge the prevailing corporate culture, not least amongst line managers and HRM representatives.

However, the potential benefits of individually targeted, positively perceived career support should more than outweigh the additional efforts needed for redefining existing processes and the additional time required for more intense discussions with employees.

Based on the results of this study, various benefits are to be expected of such an individualized approach to career management for both organizations and individuals. Organizations may become more attractive employers in a dry labour market. Taking individual perspectives into account may increase the overall motivation, well-being and job satisfaction. Career management tools may therefore be applied more (cost-)effectively and turnover rates may be reduced. Further, this study has shown that several tools regarded as highly useful do not cost anything at all. Hence, a better understanding of individual preferences regarding career support may also lead to a more efficient usage of the organizational career management budget. In addition, such individualized approaches might partially compensate for the fact that most organizations are not able to provide as much job security as would be valued by many employees, according to their career anchor scores. Literature on downsizing and survivor syndrome (see section 2.2.3) suggests that taking individuals and their points of view seriously, and providing fair, transparent processes, help keep psychological contracts intact even in times of economic difficulties. In particular, proactive and systematic integration of career concerns into organizational change management contributes to an increased employee buy-in for organizational change processes (Lips-Wiersma & Hall, 2007).

The degree to which such individualized approaches can be implemented may vary between organizations. Also, clear guidelines regarding the potential scope of individual negotiations need to be in place and enforced in order to guarantee both distributive and procedural justice. Nevertheless, there are arguably many more options for organizations to take individual perspectives into account than commonly believed. Org04 serves as an excellent example of how employees can be allowed to participate actively in creating the future, not only of their own careers but also of the organization as a whole.

10.2.2 Practical impact – How IT organizations have used the results

As mentioned above, the participating organizations responded very positively to the various elements of this study and considered them to be of high relevance for their internal HRM processes. Therefore, in April 2011, about one year after the final results had been presented to the representatives in each organization, they were asked about the action they had taken based on the study results. Table 61 gives an overview of the feedback provided by the representatives in each organization.

Organization	Activities
Org01	• Career anchor results were used in a presentation for university graduates to show them what they might expect in Org01, in addition to working on leading-edge technology. • Various graphs were presented to employees to show them that there are stronger motivators than money and hierarchical advancement. The results were seen as "good news" for Org01 because the management team felt they could be more flexible on the subjective success criteria than larger, international competitors.
Org02	• Soon after the final presentation, a large job reduction programme started. This was given first priority. So, even though the findings were regarded as interesting, they were not used further and did not result in concrete action.
Org03	• No feedback available (see section 6.2.2)
Org04	• The study results were mainly seen as a confirmation that they were "on the right track". • Based on the findings, "personal development" has been introduced as a discussion point in regular meetings with employees, and individual career goals are now defined for each employee.
Org05	• No feedback available
Org06	• The key focus in Org06 was on including key employees in the management and decision process, giving them more autonomy and recognition. As a consequence, when the Chief Technology Officer fell severely ill half a year later, these employees could take over some of his tasks. • Individual networking and training activities are now supported more actively than before.
Org07	• Recruiters were briefed on what they need to look for when recruiting IT professionals. Also, they were informed about the key drivers of IT professionals and how to take them into account. • In an employer branding initiative, career drivers and motivators were described for IT professionals as a key job family in Org07. • IT professionals were one of two key job families included in a pilot study on professional development in Org07. The results of this study were directly included therein. The pilot study will be presented to and discussed with the Board members later in 2011. Concrete action will be taken from there, depending on the feedback from the Board.
Org08	• The results were presented both to the Board members and the employees. • Further action was not taken.
Org09	• The results were used for an internal presentation to line managers, mainly to show them the major areas of concern and where improvements for the employees could be made. • Soon thereafter, a major internal reorganization that split the former Org09 into various different organizational units made it difficult to use the results any further.
Org10	• After the discussion of the final report, the author of this study was invited to present the results to all the employees in Org10. There, a member of the Board promised the employees that concrete action would be taken especially in terms of the availability of career management tools. • The CEO suggested the joint publication of an article in a Swiss management journal, presenting the key results of the study, using Org10 as a case study. The writing of that article has been postponed until the thesis is completed.

Table 61: Activities in participating organizations, based on study results

At the very least, all organizations used the results for internal discussions about their HRM practices. Most organizations appeared to have acted upon the findings from this study. Several concrete improvements have been made since the presentation of the final reports, even though the scope of action varied greatly. Notably, the size of an organization was not an indicator of how the results were used, although it may be more complex to introduce adjustments in large organizations. Org07 is a good example that changes to existing HRM processes can be implemented and pushed forward fairly quickly, even in large organizations, provided that such changes are deemed important. It is notable that although the management team in Org07 barely supported the survey in late 2008 (see section 6.3.7), the results have now been used in various ways. Also, whilst most small and medium-sized organizations took concrete action, this was not the case for Org08. It remains an open question whether they simply did not feel enough pressure for action because of their low turnover rates.

Further, it was interesting to observe the reaction in Org04 where recruiting highly qualified IT specialists is not a problem. In the study, the employees in Org04 showed high levels of satisfaction and their key career management tool preferences appeared to be almost perfectly matched. Hence, the management team could rightly regard the study results as a confirmation that they were on the right track in terms of career support for their employees. However, in contrast to other organizations with arguably more room for improvement, they still addressed a substantial point, namely that employees had indicated that they would like more support in terms of personal development plans.

10.3 Limitations

As shown in the previous two sections, this study contributes in various ways to career research in general, and it provides a wide range of practical implications for IT organizations. Thanks to its large, multi-organizational, multi-cultural sample, this study has a solid data base. Also, by combining quantitative and qualitative elements some potential methodological weaknesses could be minimized (see section 6.1.2). Further, the longitudinal approach to studying individual career orientations offers a rare opportunity to take the temporal dimension of careers into account. Also, by paying careful attention to details and following expert advice, for example, when setting up the survey (e.g. Dillman, 2007) and when calculating factors and clusters (e.g. Hair, et al., 2006), several potential weaknesses could be avoided. Nevertheless, despite all of these precautions, there remain several limitations that need to be acknowledged.

Arguably, the main content-related limitation is the exclusive focus on the protean and the boundaryless career concepts to investigate individual career orientations. This approach was perfectly in line with the corresponding research objectives and research questions. However, whilst these concepts seem to address several highly relevant aspects of individual careers, they do not, and cannot, provide an all-encompassing description and explanation of career-related motives of individuals. This point is also illustrated by the fact that, first, only 25 of the original 54 items emerged on the eight factors in this study and, second, the variance explained in the factor analysis was rather low. Much as this may reflect the complexity and fluidity of constructs relating to careers, the sometimes ambiguous nature of the data needs to be acknowledged as a limitation. Further, scales like the ones used in this study can possibly only measure individual predispositions, rather than objective career behaviour (Inkson, 2011), and the degree to which social desirability has affected the responses remains unknown. Hence, one needs to bear in mind that the two concepts may be useful and interesting tools to investigate individual careers, but that they are only able to shed light on certain aspects of individual careers.

The conceptual refinement of the protean and the boundaryless career concepts was solidly guided by the relevant literature. Also, the corresponding data analysis process closely followed rules suggested by Hair et al. (2006). Nevertheless, when venturing into new territory regarding the protean and boundaryless career concepts, many assumptions had to be made and decisions had to be taken. Although such decisions were based on the careful consideration of various options, they may still have had an impact on the findings. This aspect needs to be taken into account, although the extent to which it has affected the results remains unknown.

From a methodological point of view, the cross-sectional data collection is a limitation. As mentioned before, only data about career orientations were collected longitudinally. It is therefore not possible to establish causal relationships between all the other variables, and nothing can be said about their development over time. In addition, the career success statements have unknown reliability, and data on career management tools might well miss some tools individuals think are available and/or useful because of the “top five” approach applied (see section 6.3.3).

Further, the survey worked with self-reported assessments of the participants. In particular, the findings regarding individual career orientations and career success definitions may have been subject to some bias towards socially desired results. The interviews helped re-

veal gaps between individuals' quantitative results and how they talked about their careers when asked directly. This made it possible to take them into consideration in the examination of the results. However, it needs to be acknowledged that the self-reported data may suffer from an unknown degree of response bias.

As has been argued in section 9.5.3, despite the exclusive focus on IT professionals in this study, many of the findings may well be applicable to other occupations, not least because of the multi-organizational, multi-cultural approach taken. Nevertheless, although this study has not attempted to provide universally applicable results, it remains a limitation to be acknowledged that it has been built on a highly educated and predominantly male sample from one single occupation in Europe. Therefore, generalizability of the results may be limited to similar settings – be it regarding gender, education, or occupation.

The fact that no freelancers and contractors were included in the sample is a further potential limitation worth mentioning. As argued in section 6.1.1, various reasons led to the decision not to include them. Nonetheless, as a result, a relevant group of IT professionals has not been examined in this study.

Then, as shown in this study, career research requires a strong focus on the cultural context and the specific labour market conditions to interpret and understand results more holistically. The clear focus on participants from Switzerland, Germany and the UK was a deliberate approach in order to take into account cultural and labour market differences between the three countries. Still, it may be argued that this is a limitation, which makes it more difficult to generalize the findings beyond the cultural boundaries of the three countries.

Finally, as highlighted on various occasions, language was an issue to consider in this study despite all the careful steps taken in the translation processes (see sections 6.3.5 and 7.4.1). Particularly in qualitative data collection, there is a danger of losing some richness of the answers in the subsequent translation process (Chudzikowski, et al., 2009). Therefore, whilst the multi-cultural approach in this study was well worth taking, it created some language-related limitations that have to be acknowledged.

10.4 Suggestions for future research

Based on the limitations described in the previous section, several suggestions for future research can be made.

10.4.1 Career orientations

First, with regard to protean and boundaryless careers, the items used in this study may not only be applied and tested in different research settings, they may also be refined further. Despite the thorough operationalization of the two concepts, only 25 of the 54 initial items survived in the factor analysis. Also, the explained variance in the factor analysis was quite low (see section 7.1.1). In particular, the protean career items require attention; the concept remained vague in this study. The corresponding scales did not distinguish the three clusters although the interviews revealed clear differences between their views on the protean factors. Using refined protean factor scales may make it possible to differentiate groups of individuals more clearly on those dimensions, which could help refine the clusters found in this study. Going forward, for example, factor 3 may need to be split up into two distinct factors (learning and feedback). Also, the role of factor 6 (self-direction) may require further examination because it currently merges the two protean dimensions (self-direction, values-driven). If this was confirmed in further studies, the original conceptual distinction between the two dimensions would need to be reconsidered.

The boundaryless items may also be conceptually refined. For example, it must be examined whether factor 8 (rejection of career opportunities for personal reasons) is, indeed, exclusively related to past rejection or whether the future willingness to do so also plays a relevant role. Also, rather than predominantly focusing on inter-organizational mobility, additional types of career mobility, such as intra-organizational, intra- and inter-occupational as well as geographical mobility, should be explored in much more detail because they seem to be relevant for individual careers. Such adjustments may also help minimize the gap between self-reported scores and actual behaviour of individuals.

That gap offers a further area for future research. As shown in this study, self-reported scores in the survey and actual career behaviour were not always fully in line. Yet, based on the results, it can only be speculated about the causes for such discrepancies. Even less is known about the consequences for individuals and their careers if subjective perceptions and objective careers are not congruent (see section 9.1.2). Future research addressing both causes and consequences of such discrepancies may well provide valuable input for the two concepts and for career research in general.

Further, whilst protean and boundaryless career concepts were valuable tools to examine careers, they did not cover all relevant aspects of individual careers. As shown in this study, even if operationalized very carefully, the two concepts could not fully explain how individuals think about careers. They apparently have not picked up all of the influencing factors of individual career orientations, and there still seems to be unexplored conceptual space in the examination of individual career orientations. Therefore, future research needs to address individual career orientations from a broader perspective.

Career anchors may offer a fresh perspective to address relevant themes in individual career orientations, such as lifestyle and job security, which have not been covered by the protean and boundaryless career concepts (see section 9.3.4). An additional component that may result in relevant findings in this context is personality. Individual responses to career change seem to be linked to aspects of personality, such as openness to experience and extraversion (Carless & Arnup, 2011), and links have been found between personality and career success (Judge & Higgins, 1999). Also, future research should more explicitly investigate the role of social reference groups and their effect on individuals and their career orientations. Taking a broader perspective on career orientations may also help to understand more thoroughly why highly mobile individuals have repeatedly been found to be less satisfied than those with lower career mobility. Whilst the "happy loser / unhappy winner" approach (see section 9.1.5) may offer a plausible explanation for this finding, its relevance and potential implications suggest that more research on that phenomenon is needed.

10.4.2 Career success

Much as the variety of individual success definitions provides a broader understanding of the notion of career success, there are still several open questions awaiting further examination. First, it is unclear whether social desirability has contributed to an over-emphasis of subjective criteria in the survey. Admitting that earning much money is an important success criterion may not be considered as socially acceptable as, for example, being satisfied or having a happy family life (Rynes, et al., 2004). In this study, the potential impact of such effects cannot be established, although the anonymous nature of the survey may at least have helped minimize such a response bias. Nonetheless, future research should further examine this point.

Second, with regard to the findings of changing career orientations due to economic pressure one might wonder about the stability of individual career success definitions over

time. A representative survey of Swiss employees (Grote & Staffelbach, 2009) further suggests that external context may, indeed, play a role here. It was found that salary was a key success criterion for individuals who did not want to change their employer. However, those who actually changed employers relied much more on subjective criteria to select their new employer, e.g. the perceived task variety in the new job. Hence, career success definitions might vary depending on changing individual turnover intentions. Longitudinal research on career success would substantially contribute to a more thorough understanding of whether individuals perceive success differently at different points in time and what influencing factors might affect changes in career success definitions.

Third, the categories and sub-categories of career success found in this study should be tested and validated in various settings. Although the categorization was developed based on a large multi-cultural sample, there may well be additional categories depending on a different context. Two ongoing research projects at the Swiss Federal Institute of Technology in Switzerland and at Yale University in the USA have provided tentative support for the relevance of the 16 categories in different cultural and occupational contexts. Nevertheless, additional research is required in order to address this topic more fully.

10.4.3 Career anchors

Arguably, the major gap to be addressed is the lack of longitudinal research on career anchors. In Schein's (1978) original concept, career anchors were said to remain stable over an individual's entire career. However, there is a substantial body of cross-sectional research suggesting that career anchors may well change over time (see section 3.6.1). In this study, age-related differences on anchors also indicated that this may be true; yet, to date, hardly any longitudinal studies on career anchors are available to explore this point further.

Future research should also address the conceptual refinement of the career anchor items. In particular, it would be helpful to examine closely the "technical/functional competence" anchor and find causes for the relatively high number of missing answers on the underlying items. This might also shed more light on the relationship between the "technical/functional competence" and the "job security" anchors that loaded onto one single factor in this study.

As suggested above, career anchors may well serve as a complement to currently used dimensions of career orientations. Combining elements of protean and boundaryless career orientations with the career anchors might result in a more encompassing understanding of various dimensions of individual career orientations. Also, it would provide further insight regarding the relevance and the conceptual distinction of each career anchor.

Finally, one potential weakness of current career anchors scales is that they do not allow individuals to indicate negative attitudes. Respondents can rank an item using a scale ranging from “of no importance” to “very important”, which makes it impossible to distinguish between respondents who simply feel a particular anchor is not important to them and those who strongly dislike it. However, that distinction might be worth making, for example, to better understand the generally low scores on the technical and managerial anchors. Consequently, future research using new, adjusted scales including negative as well as neutral and positive attitudes might provide interesting and even more fine-grained results regarding career anchors.

10.4.4 Career management tools

A key theme to explore further is why and/or when individuals do not value the career management tools they have access to, but instead, do value some of the tools that are not available to them. In addition, given the sometimes massive discrepancies between the perceived usefulness of career management tools and their availability in organizations, it seems worthwhile to explore that topic in more detail.

Based on the findings regarding individual career success definitions, future research may benefit from giving respondents the opportunity freely to express which tools they would find most useful. No predefined list of tools should be presented and, more importantly, the selection of tools should not be restricted to a certain number of tools per person. This would result in a more nuanced, more individualized picture of career management tool preferences. Also, it would provide organizations with additional highly relevant input for refining their career management processes and tools.

10.4.5 General suggestions

From a general point of view, career research would benefit from more empirical studies focusing on career orientations, career success, career anchors and career management tool preferences with longitudinal approaches. In so doing, it would be possible to examine the interplay of these themes over time, acknowledging the temporal dimension of individual

careers. The results in this study have shown how important it is to take that perspective into account; however, in spite of the longitudinal data collected here, there is still a shortage of corresponding research. For example, it would be interesting to understand more fully the impact of external events, such as economic changes, on individual careers. Thus, future career research should even more explicitly examine the interplay of the individual, organizational, industrial/professional, and economic/societal levels and how they affect individual careers. The findings in this study clearly suggest that each level is worth focusing on in its own right. Yet, only by taking all these levels and their interplay into account, individual careers can arguably be understood in a more holistic, contextualized way.

Further, it would be highly interesting to investigate the core themes of this study with different samples of participants from outside the IT industry and outside Switzerland, Germany and the UK. Doing so would provide valuable and relevant insights with regard to the generalizability of individual career orientations, career success, career anchors and preferences for career management tools beyond the occupational and cultural boundaries in this study.

Also, future research may address the points raised in section 9.5.2, namely, to what degree do different organizations attract different individuals, and to what degree does organizational culture shape the career-related perceptions and preferences of their employees over time? Whilst the cross-sectional data in this survey could only highlight this relevant aspect, specifically targeted longitudinal research could provide highly valuable results. In career research, such findings would add to a more thorough understanding of the complex interaction between individuals and organizations. For organizations, especially those in dry labour markets, such research would help refine their recruitment processes and adjust their career development processes for employees.

10.5 Concluding remarks

This study had two key purposes. The first was critically to examine the protean and the boundaryless career concepts as the two most prominent and influential examples of contemporary career models. The second was to explore protean and boundaryless career orientations of individuals in a wider context. In particular, the interplay between career orientations and an individual's views of career success, career anchors and preferences regarding career management was addressed. These topics were examined based on a large multi-organizational, multi-cultural sample of IT professionals in Europe.

Roper et al. (2010) identified several perspectives on contemporary careers in the academic discourse. This study adopted three of them. First, the thorough analysis and conceptual refinement of the protean and the boundaryless career concepts was primarily and predominantly "motivated […] by intellectual curiosity" (p. 668). Therefore, the study contributed to the curatorial perspective on careers by addressing several major research gaps regarding career orientations. The research activities performed in the areas of career success and career anchors were also greatly informed by that perspective.

Second, the study also covered substantial elements of the managerial perspective on careers that are concerned with how careers can be managed in organizations. In particular, the section on career management tools predominantly addressed that perspective. Third, the agentic view, which is "centred upon the self-development of individual career actors" (p. 668), was also adopted, albeit to a much lesser degree than the curatorial and managerial perspectives. The fact that various relevant questions about managing IT professionals in organizations have remained unanswered to date was a key trigger for this study (see section 1.3). Adopting the managerial and the agentic perspectives resulted in several practical implications, which may provide helpful and valuable suggestions for IT organizations struggling to recruit adequately trained new staff in a dry labour market whilst retaining and developing their existing workforce. In particular, the findings cautioned against relying on simplistic stereotypes about IT professionals.

In conclusion, the findings in this study suggest that in order to understand individuals and their careers, various elements need to be taken into account. A clear focus on the individual career actor and his/her career orientation is paramount. The protean and the boundaryless career concepts offer a helpful, albeit not all-encompassing, lens for doing so. In addition, non-work-related aspects, such as family and friends, as well as more general aspects at an organizational, industrial/professional, and economic/societal level, must be acknowledged. It requires a focus on the complex interplay of all these elements to gain a more holistic and contextualized view of individual careers and their changes over time. This study has provided several new insights about that interplay. Future research will hopefully shed light on many more such aspects.

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Appendix 1 – Project information for IT organizations

Appendix 1 provides the project information leaflet as it was sent electronically to all those IT HRM representatives and IT line managers who had indicated their potential interest in participating in this study.

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Find out what your IT people expect from their careers

Do you ever wonder what, exactly, your IT people want and expect from their careers? If so, you are not alone: Very few in-depth, up-to-date studies have been done on this and related questions. But thanks to a research project being undertaken by Loughborough University, you have a unique opportunity to get cutting-edge knowledge in this area – including comparing your IT workforce with IT workforces generally. This will be of considerable help in improving your career management processes and other IT HR practices.

Background and objectives
Nowadays, IT professionals in most organizations are expected to manage their own careers and to be proactive with regards to their personal and professional development. Yet, little is known about the extent to which IT professionals feel willing and able to manage their own career development. There is a lack of research on IT professionals' career orientations as well as on the impact of those orientations on individual career behaviour and employers' career management activities.

This research project aims at closing that knowledge gap. It will give IT functions detailed information on the career orientations of their workforce, and specific recommendations on how to make career management more effective. The project will explore questions like these:

- How widely is the "new" view of career (self-) management adopted among your IT professionals?
- Which types of career development activities would your IT professionals find most effective and motivating?
- Do career orientations and career management preferences significantly vary between different types of IT professionals (e.g. project managers, application developers)? If so, what are the implications for your IT function?

Benefits for your IT function
If you participate in the research project, you will receive:

- a management summary on the key findings for your function,
- detailed survey results of your own workforce (statistics, quotes etc.),
- benchmarking results from other participating companies (see "confidentiality"), and
- specific recommendations how to further enhance your career management and/or IT HR aspects such as recruiting or retention.

NOTE: The researchers can present and explain the above details in person, if you wish. Such a session is highly recommended in order to get the full value from the research.

Confidentiality
All data will be kept confidential. Results will only be fed back on an aggregate level or with pseudonyms. Confidentiality also applies to benchmarking results across organizations. Each organization will only be identified to others by a pseudonym.

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Action plan
The research will follow a two-step process:

- Step 1 – Quantitative survey
  A representative random sample of IT professionals in each participating organization will complete a web-based questionnaire.
- Step 2 – Qualitative survey
  Based on the responses in Step 1, about 20 individuals from across all participating organizations will be interviewed.

The quantitative part of the study is planned for the 4th quarter 2008. The qualitative part will follow once the quantitative results are evaluated (in 2009).

How you can support us
Your involvement requires little time and effort. You will only need to

- meet us for a briefing on your current career management practices, while we answer any questions you may have about the project
- support the project by explaining its nature and importance to your IT workforce (e.g. with an awareness email – of which we will be happy to provide a draft – prior to the study)
- send out the online survey to a representative random sample of your IT workforce once we have identified the sample group
- allow a few selected individuals to be interviewed. The expected number of interviews ranges from 0 to 5 per organization, depending on individual answers in the quantitative part.

Participation is voluntary for all individuals and there will be no costs for your organization other than the time commitment as mentioned above.

Sponsorship

This research project is sponsored by the Human Resource Management and Organizational Behaviour research group in the Business School of Loughborough University and will be supervised by Prof. John Arnold, Dr. Crispin Coombs and Prof. Laurie Cohen.

The actual research will be carried out by Martin Gubler, who is a Doctoral Researcher at Loughborough University. Martin has two degrees, one in Business Information Systems and one as a teacher. Over the last seven years, he worked in the IT HR department of a major multinational bank.
As a core project team member, he designed and implemented a global career development system for the bank's IT division. Based in London, Martin was also responsible for the bank's IT training and development in Europe. He now works as a career consultant and HRM lecturer in Zurich.

Contact
Please contact Martin Gubler either by email or by phone if you are interested in participating, or if you require more information.

Email: M.Gubler@lboro.ac.uk
Phone: +41 77 450 01 37

Appendix 2 – Survey 1 – Online questionnaire

English version

Appendix 2 shows the first questionnaire as it was displayed online.
Navigation buttons (“back” and “forward”) are not depicted.

Welcome
This survey is available in English, German and French. Please select your preferred language.

Herzlich willkommen
Diese Umfrage steht Ihnen in Deutsch, Französisch und Englisch zur Verfügung. Bitte wählen Sie Ihre bevorzugte Sprache.

Bienvenue
Ce questionnaire est disponible en français, en allemand et en anglais. Veuillez sélectionner la langue désirée.

- ○ English
- ○ Deutsch
- ○ Français

Career Orientations in IT

Dear participant
Thank you very much for your interest in this international study about IT professionals' careers. This online survey is currently being conducted in several IT functions across different industries and sectors in various countries. It focuses on the attitudes and expectations IT professionals have towards their careers. The results of this study will support IT functions as well as IT professional bodies to address career issues more effectively.

About this survey

The survey consists of three sections and will take approximately 20-30 minutes to complete.
- Section 1: Career statements
- Section 2: Career development tools
- Section 3: You - your job - your career

Please note the closing date of **DD MM 2008**

All data will be kept strictly confidential and will only be used for research purposes. Results will only be fed back to organizations on an aggregate level or with pseudonyms.

Contact and detailed information

For more information on the project and its scope, on the research team as well as on the survey software, please visit the project website.

For any further questions, please contact Martin Gubler, Doctoral Researcher, Loughborough University, UK (M.Gubler@lboro.ac.uk; +41 77 450 01 37)

Thank you very much for your time and support!

Prof. John Arnold, Dr. Crispin Coombs, Martin Gubler
Business School, Loughborough University, UK

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Section 1: Career Statements
In the first section of the survey, you will find three parts with different kinds of statements about your career. Please answer spontaneously using the scales provided.

Career Statements - Part 1
On a scale from 1 to 5, please indicate the extent to which you agree or disagree with the following statements.

1 - I strongly disagree
2 - I moderately disagree
3 - I agree and disagree in equal measure
4 - I moderately agree
5 - I strongly agree

	1	**2**	**3**	**4**	**5**	**no opinion / don't know**
I know which parts of my work interest me most.	○	○	○	○	○	○
I enjoy working with people outside of my organization.	○	○	○	○	○	○
I am eager to accept new challenges.	○	○	○	○	○	○
I like the predictability that comes with working continuously within IT.	○	○	○	○	○	○
Career success is something I define for myself - no one else can do this on my behalf.	○	○	○	○	○	○
My own career development should be based on my personal values, not on what society values.	○	○	○	○	○	○
I have turned down jobs or assignments because they would have gone against what is important to me in life.	○	○	○	○	○	○
I have made career moves that most people would consider too radical.	○	○	○	○	○	○
If I stay in the same job for a long time, it is because it suits my purposes, not because I am wary of change.	○	○	○	○	○	○
I usually define myself in terms of my profession rather than in terms of my employer (e.g. 'I am a software engineer' rather than 'I work for organization X').	○	○	○	○	○	○

Career Statements - Part 1 (continued)
On a scale from 1 to 5, please indicate the extent to which you agree or disagree with the following statements.

1 - I strongly disagree
2 - I moderately disagree
3 - I agree and disagree in equal measure
4 - I moderately agree
5 - I strongly agree

	1	**2**	**3**	**4**	**5**	**no opinion / don't know**
I see myself as a member of my occupational group.	○	○	○	○	○	○
Staying in my current job for a long time would hamper my future development inside or outside my organization.	○	○	○	○	○	○
What is really important to me is how I *personally* feel about my career success.	○	○	○	○	○	○
I have already considered changing jobs into a different occupation.	○	○	○	○	○	○
In the past, I have considered changing jobs and moving to a different geographical location.	○	○	○	○	○	○
I prefer to stay in a geographical location I am familiar with rather than look for employment elsewhere.	○	○	○	○	○	○
In order to move up in the organization I am willing to make sacrifices with regards to my personal work-life balance.	○	○	○	○	○	○
I actively seek job assignments that allow me to learn something new.	○	○	○	○	○	○
If I had to choose, I would rather change my profession than change my current employer.	○	○	○	○	○	○
In my opinion, changing jobs between organizations is a sign of disloyalty towards employers.	○	○	○	○	○	○

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Career Statements - Part 1 (continued)
On a scale from 1 to 5, please indicate the extent to which you agree or disagree with the following statements.

1 - I strongly disagree
2 - I moderately disagree
3 - I agree and disagree in equal measure
4 - I moderately agree
5 - I strongly agree

	1	**2**	**3**	**4**	**5**	**no opinion / don't know**
I can define what is important to me in life.	○	○	○	○	○	○
My skills are highly specialized to the needs of my current employer.	○	○	○	○	○	○
In the past, I have relied more on myself than others to find a new job.	○	○	○	○	○	○
In the past, I have sought opportunities that allowed me to work outside the organization.	○	○	○	○	○	○
In the past, I have rejected career opportunities for personal reasons.	○	○	○	○	○	○
I would feel very lost if I could not work for my current organization.	○	○	○	○	○	○
I navigate my own career, according to what is important to me.	○	○	○	○	○	○
I would reject a new job if it did not allow me to contribute something meaningful to society.	○	○	○	○	○	○
Whenever possible, I try to develop skills and competencies that could be used in various organizations.	○	○	○	○	○	○
I regularly assess my strengths and my weaknesses.	○	○	○	○	○	○

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Career Statements - Part 1 (continued)
On a scale from 1 to 5, please indicate the extent to which you agree or disagree with the following statements.

1 - I strongly disagree
2 - I moderately disagree
3 - I agree and disagree in equal measure
4 - I moderately agree
5 - I strongly agree

	1	**2**	**3**	**4**	**5**	**no opinion / don't know**
I would find it motivating to take on a job in a different geographical location.	○	○	○	○	○	○
Whenever possible, I try to do my job in the way I think is best, rather than 'by the book'.	○	○	○	○	○	○
Ultimately, I depend upon myself to move my career forward.	○	○	○	○	○	○
I think I know myself well.	○	○	○	○	○	○
Being part of my current organization means a lot to me.	○	○	○	○	○	○
If I were offered a role at a more senior level tomorrow, I would take it, regardless of my current personal situation.	○	○	○	○	○	○
I am excited by the thought of making un-conventional career moves.	○	○	○	○	○	○
In my ideal career I would work for only one organization.	○	○	○	○	○	○
I like the predictability that comes with working continuously for the same organi-zation.	○	○	○	○	○	○
I see changes at work as opportunities to change things for the better.	○	○	○	○	○	○

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Career Statements - Part 1 (continued)
On a scale from 1 to 5, please indicate the extent to which you agree or disagree with the following statements.

1 - I strongly disagree
2 - I moderately disagree
3 - I agree and disagree in equal measure
4 - I moderately agree
5 - I strongly agree

	1	**2**	**3**	**4**	**5**	**no opinion / don't know**
I could feel comfortable in work other than IT.	○	○	○	○	○	○
I enjoy job assignments that require me to work outside of the organization.	○	○	○	○	○	○
If my organization provided lifetime employment, I would never seek work in other organizations.	○	○	○	○	○	○
I am confident that I could move to another organization fairly easily if I needed or wanted to.	○	○	○	○	○	○
I seek out and seriously consider feedback about me from other people.	○	○	○	○	○	○
I have made decisions on job opportunities that were guided by expectations I had myself rather than what other people expected of me.	○	○	○	○	○	○
If I am not sure whether a job or task suits me, I will give it a try so that I can find out.	○	○	○	○	○	○
I make my career choices based primarily on financial considerations.	○	○	○	○	○	○
I like being able to call on external contacts to solve problems.	○	○	○	○	○	○
I look for tasks at work that require me to work beyond my own department.	○	○	○	○	○	○

Career Statements - Part 1 (continued)
On a scale from 1 to 5, please indicate the extent to which you agree or disagree with the following statements.

1 - I strongly disagree
2 - I moderately disagree
3 - I agree and disagree in equal measure
4 - I moderately agree
5 - I strongly agree

	1	**2**	**3**	**4**	**5**	**no opinion / don't know**
I can easily adjust to changing situations and environments.	○	○	○	○	○	○
I prefer job assignments that require me to use the skills and competencies I am already good at rather than assignments that would require me to develop new ones.	○	○	○	○	○	○
I prefer to stay in an organization I am familiar with rather than look for employment elsewhere.	○	○	○	○	○	○
I take responsibility for my own career development.	○	○	○	○	○	○
I prefer working in teams to working on my own.	○	○	○	○	○	○
Teamwork is less efficient for me than working on my own.	○	○	○	○	○	○

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Career Statements - Part 2
Please use the following scale to describe how important the items below are for you.

1 - of no importance for me
2 - of little importance for me
3 - moderately important for me
4 - fairly important for me
5 - very important for me

	1	2	3	4	5	no opinion / don't know
The process of supervising, influencing, leading, and managing people at all levels is...	○	○	○	○	○	○
The chance to do things my own way and not to be constrained by the rules of an organization is...	○	○	○	○	○	○
An employer who will provide security through guaranteed work, benefits, a good retirement programme, etc., is...	○	○	○	○	○	○
Working on problems that are almost insoluble is...	○	○	○	○	○	○
Remaining in my specialized area as opposed to being promoted out of my area of expertise is...	○	○	○	○	○	○
To be in charge of a whole organization is...	○	○	○	○	○	○
A career that is free from organization restrictions is...	○	○	○	○	○	○
An organization that will give me long-run stability is...	○	○	○	○	○	○
Using my skills to make the world a better place to live and work in is...	○	○	○	○	○	○
Developing a career that permits me to continue to pursue my own life-style is...	○	○	○	○	○	○

Career Statements - Part 2 (continued)
Please use the following scale to describe how important the items below are for you.

1 - of no importance for me
2 - of little importance for me
3 - moderately important for me
4 - fairly important for me
5 - very important for me

	1	2	3	4	5	no opinion / don't know
Building a new business enterprise is...	○	○	○	○	○	○
Remaining in my area of expertise throughout my career is...	○	○	○	○	○	○
To rise to a high position in general management is...	○	○	○	○	○	○
Remaining in one geographical area rather than moving because of a promotion is...	○	○	○	○	○	○
Being able to use my skills and talents in the service of an important cause is...	○	○	○	○	○	○

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Career Statements - Part 3
Please express how true the following statements are for you.

1 - not at all true for me
2 - rarely true for me
3 - occasionally true for me
4 - often true for me
5 - completely true for me

	1	**2**	**3**	**4**	**5**	**no opinion / don't know**
The only real challenge in my career has been confronting and solving tough problems, no matter what area they were in.	○	○	○	○	○	○
I am always on the lookout for ideas that would permit me to start and build my own enterprise.	○	○	○	○	○	○
It is more important for me to remain in my present geographical location than to receive a promotion or new job assignment in another location.	○	○	○	○	○	○
A career is worthwhile only if it enables me to lead my life in my own way.	○	○	○	○	○	○
I will accept a management position only if it is in my area of expertise.	○	○	○	○	○	○
I do not want to be constrained by either an organization or the business world.	○	○	○	○	○	○
I want a career in which I can be committed and devoted to an important cause.	○	○	○	○	○	○
I feel successful only if I am constantly challenged by a tough problem or a competitive situation.	○	○	○	○	○	○
Choosing and maintaining a certain life-style is more important than is career success.	○	○	○	○	○	○
I have always wanted to start and build up a business of my own.	○	○	○	○	○	○

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Section 2: Career Development Tools

In the second section of the survey, please select

a) in the **first column** the 5 career development tools that you think you would find most useful for you - *regardless of whether they are currently available to you or not* and

b) in the **second column**, select the 5 career development tools that you think are most readily available to you in your organization - *regardless of your own preference*.

?
Please click on the blue question mark button for examples of the career development tools listed below.

	The 5 most useful tools for me are...	**The 5 tools most readily available to me are...**
Formal feedback	○	○
Personal development plan	○	○
Transparent internal job market	○	○
Interpersonal skills training	○	○
Functional/technical skills training	○	○
Temporary assignments/secondments	○	○
Clear criteria for advancement	○	○
Formal career discussions	○	○
Performance appraisal	○	○
Outplacement	○	○
Informal feedback	○	○
On-the-job learning opportunities	○	○
Online networking/communities	○	○
Career workshops	○	○
Clear description of career paths and job levels	○	○
Career counselling	○	○
Mentoring programme	○	○
Informal career discussions	○	○
Career coaching	○	○

Examples of career development tools

Career coaching
(e.g. individual coach for developing certain skills)
Career counselling
(e.g. option to get individual advice on personal career development)
Career workshops
(e.g. sessions about self-management)
Clear criteria for advancement
(e.g. transparent and freely accessible definitions of promotion criteria)
Clear description of career paths and job levels
(e.g. transparent and freely accessible descriptions of internal IT career paths)
Formal career discussions
(e.g. mid-year and year-end discussions with line manager)
Formal feedback
(e.g. regular 360° feedback from managers, peers, clients and team members)
Functional/technical skills training
(e.g. course on a programming language or a hardware component)
Informal career discussions
(e.g. option to discuss career issues outside the formal mid-year and year-end review)
Informal feedback
(e.g. spontaneous praise or criticism from managers, peers, clients or team members)
Interpersonal skills training
(e.g. course on conflict-solving)
Mentoring programme
(e.g. option to be assigned to an internal mentor or to become a mentor oneself)
Online networking/communities
(e.g. option to discuss career issues online with a group of IT professionals in a similar position or with similar interests)
On-the-job learning opportunities
(e.g. opportunity to develop new skills through active participation in a new project)
Outplacement
(e.g. support to find a new position outside the current organization)
Performance appraisal
(e.g. yearly discussion with manager about individual performance and goal achievement)
Personal development plan
(e.g. yearly revised plan on personal development activities)
Temporary assignments/secondments
(e.g. international assignment or job rotation to another function)
Transparent internal job market
(e.g. option to apply for all internally available positions)

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Section 3: You - your job - your career

In the final part of the study, please answer some questions about yourself, your current job and your overall career. This section is crucial for putting your previous answers into a wider context.

Which country do you currently live in?

---Please select --- *[dropdown menu]*

Which country (or countries) are you a citizen of?

I am a citizen of Country 1	---Please select ---	*[dropdown menu]*
Country 2 (in case of dual citizenship)	---Please select ---	*[dropdown menu]*

Please indicate your highest degree achieved.

- ○ PhD or DBA
- ○ Masters degree
- ○ Bachelors degree
- ○ High school diploma, A-levels, etc.
- ○ Apprenticeship
- ○ Other - please specify: _____ *[free text]*

Please indicate the year you earned your highest degree.

In _____ (YYYY)

Which subjects did you graduate and/or complete your apprenticeship in?
Please select all as appropriate

- ○ IT
- ○ Engineering
- ○ Natural sciences (incl. mathematics)
- ○ Social sciences and humanities
- ○ Other - please specify _____ *[free text]*

Which year were you born?

I was born in _____. (YYYY)

Are you...

- ○ male?
- ○ female?

What is your current marital status?

- ○ married
- ○ single
- ○ living with a partner
- ○ divorced
- ○ widowed
- ○ other - please specify _____ *[free text]*

How many children and others are you financially responsible for?
Please indicate numbers as appropriate

- ○ none
- ○ _____ child/children, 0-5 years old *[number]*
- ○ _____ child/children, 6-10 years old *[number]*
- ○ _____ child/children, 11-15 years old *[number]*
- ○ _____ child/children, 16-20 years old *[number]*
- ○ _____ child/children, 21-25 years old *[number]*
- ○ _____ frail and/or elderly relative(s) *[number]*
- ○ others - please specify: _____ *[free text]*

Which of the following categories best describes your current job?

- ○ Business Analysis and Business Engineering
- ○ Business Management (incl. finance, compliance, strategy, administrative support etc.)
- ○ IT Consulting
- ○ IT Operations
- ○ IT Security
- ○ Line Management
- ○ Network
- ○ Project Management
- ○ Quality Management & Testing
- ○ Service and Delivery Management
- ○ Software Development and Application Architecture
- ○ System Architecture and System Engineering
- ○ User and Production Support
- ○ Other - please specify _____ *[free text]*

Are you currently working...

- ○ full time?
- ○ part time (80-99%)?
- ○ part time (60-79%)?
- ○ part time (40-59%)?
- ○ part time (20-39%)?
- ○ part time (less than 20%)?

Which of the following categories best describes your current terms of emploment?

- ○ permanent employee
- ○ fixed-term employee
- ○ contractor
- ○ other - please specify _____ *[free text]*

Which of the following categories best describes your current hierarchical position?

- ○ senior management position
- ○ middle management position
- ○ lower management position
- ○ non-managerial position
- ○ other - please specify _____ *[free text]*

In your current role, how many people report to you either directly or indirectly?

_____ people *[number]*

Do you feel the current remuneration package for your job is...

- ○ more than adequate?
- ○ adequate?
- ○ not adequate?

Overall, how many years have you worked in IT?

_____ years *[number]*

Over the last five years, how many times have you changed jobs within an organization (employer remained the same)?

_____ times *[number]*

Over the last five years, how many times have you changed jobs across organizations (employer changed)?

_____ times *[number]*

Over the last five years, how many times have you moved to a new geographical location because of a job change?

_____ times *[number]*

How many years have you worked for your current employer?

_____ years *[number]*

How many years have you worked in your current job/role?

_____ years *[number]*

In your view, what is the likelihood that you will still be working for your current employer in 12 months time?

_____ % *[number]*

Are you currently actively looking for other jobs internally or externally?

- ○ Yes
- ○ No

Have you ever been promoted?

- ○ Yes. I was last promoted _____ year(s) ago. *[number]*
- ○ No

Which career would you prefer for yourself?

- ○ a managerial career
- ○ a specialist career

Compared to what is considered 'normal' in your profession, do you feel your career is...

- ○ ahead of schedule?
- ○ on schedule?
- ○ behind schedule?

Compared to your peers, would you say your career is...

- ○ more successful?
- ○ equally successful?
- ○ less successful?

Overall, how satisfied are you with your current career situation?

- ○ highly satisfied
- ○ moderately satisfied
- ○ satisfied and dissatisfied in equal measure
- ○ moderately dissatisfied
- ○ highly dissatisfied
- ○ no opinion/don't know

Overall, how do you assess your individual future career prospects?

- ○ very positively
- ○ moderately positively
- ○ positively and negatively in equal measure
- ○ moderately negatively
- ○ very negatively
- ○ no opinion/don't know

Please finish the following statements in your own words.

Career success means... _____ *[free text]*
My career is... _____ *[free text]*

Additional comments
Please note any further comment you may have about your career or about this survey.

_____ *[free text]*

Are you interested in the results of this study?
All participants have the opportunity to receive a summary of the study results once they are available. If you are interested in this summary, please provide us with an email address where we can notify you in due course. Your email address will be kept strictly confidential and will only be used for this very purpose.

_____ *[email address]*

Are you interested in a follow up interview?
We intend to do some follow up interviews about career orientations. If you are willing to consider participating, please provide an email address below. We may then contact you in due course with more information. Your email address will be kept strictly confidential and will only be used for this very purpose. Please note that providing the email address does not commit you to participating in an interview.

_____ *[email address]*

You have now reached the end of the questionnaire. Your contribution is much appreciated. It will help to better understand careers in IT.
For further information and contact details please refer to the project website.

Thank you very much for your time and assistance.

Appendix 2 – Survey 1 – Online questionnaire

German version

Appendix 2 shows the first questionnaire as it was displayed online. Navigation buttons (“back” and “forward”) are not depicted.

Welcome
This survey is available in English, German and French. Please select your preferred language.

Herzlich willkommen
Diese Umfrage steht Ihnen in Deutsch, Französisch und Englisch zur Verfügung. Bitte wählen Sie Ihre bevorzugte Sprache.

Bienvenue
Ce questionnaire est disponible en français, en allemand et en anglais. Veuillez sélectionner la langue désirée.

- ○ English
- ○ Deutsch
- ○ Français

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Career Orientations in der IT

Geschätzte Teilnehmerin, geschätzter Teilnehmer
Herzlichen Dank für Ihr Interesse an dieser internationalen Studie zu beruflichen Laufbahnen von Informatik-Fachleuten. Diese Umfrage wird zur Zeit in mehreren Organisationen in verschiedenen Sektoren, Branchen und Ländern durchgeführt. Die Studie untersucht die Einstellung und Erwartungshaltung von IT-Spezialisten bezüglich der eigenen Karriere. Die Resultate der Studie werden IT-Organisationen und Berufsverbände darin unterstützen, Verbesserungen für die Laufbahn-Entwicklung ihrer IT-Spezialisten einzuführen.

Über diese Umfrage

Die Umfrage besteht aus drei Teilen und dauert ca. 20-30 Minuten zur Beantwortung.
- Teil 1: Aussagen zu Ihrer beruflichen Laufbahn
- Teil 2: Instrumente zur Laufbahnentwicklung
- Teil 3: Sie - Ihr Job - Ihre Laufbahn

Teilnahmeschluss für die Studie ist der **TT MM 2008**

Alle Daten werden streng vertraulich behandelt. Resultate werden nur in aggregiertem Zustand an Organisationen geliefert, so dass keinerlei Rückschlüsse auf Individuen möglich sind.

Detailinformationen und Kontakt

Bitte besuchen Sie die Projektwebsite für weitere Informationen rund um die Studie.
Für weitere Auskünfte steht Ihnen Martin Gubler gerne zur Verfügung:

Martin Gubler, Doctoral Researcher, Loughborough University, UK
(M.Gubler@lboro.ac.uk, +41 77 450 01 37)

Herzlichen Dank für Ihre Unterstützung.

Prof. John Arnold, Dr. Crispin Coombs, Martin Gubler
Business School, Loughborough University, UK

Loughborough University

Teil 1 - Aussagen zu Ihrer beruflichen Laufbahn
Im ersten Teil der Umfrage finden Sie drei Abschnitte mit Aussagen zu Ihrer beruflichen Laufbahn. Bitte geben Sie mittels der vorgegebenen Skalen jeweils Ihre spontane Einschätzung dazu ab.

Aussagen zu Ihrer beruflichen Laufbahn - Abschnitt 1
Bitte geben Sie auf einer Skala von 1 bis 5 an, wie gut die folgenden Aussagen auf Sie zutreffen:

1 - trifft überhaupt nicht auf mich zu
2 - trifft eher nicht auf mich zu
3 - trifft in gleichem Mass auf mich zu und nicht zu
4 - trifft eher auf mich zu
5 - trifft sehr auf mich zu

	1	**2**	**3**	**4**	**5**	**keine Meinung / weiss nicht**
Ich weiss, welche Bereiche meiner Arbeit mich am meisten interessieren.	○	○	○	○	○	○
Mir gefällt es, mit Leuten ausserhalb meiner Organisation zu arbeiten.	○	○	○	○	○	○
Ich will unbedingt neue Herausforderungen annehmen.	○	○	○	○	○	○
Ich mag die Vorhersagbarkeit, die sich aus dem kontinuierlichen Arbeiten im IT-Bereich ergibt.	○	○	○	○	○	○
Was beruflicher Erfolg ist, definiere ich für mich selbst - niemand anders kann dies für mich tun.	○	○	○	○	○	○
Meine eigene berufliche Entwicklung sollte auf meinen persönlichen Werten beruhen und nicht darauf, was die Gesellschaft als wichtig erachtet.	○	○	○	○	○	○
Ich habe schon Stellenangebote oder Aufträge abgelehnt, weil sie unvereinbar waren mit dem, was mir im Leben wichtig ist.	○	○	○	○	○	○
Ich habe schon berufliche Wechsel vollzogen, die von den meisten Leuten als zu radikal bezeichnet würden.	○	○	○	○	○	○
Falls ich lange an einer Stelle bleibe, dann deshalb, weil dies meinen Bedürfnissen entspricht und nicht weil ich einen Wechsel fürchte.	○	○	○	○	○	○
Normalerweise definiere ich mich über meinen Beruf und nicht über meinen Arbeitgeber (z.B. 'Ich bin ein Software-Ingenieur' und nicht 'Ich arbeite für Organisation XY').	○	○	○	○	○	○

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Aussagen zu Ihrer beruflichen Laufbahn - Abschnitt 1 (Fortsetzung)
Bitte geben Sie auf einer Skala von 1 bis 5 an, wie gut die folgenden Aussagen auf Sie zutreffen:

1 - trifft überhaupt nicht auf mich zu
2 - trifft eher nicht auf mich zu
3 - trifft in gleichem Mass auf mich zu und nicht zu
4 - trifft eher auf mich zu
5 - trifft sehr auf mich zu

	1	**2**	**3**	**4**	**5**	**keine Meinung / weiss nicht**
Ich betrachte mich als Mitglied meiner Berufsgruppe.	○	○	○	○	○	○
Es würde meine zukünftige Entwicklung innerhalb oder ausserhalb meiner Organisation behindern, wenn ich längere Zeit an meiner derzeitigen Stelle bliebe.	○	○	○	○	○	○
Es ist besonders wichtig für mich, wie ich *persönlich* über meinen beruflichen Erfolg denke.	○	○	○	○	○	○
Ich habe schon in Erwägung gezogen, in einen anderen Beruf zu wechseln.	○	○	○	○	○	○
In der Vergangenheit habe ich mir schon überlegt, eine Stelle an einem anderen geographischen Ort anzunehmen und dorthin umzuziehen.	○	○	○	○	○	○
Ich ziehe es vor, an einem mir vertrauten geographischen Ort zu bleiben anstatt nach einer Anstellung anderswo zu suchen.	○	○	○	○	○	○
Um in der Organisation aufzusteigen, bin ich gewillt, Opfer hinsichtlich meiner persönlichen Work-Life-Balance in Kauf zu nehmen.	○	○	○	○	○	○
Ich suche aktiv nach beruflichen Aufgaben, die es mir ermöglichen, Neues zu lernen.	○	○	○	○	○	○
Wenn ich wählen müsste, würde ich eher meinen Beruf als meinen derzeitigen Arbeitgeber wechseln.	○	○	○	○	○	○
Die Stelle zwischen verschiedenen Organisationen zu wechseln ist meiner Meinung nach ein Zeichen von mangelnder Loyalität gegenüber Arbeitgebern.	○	○	○	○	○	○

Aussagen zu Ihrer beruflichen Laufbahn - Abschnitt 1 (Fortsetzung)
Bitte geben Sie auf einer Skala von 1 bis 5 an, wie gut die folgenden Aussagen auf Sie zutreffen:

1 - trifft überhaupt nicht auf mich zu
2 - trifft eher nicht auf mich zu
3 - trifft in gleichem Mass auf mich zu und nicht zu
4 - trifft eher auf mich zu
5 - trifft sehr auf mich zu

	1	**2**	**3**	**4**	**5**	**keine Meinung / weiss nicht**
Ich kann genau sagen, was mir im Leben wichtig ist.	○	○	○	○	○	○
Meine Fähigkeiten sind hochgradig auf die Bedürfnisse meines derzeitigen Arbeitgebers spezialisiert.	○	○	○	○	○	○
In der Vergangenheit habe ich mich mehr auf mich selbst als auf andere verlassen, um eine neue Stelle zu finden.	○	○	○	○	○	○
In der Vergangenheit habe ich nach Möglichkeiten gesucht, die es mir erlaubten, ausserhalb meiner Organisation zu arbeiten.	○	○	○	○	○	○
Ich habe in der Vergangenheit Karrieremöglichkeiten aus persönlichen Gründen abgelehnt.	○	○	○	○	○	○
Ich käme mir verloren vor, könnte ich nicht für meinen derzeitigen Arbeitgeber tätig sein.	○	○	○	○	○	○
Ich selbst steuere meine Laufbahn aufgrund dessen, was mir wichtig ist.	○	○	○	○	○	○
Ich würde eine neue Stelle ablehnen, wenn es mir dort nicht möglich wäre, einen sinnvollen Beitrag für die Gesellschaft zu leisten.	○	○	○	○	○	○
Wenn immer möglich versuche ich Fähigkeiten und Kompetenzen zu entwickeln, die in verschiedenen Organisationen gebraucht werden können.	○	○	○	○	○	○
Ich schätze regelmässig meine eigenen Stärken und Schwächen ein.	○	○	○	○	○	○

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Aussagen zu Ihrer beruflichen Laufbahn - Abschnitt 1 (Fortsetzung)
Bitte geben Sie auf einer Skala von 1 bis 5 an, wie gut die folgenden Aussagen auf Sie zutreffen:

1 - trifft überhaupt nicht auf mich zu
2 - trifft eher nicht auf mich zu
3 - trifft in gleichem Mass auf mich zu und nicht zu
4 - trifft eher auf mich zu
5 - trifft sehr auf mich zu

	1	**2**	**3**	**4**	**5**	**keine Meinung / weiss nicht**
Ich fände es motivierend, eine Anstellung an einem anderen geographischen Ort anzunehmen.	○	○	○	○	○	○
Wenn immer möglich versuche ich, meine Arbeit so zu erledigen, wie ich es für richtig erachte, statt mich streng an Vorschriften zu halten.	○	○	○	○	○	○
Letztendlich liegt es an mir selbst, meine berufliche Entwicklung voranzutreiben.	○	○	○	○	○	○
Ich bin der Meinung, ich kenne mich selbst gut.	○	○	○	○	○	○
Es bedeutet mir viel, Teil meines derzeitigen Unternehmens zu sein.	○	○	○	○	○	○
Wenn mir morgen eine Stelle in einer höheren Hierarchiestufe angeboten würde, so nähme ich sie unabhängig von meiner gegenwärtigen persönlichen Situation an.	○	○	○	○	○	○
Der Gedanke, unkonventionelle berufliche Wechsel zu vollziehen, reizt mich.	○	○	○	○	○	○
In meiner idealen Karriere würde ich nur für eine einzige Organisation arbeiten.	○	○	○	○	○	○
Ich mag die Vorhersagbarkeit, die sich aus einer langjährigen Anstellung bei derselben Organisation ergibt.	○	○	○	○	○	○
Ich sehe Veränderungen bei der Arbeit als Chancen, etwas zum Besseren zu verändern.	○	○	○	○	○	○

Aussagen zu Ihrer beruflichen Laufbahn - Abschnitt 1 (Fortsetzung)
Bitte geben Sie auf einer Skala von 1 bis 5 an, wie gut die folgenden Aussagen auf Sie zutreffen:

1 - trifft überhaupt nicht auf mich zu
2 - trifft eher nicht auf mich zu
3 - trifft in gleichem Mass auf mich zu und nicht zu
4 - trifft eher auf mich zu
5 - trifft sehr auf mich zu

	1	**2**	**3**	**4**	**5**	**keine Meinung / weiss nicht**
Ich könnte mich auch bei einer Arbeit ausserhalb des IT-Bereichs wohl fühlen.	○	○	○	○	○	○
Mir gefallen Arbeitseinsätze, für die ich ausserhalb meiner Organisation tätig sein muss.	○	○	○	○	○	○
Würde mir meine Organisation eine lebenslange Anstellung garantieren, so würde ich nie Arbeit in anderen Organisationen suchen.	○	○	○	○	○	○
Ich bin zuversichtlich, dass ich ohne grosse Schwierigkeiten zu einer anderen Organisation wechseln könnte, wenn ich dies wollte oder müsste.	○	○	○	○	○	○
Ich ersuche andere Leute um Feedback über mich und setze mich damit ernsthaft auseinander.	○	○	○	○	○	○
Ich habe schon berufliche Entscheidungen getroffen, die von meinen eigenen Erwartungen geleitet waren und nicht davon, was andere Leute von mir erwarteten.	○	○	○	○	○	○
Wenn ich nicht weiss, ob mir eine Stelle oder eine Aufgabe zusagt, wage ich einen Versuch, um es herauszufinden.	○	○	○	○	○	○
Ich treffe meine beruflichen Entscheidungen in erster Linie aufgrund finanzieller Überlegungen.	○	○	○	○	○	○
Ich mag es, wenn ich externe Personen zum Lösen von Problemen herbeiziehen kann.	○	○	○	○	○	○
Ich suche an meiner Stelle nach Aufgaben, die von mir verlangen, über die eigenen Abteilungsgrenzen hinaus zu tätig zu sein.	○	○	○	○	○	○

Aussagen zu Ihrer beruflichen Laufbahn - Abschnitt 1 (Fortsetzung)
Bitte geben Sie auf einer Skala von 1 bis 5 an, wie gut die folgenden Aussagen auf Sie zutreffen:

1 - trifft überhaupt nicht auf mich zu
2 - trifft eher nicht auf mich zu
3 - trifft in gleichem Mass auf mich zu und nicht zu
4 - trifft eher auf mich zu
5 - trifft sehr auf mich zu

	1	**2**	**3**	**4**	**5**	**keine Meinung / weiss nicht**
Es fällt mir leicht, mich an veränderte Situationen und an ein verändertes Umfeld anzupassen.	○	○	○	○	○	○
Berufliche Aufgaben, bei denen ich Fähigkeiten und Kompetenzen einsetzen kann, die ich bereits gut beherrsche, sind mir lieber als Aufgaben, bei denen ich neue Fähigkeiten entwickeln müsste.	○	○	○	○	○	○
Ich bleibe lieber in einem mir vertrauten Unternehmen anstatt anderswo nach einer Anstellung zu suchen.	○	○	○	○	○	○
Ich übernehme die Verantwortung für meine eigene Laufbahnentwicklung.	○	○	○	○	○	○
Ich arbeite lieber in Teams als alleine.	○	○	○	○	○	○
Für mich ist Teamarbeit weniger effizient als alleine zu arbeiten.	○	○	○	○	○	○

Aussagen zu Ihrer beruflichen Laufbahn - Abschnitt II
Bitte nutzen Sie untenstehende Skala um zu beschreiben, wie wichtig die folgenden Aussagen für Sie sind.

1 - gänzlich unwichtig für mich
2 - eher unwichtig für mich
3 - mässig wichtig für mich
4 - eher wichtig für mich
5 - sehr wichtig für mich

	1	**2**	**3**	**4**	**5**	**keine Meinung / weiss nicht**
Leute auf allen Ebenen zu überwachen, zu beeinflussen, zu führen und zu lenken ist...	○	○	○	○	○	○
Die Möglichkeit, Dinge auf meine Art zu erledigen und dabei nicht von den Regeln einer Organisation eingeschränkt zu werden, ist...	○	○	○	○	○	○
Ein Arbeitgeber, der Sicherheit durch Arbeitsplatzgarantie, freiwillige Sozialleistungen, einen guten Rentenplan etc. bietet, ist...	○	○	○	○	○	○
An fast unlösbaren Aufgaben zu arbeiten ist...	○	○	○	○	○	○
In meinem Fachgebiet zu verbleiben und nicht in einen Bereich ausserhalb meines Fachgebiets befördert zu werden ist...	○	○	○	○	○	○
Für eine ganze Organisation verantwortlich zu sein ist...	○	○	○	○	○	○
Eine berufliche Laufbahn frei von organisatorischen Einschränkungen ist...	○	○	○	○	○	○
Eine Organisation, die mir langfristige Stabilität bietet, ist...	○	○	○	○	○	○
Meine Fähigkeiten dafür einzusetzen, die Welt zu einem besseren Platz zum Leben und Arbeiten zu machen, ist...	○	○	○	○	○	○
Eine berufliche Laufbahn zu entwickeln, die es mir erlaubt, meinen persönlichen Lebensstil zu pflegen, ist...	○	○	○	○	○	○

Aussagen zu Ihrer beruflichen Laufbahn - Abschnitt II (Fortsetzung)
Bitte nutzen Sie untenstehende Skala um zu beschreiben, wie wichtig die folgenden Aussagen für Sie sind.

1 - gänzlich unwichtig für mich
2 - eher unwichtig für mich
3 - mässig wichtig für mich
4 - eher wichtig für mich
5 - sehr wichtig für mich

	1	**2**	**3**	**4**	**5**	**keine Meinung / weiss nicht**
Eine neue Firma aufzubauen ist...	○	○	○	○	○	○
Während meiner ganzen beruflichen Laufbahn in meinem Fachgebiet zu bleiben ist...	○	○	○	○	○	○
In eine hohe Position im General Management aufzusteigen ist...	○	○	○	○	○	○
An einem geographischen Ort zu bleiben anstatt wegen einer Beförderung umzuziehen ist...	○	○	○	○	○	○
Meine Fähigkeiten und Talente zugunsten einer wichtigen Sache einsetzen zu können ist...	○	○	○	○	○	○

Aussagen zu Ihrer beruflichen Laufbahn - Abschnitt III
Bitte geben Sie auf einer Skala von 1 bis 5 an, wie sehr die folgenden Aussagen auf Sie zutreffen:

1 - trifft überhaupt nicht auf mich zu
2 - trifft nur wenig auf mich zu
3 - trifft etwas auf mich zu
4 - trifft ziemlich auf mich zu
5 - trifft sehr auf mich zu

	1	**2**	**3**	**4**	**5**	**keine Meinung / weiss nicht**
Die einzig wahren Herausforderungen in meinem Berufsleben waren die Konfrontation mit und das Lösen von schwierigen Problemen, egal in welchem Bereich.	○	○	○	○	○	○
Ich halte immer Ausschau nach Ideen, die es mir erlauben würden, mein eigenes Unternehmen aufzubauen.	○	○	○	○	○	○
Es ist mir wichtiger, an meinem gegenwärtigen geographischen Ort zu bleiben, als eine Beförderung oder neue berufliche Aufgabe an einem anderen Ort zu erhalten.	○	○	○	○	○	○
Eine Karriere ist nur etwas wert, wenn sie mir ermöglicht, mein Leben auf meine Art und Weise zu führen.	○	○	○	○	○	○
Ich werde eine Stelle im Management nur innerhalb meines Fachbereichs annehmen.	○	○	○	○	○	○
Ich will weder durch eine Organisation noch durch die Geschäftswelt eingeschränkt werden.	○	○	○	○	○	○
Ich will eine berufliche Laufbahn, in der ich mich für eine wichtige Sache einsetzen kann.	○	○	○	○	○	○
Ich fühle mich nur erfolgreich, wenn ich dauernd durch schwierige Probleme oder Situationen herausgefordert werde.	○	○	○	○	○	○
Einen bestimmten Lebensstil zu wählen und aufrechtzuerhalten ist mir wichtiger, als beruflich erfolgreich zu sein.	○	○	○	○	○	○
Ich wollte schon immer meine eigene Firma gründen und aufbauen.	○	○	○	○	○	○

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Teil 2: Instrumente zur Laufbahnentwicklung

Im zweiten Teil der Umfrage gehen Sie bitte wie folgt vor:

a) In der **ersten Spalte** wählen Sie diejenigen 5 Instrumente zur Laufbahnentwicklung, die Sie für sich persönlich am nützlichsten fänden - *unabhängig davon, ob Ihnen diese Instrumente momentan zur Verfügung stehen oder nicht.*

b) In der **zweiten Spalte** wählen Sie diejenigen 5 Instrumente zur Laufbahnentwicklung, die Ihnen in Ihrer Organisation am einfachsten zugänglich sind - *unabhängig von Ihrer persönlichen Präferenz*.

?
Um Beispiele zu den einzelnen Instrumenten anzuzeigen, klicken Sie bitte auf das blaue Fragezeichen.

	Die 5 für mich nützlichsten Instrumente sind...	**Die 5 für mich am einfachsten zugänglichen Instrumente sind...**
Formelles Feedback	○	○
Persönlicher Entwicklungsplan	○	○
Transparenter interner Stellenmarkt	○	○
Training zur Förderung der Sozialkompetenz	○	○
Funktionales/technisches Training	○	○
Temporäre Arbeitseinsätze	○	○
Klare Anforderungskriterien für berufliches Weiterkommen	○	○
Formelle Laufbahngespräche	○	○
Leistungsbeurteilung	○	○
Outplacement	○	○
Informelles Feedback	○	○
Lerngelegenheiten am Arbeitsplatz ("on-the-job" learning)	○	○
Online-Foren	○	○
Laufbahn-Workshops	○	○
Klare Beschreibungen von Laufbahnpfaden und Hierarchiestufen	○	○
Laufbahn-Beratung	○	○
Mentoring-Programm	○	○
Informelle Laufbahngespräche	○	○
Laufbahn-Coaching	○	○

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Beispiele für Instrumente zur Laufbahnentwicklung

Laufbahn-Coaching
(z. B. persönlicher Coach zur Entwicklung bestimmter Fähigkeiten)
Laufbahn-Beratung
(z.B. Option zur individuellen Beratung für die persönliche Laufbahnplanung)
Laufbahn-Workshops
(z.B. Veranstaltungen zum Thema Selbst-Management)
Klare Anforderungskriterien für berufliches Weiterkommen
(z.B. transparente und frei zugängliche Definitionen der Beförderungskriterien)
Klare Beschreibungen von Laufbahnpfaden und Hierarchiestufen
(z.B. transparente und frei zugängliche Beschreibungen der internen Karrieremöglichkeiten im IT-Bereich)
Formelle Laufbahngespräche
(z.B. Gespräche mit dem Linienvorgesetzten Mitte und Ende Jahr)
Formelles Feedback
(z.B. regelmässiges 360°-Feedback von Vorgesetzten, Kollegen, Kunden und Teammitgliedern)
Funktionales/technisches Training
(z.B. Kurse zum Erlernen einer neuen Programmiersprache oder über eine neue Hardware-Komponente)
Informelle Laufbahngespräche
(z.B. die Möglichkeit, Laufbahnthemen ausserhalb des offiziellen Zielvereinbarungsprozesses diskutieren zu können)
Informelles Feedback
(z.B. spontanes Lob oder spontane Kritik von Managern, Kollegen, Kunden oder Teammitgliedern)
Training zur Förderung der Sozialkompetenz
(z.B. Kurs über Konfliktmanagement)
Mentoring-Programm
(z.B. die Möglichkeit, einen persönlichen Mentor zu erhalten oder selbst Mentor zu werden)
Online-Foren
(z.B. die Möglichkeit, Laufbahnfragen online mit einer Gruppe von IT-Fachleuten in ähnlichen Positionen oder mit ähnlichen Interessen zu diskutieren)
Lerngelegenheiten am Arbeitsplatz (z.B. Möglichkeit, neue Fähigkeiten direkt in einem neuen Projekt zu erwerben)
Outplacement
(z.B. Unterstützung beim Suchen nach einer neuen Stelle ausserhalb der gegenwärtigen Organisation)
Leistungsbeurteilung
(z.B. jährliches Gespräch mit dem Vorgesetzten über die individuelle Leistung und Zielerreichung)
Persönlicher Entwicklungsplan
(z.B. jährlich überarbeiteter Plan mit persönlichen Entwicklungsmassnahmen)
Temporäre Arbeitseinsätze
(z.B. internationale Entsendung oder befristete Stellenwechsel in einen fremden Fachbereich)
Transparenter interner Stellenmarkt
(z.B. Möglichkeit, sich auf alle intern zu besetzenden Stellen zu bewerben)

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Teil 3: Sie - Ihre Stelle - Ihre Laufbahn

Im letzten Teil der Umfrage bitten wir Sie, ein paar Fragen zu sich, ihrer gegenwärtigen Stelle und ihrer beruflichen Laufbahn insgesamt zu beantworten. Dieser Teil trägt wesentlich dazu bei, ihre bisherigen Antworten in einen grösseren Zusammenhang stellen zu können.

In welchem Land wohnen Sie zur Zeit?

---Bitte wählen Sie ---

Von welchem Land resp. von welchen Ländern besitzen Sie die Staatsbürgerschaft?
Ich besitze die Staatsbürgerschaft von

Land 1	---Bitte wählen Sie ---
Land 2 (bei doppelter Staatsbürgerschaft)	---Bitte wählen Sie ---

Bitte geben Sie den höchsten Ausbildungsabschluss an, den Sie erworben haben.

- ○ Doktorat
- ○ Master-Abschluss, Universitätsdiplom, Lizenziat etc.
- ○ Bachelor-Abschluss, Fachhochschuldiplom etc.
- ○ Höherer Fachausweis, Matura, Abitur etc.
- ○ Berufslehre mit Abschluss
- ○ Etwas anderes, nämlich _____

Bitte geben Sie an, in welchem Jahr Sie Ihren höchsten Abschluss erworben haben.
Im Jahr _____ (JJJJ)

In welchen Fachgebieten haben Sie Ihren Abschluss gemacht?
Bitte wählen Sie alle zutreffenden Gebiete.

- ○ IT
- ○ Ingenieurwissenschaften
- ○ Naturwissenschaften (inkl. Mathematik)
- ○ Sozial- und Geisteswissenschaften
- ○ Etwas anderes, nämlich _____

In welchem Jahr wurden Sie geboren?

Ich wurde _____ geboren. (JJJJ)

Sind Sie…

- ○ männlich?
- ○ weiblich?

Was ist ihr gegenwärtiger Zivilstand?

- ○ verheiratet
- ○ alleinstehend
- ○ lebe mit Partner(in) zusammen
- ○ geschieden
- ○ verwitwet
- ○ etwas anderes, nämlich _____

Für wie viele Kinder und andere von Ihnen finanziell abhängige Personen tragen Sie die Verantwortung?
Sofern zutreffend, geben Sie bitte die entsprechenden Zahlen ein.

- ○ keine
- ○ _____ Kind(er) im Alter von 0-5 Jahren
- ○ _____ Kind(er) im Alter von 6-10 Jahren
- ○ _____ Kind(er) im Alter von 11-15 Jahren
- ○ _____ Kind(er) im Alter von 16-20 Jahren
- ○ _____ Kind(er) im Alter von 21-25 Jahren
- ○ _____ Bedürftige und/oder ältere Verwandte
- ○ andere, nämlich: _____

Welche der folgenden Kategorien beschreibt Ihre aktuelle Stelle am besten?

- ○ Business Analysis and Business Engineering
- ○ Business Management (incl. finance, compliance, strategy, administrative support etc.)
- ○ IT Consulting
- ○ IT Operations
- ○ IT Security
- ○ Line Management
- ○ Network
- ○ Project Management
- ○ Quality Management & Testing
- ○ Service and Delivery Management
- ○ Software Development and Application Architecture
- ○ System Architecture and System Engineering
- ○ User and Production Support
- ○ Etwas anderes, nämlich _____

Arbeiten Sie derzeit...

- ○ Vollzeit?
- ○ Teilzeit (80-99%)?
- ○ Teilzeit (60-79%)?
- ○ Teilzeit (40-59%)?
- ○ Teilzeit (20-39%)?
- ○ Teilzeit (weniger als 20%)?

Welche der folgenden Kategorien beschreibt Ihr aktuelles Anstellungsverhältnis am besten?

- ○ unbefristeter Anstellungsvertrag
- ○ befristeter Anstellungsvertrag
- ○ externe(r) Mitarbeiter(in) / freiberufliche Zusammenarbeit
- ○ Etwas anderes, nämlich _____

Welche der folgenden Kategorien beschreibt Ihre derzeitige hierarchische Stellung am besten?

- ○ oberes Management
- ○ mittleres Management
- ○ unteres Management
- ○ Mitarbeiter(in) ohne Managementfunktion
- ○ Etwas anderes, nämlich _____

Wie viele Personen sind Ihnen in Ihrer aktuellen Position entweder direkt oder indirekt unterstellt?

_____ Personen

Erachten Sie die gegenwärtige gesamte (finanzielle und nicht-finanzielle) Entschädigung für Ihre Stelle als...

- ○ mehr als angemessen?
- ○ angemessen?
- ○ nicht angemessen?

Wie viele Jahre haben Sie insgesamt im IT-Bereich gearbeitet?

_____ Jahre

Wie viele Male haben Sie im Verlaufe der letzten fünf Jahre die Stelle innerhalb einer Organisation gewechselt (gleicher Arbeitgeber)?

_____ Mal

Wie viele Male haben Sie im Verlaufe der letzten fünf Jahre die Stelle zwischen verschiedenen Organisationen gewechselt (anderer Arbeitgeber)?

_____ Mal

Wie viele Male sind Sie im Verlaufe der letzten fünf Jahre wegen eines Stellenwechsels an einen neuen geographischen Ort gezogen?

_____ Mal

Seit wie vielen Jahren arbeiten Sie für Ihren derzeitigen Arbeitgeber?

_____ Jahre

Seit wie vielen Jahren arbeiten Sie an Ihrer jetzigen Stelle?

_____ Jahre

Wie gross ist Ihrer Ansicht nach die Wahrscheinlichkeit, dass Sie in 12 Monaten noch immer für Ihren derzeitigen Arbeitgeber arbeiten werden?

_____ %

Sind Sie zur Zeit aktiv auf der Suche nach einer anderen internen oder externen Stelle?

- ○ Ja
- ○ Nein

Wurden Sie je befördert?

- ○ Ja. Ich wurde letztmals vor _____ Jahr(en) befördert.
- ○ Nein

Welche Art Laufbahn würden Sie selber bevorzugen?

- ○ eine Laufbahn im Management
- ○ eine Laufbahn als Fachspezialist(in)

Fühlen Sie sich, verglichen mit einem 'normalen' Karriereplan in Ihrem Beruf, ...

- ○ dem 'Zeitplan' voraus?
- ○ im 'Zeitplan'?
- ○ hinter dem 'Zeitplan'?

Wie stufen Sie Ihre Karriere im Vergleich zu Ihren Kolleginnen und Kollegen ein?

- ○ als erfolgreicher
- ○ als gleich erfolgreich
- ○ als weniger erfolgreich

Wie zufrieden sind Sie insgesamt mit Ihrer derzeitigen beruflichen Situation?

- ○ sehr zufrieden
- ○ eher zufrieden
- ○ gleichermassen zufrieden wie unzufrieden
- ○ eher unzufrieden
- ○ sehr unzufrieden
- ○ keine Meinung / weiss nicht

Wie beurteilen Sie insgesamt Ihre persönlichen beruflichen Zukunftsperspektiven?

- ○ sehr positiv
- ○ eher positiv
- ○ gleichermassen positiv wie negativ
- ○ eher negativ
- ○ sehr negativ
- ○ keine Meinung / weiss nicht

Bitte ergänzen Sie folgende Aussagen mit Ihren eigenen Worten.

Beruflicher Erfolg bedeutet... _____
Meine Laufbahn ist... _____

Kommentar
Bitte teilen Sie uns allfällige weitere Bemerkungen zu Ihrer Laufbahn oder zu dieser Umfrage mit.

_____

Sind Sie interessiert an den Resultaten dieser Studie?
Alle Teilnehmerinnen und Teilnehmer haben die Möglichkeit, eine Zusammenfassung der Forschungsresultate zu erhalten, sobald diese zur Verfügung stehen. Falls Sie an diesem Dokument interessiert sind, notieren Sie hier bitte eine E-Mail-Adresse, über die wir Sie zu gegebener Zeit benachrichtigen können. Diese E-Mail-Adresse wird vertraulich behandelt und zu keinem anderen Zweck als zum Versand der Resultate verwendet.

_____

Sind Sie an einem zusätzlichen Interview interessiert?
Wir planen, ein paar vertiefende Interviews zu dieser Studie durchzuführen. Falls Sie bereit sind, sich eine Teilnahme an den Interviews zu überlegen, geben Sie uns bitte eine E-Mail-Adresse an, über die wir Sie zu gegebener Zeit kontaktieren können. Diese E-Mail-Adresse wird vertraulich behandelt und zu keinem anderen Zweck als zum Versand der Interview-Informationen verwendet. Sie verpflichten sich mit der Angabe Ihrer E-Mail-Adresse nicht dazu, an einem Interview teilzunehmen.

_____

Sie haben den Fragebogen nun vollständig beantwortet. Ihr Beitrag leistet einen wertvollen Beitrag zum besseren Verständnis von Laufbahnen in der Informatik.
Weitere Informationen und Kontaktdetails finden Sie auf der Projektwebsite

Herzlichen Dank für Ihre Teilnahme an dieser Umfrage.

Appendix 2 – Survey 1 – Online questionnaire

French version

Appendix 2 shows the first questionnaire as it was displayed online.
Navigation buttons (“back” and “forward”) are not depicted.

Welcome
This survey is available in English, German and French. Please select your preferred language.

Herzlich willkommen
Diese Umfrage steht Ihnen in Deutsch, Französisch und Englisch zur Verfügung. Bitte wählen Sie Ihre bevorzugte Sprache.

Bienvenue
Ce questionnaire est disponible en français, en allemand et en anglais. Veuillez sélectionner la langue désirée.

- ○ English
- ○ Deutsch
- ○ Français

Career Orientations in IT

Chère participante, cher participant
Nous vous remercions de votre intérêt pour cette étude internationale sur les carrières professionnelles des spécialistes en informatique. Cette enquête est actuellement menée dans plusieurs organisations dans divers secteurs, branches et pays. L'étude examine le comportement et les attentes des spécialistes TI concernant leur propre carrière. Les résultats de l'étude aideront les organisations TI et les associations professionnelles à améliorer le développement de la carrière des spécialistes TI.

Concernant la présente enquête

Le questionnaire se divise en trois parties. Y répondre prend env. 20-30 min.
- Partie 1: Déclarations concernant votre propre carrière professionnelle
- Partie 2: Instruments concernant l'évolution de carrière
- Partie 3: Vous - votre emploi - votre carrière

Le délai de participation à l'étude est le **JJ MM 2008**

Toutes les données seront traitées de manière strictement confidentielle. Les résultats seront transmis aux organisations uniquement dans un état agrégé, de sorte qu'aucune déduction concernant la personne ne soit possible.

Informations détaillées et contact

Pour toute information supplémentaire concernant l'étude, nous vous invitons à visiter le site internet du projet.

Martin Gubler se tient volontiers à votre disposition pour tout renseignement complémentaire: Martin Gubler, Doctoral Researcher, Loughborough University, UK (M.Gubler@lboro.ac.uk; +41 77 450 01 37)

Nous vous remercions de votre soutien.

Prof. John Arnold, Dr. Crispin Coombs, Martin Gubler
Business School, Loughborough University, UK

Loughborough University

Partie 1 - Déclarations concernant votre carrière professionnelle
La première partie de l'enquête comprend trois paragraphes concernant votre carrière professionnelle. A l'aide des échelles données, veuillez faire part de votre estimation spontanée.

Déclarations concernant votre carrière professionnelle - paragraphe 1
Veuillez indiquer à quel point les déclarations suivantes vous correspondent:

1 - ne me correspond pas du tout
2 - ne me correspond pas vraiment
3 - me correspond moyennement
4 - me correspond assez bien
5 - me correspond très bien

	1	**2**	**3**	**4**	**5**	**ne sais pas / pas d'avis**
Je sais quels sont les domaines de mon travail qui m'intéressent le plus	○	○	○	○	○	○
J'apprécie de travailler avec des personnes externes à mon organisation.	○	○	○	○	○	○
Je désire vraiment relever de nouveaux défis.	○	○	○	○	○	○
J'apprécie la prévisibilité qui résulte du travail continuel dans le secteur TI.	○	○	○	○	○	○
Je définis la réussite professionnelle pour moi-même – personne d'autre n'est à même de le faire pour moi.	○	○	○	○	○	○
Mon développement professionnel devrait reposer sur mes valeurs personnelles et non sur celles que la société considère comme étant importantes.	○	○	○	○	○	○
J'ai déjà refusé des offres d'emploi ou des mandats car ils étaient incompatibles avec les valeurs qui sont importantes pour moi dans la vie.	○	○	○	○	○	○
J'ai déjà effectué un changement professionnel qui a été considéré comme trop radical par les autres.	○	○	○	○	○	○
Si je reste longtemps à la même place, c'est parce que cet emploi correspond à mes besoins et non parce que je crains le changement.	○	○	○	○	○	○
Normalement, je me définis par ma profession et non par mon employeur (p. ex. 'Je suis un ingénieur logiciel' et non 'Je travaille pour l'organisation XY').	○	○	○	○	○	○

Déclarations concernant votre carrière professionnelle - paragraphe 1 (continué)
Veuillez indiquer à quel point les déclarations suivantes vous correspondent:

1 - ne me correspond pas du tout
2 - ne me correspond pas vraiment
3 - me correspond moyennement
4 - me correspond assez bien
5 - me correspond très bien

	1	**2**	**3**	**4**	**5**	**ne sais pas / pas d'avis**
Je me considère comme un membre de mon groupe professionnel.	○	○	○	○	○	○
Le fait de rester plus longtemps à mon emploi actuel gênerait mon évolution future au sein ou à l'extérieur de mon organisation.	○	○	○	○	○	○
Ce qui est important pour moi est la manière dont je pense *personnellement* à ma réussite professionnelle.	○	○	○	○	○	○
J'ai déjà envisagé de changer de profession.	○	○	○	○	○	○
Par le passé, j'ai déjà réfléchi à accepter un emploi dans un autre lieu géographique et à y déménager.	○	○	○	○	○	○
Je préfère rester à un lieu dont la géographie m'est connue que chercher un emploi à un autre endroit.	○	○	○	○	○	○
Afin de progresser dans l'organisation, je suis prêt à sacrifier ma work-life-balance personnelle.	○	○	○	○	○	○
Je recherche activement des tâches professionnelles qui me permettent d'apprendre des choses nouvelles.	○	○	○	○	○	○
Si je devais choisir, je préférerais changer de profession plutôt que de quitter mon employeur actuel.	○	○	○	○	○	○
A mon avis, le fait de changer d'emploi entre différentes organisations est un signe de manque de loyauté envers les employeurs.	○	○	○	○	○	○

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Déclarations concernant votre carrière professionnelle - paragraphe 1 (continué)
Veuillez indiquer à quel point les déclarations suivantes vous correspondent:

1 - ne me correspond pas du tout
2 - ne me correspond pas vraiment
3 - me correspond moyennement
4 - me correspond assez bien
5 - me correspond très bien

	1	**2**	**3**	**4**	**5**	**ne sais pas / pas d'avis**
Je sais exactement ce qui est important pour moi dans la vie.	○	○	○	○	○	○
Mes capacités sont très spécialisées en fonction des besoins de mon employeur actuel.	○	○	○	○	○	○
Par le passé, j'ai davantage fait confiance à moi-même qu'aux autres pour trouver un nouvel emploi.	○	○	○	○	○	○
Par le passé, j'ai cherché des possibilités me permettant de travailler à l'extérieur de mon organisation.	○	○	○	○	○	○
Par le passé, j'ai refusé des possibilités de carrière pour des raisons personnelles.	○	○	○	○	○	○
J'aurais l'impression d'être perdu si je ne pouvais pas travailler pour mon employeur actuel.	○	○	○	○	○	○
Je dirige ma carrière en fonction de ce qui est important pour moi.	○	○	○	○	○	○
Je refuserais un nouvel emploi s'il ne m'était pas possible de contribuer de manière judicieuse à la vie sociale.	○	○	○	○	○	○
Chaque fois que cela est possible, j'essaye de développer des capacités et des compétences qui peuvent être utilisées dans différentes organisations.	○	○	○	○	○	○
J'évalue régulièrement mes points forts et mes faiblesses.	○	○	○	○	○	○

Déclarations concernant votre carrière professionnelle - paragraphe 1 (continué)
Veuillez indiquer à quel point les déclarations suivantes vous correspondent:

1 - ne me correspond pas du tout
2 - ne me correspond pas vraiment
3 - me correspond moyennement
4 - me correspond assez bien
5 - me correspond très bien

	1	**2**	**3**	**4**	**5**	**ne sais pas / pas d'avis**
Je trouverais motivant d'accepter un emploi dans un autre lieu géographique.	○	○	○	○	○	○
Chaque fois que cela est possible, j'essaie d'exécuter mon travail au mieux, plutôt que de respecter strictement les procédures.	○	○	○	○	○	○
Finalement, il m'incombe de gérer mon développement professionnel.	○	○	○	○	○	○
J'estime bien me connaître.	○	○	○	○	○	○
Pour moi, il est important de faire partie de mon entreprise actuelle.	○	○	○	○	○	○
Si demain, un emploi à un niveau hiérarchique plus élevé m'était proposé, je l'accepterais indépendamment de ma situation personnelle actuelle.	○	○	○	○	○	○
La pensée d'un changement professionnel atypique m'attire.	○	○	○	○	○	○
Ma carrière idéale serait de travailler pour une seule organisation.	○	○	○	○	○	○
J'apprécie la prévisibilité qui résulte d'un emploi de plusieurs années auprès de la même organisation.	○	○	○	○	○	○
Je considère les changements au travail comme des chances de parvenir au meilleur.	○	○	○	○	○	○

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Déclarations concernant votre carrière professionnelle - paragraphe 1 (continué)
Veuillez indiquer à quel point les déclarations suivantes vous correspondent:

1 - ne me correspond pas du tout
2 - ne me correspond pas vraiment
3 - me correspond moyennement
4 - me correspond assez bien
5 - me correspond très bien

	1	**2**	**3**	**4**	**5**	**ne sais pas / pas d'avis**
Je pourrais également être à l'aise dans un travail en dehors du domaine TI.	○	○	○	○	○	○
J'apprécie les interventions lors desquelles je travaille en dehors de mon organisation.	○	○	○	○	○	○
Si mon organisation me garantissait un emploi à vie, je ne chercherais jamais un travail dans une autre organisation.	○	○	○	○	○	○
J'ai bon espoir de pouvoir changer d'organisation sans trop de difficultés si je le souhaitais ou le devais.	○	○	○	○	○	○
Je demande à d'autres personnes de me donner un feedback sur moi-même et je le prends au sérieux.	○	○	○	○	○	○
J'ai déjà pris des décisions professionnelles guidées par mes propres attentes et non par celles des autres à mon égard.	○	○	○	○	○	○
Lorsque je ne sais pas si un emploi ou une tâche me convient, je tente l'expérience.	○	○	○	○	○	○
Je prends principalement mes décisions professionnelles sur la base de réflexions financières.	○	○	○	○	○	○
J'apprécie de pouvoir faire appel à des personnes externes pour résoudre des problèmes.	○	○	○	○	○	○
Dans le cadre de mon emploi, je recherche des tâches qui exigent que je travaille au-delà des limites de ma division.	○	○	○	○	○	○

Déclarations concernant votre carrière professionnelle - paragraphe 1 (continué)
Veuillez indiquer à quel point les déclarations suivantes vous correspondent:

1 - ne me correspond pas du tout
2 - ne me correspond pas vraiment
3 - me correspond moyennement
4 - me correspond assez bien
5 - me correspond très bien

	1	**2**	**3**	**4**	**5**	**ne sais pas / pas d'avis**
Le fait de m'adapter à un changement de situation ou d'environnement m'est aisé.	○	○	○	○	○	○
Je préfère les tâches professionnelles dans le cadre desquelles je peux utiliser des capacités et des compétences que je maîtrise bien aux tâches pour lesquelles je devrais développer de nouvelles compétences.	○	○	○	○	○	○
Je préfère rester dans une entreprise que je connais plutôt que de chercher un emploi ailleurs.	○	○	○	○	○	○
J'assume la responsabilité de la propre évolution de ma carrière.	○	○	○	○	○	○
Je travaille plus volontiers en équipe que seul.	○	○	○	○	○	○
Pour moi, le travail en équipe est moins efficace que le fait de travailler seul.	○	○	○	○	○	○

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Déclarations concernant votre carrière professionnelle - paragraphe II
A l'aide de l'échelle ci-dessous, veuillez décrire à quel point les déclarations suivantes sont importantes pour vous.

1 - absolument sans importance pour moi
2 - plutôt sans importance pour moi
3 - légèrement important pour moi
4 - assez important pour moi
5 - très important pour moi

	1	**2**	**3**	**4**	**5**	**ne sais pas / pas d'avis**
Surveiller, influencer, guider et conduire des gens à tous les niveaux est...	○	○	○	○	○	○
La possibilité de régler les choses à ma manière sans être limité par les règles d'une organisation est...	○	○	○	○	○	○
Un employeur qui propose la sécurité par la garantie de la place de travail, des prestations sociales facultatives, un bon plan de rente est...	○	○	○	○	○	○
Travailler à des tâches pratiquement insolubles est...	○	○	○	○	○	○
Rester dans mon domaine spécialisé et ne pas être promu dans un domaine en dehors de mon domaine de spécialisation est...	○	○	○	○	○	○
Etre responsable pour une organisation entière est...	○	○	○	○	○	○
Une carrière professionnelle libre de toute restriction organisationnelle est...	○	○	○	○	○	○
Une organisation qui m'offre une stabilité à long terme est...	○	○	○	○	○	○
Utiliser mes capacités pour faire du monde un endroit meilleur pour vivre et travailler est...	○	○	○	○	○	○
Développer une carrière professionnelle qui me permet de maintenir mon style de vie personnel est...	○	○	○	○	○	○

Déclarations concernant votre carrière professionnelle - paragraphe II (continué)
A l'aide de l'échelle ci-dessous, veuillez décrire à quel point les déclarations suivantes sont importantes pour vous.

1 - absolument sans importance pour moi
2 - plutôt sans importance pour moi
3 - légèrement important pour moi
4 - assez important pour moi
5 - très important pour moi

	1	**2**	**3**	**4**	**5**	**ne sais pas / pas d'avis**
Créer une nouvelle entreprise est...	○	○	○	○	○	○
Rester pendant toute ma carrière professionnelle dans mon domaine de spécialisation est...	○	○	○	○	○	○
Etre promu dans la direction générale est...	○	○	○	○	○	○
Rester à un lieu géographique déterminé au lieu de déménager suite à une promotion est...	○	○	○	○	○	○
Savoir utiliser mes capacités et mes talents en faveur d'une chose importante est...	○	○	○	○	○	○

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Déclarations concernant votre carrière professionnelle - paragraphe III
Veuillez indiquer à quel point les déclarations suivantes vous correspondent:

1 - ne me correspond pas du tout
2 - ne me correspond pas vraiment
3 - me correspond moyennement
4 - me correspond assez bien
5 - me correspond très bien

	1	**2**	**3**	**4**	**5**	**ne sais pas / pas d'avis**
Les seuls vrais défis dans ma vie professionnelle ont été la confrontation et la résolution des problèmes difficiles, dans n'importe quel domaine.	○	○	○	○	○	○
Je suis toujours à la recherche d'idées qui me permettraient de créer ma propre entreprise.	○	○	○	○	○	○
Il est plus important pour moi de rester à mon lieu géographique actuel que d'obtenir une promotion ou une nouvelle tâche professionnelle à un autre endroit.	○	○	○	○	○	○
Une carrière n'a de la valeur que si elle me permet de vivre ma vie à ma façon.	○	○	○	○	○	○
Je n'accepterais un poste dans le management qu'au sein de mon domaine de spécialisation.	○	○	○	○	○	○
Je ne veux être limité ni par une organisation ni par le monde des affaires.	○	○	○	○	○	○
Je désire une carrière professionnelle dans laquelle je peux m'engager pour une cause importante.	○	○	○	○	○	○
Pour moi, la réussite c'est être constamment soumis à des problèmes difficiles ou des situations pleines de défis à relever.	○	○	○	○	○	○
Choisir un style de vie déterminé et le maintenir est pour moi plus important que la réussite professionnelle.	○	○	○	○	○	○
J'ai toujours voulu créer et développer ma propre entreprise.	○	○	○	○	○	○

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Partie 2: Instruments concernant l'évolution de carrière

Dans la deuxième partie du questionnaire, veuillez procéder comme suit:

a) Dans la **colonne de gauche**, sélectionnez les 5 instruments concernant l'évolution de carrière les plus utiles pour vous personnellement - *indépendamment du fait que ces instruments sont momentanément à votre disposition ou non.*

b) Dans la **colonne de droite**, sélectionnez les 5 instruments concernant l'évolution de carrière qui vous sont le plus facilement accessibles dans votre organisation - *indépendamment de votre préférence personnelle.*

?
Afin de faire apparaître des exemples pour chaque instrument, cliquez sur le point d'interrogation bleu.

	Les 5 instruments les plus utiles pour moi sont...	**Les 5 instruments les plus facilement accessibles pour moi sont...**
Feedback formel	○	○
Plan de développement personnel	○	○
Marché de l'emploi interne transparent	○	○
Entraînement à la promotion des compétences sociales	○	○
Entraînement fonctionnel/technique	○	○
Interventions temporaires	○	○
Critères d'exigence clairs pour un avancement professionnel	○	○
Entretiens formels de carrière	○	○
Evaluation des prestations	○	○
Outplacement	○	○
Feedback informel	○	○
Possibilités d'apprentissage à la place de travail ("on-the-job" learning)	○	○
Forums en ligne	○	○
Ateliers de carrière	○	○
Descriptions claires de voies de carrières et de niveaux hiérarchiques	○	○
Conseil de carrière	○	○
Programme de mentoring	○	○
Entretiens de carrière informels	○	○
Coaching de carrière	○	○

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Exemples pour chaque instrument

Coaching de carrière
(p. ex. coach personnel pour développer certaines capacités)
Conseil de carrière
(p. ex. option de conseil individuel pour la planification personnelle de la carrière)
Ateliers de carrière
(p. ex. séminaires concernant le sujet du management personnel)
Critères d'exigence clairs pour un avancement professionnel
(p. ex. définitions transparentes et librement accessibles des critères de promotion)
Descriptions claires de voies de carrières et de niveaux hiérarchiques
(p. ex. descriptions transparentes et librement accessibles des possibilités de carrière internes dans le domaine TI)
Entretiens formels de carrière
(p. ex. entretiens avec les supérieurs hiérarchiques directs en milieu et en fin d'année)
Feedback formel
(p. ex. feedback régulier à 360° venant du supérieur, des collègues, des clients et des membres de l'équipe)
Entraînement fonctionnel/technique
(p. ex. cours pour apprendre une nouvelle langue de programmation ou sur un nouveau composant de matériel)
Entretiens de carrière informels
(p. ex. la possibilité de discuter de thèmes de carrière en dehors du processus officiel de fixation des objectifs)
Feedback informel
(p. ex. louanges ou critique spontanées du manager, de collègues, de clients ou de membres de l'équipe)
Entraînement à la promotion des compétences sociales
(p. ex. cours sur la gestion des conflits)
Programme de mentoring
(p. ex. la possibilité d'obtenir un mentor personnel ou de devenir soi-même mentor)
Forums en ligne
(p. ex. la possibilité de discuter en ligne de questions liées à la carrière avec un groupe de spécialistes TI dans des positions semblables ou avec des intérêts similaires)
Possibilités d'apprentissage à la place de travail
(p. ex. possibilité d'acquérir de nouvelles capacités directement en relation avec un nouveau projet)
Outplacement
(p. ex. soutien dans le cadre de la recherche d'un nouvel emploi en dehors de l'organisation actuelle)
Evaluation des prestations
(p. ex. entretien annuel avec le supérieur hiérarchique concernant la prestation individuelle et la réalisation des objectifs)
Plan de développement personnel
(p. ex. plan revu chaque année avec mesures de développement personnelles)
Interventions temporaires
(p. ex. délégation internationale ou changement d'emploi limité dans le temps dans un domaine de spécialisation étranger)
Marché de l'emploi interne transparent
(p. ex. possibilité de postuler pour tous les postes à repourvoir au niveau interne)

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Partie 3: Vous - votre emploi - votre carrière

Dans le cadre de la dernière partie de l'enquête, nous vous prions de répondre à quelques questions concernant votre emploi actuel et votre carrière professionnelle dans son ensemble. Cette partie contribue essentiellement à replacer vos réponses dans un contexte plus large.

Dans quel pays habitez-vous actuellement?

--- Veuillez choisir ---

De quel/quels pays avez-vous la nationalité?

J'ai la nationalité de

Pays 1	--- Veuillez choisir ---
Pays 2 (en cas de double nationalité)	--- Veuillez choisir ---

Veuillez indiquer votre formation la plus élevée.

○	Doctorat
○	'Master' diplôme, diplôme universitaire, licence, magister, etc.
○	'Bachelor' diplôme, diplôme d'une Haute école spécialisée, etc.
○	Maturité, baccalauréat, brevet supérieur, Abitur, etc.
○	Apprentissage professionnel avec certificat
○	Autres, soit: _____

Veuillez indiquer l'année de votre diplôme le plus élevé.

En _____ (aaaa)

Dans quels domaines de spécialisation avez-vous fait votre diplôme?
Veuillez cocher tous les domaines correspondants.

- ○ TI
- ○ Ingéniérie
- ○ Sciences naturelles (y compris mathématiques)
- ○ Sciences sociales et intellectuelles
- ○ Autres, soit: _____

Quelle est votre année de naissance?

Je suis né(e) en _____. (aaaa)

Etes-vous de sexe...

- ○ masculin?
- ○ féminin?

Quel est votre état civil actuel?

- ○ marié
- ○ célibataire
- ○ concubinat
- ○ divorcé
- ○ veuf
- ○ autres, soit: _____

De combien de personnes et d'enfants, financièrement dépendants de vous, avez-vous la responsabilité?
Veuillez noter les chiffres correspondants.

- ○ aucun
- ○ _____ enfants âgés de 0 à 5 ans
- ○ _____ enfants âgés de 6 à 10 ans
- ○ _____ enfants âgés de 11 à 15 ans
- ○ _____ enfants âgés de 16 à 20 ans
- ○ _____ enfants âgés de 21 à 25 ans
- ○ _____ personnes nécessiteuses et/ou parents âgés
- ○ Autres, soit: _____

Laquelle des catégories suivantes décrit le mieux votre emploi actuel?

- ○ Business analysis et business engineering
- ○ Business management (y compris finances, stratégie, gestion de standards, administration, etc.)
- ○ IT consulting
- ○ IT operations
- ○ IT security
- ○ Line management
- ○ Network
- ○ Management de projets
- ○ Management de qualité et testing
- ○ Service et delivery management
- ○ Développement de logiciels et architecture d'application
- ○ Architecture de système et system engineering
- ○ Support utilisateurs et production
- ○ Autres, soit: _____

Travaillez-vous actuellement...

- ○ à plein temps?
- ○ temps partiel (80-99%)?
- ○ temps partiel (60-79%)?
- ○ temps partiel (40-59%)?
- ○ temps partiel (20-39%)?
- ○ temps partiel (moins de 20%)?

Laquelle des catégories suivantes décrit le mieux votre rapport d'emploi actuel?

- ○ contrat de travail de durée indéterminée
- ○ contrat de travail de durée déterminée
- ○ collaborateur/trice externe / collaboration indépendante
- ○ autres, soit: _____

Laquelle des catégories suivantes décrit le mieux votre position hiérarchique actuelle?

- ○ cadre supérieur
- ○ cadre moyen
- ○ cadre inférieur
- ○ collaborateur/trice sans fonction de cadre
- ○ autres, soit _____

Dans votre position actuelle, combien de personnes vous sont directement ou indirectement subordonnées?

_____ personnes

Considérez-vous que la rémunération actuelle globale (financière et non financière) de votre emploi est...

- ○ plus qu'appropriée?
- ○ appropriée?
- ○ pas appropriée?

Au total, combien d'années avez-vous travaillé dans le domaine TI?

_____ années

Au cours des cinq dernières années, combien de fois avez-vous changé d'emploi au sein d'une organisation (même employeur)?

_____ fois

Au cours des cinq dernières années, combien de fois avez-vous changé d'emploi entre différentes organisations (autre employeur)?

_____ fois

Au cours des cinq dernières années, combien de fois avez-vous déménagé d'endroit géographique en raison d'un changement d'emploi?

_____ fois

Depuis combien d'années travaillez-vous pour votre employeur actuel?

Depuis _____ années

Depuis combien d'années travaillez-vous à votre emploi actuel?

Depuis _____ années

A votre avis, quelle est la probabilité que dans une année, vous soyez encore chez votre employeur actuel?

_____ %

Actuellement, recherchez-vous activement un autre emploi interne ou externe?

- ○ Oui
- ○ Non

Avez-vous été promu?

- ○ Oui. Il y a _____ années depuis ma dernière promotion.
- ○ Non

Quel type de carrière préféreriez-vous?

- ○ une carrière dans le management?
- ○ une carrière de spécialiste?

En comparaison avec un plan de carrière 'normal' dans votre profession, vous sentez-vous...

- ○ en avance sur le 'calendrier'?
- ○ en concordance avec le 'calendrier'?
- ○ en retard sur le 'calendrier'?

En comparaison avec vos collègues, comment jugez-vous votre carrière?

- ○ plus réussie?
- ○ semblable?
- ○ moins réussie?

Dans l'ensemble, quelle est le degré de votre satisfaction de votre situation professionnelle actuelle

Je suis...

- ○ très satisfait(e)
- ○ plutôt satisfait(e)
- ○ aussi bien satisfait(e) qu'insatisfait(e)
- ○ plutôt insatisfait(e)
- ○ très insatisfait(e)
- ○ pas d'avis / ne sais pas

Comment jugez-vous dans l'ensemble vos perspectives professionnelles personnelles?

- ○ très positives
- ○ plutôt positives
- ○ aussi bien positives que négatives
- ○ plutôt négatives
- ○ très négatives
- ○ pas d'avis / ne sais pas

Veuillez compléter les déclarations suivantes par vos propres mots.

La réussite professionnelle signifie... _____
Ma carrière est... _____

Commentaire
Veuillez nous faire part de vos éventuelles remarques supplémentaires concernant votre carrière ou la présente enquête.

_____

Etes-vous intéressé aux résultats de cette étude?
Toutes les participantes et tous les participants ont la possibilité d'obtenir un résumé des résultats de l'enquête dès que ceux-ci seront disponibles. Si vous êtes intéressé, veuillez mentionner ici votre adresse électronique que nous utiliserons pour vous informer en temps voulu. Votre adresse électronique sera traitée confidentiellement et ne sera utilisée à aucune autre fin que l'envoi des résultats.

_____

Etes-vous intéressé à une interview supplémentaire?
Nous prévoyons de procéder à quelques interviews approfondies concernant cette étude. Si vous souhaitez réfléchir à une éventuelle participation à une interview, nous vous prions de bien vouloir nous indiquer une adresse électronique par laquelle nous vous contacterons en temps voulu. Cette adresse électronique sera traitée confidentiellement et ne sera utilisée à aucune autre fin que l'envoi des informations concernant l'interview. En nous donnant votre adresse, vous ne vous engagez en aucune manière à participer à une interview.

_____

Vous avez terminé de remplir le questionnaire. Vous avez fourni une précieuse contribution permettant de mieux comprendre les carrières dans le domaine de l'informatique.
Vous trouvez des informations et des détails de contact supplémentaires sur le site internet du projet.

Nous vous remercions d'avoir participé à cette enquête.

Appendix 3 – Comparison of survey sample 1 and organizational benchmarks

Appendix 3 shows a comparison of survey sample 1 with benchmarks provided by the participating organizations, as well as with some key figures of national IT workforces in the UK, Switzerland, and Germany.

		Nationality (largest group)	Mean age (years)	Female staff	Part-time staff	Staff in mana-gerial roles***
Sample*	Overall	Swiss (52.4%)	39.8	14.4%	13.5%	34.5%
Org01	Total**	Swiss (81.7%)	34	6%	4%	5%
	Sample	Swiss (83.1%)	32.6	10%	8.3%	38.3%
Org02	Total	Swiss (87.5%)	41	15%	16%	12%
	Sample	Swiss (78.8%)	41.7	14.0%	15.7%	23.4%
Org03	Total	not available	not available	not available	not available	not available
	Sample	British (83.3%)	39.2	19.4%	2.4%	47.6%
Org04	Total	Swiss (92.9%)	34	10%	20%	10%
	Sample	Swiss (87.0%)	34.8	10.4%	24.6%	26.5%
Org05a	Total	not available	42	17.0%	3.0%	47%
	Sample	British (90.9%)	41.6	14.5%	2.7%	53.6%
Org05b	Total	German (93.9%)	47	20.8%	9.4%	32%
	Sample	German (92.0%)	46.7	17.6%	8.7%	42.2%
Org06	Total	Swiss (92.9%)	37.6	21.4%	7.1%	14.3%
	Sample	Swiss (92.9%)	37.6	21.4%	7.1%	14.3%
Org07	Total	Swiss (83.4%)	40.8	11.1%	13.8%	12.7%
	Sample	Swiss (89.6%)	40.5	7.4%	11.5%	19%
Org08	Total	Swiss (84.7%)	39.3	10.8%	26.2%	15.4%
	Sample	Swiss (79.3%)	39.1	19.7%	32.3%	21.3%
Org09	Total	Swiss (73.6%)	42	17%	17%	not available
	Sample	Swiss (71.1%)	40.1	16.7%	17.8%	36.4%
Org10	Total	Swiss (51.9%)	35.6	1.8%	14%	8.6%
	Sample	Swiss (56.0%)	35.5	2.6%	7.6%	10.2%

*Percentages are calculated as percentages of the full sample (n=1,708)
**Totals represent figures provided by the HR departments
*** Benchmark not used due to different interpretations of the term “managerial role” (see section 6.3.8)

Table 1: Comparison of survey sample 1 and organizational benchmarks

		Percentage of employees aged 40 or older	Female staff	Staff without a degree in IT	Staff with Bachelor's degree or higher
Sample	Overall	50.0%	14.4%	47.5%	65.5%
UK	Total	44%[1]	18%[2]	not available	55%[3]
	Sample	51.9%	17.5%	60.1%	66.1%
Switzerland	Total	54.6%[4]	12%[5], ranging from 8-16% depending on age[6]	"about 50%"[7]	not available
	Sample	47.4%	12.3%	43.7%	57.3%
Germany	Total	not available	17%[8]	"up to 75%"[9]	not available
	Sample	62.6%	14.8%	50.0%	88.2%

Samples calculated based on nationality indicated in survey

Table 2: Comparison of survey sample 1 and UK, Swiss, and German IT workforces

[1] E-Skills UK. (2008a). *IT & Telecoms insights 2008: profiles of the industry and workforce*. London: E-Skills UK.
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[5] Zimmermann, J. (2005). Warum braucht die Informatik mehr Frauen? *Professional Computing, 1*, 34-36.
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[7] Zehnder, C. A. (2008, 11 January). Erosion der Informatikausbildung - Vielfältige Ursachen, schwerwiegende Konsequenzen. *Neue Zürcher Zeitung.*
[8] Kasszian, N. (2011). IT-Branche lehnt eine Frauenquote ab. Retrieved 14 July 2011, from http://www.crn.de/service/management/artikel-89963-2.html
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Appendix 4 – Factor analysis survey 1 – Details per item

Appendix 4 provides an overview of all 54 items in survey 1 and the reasons for which these were either kept or excluded from the final list of 25 items in the eight factors.

Career	Dimension	Aspect #	Aspect	Item #	Item	Sources	Reason for (not) keeping item in factors F1-F8
Protean career	Values-driven	1	Being clear on one's needs, motivation, abilities, values and interests	1	I think I know myself well	New, no precursor	Kept as part of factor 5
				2	I regularly assess my strengths and my weaknesses.	New, based on Briscoe & Hall (1999, p. 49ff)	Kept as part of factor 3
				3	I seek out and seriously consider feedback about me from other people.	New, based on Briscoe & Hall (1999, p. 49ff)	Kept as part of factor 3
				4	I can define what is important to me in life.	New, no precursor	Kept as part of factor 5
				5	I know which parts of my work interest me most.	New, no precursor	Kept as part of factor 5
		2	Having personal values that are both the guidance as well as the measure of success in one's career	6	My own career development should be based on my personal values, not on what society values.	New, no precursor	Kept as part of factor 6
				7	I have made decisions about job opportunities that were guided by expectations of myself rather than what some other people expected of me.	New, based on Briscoe, Hall & Frautschy DeMuth (2006, p. 45), item 9	Communality <0.5 (first iteration)
				8	What is really important to me is how I personally feel about my career success.	Adjusted from Briscoe, Hall & Frautschy DeMuth (2006, p. 45), item 11; factor loading 0.265 (Briscoe, et al., 2006, p. 34)	Communality <0.5 (first iteration) Loadings <0.5 (first iteration)
				9	Career success is something I define for myself – no one else can do this on my behalf.	New, no precursor	Kept as part of factor 6
				10	I have turned down jobs or assignments because they would have gone against what is important to me in life.	New, no precursor	Kept as part of factor 8

Career	Dimension	Aspect #	Aspect	Item #	Item	Sources	Reason for (not) keeping item in factors F1-F8
Protean career	Self-directed	3	Being both competent and moti-vated to learn and to adapt to a changing environment	11	If I am not sure whether a job or task will suit me, I give it a try so that I can find out.	New, no precursor	Communality <0.5 (first iteration)
				12	I can easily adjust to changing situations and environments.	New, based on Briscoe & Hall (1999, p. 49ff)	Communality <0.5 (first iteration) Loadings <0.5 (first iteration)
				13	I prefer job assignments that require me to use the skills and competencies I am al-ready good at rather than assignments that would require me to develop new ones.	New, no precursor, reverse-coded	Communality <0.5 (second iteration) Loadings <0.5 (second iteration)
				14	I am eager to accept new challenges.	New, based on Briscoe & Hall (1999, p. 49ff)	Loadings <0.5 (first iteration)
				15	I see changes at work as opportunities to change things for the better.	New, no precursor	Communality <0.5 (first iteration) Loadings <0.5 (first iteration)
		4	Having a feeling of independ-ence and of being in charge of one's career	16	Whenever possible, I try to do my job in the way I think best, rather than "by the book".	New, no precursor	Communality <0.5 (first iteration)
				17	I take responsibility for my own career development.	Adjusted from Baruch & Quick (2007, p. 491)	Kept as part of factor 6
				18	In the past, I have relied more on myself than others to find a new job.	Adjusted from Briscoe, Hall & Frautschy DeMuth (2006, p. 45), item 8; factor loading 0.414 (Briscoe, et al., 2006, p. 34)	Communality <0.5 (first iteration) Loadings <0.5 (first iteration)
				19	I navigate my own career, according to what is important to me.	Adjusted from Baruch & Quick (2007, p. 491)	Communality <0.5 (first iteration)
				20	Ultimately, I depend upon myself to move my career forward.	Original from Briscoe, Hall & Frautschy DeMuth (2006, p. 45), item 6, factor loading 0.797 (Briscoe, et al., 2006, p. 34)	Kept as part of factor 6

Career	Dimension	Aspect #	Aspect	Item #	Item	Sources	Reason for (not) keeping item in factors F1-F8
Bound-aryless career	Physically mobile	5	Crossing organiza-tional boundaries	21	I like the predictability that comes with working continuously for the same organi-zation.	Original from Briscoe, Hall & Frautschy DeMuth (2006, p. 46), item 9; factor loading 0.505 (Briscoe, et al., 2006, p. 35); reverse-coded	Communality <0.5 (third iteration)
				22	I would feel very lost if I could not work for my current organization.	Original from Briscoe, Hall & Frautschy DeMuth (2006, p. 46), item 10; factor loading 0.660 (Briscoe, et al., 2006, p. 35); reverse-coded	Kept as part of factor 1
				23	I prefer to stay in an organization I am familiar with rather than look for employ-ment elsewhere.	Adjusted from Briscoe, Hall & Frautschy DeMuth (2006, p. 46), item 11; factor loading 0.436 (Briscoe, et al., 2006, p. 35); reverse-coded	Kept as part of factor 1
				24	If my organization provided lifetime em-ployment, I would never seek work in other organizations.	Adjusted from Briscoe, Hall & Frautschy DeMuth (2006, p. 46), item 12; factor loading 0.748 (Briscoe, et al., 2006, p. 35); reverse-coded	Kept as part of factor 1
				25	In my ideal career I would work for only one organization.	Original from Briscoe, Hall & Frautschy DeMuth (2006, p. 46), item 13; factor loading 0.715 (Briscoe, et al., 2006, p. 35); reverse-coded	Communality <0.5 (second iteration) Loadings <0.5 (second iteration)
		6a	Crossing occupational boundaries	26	I could feel comfortable in work other than IT.	New, no precursor	Kept as part of factor 4
				27	I have already considered changing jobs into a different occupation.	New, no precursor	Kept as part of factor 4
				28	I like the predictability that comes with working continuously within IT.	New, no precursor, reverse-coded	Communality <0.5 (second iteration) Loadings <0.5 (second iteration)

Career	Dimension	Aspect #	Aspect	Item #	Item	Sources	Reason for (not) keeping item in factors F1-F8
Boundaryless career	Physically mobile	6b	Crossing geographical boundaries	29	I prefer to stay in a geographical location I am familiar with rather than look for employment elsewhere.	New, no precursor, reverse-coded	Kept as part of factor 2
				30	I would find it motivating to take on a job in another geographical location.	New, no precursor	Kept as part of factor 2
				31	In the past, I have considered changing jobs and moving to a different geographical location.	New, no precursor	Kept as part of factor 2
	Psychologically mobile	7	Feeling independent of any one employer	32	I usually define myself in terms of my profession rather than in terms of my employer (e.g. "I am a software engineer" rather than "I work for company X").	New, based on DeFillippi & Arthur (1996)	Loadings <0.5 (first iteration)
				33	I see myself as a member of my occupational group.	New, no precursor	Communality <0.5 (first iteration) Loadings <0.5 (first iteration)
				34	Being part of my current organization means a lot to me.	New, no precursor, reverse-coded	Kept as part of factor 1
				35	If I had to choose, I would rather change my profession than change my current employer.	New, no precursor, reverse-coded	Kept as part of factor 1
				36	In my opinion, changing jobs between organizations is a sign of disloyalty towards employers.	New, no precursor, reverse-coded	Communality <0.5 (first iteration)
		8	Developing and maintaining non-hierarchic firm-independent networks	37	I like being able to call on external contacts to solve problems.	New, no precursor	Communality <0.5 (first iteration)
				38	I enjoy job assignments that require me to work outside of the organization.	Original from Briscoe, Hall & Frautschy DeMuth (2006, p. 46), item 3; factor loading 0.766 (Briscoe, et al., 2006, p. 35)	Kept as part of factor 7
				39	I look for tasks at work that require me to work beyond my own department.	Adjusted from Briscoe, Hall & Frautschy DeMuth (2006, p. 46), item 4; factor loading 0.698 (Briscoe, et al., 2006, p. 35)	Communality <0.5 (third iteration)

Career	Dimension	Aspect #	Aspect	Item #	Item	Sources	Reason for (not) keeping item in factors F1-F8
Bound-aryless career	Psycho-logically mobile	8	Developing and main-taining non-hierarchic firm-independent networks	40	I enjoy working with people outside of my organization.	Original from Briscoe, Hall & Frautschy DeMuth (2006, p. 46), item 5; factor loading 0.843 (Briscoe, et al., 2006, p. 35)	Kept as part of factor 7
				41	In the past, I have sought opportunities in the past that allowed me to work outside the organization.	Adjusted from Briscoe, Hall & Frautschy DeMuth (2006, p. 46), item 7; factor loading 0.646 (Briscoe, et al., 2006, p. 35)	Communality <0.5 (first iteration) Loadings <0.5 (first iteration)
		9	Accumulat-ing em-ployer-independent know-how	42	I actively seek job assignments that allow me to learn something new.	Adjusted from Briscoe, Hall & Frautschy DeMuth (2006, p. 46), item 1; factor loading 0.563 (Briscoe, et al., 2006, p. 35)	Kept as part of factor 3
				43	Whenever possible, I try to develop skills and competencies that can be used in vari-ous organizations.	New, no precursor	Communality <0.5 (first iteration)
				44	My skills are highly specialized to the needs of my current employer.	New, no precursor, reverse-coded	Communality <0.5 (first iteration) Loadings <0.5 (first iteration)
				45	I am confident that I could move to an-other organization fairly easily if I needed or wanted to.	New, no precursor	Communality <0.5 (first iteration) Loadings <0.5 (first iteration)
				46	Staying in my current job for a long time would hamper my future development inside or outside my organization.	New, no precursor	Communality <0.5 (first iteration)
		10	Rejecting career oppor-tunities for personal reasons	47	If I were offered a job at a higher hierar-chical level tomorrow, I would take it, regardless of my current personal situa-tion.	New, no precursor, reverse-coded	Loadings <0.5 (second iteration)
				48	In the past, I have rejected career opportu-nities for personal reasons.	New, no precursor	Kept as part of factor 8

Career	Dimension	Aspect #	Aspect	Item #	Item	Sources	Reason for (not) keeping item in factors F1-F8
Bound-aryless career	Psycho-logically mobile	10	Rejecting career oppor-tunities for personal reasons	49	In order to move up the organization I am willing to make sacrifices in terms of my personal work-life balance.	New, no precursor, reverse-coded	Loadings <0.5 (first iteration)
				50	I would reject a new job if it did not allow me to contribute something meaningful to society.	New, no precursor	Loadings <0.5 (first iteration)
				51	I make my career choices based primarily on financial considerations.	Original from Baruch & Quick (2007, p. 491), reverse-coded	Communality <0.5 (third iteration) Loadings <0.5 (third iteration)
		11	Considering oneself boundaryless despite exist-ing bounda-ries	52	I have made career moves that most peo-ple would consider too radical.	New, no precursor	Loadings <0.5 (first iteration)
				53	If I stay in the same job for a long time, it is because it suits my purposes, not be-cause I am wary of change.	New, no precursor	Communality <0.5 (first iteration) Loadings <0.5 (first iteration)
				54	I am excited by the thought of making unconventional career moves.	New, no precursor	Kept as part of factor 4

Table 1: Details of the 54 protean and boundaryless career orientation items in factor analysis (survey 1)

Appendix 5 – Career success coding scheme

Appendix 5 presents the coding scheme as it was used for the career success statements. Additional coding instructions are included in the table *[→ shown in italics and brackets]*.

	Category	Sub-category	Definition	Examples
1	Performance and achievement			
		Performing well	• Success in terms of performing well	• Doing good work [which is valued] • Being the best [at overcoming regular challenges] • Always striving to do my best [and taking advantage of opportunities that I see.] • Performing well
		Achieving goals	• Success in terms of attaining verifiable results and meeting set goals	• Achieving goals [→ *no reference to "my", "personal" etc.*] • Completing my work successfully • Successful projects • Reaching and exceeding targets for the benefit of the company
2	Advancement			
2a		Advancement (generic)	• Success in terms of advancing in general terms	• Getting ahead • Making progress • Moving forwards
2b		Hierarchical advancement	• Success in terms of advancing in the organizational hierarchy	• A high management role, director, CEO.. • Obtaining a management role • Promotion [and a good salary] • [A competitive remuneration] with a clear career progression
2c		Power and influence	• Success in terms of having more power, responsibility, influence, or authority in the organization	• Having the authority to make decisions • Having influence on major decision making internally and externally • Being able to change things • Being allowed to take on more responsibility
3	Self-development			
3a		Self-development (generic)	• Success in terms of a generic reference to self-development	• Continually developing yourself • Realising/achieving/fulfilling my potential • Growing and developing [as a result of new challenges]
3b		Personal goal attainment	• Success in terms of reaching one's personal goals	• Accomplishing one 's own/personal goals • Achieving the goals I set out for me • Personal / private success • Achieving your own personal [and financial] aspirations

	Category	Sub-category	Definition	Examples
3c		Continuous learning *[→ i.e. developing skills and knowledge]*	• Success in terms of continuously learning new things and/or developing skills	• Constantly learning [and passing the things you've learnt onto others] • Continuously updating my knowledge • Broadening your knowledge • Developing specialist knowledge • Developing skills [that suit the market place]
3d		Using one's skills *[→ i.e. having/using skills and knowledge]*	• Success in terms of being able to use one's skills	• Being able to use your skills in full • Making the most of my skills • Having specialist knowledge • Optimally using your skills and interests • [A confirmation that] I have used my talents well
3e		Career self-management	• Success in terms of managing one's own career	• [Achieving the goals] in accordance with my career plan • A planned future [with clear targets and progression. If I don't hit the targets then I have myself to blame.] • It's down/up to me • [Achieving] what you want it to be
4	Satisfaction and happiness in general			
4a		Being satisfied (generic)	• Success in terms of a generic reference to being satisfied *[→ without further explanation]*	• Being satisfied • Fulfilment • Contentment • Personal satisfaction
4b		Being happy (generic)	• Success in terms of being/feeling happy	• Being happy with the day in the evening • Happiness • Being happy with myself • Feeling good • Happiness in life
5	Satisfaction and happiness at work			
5a		Enjoying work (generic)	• Success in terms of enjoying one's work and/or liking one's job	• Enjoying my work • Doing what I like • Work has to be fun • Working with pleasure • Having a job which is stimulating and rewarding • Being professionally fulfilled [and financially independent]

	Category	Sub-category	Definition	Examples
5b		Being happy at work	• Success in terms of happiness and satisfaction in relation with one's job/work	• Being happy at work/with your role • Being happy with what you do • Happiness in my job • Finding professional happiness • [I do what gives me] job satisfaction • Having a satisfying job
5c		Achievement satisfaction	• Success in terms of feeling the satisfaction of achieving goals or performing well	• Satisfaction with the work done • Being satisfied that you have performed to the best of your ability • Feeling proud of my achievements
6	Life outside work			
6a		Valuing life outside work (generic)	• Success in terms of having a life outside work and/or keeping one's lifestyle	• Being able to enjoy my out of work life • [An interesting basis for] my private life • Having a life when I go home • Keeping my lifestyle • Being able to live a good life / Living a comfortable life • Quality of life • Having a lot of free time
6b		Balance	• Success in terms of having a balance in life / being balanced *[→ explicitly using a "balance" metaphor]*	• Being satisfied with one 's work-life balance • Work-life balance • Being balanced
6c		Family and friends	• Success in terms of having a good/happy life with one's family and/or friends *[→ explicitly mentioning friends and/or family]*	• Success that does not damage the family • Allowing one 's family to play a significant role in life alongside one 's career • Having a happy family life
7	Independence and freedom			
7a		Independence and flexibility	• Success in terms of acting independently and/or autonomously	• Being able to organize my time flexibly • Working independently • Having room to manoeuvre [and the necessary skills]
7b		Freedom	• Success in terms of having freedom *[→ explicitly mentioning "freedom"]*	• Freedom • Freedom to choose my own role

	Category	Sub-category	Definition	Examples
8	Cooperation			
8a		Cooperating with others	• Success in terms of working well together with peers, supervisors	• Working in a team • Being part of a highly effective team • Passing knowledge on to others • Giving/receiving support
8b		Relationship with others	• Success in terms of having a good relationship with one's team, boss etc.	• Having a good time with my peers • Getting on well with my boss and my team • Feeling happy in my team
9	Contribution			
9a		Contribution (generic)	• Success in terms of making contribution *[→ without reference to organizational success, happy customers etc.]*	• Believing to have achieved positive matters • Making a difference • Doing something meaningful / useful • Making an important contribution • Making the world better • Being needed
9b		Contribution (to organizational success)	• Success in terms of a contribution to organization, its customers etc.	• Doing a job which is equally beneficial to the employer as well as the employee • That my software is used productively • Solving important tasks for my employer • Making a contribution towards the company's success • That our customers are happy • Adding value to our company
10	Interesting work and challenge			
10a		Having interesting work	• Success in terms of having interesting work	• Having interesting work • Working on interesting tasks • Being given exciting/varied/interesting assignments
10b		Being challenged	• Success in terms of being challenged and/or solving problems at work	• Constantly facing new challenges • Solving the problems presented to me • More challenges • Working on demanding tasks

	Category	Sub-category	Definition	Examples
11	Motivation			
11a		Being motivated	• Success in terms of being motivated	• Motivation • Being highly motivated • Commitment • Passion • Looking forward to going to work on Mondays • Being happy to get out of bed and go to work
12	Security			
12a		Security (generic)	• Success in terms of a generic reference to security *[→ without further specification such as financial security etc.]*	• Security • Feeling secure • Stability
12b		Job security	• Success in terms of job and/or employment security	• Having a secure job • Reaching retirement without experiencing redundancy • Job security
13	Recognition			
13a		Recognition (generic)	• Success in terms of a general reference to recognition [→ *without further specification*]	• Recognition • Being adequately recognized • Confirmation
13b		Non-material recognition	• Success in terms of being appreciated/respected for one's efforts and talents	• Being held in high esteem • Being respected and appreciated by my team • Customers being happy/satisfied with what I have done • Being appreciated/recognized as a specialist in my field • Feeling a sense of worth / self-affirmation / self-esteem • Being trusted/valued
14	Remuneration			
14a		Financial reward (generic)	• Success in terms of a generic reference to money	• Money • Remuneration • Financial rewards
14b		Financial security	• Success in terms of feeling secure about one's financial situation	• Being able to provide for my family *[→ will not be coded under work-life balance – because the notion is about the money]* • Not to worry about money

	Category	Sub-category	Definition	Examples
14c		Financial independence	• Success in terms of earning money in order to pursue one's goals in life	• Having the freedom to buy what one desires; not experiencing financial restrictions • Enough money so that I don't have to work 100% • Earning enough to keep my lifestyle *[→ because of reference to lifestyle]*
14d		Satisfaction with financial rewards	• Success in terms of being satisfied with one's income	• Earning enough *[→ without any further reference]* • Being satisfied/happy with my salary • Being financially comfortable
14e		High financial rewards or getting higher salaries	• Success in terms of striving for a high or increasing income	• Earning good money • Getting pay rises • Being well paid • £££££££ • Financial success/progression
14f		Financial recognition	• Success in terms of being financially rewarded for one's performance and/or being financially rewarded in a fair way	• Being paid for what I do at work • Getting paid based on my performance • Appropriate remuneration • An adequate salary • Fair pay
15	Importance of career success		*[→ Coded according to level of importance – second category is only set if the point of reference can be clearly coded, e.g. "a lot but private life is important, too"]*	
15a		High importance	• Stating that career success means much to them	• Very much but not everything • Much to me • A great deal for my future
15b		Some importance	• Stating that career success is at least of some importance to them	• Quite important but other things are more important • Is only important if [my private life etc.] is also satisfied • Does not mean everything to me • Less to me than [my private life]
15c		Low importance	• Stating that career success means not much or nothing to them	• Not very much • Nothing to me

	Category	Sub-category	Definition	Examples
16	Other			
16a	Miscellaneous		• Stating any other type of career success not classified in any other category	• ? • Avoiding too much stress, not being over-stretched • Health, time • Success in life • Values/beliefs • Happy employees • Good work environment *[→ no further specification]*

Table 1: Career success - Coding scheme

Appendix 6 – Chi-Square analysis details

Career success statements compared with other variables

Appendix 6 covers details of various Chi-Square tests.

The first table provides results of the comparison of career success statements with several other variables. The second one shows more specific career success comparisons between various sub-samples of respondents.

Chi-Square analysis - Career success statements compared with other variables
Data based on participants who provided career success statements only (n=1,328)
Significant differences (Chi-Square tests, p<0.05, two-tailed)

Abbreviations:

High:	scored substantially above expected frequencies	CH:	Swiss citizens	C1:	Cluster 1 (Protean career architects)
Low:	scored substantially below expected frequencies	D:	German citizens	C2:	Cluster 2 (Solid citizens)
χ^2:	Chi-Square values	UK:	UK citizens	C3:	Cluster 3 (Roamers)
<5:	Percentage of cells with expected count below 5	Others:	Citizens of all other countries		
		f:	female respondents	Mgmt c.:	Preference for managerial career track
		m:	male respondents	Spec. c.:	Preference for specialist career track

		Age (n=1,190)	Career outlook (n=1,318)	Career satisfaction (n=1,322)	Nationality (n=1,292)	Career orientation cluster (n=1,045)	Highest degree achieved (n=1,318)	Dependents (n=1,328)	Gender (n=1,311)	Hierarchical position (n=1,321)	Mmgt vs. specialist career (n=1,315)	Organization (n=1,328)
1	Performance and achievement	• High: aged <25 • Low: aged 36-45, 56+ • $\chi2$: 0.004 • <5: 20%			• High: Others/D • Low: CH • $\chi2$: 0.015 • <5: 0%	• High: C3 • Low: C2 • $\chi2$: 0.008 • <5: 0%					• High: Mgmt c. • Low: Spec. c. • $\chi2$:0.000 • <5: 0%	• High: Org1/3/6 • Low: Org 2/4/7 • $\chi2$: 0.003 • <5: 18.2%
1a	Performing well		• High: very negative outlook • Low: neutral outlook • $\chi2$: 0.004 • <5: 30%							• High: middle mgmt • Low: lower mgmt • $\chi2$: 0.040 • <5: 40%		
1b	Achieving goals/targets	• High: aged <25, 26-35 • Low: aged 36-45, 46-55, 56+ • $\chi2$: 0.001 • <5: 20%			• High: Others/D • Low: CH • $\chi2$: 0.002 • <5: 0%					• High: lower/middle mgmt • Low: Non-mgmt roles • $\chi2$: 0.048 • <5: 20%	• High: Mgmt c. • Low: Spec. c. • $\chi2$: 0.000 • <5: 0%	• High: Org 1/3/6/5b • Low: Org 2/4/7 • $\chi2$: 0.004 • <5: 22.7%

		Age (n=1,190)	Career outlook (n=1,318)	Career satisfaction (n=1,322)	Nationality (n=1,292)	Career orientation cluster (n=1,045)	Highest degree achieved (n=1,318)	Dependents (n=1,328)	Gender (n=1,311)	Hierarchical position (n=1,321)	Mmgt vs. specialist career (n=1,315)	Organization (n=1,328)
2	Advancement			• High: moderately dissatisfied • Low: mod/highly satisfied • χ2: 0.034 • <5: 10%	• High: UK • Low: CH • χ2: 0.012 • <5: 0%		• High: Bachelor/PhD • Low: Apprent. / High school • χ2: 0.016 • <5: 16.7%				• High: Mgmt c. • Low: Spec. c. • χ2: 0.000 • <5: 0%	• High: Org 3/6/5a • Low: Org 2/7/8 • χ2: 0.023 • <5: 22.7%
2a	Advancement (generic)	• High: aged 26-35, (56+) • Low: aged 46-55 • χ2: 0.020 • <5: 30%				• High: C2/C3 • Low: C1 • χ2: 0.029 • <5: 0%				• High: middle / senior mgmt non mgmt • Low: non-mgmt roles • χ2: 0.046 • <5: 30%	• High: Mgmt c. • Low: Spec. c. • χ2: 0.004 • <5: 0%	• High: Org 3/10 • Low: Org 2/7/(9) • χ2: 0.040 • <5: 45.5%
2b	Hierarchical advancement		• High: very negative, very positive • Low: moderat. positive • χ2: 0.001 • <5: 30%	• High: mod. dissatisfied • Low: neutral / mod satisfied • χ2: 0.002 • <5: 30%	• High: UK • Low: CH / D • χ2: 0.000 • <5: 37.5%		• High: Bachelor • Low: Master • χ2: 0.030 • <5: 25%				• High: Mgmt c. • Low: Spec. c. • χ2: 0.000 • <5: 0%	• High: Org 1/6/5a • Low: Org 2/4/7/8/9/10 • χ2: 0.000 • <5: 45.5%
2c	Power and influence						• High: Bachelor/PhD • Low: High School • χ2: 0.010 • <5: 16.7%					
3	Self-development					• High: C1 /C3 • Low: C2 • χ2: 0.000 • <5: 0%					• High: Mgmt c. • Low: Spec. c. • χ2: 0.011 • <5: 10%	

		Age (n=1,190)	Career outlook (n=1,318)	Career satisfaction (n=1,322)	Nationality (n=1,292)	Career orientation cluster (n=1,045)	Highest degree achieved (n=1,318)	Dependents (n=1,328)	Gender (n=1,311)	Hierarchical position (n=1,321)	Mmgt vs. specialist career (n=1,315)	Organization (n=1,328)
3a	Self-development (generic)					• High: C3 • Low: C2 • χ2: 0.022 • <5: 0%			• High: f • Low: m • χ2: 0.010 • <5: 0%			
3b	Goal attainment					• High: C1/(C3) • Low: C2 • χ2: 0.000 • <5: 0%					• High: Mgmt c. • Low: Spec. c. • χ2: 0.011 • <5: 0%	
3c	Continuous learning					• High: C1/(C3) • Low: C2 • χ2: 0.010 • <5: 0%						
3d	Using one's skills											
3e	Career self-management											
4	Satisfaction and happiness in general				• High: CH • Low: UK/D/other • χ2: 0.000 • <5: 0%	• High: C2 • Low: C1/(C3) • χ2: 0.035 • <5: 0%	• High: Apprent / High school • Low: Master • χ2: 0.008 • <5: 8.3%					• High: Org 2/7/9 • Low: Org 1/3/4/5b • χ2: 0.000 • <5: 4.5%
4a	Being satisfied (generic)											

		Age (n=1,190)	Career outlook (n=1,318)	Career satisfaction (n=1,322)	Nationality (n=1,292)	Career orientation cluster (n=1,045)	Highest degree achieved (n=1,318)	Dependents (n=1,328)	Gender (n=1,311)	Hierarchical position (n=1,321)	Mmgt vs. specialist career (n=1,315)	Organization (n=1,328)
4b	Being happy (generic)				• High: CH • Low: UK/D/other • χ2: 0.000 • <5: 0%	• High: C2 • Low: C3 • χ2: 0.043 • <5:0%	• High: Apprenticeship • Low: Master • χ2: 0.002 • <5: 16.7%					• High: Org 2/7/9 • Low: Org 1/3/4/5a • χ2: 0.000 • <5: 4.5%
5	Satisfaction and happiness at work	• High: aged 26-35 • Low: aged 46-55, 56+ • χ2: 0.011 • <5: 0%						• High: no dependents • Low: dependents • χ2: 0.043 • <5: 0%	• High: f • Low: m • χ2: 0.002 • <5: 0%			• High: Org 1/2/4/7/10 • Low: Org 9 • χ2: 0.000 • <5: 4.5%
5a	Enjoying work (generic)	• High: aged <25, 26-35 • Low: aged 36-45, 46-55, 56+ • Lowest for 56+ • χ2: 0.001 • <5: 0%	• High: mod. / very positive • Low: very/ mod. negative / neutral • χ2: 0.014 • <5: 10%					• High: no dependents • Low: dependents • χ2: 0.013 • <5: 0%	• High: f • Low: m • χ2: 0.013 • <5: 0%			• High: Org 1/4/5a/6/10 • Low: Org 5b/9 • χ2: 0.008 • <5: 4.5%
5b	Being happy at work											
5c	Achievement satisfaction			• High: mod dissatisfied / neutral • Low: mod satisfied • χ2: 0.033 • <5: 40%								
6	Valuing life outside work											

		Age (n=1,190)	Career outlook (n=1,318)	Career satisfaction (n=1,322)	Nationality (n=1,292)	Career orientation cluster (n=1,045)	Highest degree achieved (n=1,318)	Dependents (n=1,328)	Gender (n=1,311)	Hierarchical position (n=1,321)	Mmgt vs. specialist career (n=1,315)	Organization (n=1,328)
6a	Valuing life outside work (gen.)											
6b	Balance											• High: Org3/4/(10) • Low: Org 1/5b/8/9 • $\chi 2$: 0.033 • <5: 18.2%
6c	Family & friends					• High: C1 • Low: C3 • $\chi 2$: 0.018 • <5: 0%		• High: dependents • Low: no dependents • $\chi 2$: 0.005 • <5: 0%		• High: lower mgmt • Low: middle mgmt • $\chi 2$: 0.031 • <5: 30%		
7	Independence and freedom		• High: very positive • Low: neutral • $\chi 2$: 0.050 • <5: 20%									
7a	Independence and flexibility											
7b	Freedom											
8	Cooperation				• High: D/other • Low: UK/CH • $\chi 2$: 0.004 • <5: 12.5%							

		Age (n=1,190)	Career outlook (n=1,318)	Career satisfaction (n=1,322)	Nationality (n=1,292)	Career orientation cluster (n=1,045)	Highest degree achieved (n=1,318)	Dependents (n=1,328)	Gender (n=1,311)	Hierarchical position (n=1,321)	Mmgt vs. specialist career (n=1,315)	Organization (n=1,328)
8a	Cooperating with others				• High: D • Low: CH/UK • $\chi 2$: 0.002 • <5: 25%						• High: Mgmt c. • Low: Spec. c. • $\chi 2$: 0.013 • <5: 0%	
8b	Relationship with others				• High: others • $\chi 2$: 0.007 • <5: 37.5%		• High: Master • $\chi 2$: 0.035 • <5: 50%					
9	Contribution				• High: UK/D • Low: CH • $\chi 2$: 0.016 • <5: 0%							
9a	Contribution (generic)		• High: mod. negative / neutral • Low: mod / very positive • $\chi 2$: 0.027 • <5: 10%		• High: UK/D • Low: CH • $\chi 2$: 0.005 • <5: 0%							
9b	Contribution (to org. success)									• High: mid / senior mgmt • Low: non mgmt roles • $\chi 2$: 0.000 • <5: 30%		• High: Org 1/3/5b/6 • Low: Org 2/7/10 • $\chi 2$: 0.036 • <5: 36.4%
10	Challenge	• High: aged 36-45 • Low: aged <25, 26-35, 46-55, 56+ • $\chi 2$: 0.018 • <5: 10%					• High: Master • Low: Apprent. / High school • $\chi 2$: 0.005 • <5: 16.7%					
10a	Having interesting work											

		Age (n=1,190)	Career outlook (n=1,318)	Career satisfaction (n=1,322)	Nationality (n=1,292)	Career orien-tation cluster (n=1,045)	Highest degree achieved (n=1,318)	Dependents (n=1,328)	Gender (n=1,311)	Hierarchical position (n=1,321)	Mmgt vs. specialist career (n=1,315)	Organization (n=1,328)
10b	Being challenged					• High: C3 • Low: C2 • χ2: 0.046 • <5: 0%	• High: Master • Low: High school • χ2: 0.026 • <5: 16.7%					
11	Motivation				• High: others • Low: UK • χ2: 0.001 • <5: 0%							
11a	Being motivated				• High: others • Low: UK • χ2: 0.001 • <5: 0%							
12	Security	• High: aged 46-55, 56+ • Low: aged <25, 26-35 • χ2: 0.019 • <5: 20%	• High: mod negative / neutral • Low: mod positive • χ2: 0.034 • <5: 20%				• High: Ap-prent / High School • Low: Bache-lor • χ2: 0.009 • <5: 16.7%		• High: m • Low: f • χ2: 0.030 • <5: 0%		• High: spec. c. • Low: mgmt c. • χ2: 0.037 • <5: 0%	
12a	Security (generic)		• High: mod negative / neutral • Low: mod positive • χ2: 0.025 • <5: 30%				• High: Ap-prent / High School • Low: Bache-lor/ (Master) • χ2: 0.004 • <5: 25%					
12b	Job security	• High: aged 36-45, 46-55, 56+ • Low: aged <25 • χ2: 0.005 • <5: 40%										

		Age (n=1,190)	Career outlook (n=1,318)	Career satisfaction (n=1,322)	Nationality (n=1,292)	Career orientation cluster (n=1,045)	Highest degree achieved (n=1,318)	Dependents (n=1,328)	Gender (n=1,311)	Hierarchical position (n=1,321)	Mmgt vs. specialist career (n=1,315)	Organization (n=1,328)
13	Recognition		• High: very positive • Low: mod negative • $\chi 2$: 0.013 • <5: 10%									
13a	Recognition (generic)				• High: CH • Low: UK • $\chi 2$: 0.020 • <5: 0%							• High: Org 8/9/10 • Low: Org 1/2/3/ • $\chi 2$: 0.006 • <5: 22.7%
13b	Non-material recognition							• High: dependents • Low: no dependents • $\chi 2$: 0.021 • <5: 0%				
14	Remuneration		• High: very / mod negative • Low: neutral / mod positive • $\chi 2$: 0.000 • <5: 0%	• High: very / mod dissatisf. • Low: mod / highly satisf. • $\chi 2$: 0.047 • <5: 0%	• High: UK • Low: CH • $\chi 2$: 0.000 • <5: 0%				• High: m • Low: f • $\chi 2$: 0.009 • <5: 0%			• High: Org 3/5a/5b • Low: Org 2/9/10 • $\chi 2$: 0.000 • <5: 4.5%
14a	Financial rewards (generic)		• High: very / mod negative • Low: neutral / moderately / very positive • $\chi 2$: 0.002 • <5: 20%	• High: mod / very dissatisf. • Low: neutral / highly satisf. • $\chi 2$: 0.036 • <5: 10%	• High: UK • Low: CH • $\chi 2$: 0.019 • <5: 12.5%							• High: Org 3/5a • Low: Org 2/7/10 • $\chi 2$: 0.013 • <5: 40.9%

		Age (n=1,190)	Career outlook (n=1,318)	Career satisfaction (n=1,322)	Nationality (n=1,292)	Career orientation cluster (n=1,045)	Highest degree achieved (n=1,318)	Dependents (n=1,328)	Gender (n=1,311)	Hierarchical position (n=1,321)	Mmgt vs. specialist career (n=1,315)	Organization (n=1,328)
14b	Financial security				• High: UK • Low: CH • χ2: 0.001 • <5: 25%			• High: dependents • Low: no dependents • χ2: 0.019 • <5: 0%				• High: Org 3/5a/5b • Low: Org 9 • χ2: 0.044 • <5: 45.5%
14c	Financial independence											
14d	Enough/ satisfactory financial rewards				• High: UK • Low: D • χ2: 0.010 • <5: 25%		• High: High school • Low: Apprent. • χ2: 0.038 • <5: 25%				• High: Spec. c. • Low: Mgmt c. • χ2: 0.012 • <5: 0%	• High: Org 3/7/8 • Low: Org (2)/(4)/9(!)/10 • χ2: 0.000 • <5: 40.9%
14e	High rewards / more money				• High: UK • Low: CH • χ2: 0.000 • <5: 0%						• High: Mgmt c. • Low: Spec. c. • χ2: 0.015 • <5: 0%	• High: Org 3/5a/5b • Low: Org 2/8/9/10 • χ2: 0.003 • <5: 36.4%
14f	Appropriate rewards					• High: C2 • Low: C1/C3 • χ2: 0.026 • <5: 0%						
15	Importance of career success	• High: aged 46-55, 56+ • Low: aged 36-45 • χ2: 0.001 • <5: 10%	• High: mod. positive • Low: neutral / very positive • χ2: 0.049 • <5: 10%		• High: CH • Low: UK • χ2: 0.000 • <5: 0%		• High: Apprent • Low: Bachelor / Master • χ2: 0.000 • <5: 16.7%					• High: Org 2/7/9 • Low: Org 3/5a • χ2: 0.012 • <5: 18.2%

		Age (n=1,190)	Career outlook (n=1,318)	Career satisfaction (n=1,322)	Nationality (n=1,292)	Career orien-tation cluster (n=1,045)	Highest degree achieved (n=1,318)	Dependents (n=1,328)	Gender (n=1,311)	Hierarchical position (n=1,321)	Mmgt vs. specialist career (n=1,315)	Organization (n=1,328)
15a	Career success - High impor-tance	• High: aged 46-55, 56+ • Low: aged 36-45 • χ2: 0.021 • <5: 20%			• High: CH • Low: UK • χ2: 0.008 • <5: 0%		• High: Ap-prent • Low: High school/ Master • χ2: 0.009 • <5: 16.7%				• High: Mgmt c. • Low: Spec. c. • χ2: 0.034 • <5: 10%	• High: Org 2/9 • Low: Org 3/4/5a • χ2: 0.039 • <5: 31.8%
15b	Career success - some impor-tance											
15c	Career success - Low im-portance				• High: CH • Low: UK • χ2: 0.043 • <5: 37.5%		• High: Ap-prent / High school • χ2: 0.034 • <5: 41.7%				• High: Spec. c. • Low: Mgmt c. • χ2: 0.023 • <5: 10%	
16	Other											
16a	Miscel-lanous											

Table 1: Chi-Square analysis – Career success statements compared with other variables

		Comparison: Org05a versus Org05b (n=162)	Comparison: CH versus D citizens (in Swiss organizations) (n=820)	Comparison: CH versus D citizens (in Org09) (n=355)	Comparison: Clusters (amongst CH citizens in Org 09) (n=242)	Comparison: Clusters (amongst CH citizens) (n=707)	Comparison: Organi-zations (amongst CH citizens; excluding Org06) (n=699)	Comparison: Org03 versus Org05 (amongst UK citi-zens) (n=304)	Comparison: Clusters (amongst UK citi-zens) (n=267)
1	Performance and achievement				• High: C1/C3 • Low: C2 • χ2: 0.037 • <5: 33%	• High: C1/C3 • Low: C2 • χ2: 0.028 • <5: 0%			
1a	Performing well								
1b	Achieving goals/targets								
2	Advance-ment				• High: C2/C3 • Low: C1 • χ2: 0.019 • <5: 16.7%	• High: C2/(C3) • Low: C1 • χ2: 0.044 • <5: 0%			
2a	Advance-ment (generic)								
2b	Hierarchical advancement	• High: Org 5a • Low: Org 5b • χ2: 0.006 • <5: 0%							
2c	Power and influence								
3	Self-development					• High: C1/C3 • Low: C2 • χ2: 0.000 • <5: 0%			
3a	Self-development (generic)								
3b	Goal attain-ment					• High: C1/C3 • Low: C2 • χ2: 0.011 • <5: 16.7%			

		Comparison: Org05a versus Org05b (n=162)	Comparison: CH versus D citizens (in Swiss organizations) (n=820)	Comparison: CH versus D citizens (in Org09) (n=355)	Comparison: Clusters (amongst CH citizens in Org 09) (n=242)	Comparison: Clusters (amongst CH citizens) (n=707)	Comparison: Organizations (amongst CH citizens; excluding Org06) (n=699)	Comparison: Org03 versus Org05 (amongst UK citizens) (n=304)	Comparison: Clusters (amongst UK citizens) (n=267)
3c	Continuous learning								
3d	Using one's skills								
3e	Career self-management								
4	Satisfaction and happiness in general						• High: Org 7/9 • Low: Org 1/4/8 • $\chi 2$: 0.021 • <5: 0%		
4a	Being satisfied (generic)								
4b	Being happy (generic)	• High: Org 5b • Low: Org 5a • $\chi 2$: 0.045 • <5: 25%	• High: CH • Low: D • $\chi 2$: 0.011 • <5: 0%						
5	Satisfaction and happiness at work				• High: C1 • Low: C2 • $\chi 2$: 0.003 • <5: 0%		• High: Org 1/4/7 • Low: Org 9 • $\chi 2$: 0.000 • <5: 0%		
5a	Enjoying work (generic)						• High: Org 1/2/4 • Low: Org 9 • $\chi 2$: 0.000 • <5: 14.3%		
5b	Being happy at work						• High: Org 4/7/10 • Low: Org 9 • $\chi 2$: 0.033 • <5: 28.6%		
5c	Achievement satisfaction								

		Comparison: Org05a versus Org05b (n=162)	Comparison: CH versus D citizens (in Swiss organizations) (n=820)	Comparison: CH versus D citizens (in Org09) (n=355)	Comparison: Clusters (amongst CH citizens in Org 09) (n=242)	Comparison: Clusters (amongst CH citizens) (n=707)	Comparison: Organi-zations (amongst CH citizens; excluding Org06) (n=699)	Comparison: Org03 versus Org05 (amongst UK citi-zens) (n=304)	Comparison: Clusters (amongst UK citi-zens) (n=267)
6	Valuing life outside work								
6a	Valuing life outside work (generic)						• High: Org 8 • Low: Org 4/10 • $\chi 2$: 0.039 • <5: 28.6%		
6b	Balance								
6c	Family & friends								
7	Independ-ence and freedom								
7a	Independ-ence and flexibility								
7b	Freedom								
8	Cooperation		• High: D • Low: CH • $\chi 2$: 0.001 • <5: 25%	• High: D • Low: CH • $\chi 2$: 0.017 • <5: 25%					
8a	Cooperating with others		• High: D • Low: CH • $\chi 2$: 0.000 • <5: 25%	• High: D • Low: CH • $\chi 2$: 0.008 • <5: 25%					
8b	Relationship with others								
9	Contribution								
9a	Contribution (generic)		• High: D • Low: CH • $\chi 2$: 0.012 • <5: 25%						

		Comparison: Org05a versus Org05b (n=162)	Comparison: CH versus D citizens (in Swiss organizations) (n=820)	Comparison: CH versus D citizens (in Org09) (n=355)	Comparison: Clusters (amongst CH citizens in Org 09) (n=242)	Comparison: Clusters (amongst CH citizens) (n=707)	Comparison: Organi-zations (amongst CH citizens; excluding Org06) (n=699)	Comparison: Org03 versus Org05 (amongst UK citi-zens) (n=304)	Comparison: Clusters (amongst UK citi-zens) (n=267)
9b	Contribution (to org. success)								
10	Challenge								
10a	Having interesting work								
10b	Being challenged								
11	Motivation				• High: C3 • Low: C2 • $\chi 2$: 0.050 • <5: 50%				
11a	Being motivated				• High: C3 • Low: C2 • $\chi 2$: 0.050 • <5: 50%				
12	Security								
12a	Security (generic)								
12b	Job security						• High: Org 4 • $\chi 2$: 0.035 • <5: 50%		

		Comparison: Org05a versus Org05b (n=162)	Comparison: CH versus D citizens (in Swiss organizations) (n=820)	Comparison: CH versus D citizens (in Org09) (n=355)	Comparison: Clusters (amongst CH citizens in Org 09) (n=242)	Comparison: Clusters (amongst CH citizens) (n=707)	Comparison: Organi-zations (amongst CH citizens; excluding Org06) (n=699)	Comparison: Org03 versus Org05 (amongst UK citi-zens) (n=304)	Comparison: Clusters (amongst UK citi-zens) (n=267)
13	Recognition								
13a	Recognition (generic)						• High: Org 9/10 • Low: Org 1/2 • $\chi 2$: 0.025 • <5: 28.6%		
13b	Non-material recognition								
14	Remunera-tion								
14a	Financial rewards (generic)								
14b	Financial security								
14c	Financial independ-ence								
14d	Enough/ satisfactory financial rewards						• High: 2/7/8 • Low: 9 • $\chi 2$: 0.000 • <5: 42.9%		
14e	High rewards / more money								
14f	Appropriate rewards				• High: C2 • Low: C1/C3 • $\chi 2$: 0.034 • <5: 50%				

		Comparison: Org05a versus Org05b (n=162)	Comparison: CH versus D citizens (in Swiss organizations) (n=820)	Comparison: CH versus D citizens (in Org09) (n=355)	Comparison: Clusters (amongst CH citizens in Org 09) (n=242)	Comparison: Clusters (amongst CH citizens) (n=707)	Comparison: Organizations (amongst CH citizens; excluding Org06) (n=699)	Comparison: Org03 versus Org05 (amongst UK citizens) (n=304)	Comparison: Clusters (amongst UK citizens) (n=267)
15	Importance of career success								
15a	Career success - High importance	• High: Org 5b • Low: Org 5a • $\chi 2$: 0.022 • <5: 50%							
15b	Career success - some importance								
15c	Career success - Low importance								
16	Other								
16a	Miscellaneous								

Table 2: Chi-Square analysis – Additional career success comparisons

Appendix 6 – Chi-Square analysis details

Career management tools compared with other variables

Appendix 6 covers details of various Chi-Square tests.

The following table provides the results of a comparison between career management tool preferences and several other variables.

Chi-Square analysis - Career management tools compared with other variables
Significant differences (Chi-Square tests, $p<0.05$, two-tailed)

Abbreviations:

High:	scored substantially above expected frequencies	CH:	Swiss citizens	C1:	Cluster 1 (Protean career architects)
Low:	scored substantially below expected frequencies	D:	German citizens	C2:	Cluster 2 (Solid citizens)
$\chi 2$:	Chi-Square values	UK:	UK citizens	C3:	Cluster 3 (Roamers)
<5:	Percentage of cells with expected count below 5	Others:	Citizens of all other countries		
		f:	female respondents	Mgmt c.:	Preference for managerial career track
		m:	male respondents	Spec. c.:	Preference for specialist career track

	Age (n=1,487)	Career outlook (n=1,669)	Career satisfaction (n=1,675)	Nationality (n=1,638)	Career orien-tation cluster (n=1,316)	Highest degree achieved (n=1,672)	Dependents (n=1,686)	Gender (n=1,661)	Hierarchical position (n=1,676)	Mmgt vs specialist career (n=1,663)	Organization (n=1,686)
Career coaching			• High: mod dissatisfied, neutral • Low: mod / highly satis-fied • $\chi 2$: 0.000 • <5: 0%					• High: f • Low: m • $\chi 2$: 0.031 • <5: 0%		• High: Mgmt c. • Low: Spec. c. • $\chi 2$: 0.000 • <5: 0%	• High: Org 5b, 9 • Low: Org 1, 3 • $\chi 2$: 0.009 • <5: 4.5%
Career counselling				• High: CH • Low: D, UK • $\chi 2$: 0.000 • <5: 0%							• High: Org 1, 2, 7, 9 • Low: Org 3, 4, 5a, 10 • $\chi 2$: 0.000 • <5: 4.5%
Career workshops											• High: Org 2, 7 • Low: Org 4, 5a, 9, 10 • $\chi 2$: 0.002 • <5: 4.5%

	Age (n=1,487)	Career outlook (n=1,669)	Career satisfaction (n=1,675)	Nationality (n=1,638)	Career orientation cluster (n=1,316)	Highest degree achieved (n=1,672)	Dependents (n=1,686)	Gender (n=1,661)	Hierarchical position (n=1,676)	Mmgt vs specialist career (n=1,663)	Organization (n=1,686)
Clear criteria for advancement		• High: mod. negative; neutral • Low: mod/ very positive • χ2: 0.000 • <5: 0%	• High: highly / mod. dissatisfied • Low: highly satisfied • χ2: 0.006 • <5: 0%		• High: C2, C3 • Low: C1 • χ2: 0.015 • <5: 0%	• High: Apprent High School • Low: Master • χ2: 0.000 • <5: 0%		• High: f • Low: m • χ2: 0.044 • <5: 0%			• High: Org 3, 9, 10 • Low: Org 1, 2, 7, 8 • χ2: 0.025 • <5: 4.5%
Clear description of career paths		• High: very / mod. negative • Low: mod. positive • χ2: 0.000 • <5: 0%	• High: highly / mod. dissatisfied • Low: mod. / highly satisfied • χ2: 0.000 • <5: 0%	• High: UK • Low: CH • χ2: 0.000 • <5: 0%		• High: Bachelor • Low: Apprent Master • χ2: 0.011 • <5: 8.3%					• High: Org 3, 5a, 10 • Low: Org 2, 4, 7, 8, 9 • χ2: 0.000 • <5: 4.5%
Formal career discussions	• High: aged 36-45 • Low: aged <25, 46-55, 56+ • χ2: 0.035 • <5: 0%				• High: C3 • Low: C1, C2 • χ2: 0.024 • <5: 0%					• High: Mgmt c. • Low: Spec. c. • χ2: 0.003 • <5: 0%	• High: Org 1, 8, 10 • Low: Org 4, 5b • χ2: 0.030 • <5: 4.5%
Formal feedback		• High: mod / very positive • Low: mod negative; neutral • χ2: 0.000 • <5: 0%	• High: mod. satisfied • Low: mod. dissatisfied • χ2: 0.030 • <5: 0%			• High: Master • Low: Apprent Bachelor • χ2: 0.008 • <5: 8.3%			• High: lower, middle mgmt • Low: non-mgmt roles • χ2: 0.011 • <5: 10%		

	Age (n=1,487)	Career outlook (n=1,669)	Career satisfaction (n=1,675)	Nationality (n=1,638)	Career orientation cluster (n=1,316)	Highest degree achieved (n=1,672)	Dependents (n=1,686)	Gender (n=1,661)	Hierarchical position (n=1,676)	Mmgt vs specialist career (n=1,663)	Organization (n=1,686)
Functional/ technical skills training				• High: UK, others • Low: CH, D • $\chi 2$: 0.000 • <5: 0%					• High: non-mgmt roles • Low: lower, middle, senior mgmt • $\chi 2$: 0.000 • <5: 20%	• High: Spec. c. • Low: Mgmt c. • $\chi 2$: 0.000 • <5: 0%	• High: Org 3, 4, 5a, 8 • Low: 2, 9 • $\chi 2$: 0.000 • <5: 0%
Informal career discussions						• High: Apprent Master • Low: High School, Bachelor • $\chi 2$: 0.011 • <5: 8.3%					• High: Org 1, 10 • Low: Org 3, 5a • $\chi 2$: 0.027 • <5: 4.5%
Informal feedback			• High: mod. / highly satisfied • Low: neutral • $\chi 2$: 0.043 • <5: 0%			• High: Master, PhD • Low: High School • $\chi 2$: 0.000 • <5: 0%		• High: m • Low: f • $\chi 2$: 0.003 • <5: 0%			• High: Org 1, 4, 5a, 5b, 10 • Low: Org 2, 3, 9 • $\chi 2$: 0.000 • <5: 4.5%
Interpersonal skills training			• High: highly satisfied, mod. dissatisfied • Low: neutral • $\chi 2$: 0.009 • <5: 0%								• High: Org 6, 7, 10 • Low: Org 2, 3, 9 • $\chi 2$: 0.013 • <5: 4.5%
Mentoring programme		• High: mod / very positive • Low: neutral • $\chi 2$: 0.049 • <5: 0%			• High: C1, C3 • Low: C2 • $\chi 2$: 0.000 • <5: 0%	• High: Bachelor • Low: Apprent High School • $\chi 2$: 0.035 • <5: 0%			• High: lower, middle, senior mgmt • Low: non-mgmt roles • $\chi 2$: 0.009 • <5: 10%	• High: Mgmt c. • Low: Spec. c. • $\chi 2$: 0.000 • <5: 0%	• High: Org 3, 6, 9, 10 • Low: Org 2, 4, 5a, 5b • $\chi 2$: 0.000 • <5: 4.5%

	Age (n=1,487)	Career outlook (n=1,669)	Career satisfaction (n=1,675)	Nationality (n=1,638)	Career orientation cluster (n=1,316)	Highest degree achieved (n=1,672)	Dependents (n=1,686)	Gender (n=1,661)	Hierarchical position (n=1,676)	Mmgt vs specialist career (n=1,663)	Organization (n=1,686)
Online networking/ communities				• High: Others, UK • Low: CH • χ2: 0.018 • <5: 0%				• High: m • Low: f • χ2: 0.033 • <5: 0%		• High: Spec. c. • Low: Mgmt c. • χ2: 0.000 • <5: 0%	
On-the-job learning opportunities			• High: mod. / highly satisfied • Low: mod. dissatisfied • χ2: 0.001 • <5: 0%		• High: C1, C2 • Low: C3 • χ2: 0.008 • <5: 0%				• High: non-mgmt roles • Low: lower, middle mgmt • χ2: 0.011 • <5: 20%	• High: Spec. c. • Low: Mgmt c. • χ2: 0.000 • <5: 0%	• High: Org 4, 8, 10 • Low: Org 5a, 5b • χ2: 0.000 • <5: 0%
Outplacement			• High: highly dissatisfied, neutral • Low: mod./ highly satisfied • χ2: 0.000 • <5: 10%	• High: UK • Low: CH • χ2: 0.040 • <5: 0%	• High: C1, C3 • Low: C2 • χ2: 0.000 • <5: 0%						• High: Org 3, 8 • Low: Org 4, 5b • χ2: 0.049 • <5: 18.2%
Performance appraisal		• High: mod / very positive • Low: mod negative, neutral • χ2: 0.001 • <5: 0%	• High: mod. / highly satisfied • Low: mod. / highly dissatisfied • χ2: 0.000 • <5: 0%	• High: CH • Low: D, UK • χ2: 0.012 • <5: 0%		• High: Master • Low: Apprent • χ2: 0.049 • <5: 0%					
Personal development plan		• High: mod positive • Low: mod. / very negative • χ2: 0.004 • <5: 0%	• High: mod. / highly satisfied • Low: highly dissatisfied • χ2: 0.028 • <5: 0%	• High: CH • Low: UK • χ2: 0.000 • <5: 0%		• High: High School • Low: PhD • χ2: 0.034 • <5: 0%				• High: Mgmt c. • Low: Spec. c. • χ2: 0.001 • <5: 0%	• High: Org 2 • Low: Org 3, 4, 8 • χ2: 0.001 • <5: 0%

	Age (n=1,487)	Career outlook (n=1,669)	Career satisfaction (n=1,675)	Nationality (n=1,638)	Career orien-tation cluster (n=1,316)	Highest degree achieved (n=1,672)	Dependents (n=1,686)	Gender (n=1,661)	Hierarchical position (n=1,676)	Mmgt vs specialist career (n=1,663)	Organization (n=1,686)
Temporary assign-ments/ second-ments				• High: UK • Low: CH • $\chi 2$: 0.001 • <5: 0%	• High: C3 • Low: C2 • $\chi 2$: 0.046 • <5: 0%						• High: Org 3, 5a, 9 • Low: Org 2, 4, 7, 10 • $\chi 2$: 0.000 • <5: 4.5%
Transparent internal job market		• High: very / mod negative • Low: mod positive • $\chi 2$: 0.015 • <5: 0%	• High: mod. dissatisfied, neutral • Low: mod. / highly satis-fied • $\chi 2$: 0.031 • <5: 0%								• High: Org 5a, 5b, 7, 9 • Low: Org 1, 3, 4, 6, 8, 10 • $\chi 2$: 0.000 • <5: 4.5%

Table 1: Chi-Square analysis – Career management tools compared with other variables

Appendix 7 – First report for respondents

English version

Appendix 7 represents the first report as it was provided to those individuals who had asked for it in survey 1.

The English version of the report was sent electronically to all participants who had selected either English or French as their preferred language in the survey.

Research project "Career Orientations in IT"

Summary for respondents of the online survey 2008

June 2009

Martin Gubler
Prof John Arnold
Dr Crispin Coombs

Loughborough University, UK

Loughborough University

1. Research project "Career orientations in IT"

Information technology (IT) organizations find it increasingly difficult to attract and retain adequately trained staff. However, little is known about what IT professionals want and expect from their careers and about the extent to which they feel prepared and able to manage their own career development. A research project at Loughborough University aimed at exploring these aspects in more detail.

2. Who participated in this survey?

Between September and December 2008, 1708 IT professionals from ten organizations with their headquarters in Switzerland (eight), the UK (one) and Germany (one) responded to an online survey (44.7% response rate). The participating organizations ranged from start-ups to multinational corporations and represented different industries and sectors, including software development, energy, manufacturing, communication and financial services. Eight of them were private and two public not-for-profit organizations.

In total, the respondents lived in 11 different countries. The vast majority of them were based either in Switzerland (66.5%), in the UK (21.3%) or in Germany (8.7%).[1] Overall, citizens from 41 different countries participated in the survey. 52.3% of the respondents were Swiss, 19.7% held UK citizenship and 14.5% were of German nationality. The respondents were predominantly male (83.8%) and their average age was 39.8 years. Just over half of them (53.7%) were married and the majority (52.2%) had no children.

These IT professionals were mostly highly educated. Almost two thirds of them (65.5%) held either a Bachelor's, a Master's or a PhD degree, with the Bachelor's being the most frequently earned degree (32.8%). IT was the most frequent subject of the highest degree (52.5%), followed by engineering (24.8%).[2] There were considerable inter-organizational differences regarding the average level of education. Organizations that entirely focused on software engineering or consulting typically employed staff with higher degrees than organizations that offered a broader variety of IT services.

The respondents worked in a wide range of IT functions, including consulting, business analysis, user support, security and quality management. The most widely represented IT functions were software development (27.9%) and project management (14.2%). Most of the respondents (86.5%) worked full time, predominantly as permanent employees (94.8%). About two thirds of them (65.5%) said they held a non-managerial role and did not supervise any staff (64.5%).

[1] Percentages represent percentage of full sample (n=1708), including missing values for a particular variable.

[2] Multiple answers were allowed for this question.

In nine out of ten organizations[3] the survey sample was representative of their entire IT workforce compared with the available internal benchmarks. Nationality, age, gender and the number of part-time employees did not significantly differ between the respondents and the IT population in the respective organization. The ratio of managerial versus non-managerial staff, however, could not be used as a benchmark because employees working in project management often regarded themselves as "managers" even if they, from an organizational point of view, did not have any formal managerial responsibilities. This resulted in a percentage of respondents in managerial roles that was considerably higher than the figures provided by the organizations.

3. What about their career history and career satisfaction?

In their career history, respondents had worked in IT for an average of 13.6 years. They had been with their current employer for 8.5 years and had held their current role for 3.5 years. Major inter-organizational differences were found especially regarding the time spent with the current employer.

Over the last five years, respondents had on average changed jobs within an organization 1.23 times, changed jobs between organizations 0.68 times and relocated geographically 0.34 times due to job changes. The majority (58.7%) said that they had been promoted at least once. On average, their last promotion had taken place 5.1 years ago.

The estimated likelihood that the respondents would still work for their current employer in twelve months' time was 78.8%. Only few individuals (5.0%) estimated the likelihood to be below 20%, whereas 54.5% of them thought the likelihood was between 81 and 100%. At the time of the survey, 21.5% of the respondents were actively looking for a new job, either within or outside their current organization.

Almost two thirds (63.1%) expressed a preference for a specialist career over a managerial career. More than half of the respondents (54.1%) thought that their career was on schedule compared with what is considered "normal" in their field. However, a large group of respondents (39.2%) felt they were behind schedule. When respondents were asked to compare their own careers with those of their peers, almost two thirds of the respondents (62.1%) thought that they were equally successful. Only 19.7% of the respondents considered themselves as less successful.

Overall, the majority (58.8%) was either moderately or highly satisfied with their career. Only 18.3% of the respondents were dissatisfied. Also, most respondents (62.6%) thought either moderately or highly positively of their future careers while just small group (12.4%) felt that their career outlook was negative.
Remuneration was mainly perceived to be adequate (69.9%). However, just over a quarter of the respondents (25.4%) thought their remuneration was too low.

[3] One organization decided not to engage in the study any further after the discussion of the preliminary results. As a consequence, no benchmark data was available for this organization.

4. Career development tools – Did perceived usefulness meet perceived availability?

From a list of 19 commonly found career development tools (see below), the IT professionals were asked to select the five tools they thought would be the most useful for them – regardless of the actual availability of those tools. They also indicated the five tools that were most readily available to them – regardless of the personal preference. Figure 1 shows the overall results.

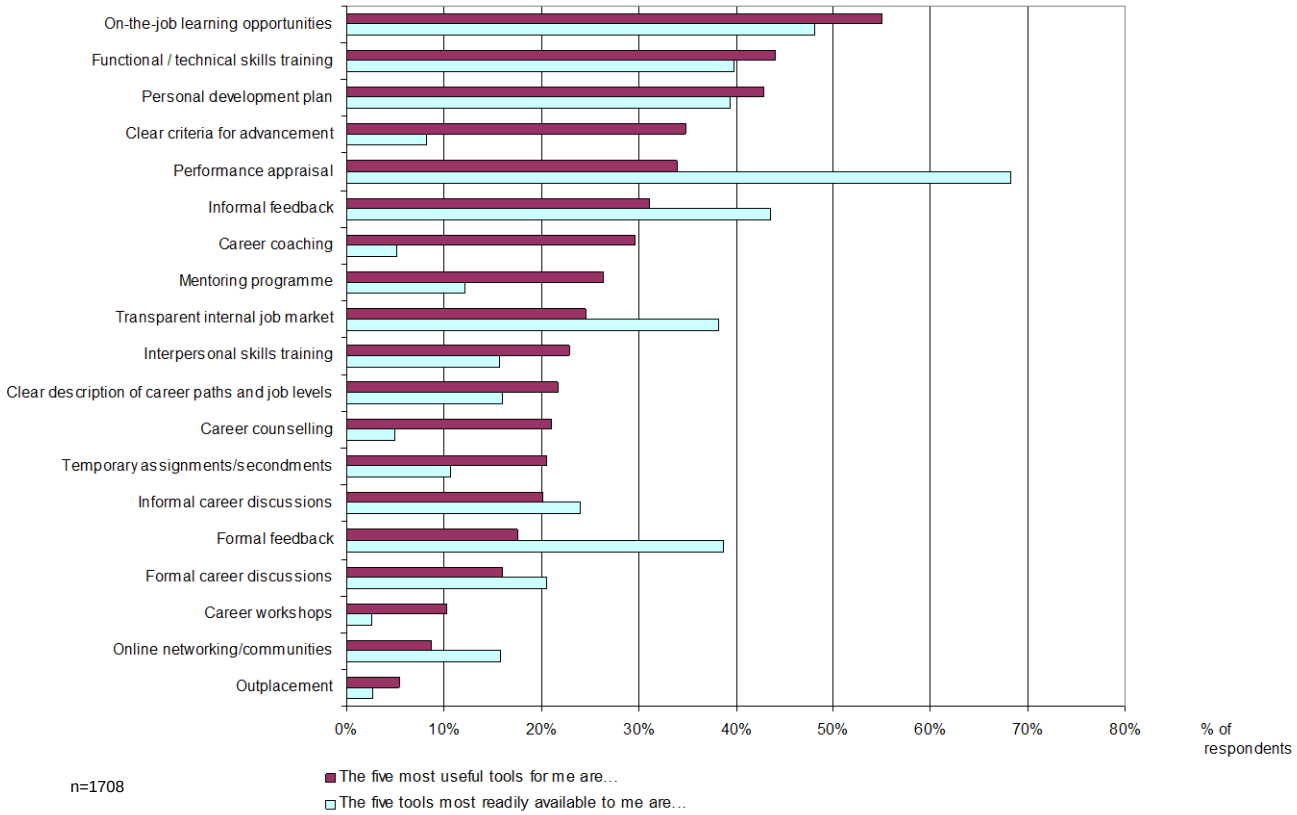

Figure 1: Career development tools – Sorted by perceived usefulness

Despite major inter-organizational differences, the following trends could be identified in most organizations:

On-the-job learning opportunities were ranked as the most useful career development tool. *Functional / technical skills training* and *personal development plans* were also perceived to be highly useful. For all three tools, perceived usefulness was quite well matched with perceived availability.

Clear criteria for advancement were ranked as the fourth most useful tool. Here, however, the largest difference in the entire list between a high perceived usefulness and a low perceived availability occurred.

Generally, more standardized tools, such as *performance appraisals*, *formal feedback* or *internal job markets*, were perceived to be well available but of relatively low usefulness. In contrast, more individualized tools, such as *career counselling*, *career coaching* or *mentoring*, showed distinct differences between relatively high perceived usefulness and relatively low perceived availability.

In all but one organization, *functional / technical skills training* was considered as much more useful than *interpersonal skills* training – despite the widespread view both in theory and practice that soft skills become more and more important in IT. Finally, informal feedback and career discussions were considered to be more useful than both feedback and career discussions in pre-defined formal settings.

5. What about career anchors?

Edgar Schein's theory of typical career preferences ("career anchors") is a helpful method to examine what matters to people regarding their careers. According to Schein's classification, there are eight different career anchors. The following list briefly describes how an individual with a high preference for a particular anchor could be characterized.[4]

1. Technical/Functional Competence
Primarily excited by the content of the work itself; prefers advancement only in his/her technical or functional area of competence: generally disdains and fears general management as too political.

2. Managerial Competence
Primarily excited by the opportunity to analyze and solve problems under conditions of incomplete information and uncertainty; likes harnessing people together to achieve common goals; stimulated (rather than exhausted) by crisis situations.

3. Security and Stability
Comprises the two sub-dimensions job security and geographical security

- *Job security: Primarily motivated by job security and long-term attachment to one organization; willing to conform and to be fully socialized into an organization's values and norms.*
- *Geographical security: Tends to dislike travel and relocation.*

4. Entrepreneurial Creativity
Primarily motivated by the need to build or create something that is entirely their own project; easily bored and likes to move from project to project; more interested in initiating new enterprises than in managing established ones.

5. Autonomy and Independence
Primarily motivated to seek work situations which are maximally free of organizational constraints; wants to set own schedule and own pace of work; is willing to trade off opportunities for promotion to have more freedom.

6. Service and Dedication to a Cause
Primarily motivated to improve the world in some way; wants to align work activities with personal values about helping society; more concerned with finding jobs which meet their values than their skills.

[4] Based on Feldman, D. C., & Bolino, M. C. (1996). Careers within careers: reconceptualizing the nature of career anchors and their consequences. Human Resource Management Review, 6(2), 89-112.

7. Pure Challenge
Primarily motivated to overcome major obstacles, solve almost unsolvable problems, or win out over extremely tough opponents; define their careers in terms of daily combat or competition in which winning is everything; can be single-minded and intolerant of those without comparable aspirations.

8. Lifestyle
Primarily motivated to balance career with own lifestyle; often highly concerned with such issues as paternity/maternity leaves, day-care options, etc.; looks for organizations that have strong pro-family values and programs.

In this survey, the IT professionals answered 25 questions about career anchors that were originally tested and validated with IT professionals in the US in the early 1990s.[5] The scale ranked from 1 ("of little importance / relevance") to 5 ("of high importance / relevance"). Figure 2 indicates the average score for each anchor.

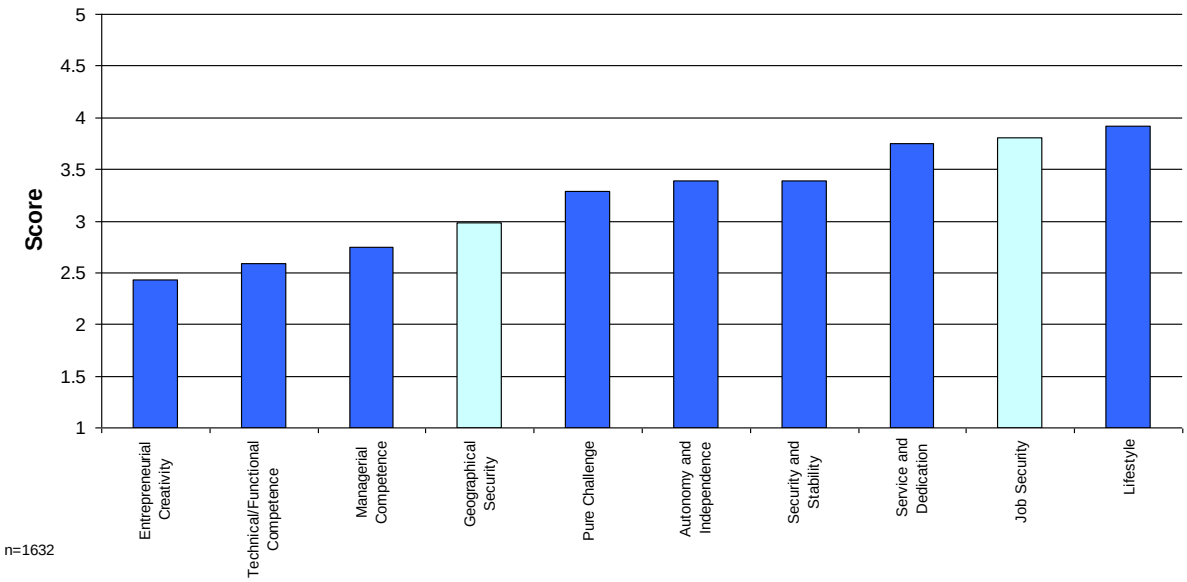

Figure 2: Career anchors –Sorted by average score per anchor

In all organizations, *lifestyle*, *job security* and *service and dedication* proved to be among the most important anchors for the respondents. *Autonomy and independence* as well as *pure challenge* were also considered to be relevant anchors. Even though almost two thirds of the respondents expressed a preference for a specialist rather than a managerial career (see above), both *technical / functional competence* and *managerial competence* were ranked at the lower end of the scale.

[5] Igbaria, M., & Baroudi, J. J. (1993). A short-form measure of career orientations: a psychometric evaluation. Journal of Management Information Systems, 10 (2), 131-154.

The high importance of *job security* may have been influenced by the difficult economic situation at the time of the survey. However, previous studies with IT professionals in the US revealed a similar picture.[6]

Among UK staff, the anchor *service and dedication* was generally ranked lower than among respondents in Germany and Switzerland. This difference could even be found within one of the organizations where the UK-based workforce ranked this anchor significantly lower than their colleagues in the German offices.

According to their career anchors, most of the participating IT professionals seemed to prefer (relatively) secure jobs that allow them to keep their lifestyle and to work autonomously on meaningful, challenging tasks.

6. What are the next steps in this research project?

The survey provided extensive data on careers of IT professionals that will be further explored in two ways:

First, the theoretical career model that served as the foundation for this survey will be refined based on the empirical evidence. In order to test the new model, all respondents who were interested in participating in an interview will be invited to participate in a second short online survey. This new model will then be presented at several academic conferences, including the annual meeting of the Academy of Management in Chicago in August 2009 and the meeting of the Work and Organizational Psychology Division of the German Society of Psychology in Vienna in September 2009.

Second, personal interviews with some of the respondents will take place later this year. This will allow the research team to better understand some of the initial findings and to gain deeper insight into individual factors that shape careers in IT.

In early 2009, all organizations received a brief, anonymized summary of the preliminary findings. Once the final results are available, the organizations will receive a detailed, anonymized final report.

Are you interested in further information?

For any further information, please contact Martin Gubler (m.gubler@lboro.ac.uk).

[6] Ginzberg, M. J., & Baroudi, J. J. (1992). Career orientations of I.S. personnel. Paper presented at the ACM SIGCPR Conference Cincinnati, Ohio, USA.

Appendix 7 – First report for respondents

German version

Appendix 7 represents the first report as it was provided to those individuals who had asked for it in survey 1.

The German version of the report was sent electronically to all participants who had selected German as their preferred language in the survey.

Forschungsprojekt „Laufbahn-Orientierungen in der IT“

Zusammenfassung der Resultate für Teilnehmende
der Online-Umfrage 2008

Juni 2009

Martin Gubler
Prof. John Arnold
Dr. Crispin Coombs

Loughborough University, UK

Loughborough University

1. Forschungsprojekt „Laufbahn-Orientierungen in der IT“

Organisationen im Bereich der Informationstechnologie (IT) sehen sich mit zunehmend grösseren Herausforderungen konfrontiert, wenn es darum geht, qualifizierte Mitarbeitende zu rekrutieren und zu halten. Dennoch ist nur wenig darüber bekannt, was Informatikerinnen und Informatiker von ihrer beruflichen Laufbahn erwarten und inwieweit sie bereit und in der Lage sind, deren Entwicklung zu gestalten. Ein Forschungsprojekt an der Loughborough University in England hat zum Ziel, diese Aspekte genauer zu untersuchen.

2. Die Teilnehmenden

Zwischen September und Dezember 2008 nahmen 1708 IT-Mitarbeitende aus zehn Organisationen mit Hauptsitz in der Schweiz (acht), England (eine) und Deutschland (eine) an einer Online-Umfrage teil (Rücklaufquote 44.7%). Bei diesen Organisationen handelte es sich um Start-ups bis hin zu multinationalen Grossunternehmen aus verschiedenen Branchen, zum Beispiel Softwareentwicklung, Energie, Industrie, Kommunikation oder Finanzdienstleistungen. Acht der Organisationen waren kommerzielle Firmen und zwei öffentlich-rechtliche Non-Profit-Organisationen.

Die Teilnehmenden lebten in 11 verschiedenen Ländern, die grosse Mehrheit von ihnen in der Schweiz (66.5%), in Grossbritannien (21.3%) und in Deutschland (8.7%).[1] Es nahmen Bürgerinnen und Bürger aus insgesamt 41 Staaten an der Umfrage teil. 52.3% davon waren Schweizerinnen und Schweizer, 19.7% hatten einen britischen Pass und 14.5% waren deutscher Nationalität. Die Teilnehmenden waren vorwiegend männlich (83.7%). Ihr Durchschnittsalter betrug zum Zeitpunkt der Umfrage 39.8 Jahre. Knapp über die Hälfte davon (53.7%) war verheiratet und die Mehrheit hatte keine Kinder (52.2%).

Diese IT-Spezialistinnen und IT-Spezialisten verfügten mehrheitlich über ein hohes Bildungsniveau. Fast zwei Drittel (65.5%) von ihnen hatten entweder einen Abschluss auf Bachelor-, Master- oder Doktoratsstufe, wobei ein Abschluss auf Stufe Bachelor am häufigsten war (32.8%). Die meisten Abschlüsse (52.5%) entfielen auf den Fachbereich IT, gefolgt von den Ingenieurwissenschaften (24.8%).[2] Es gab jedoch substantielle Unterschiede bezüglich des durchschnittlichen Ausbildungsgrads. Organisationen, die primär auf Softwareentwicklung oder Consulting spezialisiert waren, beschäftigten in der Regel Mitarbeitende mit höheren Bildungsabschlüssen als Organisationen, die eine Vielzahl verschiedener IT-Dienstleistungen erbrachten.

Die Teilnehmenden waren in ganz unterschiedlichen IT-Funktionen tätig, von Consulting, Business Analysis, User Support und Security bis hin zu Quality Management. Die am stärksten vertretenen Funktionen waren Softwareentwicklung (27.9%) sowie Projektmanagement (14.2%). Die meisten Teilnehmenden (86.5%) arbeiteten Vollzeit und in einem unbefristeten Anstellungsverhältnis (94.8%). Rund zwei Drittel (65.5%) gaben an, sie hätten eine Position ohne Managementaufgaben und würden kein Personal führen (64.5%).
In neun von zehn Organisationen[3] waren die Teilnehmenden in der Umfrage repräsentativ für die jeweilige gesamte IT-Belegschaft, wie der Vergleich mit den verfügbaren internen

[1] Prozentzahlen beziehen sich auf die gesamte Teilnehmerzahl (n=1708), inklusive allfällig fehlender Antworten für bestimmte Variablen.
[2] Bei dieser Frage waren Mehrfachantworten erlaubt.
[3] Eine Organisation entschied sich nach der Diskussion der ersten vorläufigen Studienresultate, aus der Studie auszusteigen. Deshalb waren für diese Organisation keine Vergleichsdaten erhältlich.

Daten zeigte. Bezüglich Nationalität, Alter, Geschlecht sowie Anzahl von Teilzeit-Mitarbeitenden konnten keine signifikanten Unterschiede zwischen den Teilnehmenden und der Grundgesamtheit in den einzelnen Organisationen gefunden werden. Das Verhältnis von Personen mit und ohne Managementaufgaben hingegen konnte nicht als Vergleichsbasis genutzt werden. Es zeigte sich nämlich, dass Mitarbeitende im Projektmanagement sich oft als „Manager“ einstuften, auch wenn sie aus Organisationssicht keine formale Verantwortung als Manager hatten. Daher resultierte in der Umfrage ein Prozentsatz von Teilnehmenden in Managementfunktionen, der viel höher lag als die diesbezüglichen von den Organisationen zur Verfügung gestellten Werte.

3. Die Zufriedenheit der Teilnehmenden hinsichtlich ihrer beruflichen Laufbahn

Die Teilnehmenden hatten zum Zeitpunkt der Umfrage im Schnitt bereits 13.6 Jahre in der IT gearbeitet. Davon waren sie seit 8.5 Jahren bei ihrem aktuellen Arbeitgeber beschäftigt und seit 3.5 Jahren in ihrer derzeitigen Position tätig. Insbesondere bezüglich der Verweildauer beim aktuellen Arbeitgeber zeigten sich zwischen den Organisationen grosse Unterschiede.

In den letzten fünf Jahren hatten die Teilnehmenden ihre Stelle im Schnitt 1.23 Mal innerhalb einer Organisation und 0.68 Mal zwischen zwei Organisationen gewechselt. Zudem hatten sie im gleichen Zeitraum wegen einer beruflichen Veränderung durchschnittlich 0.34 Mal den Wohnort gewechselt. Die Mehrheit (58.7%) wurde gemäss eigenen Angaben schon mindestens einmal befördert. Die letzte Beförderung lag im Schnitt 5.1 Jahre zurück.

Die Wahrscheinlichkeit, zwölf Monate nach der Umfrage noch immer beim derzeitigen Arbeitgeber zu sein, schätzten die Teilnehmenden auf 78.8% ein. Nur ein kleiner Teil der Personen (5.0%) schätzte die Wahrscheinlichkeit auf unter 20% ein, während 54.5% der Teilnehmenden glaubten, die Wahrscheinlichkeit betrage zwischen 81 und 100%. Zum Zeitpunkt der Umfrage waren 21.5% der Personen aktiv auf Stellensuche, sei es innerhalb oder ausserhalb ihrer derzeitigen Organisation.

Fast zwei Drittel (63.1%) bevorzugten eine Spezialistenlaufbahn gegenüber einer Managementlaufbahn. Die Mehrheit (54.1%) fand, dass ihre Laufbahn „im Zeitplan“ sei verglichen mit dem, was als „normal“ gelte in ihrem Fachbereich. Immerhin meinte ein grosser Teil der Teilnehmenden (39.2%), sie seien „hinter dem Zeitplan“. Daneben gaben knapp zwei Drittel (62.1%) an, in ihrer Laufbahnentwicklung gleich erfolgreich zu sein wie ihre Kollegen. Lediglich 19.7% der Personen erachteten sich als weniger erfolgreich.

Insgesamt war die Mehrheit (58.8%) entweder eher oder sehr zufrieden mit ihrer aktuellen beruflichen Situation, und weniger als ein Fünftel (18.3%) war unzufrieden damit.

Zudem beurteilten die meisten Personen (62.6%) ihre beruflichen Perspektiven als eher oder sehr positiv. Nur 12.4% der Teilnehmenden äusserten eine negative Erwartung bezüglich beruflicher Perspektiven.

Die gesamte Vergütung (Lohn und Zusatzleistungen) wurde mehrheitlich (69.9%) als adäquat wahrgenommen. Immerhin erachtete etwas mehr als ein Viertel der Teilnehmenden (25.4%) ihre Entschädigung als zu gering.

4. Nutzen und Verfügbarkeit von Instrumenten zur Laufbahnentwicklung

Aus der nachstehenden Liste von 19 häufig verwendeten Instrumenten zur Laufbahnentwicklung sollten die Teilnehmenden fünf Instrumente auswählen, die sie als für sich am nützlichsten erachteten – unabhängig von deren Verfügbarkeit. Anschliessend nannten sie die fünf für sie am einfachsten zugänglichen Instrumente – unabhängig von der persönlichen Präferenz. Abbildung 1 zeigt die Resultate.

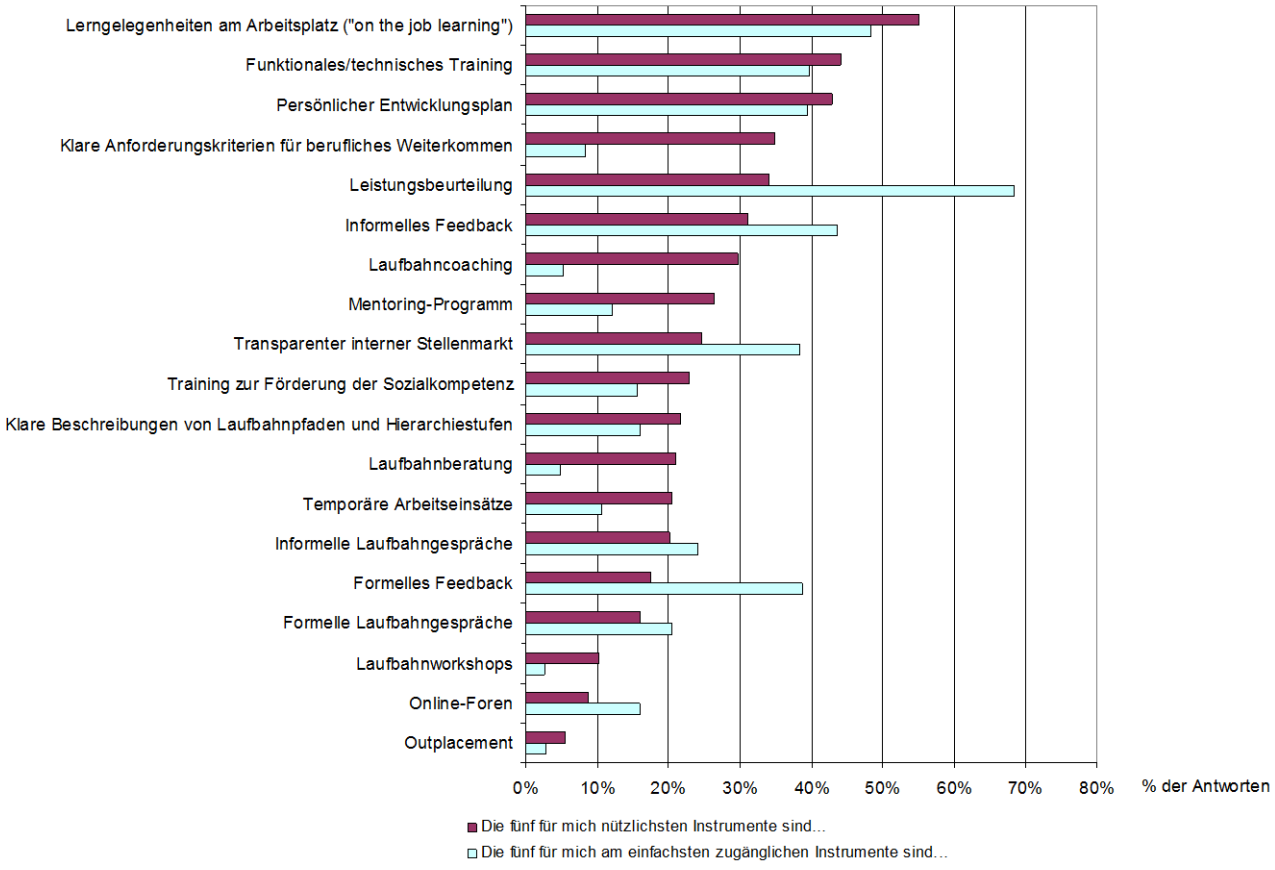

Abbildung 1: Instrumente zur Laufbahnentwicklung – Sortiert nach wahrgenommener Nützlichkeit

Trotz grosser Unterschiede zwischen den Organisationen konnten insgesamt folgende Trends beobachtet werden: *Lerngelegenheiten am Arbeitsplatz („on-the-job learning")* wurden als das nützlichste Entwicklungsinstrument eingestuft. *Funktionales / technisches Training* sowie ein *persönlicher Entwicklungsplan* wurden ebenfalls als äusserst hilfreich

wahrgenommen. Bei allen drei Instrumenten entsprachen sich die wahrgenommene Nützlichkeit und die wahrgenommene Verfügbarkeit in den Organisationen bis auf wenige Prozentpunkte. *Klare Anforderungskriterien für berufliches Weiterkommen* wurde als das viertwichtigste Instrument genannt. Hier zeigte sich jedoch der grösste Unterschied in der gesamten Liste zwischen hoher wahrgenommener Nützlichkeit und geringer wahrgenommener Verfügbarkeit.

Insgesamt wurden standardisierte Instrumente, wie zum Beispiel *formelle Leistungsbeurteilungen, formelles Feedback* oder *transparente interne Stellenmärkte*, als gut verfügbar jedoch als verhältnismässig wenig nützlich eingestuft. Umgekehrt zeigte sich bei eher individualisierten Instrumenten wie *Laufbahncoaching, Laufbahnberatung* oder *Mentoring* eine erhebliche Differenz zwischen relativ hoher wahrgenommener Nützlichkeit und relativ tiefer wahrgenommener Verfügbarkeit.

In neun der zehn Organisationen wurde *technisches / funktionales Training* als deutlich nützlicher eingestuft als *Training zur Förderung der Sozialkompetenz* – entgegen der in Theorie und Praxis weit verbreiteten Einschätzung, dass Soft Skills immer wichtiger werden in der IT. Schliesslich zeigte sich, dass informelle Feedback- und Laufbahngespräche als nützlicher wahrgenommen wurden als solche in einem vordefinierten, formellen Rahmen.

5. Die „Karriereanker“ der Teilnehmenden

Edgar Scheins Theorie typischer Laufbahnpräferenzen („Karriereanker“) ist eine hilfreiche Methode zur Untersuchung, was Menschen in ihrer beruflichen Laufbahn als wichtig erachten. Gemäss Scheins Klassifizierung können acht Karriereanker unterschieden werden. Folgende Auflistung zeigt kurz, wie jemand mit einer hohen Ausprägung bei einem bestimmten Anker charakterisiert werden könnte:[4]

1. Technische / fachliche Kompetenz
Primär motiviert durch den Inhalt der Arbeit; bevorzugt berufliches Weiterkommen nur im eigenen technisch/fachlichen Bereich; verachtet Positionen im Management oft als zu politisch.

2. Management-Kompetenz
Primär motiviert durch die Möglichkeit zu analysieren und Probleme zu lösen unter Bedingungen unvollständiger Information und Unsicherheit; mag es, Leute zu steuern, um gemeinsame Ziele zu erreichen; wird durch Krisensituationen eher stimuliert als ermüdet.

3. Sicherheit und Stabilität
Beinhaltet die zwei Subdimensionen berufliche und geografische Sicherheit:

- *Berufliche Sicherheit: Primär motiviert durch Arbeitsplatzsicherheit und langjährige Zugehörigkeit zu einer Organisation; ist bereit, sich an die Werte und Normen einer Organisation anzupassen und sich dort voll zu sozialisieren.*
- *Geografische Sicherheit: Mag Reisen oder gar örtliche Wechsel eher nicht.*

4. Unternehmerische Kreativität
Primär motiviert durch die Notwendigkeit, etwas von Grund auf neu aufzubauen oder zu kreieren; schnell gelangweilt; liebt häufige Wechsel von Projekt zu Projekt; ist eher an der Initiierung neuer Unternehmen interessiert als am Management bestehender Organisationen.

[4] Basierend auf Feldman, D. C., & Bolino, M. C. (1996). Careers within careers: reconceptualizing the nature of career anchors and their consequences. Human Resource Management Review, 6(2), 89-112.

5. Autonomie und Unabhängigkeit
Primär motiviert durch berufliche Situationen, die möglichst frei von organisatorischen Einschränkungen sind; will sich eigene Aufgaben und Arbeitstempi setzen; ist bereit, Beförderungsmöglichkeiten abzulehnen, um sich mehr Freiheit zu erhalten.

6. Dienst und Hingabe
Primär motiviert, die Welt auf eine bestimmte Art verbessern zu können; will berufliche Tätigkeit mit persönlichen Werten in Einklang bringen, wie beispielsweise etwas Gutes für die Gesellschaft zu tun; Arbeitsstelle soll den eigenen Werten entsprechen.

7. Totale Herausforderung
Primär motiviert, grosse Hürden zu meistern, fast unlösbare Probleme zu lösen oder sich gegenüber äusserst starken Konkurrenten durchzusetzen; sieht die eigene Laufbahn als täglichen Kampf oder Wettbewerb, in dem nur der Sieg zählt; kann intolerant und engstirnig sein gegenüber Personen ohne ähnliche Ambitionen.

8. Lebensstil
Primär motiviert dadurch, die berufliche Laufbahn mit dem eigenen Lebensstil in Einklang zu bringen; legt häufig grossen Wert auf Dinge wie Vaterschafts-/Mutterschafts-Urlaub, Tagesbetreuungsstätten für Kinder etc.; sucht oft nach Organisationen mit familienfreundlichen Arbeitsbedingungen.

In der Umfrage wurden die Teilnehmenden gebeten, 25 Fragen zu Karriereankern zu beantworten, die ursprünglich Anfang der 90er Jahre mit IT-Spezialisten in den USA getestet und validiert wurden.[5] Die Skala reichte von 1 („gänzlich unwichtig für mich“) bis 5 („sehr wichtig für mich“). Abbildung 2 zeigt die durchschnittliche Beurteilung für jeden Anker.

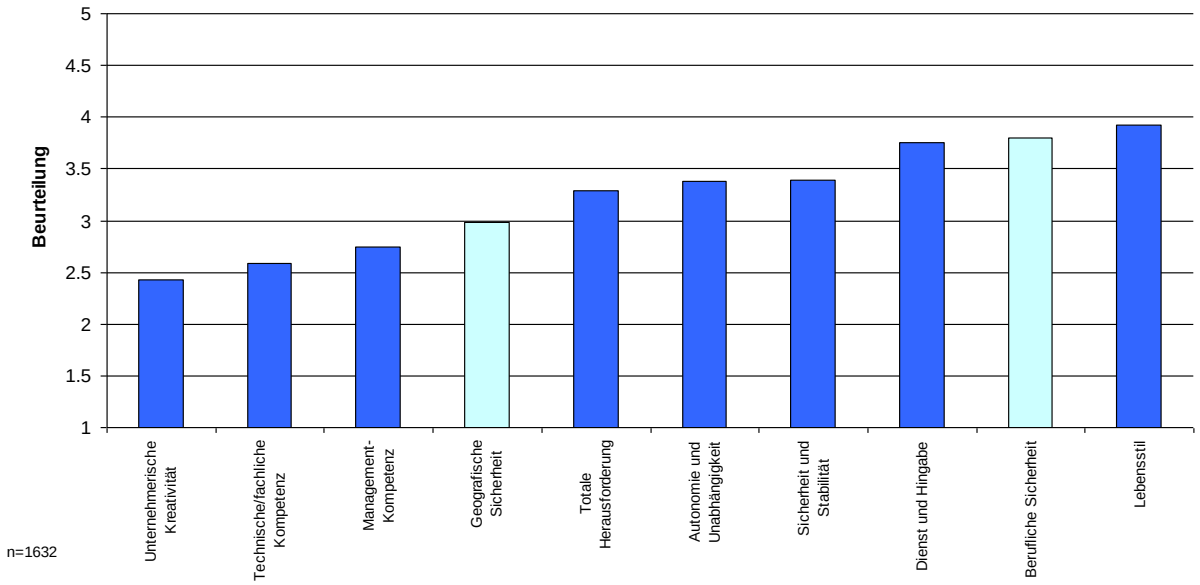

Abbildung 2: Karriereanker – Sortiert nach durchschnittlicher Beurteilung pro Anker

[5] Igbaria, M., & Baroudi, J. J. (1993). A short-form measure of career orientations: a psychometric evaluation. Journal of Management Information Systems, 10 (2), 131-154.

Loughborough University

In allen Organisationen zeigten sich *Lebensstil*, *berufliche Sicherheit* sowie *Dienst und Hingabe* als die wichtigsten Anker für die Teilnehmenden. *Autonomie und Unabhängigkeit* sowie *totale Herausforderung* wurden ebenfalls als relevante Anker gewertet. Obwohl mehr als zwei Drittel der Teilnehmenden eine Präferenz für Spezialistenlaufbahnen anstelle von Managementlaufbahnen äusserten (siehe oben), rangierten sowohl *technische / fachliche Kompetenz* als auch *Management-Kompetenz* am unteren Ende der Skala.

Der hohe Stellenwert der beruflichen Sicherheit mag beeinflusst worden sein durch die turbulente wirtschaftliche Situation zur Zeit der Umfrage. Jedoch zeigten auch frühere Studien in den USA für diesen Anker ein sehr ähnliches Bild.[6]
Bei britischen Teilnehmenden wurde der Karriereanker *Dienst und Hingabe* insgesamt tiefer bewertet als in Deutschland und der Schweiz. Diese Differenz konnte sogar innerhalb einer Firma nachgewiesen werden, in der die britischen Mitarbeitenden diesen Anker signifikant tiefer einstuften als ihre Arbeitskolleginnen und –kollegen in Deutschland.

Aufgrund ihrer Karriereanker waren den meisten teilnehmenden Informatikerinnen und Informatikern offenbar vor allem (relativ) sichere Arbeitsstellen wichtig, an denen sie ihren persönlichen Lebensstil beibehalten und dabei möglichst selbständig an sinnvollen und herausfordernden Aufgaben arbeiten können.

6. Nächste Schritte in diesem Forschungsprojekt
Die Umfrage lieferte umfangreiche Daten zu Laufbahnen von IT-Spezialistinnen und IT-Spezialisten, die in zwei Schritten weiter analysiert werden:

Erstens wird das theoretische Modell, das als Grundlage für diese Studie diente, aufgrund der empirischen Resultate überarbeitet. Um das neue Modell zu testen, werden alle Teilnehmenden, die sich für ein persönliches Interview interessiert hatten, in den kommenden Tagen dazu eingeladen, an einer zweiten, kurzen Umfrage teilzunehmen. Das neue Modell wird dann bereits dieses Jahr an verschiedenen wissenschaftlichen Konferenzen vorgestellt, so zum Beispiel im August bei der Academy of Management in Chicago oder im September an der Tagung der Fachgruppe Arbeits- und Organisationspsychologie der Deutschen Gesellschaft für Psychologie in Wien.
Zweitens werden in der zweiten Jahreshälfte persönliche Interviews mit einigen Teilnehmenden stattfinden. Diese Interviews werden es dem Forschungsteam erlauben, die Resultate besser zu verstehen und ein vertieftes Verständnis für individuelle Faktoren zu gewinnen, die Laufbahnen in der Informatik beeinflussen.
Anfang 2009 erhielten alle zehn Organisationen eine kurze, anonymisierte Zusammenfassung der vorläufigen Resultate. Sobald die definitiven Resultate bereitstehen, erhalten die Organisationen einen detaillierten, anonymisierten Schlussbericht.

Weitere Informationen
Für weitere Informationen wenden Sie sich bitte an:
Martin Gubler (m.gubler@lboro.ac.uk).

[6] Ginzberg, M. J., & Baroudi, J. J. (1992). Career orientations of I.S. personnel. Paper presented at the ACM SIGCPR Conference Cincinnati, Ohio, USA.

Appendix 8 – Survey 2 – Online questionnaire

English version

Appendix 8 shows the second questionnaire as it was displayed online.
Navigation buttons (“back” and “forward”) are not depicted.

Welcome
This survey is available in English, German and French. Please select your preferred language.

Herzlich willkommen
Diese Umfrage steht Ihnen in Deutsch, Französisch und Englisch zur Verfügung. Bitte wählen Sie Ihre bevorzugte Sprache.

Bienvenue
Ce questionnaire est disponible en français, en allemand et en anglais. Veuillez sélectionner la langue désirée.

- ○ English
- ○ Deutsch
- ○ Français

Career Orientations in IT

Dear participant
Thank you very much for participating in this follow-up survey about IT professionals' careers.

About this survey

This survey is much shorter than the first one. It will take you approximately 5-10 minutes to complete.

Please note that the survey will close on **30 June 2009**.

All data will be kept strictly confidential and will only be used for research purposes. Results will only be fed back to organizations on an aggregate level or using pseudonyms.

Detailed information and contact

For more information on the project, please visit the project website.

For further details, please contact Martin Gubler, Doctoral Researcher, Loughborough University, UK (M.Gubler@lboro.ac.uk; +41 77 450 01 37)

Thank you very much for your time and support.

Prof. John Arnold, Dr. Crispin Coombs, Martin Gubler
Business School, Loughborough University, UK

Loughborough University

Career Statements
On a scale from 1 to 5, please indicate the extent to which you agree or disagree with the following statements.

1 - I strongly disagree
2 - I moderately disagree
3 - I agree and disagree in equal measure
4 - I moderately agree
5 - I strongly agree

	1	**2**	**3**	**4**	**5**	**no opinion / don't know**
I actively seek job assignments that allow me to learn something new.	○	○	○	○	○	○
I seek out and seriously consider feedback about me from other people.	○	○	○	○	○	○
I regularly assess my strengths and my weaknesses.	○	○	○	○	○	○
I can define what is important to me in life.	○	○	○	○	○	○
I think I know myself well.	○	○	○	○	○	○
I know which parts of my work interest me most.	○	○	○	○	○	○
Career success is something I define for myself - no one else can do this on my behalf.	○	○	○	○	○	○
My own career development should be based on my personal values, not on what society values.	○	○	○	○	○	○
Ultimately, I depend upon myself to move my career forward.	○	○	○	○	○	○
I take responsibility for my own career development.	○	○	○	○	○	○

Loughborough University

Career Statements
On a scale from 1 to 5, please indicate the extent to which you agree or disagree with the following statements.

1 - I strongly disagree
2 - I moderately disagree
3 - I agree and disagree in equal measure
4 - I moderately agree
5 - I strongly agree

	1	**2**	**3**	**4**	**5**	**no opinion / don't know**
I would feel very lost if I could not work for my current organization.	○	○	○	○	○	○
If my organization provided lifetime employment, I would never seek work in other organizations.	○	○	○	○	○	○
I prefer to stay in an organization I am familiar with rather than look for employment elsewhere.	○	○	○	○	○	○
If I had to choose, I would rather change my profession than change my current employer.	○	○	○	○	○	○
Being part of my current organization means a lot to me.	○	○	○	○	○	○
I would find it motivating to take on a job in a different geographical location.	○	○	○	○	○	○
I prefer to stay in a geographical location I am familiar with rather than look for employment elsewhere.	○	○	○	○	○	○
In the past, I have considered changing jobs and moving to a different geographical location.	○	○	○	○	○	○
I enjoy working with people outside of my organization.	○	○	○	○	○	○
I enjoy job assignments that require me to work outside of the organization.	○	○	○	○	○	○

Loughborough University

Career Statements
On a scale from 1 to 5, please indicate the extent to which you agree or disagree with the following statements.

1 - I strongly disagree
2 - I moderately disagree
3 - I agree and disagree in equal measure
4 - I moderately agree
5 - I strongly agree

	1	**2**	**3**	**4**	**5**	**no opinion / don't know**
I have already considered changing jobs into a different occupation.	○	○	○	○	○	○
I could feel comfortable in work other than IT.	○	○	○	○	○	○
I am excited by the thought of making unconventional career moves.	○	○	○	○	○	○
In the past, I have rejected career opportunities for personal reasons.	○	○	○	○	○	○
I have turned down jobs or assignments because they would have gone against what is important to me in life.	○	○	○	○	○	○
In order to move up in the organization I am willing to make sacrifices with regards to my personal work-life balance.	○	○	○	○	○	○
If I were offered a role at a more senior level tomorrow, I would take it, regardless of my current personal situation.	○	○	○	○	○	○

Overall, how satisfied are you with your current career situation?

- ○ highly satisfied
- ○ moderately satisfied
- ○ satisfied and dissatisfied in equal measure
- ○ moderately dissatisfied
- ○ highly dissatisfied
- ○ no opinion/don't know

Overall, how do you assess your individual future career prospects?

- ○ very positively
- ○ moderately positively
- ○ positively and negatively in equal measure
- ○ moderately negatively
- ○ very negatively
- ○ no opinion/don't know

Since the last survey (late 2008) and today, how many times have you changed jobs within an organization (employer remained the same)?

_____ times *[number]*

Since the last survey (late 2008) and today, how many times have you changed jobs across organizations (employer changed)?

_____ times *[number]*

Since the last survey (late 2008) and today, how many times have you moved to a new geographical location because of a job change?

_____ times *[number]*

Any other major changes since the last survey
Have there been any major changes between the first survey (late 2008) and today that have affected your career? The changes could have been either positive or negative, either work-related or private (e.g. promotion, redundancy, birth of a child, divorce etc.)

_____ *[free text]*

Do you allow us to link your answers in this survey to your answers in the first one?
Currently, we cannot link your answers in this survey to the answers in the first one as both are anonymous surveys. However, for research purposes, linking the two surveys would help us explore the data even better. Our sole objective is to test the reliability of a new model, not how consistently you answered these questions twice.

If you provide us with your email address below (the one you gave us last time and we sent this survey to), you will enable us to link both surveys. Your email address will be kept strictly confidential and will only be used for this purpose.

_____ *[email address]*

Are you interested in the results of this follow-up survey?
All participants of this second survey have the opportunity to receive a summary of the additional results. If you are interested, please provide us with an email address so that we can send you the results once they are available. Your email address will be kept strictly confidential and will only be used for this purpose.

_____ *[email address]*

Loughborough University

You have now reached the end of the questionnaire. Your contribution is much appreciated. It will help to better understand careers in IT.
For further information and contact details please refer to the project website.

Thank you very much for your time and assistance.

Appendix 8 – Survey 2 – Online questionnaire

German version

Appendix 8 shows the second questionnaire as it was displayed online.
Navigation buttons (“back” and “forward”) are not depicted.

Loughborough University

Welcome
This survey is available in English, German and French. Please select your preferred language.

Herzlich willkommen
Diese Umfrage steht Ihnen in Deutsch, Französisch und Englisch zur Verfügung. Bitte wählen Sie Ihre bevorzugte Sprache.

Bienvenue
Ce questionnaire est disponible en français, en allemand et en anglais. Veuillez sélectionner la langue désirée.

- ○ English
- ○ Deutsch
- ○ Français

Career Orientations in der IT

Geschätzte Teilnehmerin, geschätzter Teilnehmer
Besten Dank für Ihre Teilnahme an dieser Zweit-Befragung zu Laufbahnen von Informatik-Fachleuten.

Über diese Umfrage

Die zweite Umfrage ist viel kürzer als die erste. Sie benötigen ca. 5-10 Minuten zur Beantwortung.

Teilnahmeschluss für die Studie ist der **30. Juni 2009.**

Alle Daten werden streng vertraulich behandelt. Resultate werden nur in aggregiertem Zustand an Organisationen geliefert, so dass keinerlei Rückschlüsse auf Individuen möglich sind.

Detailinformationen und Kontakt

Bitte besuchen Sie die Projektwebsite für weitere Informationen rund um die Studie.
Für weitere Auskünfte steht Ihnen Martin Gubler gerne zur Verfügung:

Martin Gubler, Doctoral Researcher, Loughborough University, UK
(M.Gubler@lboro.ac.uk, +41 77 450 01 37)

Herzlichen Dank für Ihre Unterstützung.

Prof. John Arnold, Dr. Crispin Coombs, Martin Gubler
Business School, Loughborough University, UK

Loughborough University

Aussagen zu Ihrer beruflichen Laufbahn
Bitte geben Sie auf einer Skala von 1 bis 5 an, wie gut die folgenden Aussagen auf Sie zutreffen:

1 - trifft überhaupt nicht auf mich zu
2 - trifft eher nicht auf mich zu
3 - trifft in gleichem Mass auf mich zu und nicht zu
4 - trifft eher auf mich zu
5 - trifft sehr auf mich zu

	1	**2**	**3**	**4**	**5**	**keine Meinung / weiss nicht**
Ich suche aktiv nach beruflichen Aufgaben, die es mir ermöglichen, Neues zu lernen.	○	○	○	○	○	○
Ich ersuche andere Leute um Feedback über mich und setze mich damit ernsthaft auseinander.	○	○	○	○	○	○
Ich schätze regelmässig meine eigenen Stärken und Schwächen ein.	○	○	○	○	○	○
Ich kann genau sagen, was mir im Leben wichtig ist.	○	○	○	○	○	○
Ich bin der Meinung, ich kenne mich selbst gut.	○	○	○	○	○	○
Ich weiss, welche Bereiche meiner Arbeit mich am meisten interessieren.	○	○	○	○	○	○
Was beruflicher Erfolg ist, definiere ich für mich selbst - niemand anders kann dies für mich tun.	○	○	○	○	○	○
Meine eigene berufliche Entwicklung sollte auf meinen persönlichen Werten beruhen und nicht darauf, was die Gesellschaft als wichtig erachtet.	○	○	○	○	○	○
Letztendlich liegt es an mir selbst, meine berufliche Entwicklung voranzutreiben.	○	○	○	○	○	○
Ich übernehme die Verantwortung für meine eigene Laufbahnentwicklung.	○	○	○	○	○	○

Aussagen zu Ihrer beruflichen Laufbahn
Bitte geben Sie auf einer Skala von 1 bis 5 an, wie gut die folgenden Aussagen auf Sie zutreffen:

1 - trifft überhaupt nicht auf mich zu
2 - trifft eher nicht auf mich zu
3 - trifft in gleichem Mass auf mich zu und nicht zu
4 - trifft eher auf mich zu
5 - trifft sehr auf mich zu

	1	**2**	**3**	**4**	**5**	**keine Meinung / weiss nicht**
Ich käme mir verloren vor, könnte ich nicht für meinen derzeitigen Arbeitgeber tätig sein.	○	○	○	○	○	○
Würde mir meine Organisation eine lebenslange Anstellung garantieren, so würde ich nie Arbeit in anderen Organisationen suchen.	○	○	○	○	○	○
Ich bleibe lieber in einem mir vertrauten Unternehmen anstatt anderswo nach einer Anstellung zu suchen.	○	○	○	○	○	○
Wenn ich wählen müsste, würde ich eher meinen Beruf als meinen derzeitigen Arbeitgeber wechseln.	○	○	○	○	○	○
Es bedeutet mir viel, Teil meines derzeitigen Unternehmens zu sein.	○	○	○	○	○	○
Ich fände es motivierend, eine Anstellung an einem anderen geographischen Ort anzunehmen.	○	○	○	○	○	○
Ich ziehe es vor, an einem mir vertrauten geographischen Ort zu bleiben anstatt nach einer Anstellung anderswo zu suchen.	○	○	○	○	○	○
In der Vergangenheit habe ich mir schon überlegt, eine Stelle an einem anderen geographischen Ort anzunehmen und dorthin umzuziehen.	○	○	○	○	○	○
Mir gefällt es, mit Leuten ausserhalb meiner Organisation zu arbeiten.	○	○	○	○	○	○
Mir gefallen Arbeitseinsätze, für die ich ausserhalb meiner Organisation tätig sein muss.	○	○	○	○	○	○

Loughborough University

Aussagen zu Ihrer beruflichen Laufbahn
Bitte geben Sie auf einer Skala von 1 bis 5 an, wie gut die folgenden Aussagen auf Sie zutreffen:

1 - trifft überhaupt nicht auf mich zu
2 - trifft eher nicht auf mich zu
3 - trifft in gleichem Mass auf mich zu und nicht zu
4 - trifft eher auf mich zu
5 - trifft sehr auf mich zu

	1	**2**	**3**	**4**	**5**	**keine Meinung / weiss nicht**
Ich habe schon in Erwägung gezogen, in einen anderen Beruf zu wechseln.	○	○	○	○	○	○
Ich könnte mich auch bei einer Arbeit ausserhalb des IT-Bereichs wohl fühlen.	○	○	○	○	○	○
Der Gedanke, unkonventionelle berufliche Wechsel zu vollziehen, reizt mich.	○	○	○	○	○	○
Ich habe in der Vergangenheit Karrieremöglichkeiten aus persönlichen Gründen abgelehnt.	○	○	○	○	○	○
Ich habe schon Stellenangebote oder Aufträge abgelehnt, weil sie unvereinbar waren mit dem, was mir im Leben wichtig ist.	○	○	○	○	○	○
Um in der Organisation aufzusteigen, bin ich gewillt, Opfer hinsichtlich meiner persönlichen Work-Life-Balance in Kauf zu nehmen.	○	○	○	○	○	○
Wenn mir morgen eine Stelle in einer höheren Hierarchiestufe angeboten würde, so nähme ich sie unabhängig von meiner gegenwärtigen persönlichen Situation an.	○	○	○	○	○	○

Wie zufrieden sind Sie insgesamt mit Ihrer derzeitigen beruflichen Situation?

- ○ sehr zufrieden
- ○ eher zufrieden
- ○ gleichermassen zufrieden wie unzufrieden
- ○ eher unzufrieden
- ○ sehr unzufrieden
- ○ keine Meinung / weiss nicht

Wie beurteilen Sie insgesamt Ihre persönlichen beruflichen Perspektiven?

- ○ sehr positiv
- ○ eher positiv
- ○ gleichermassen positiv wie negativ
- ○ eher negativ
- ○ sehr negativ
- ○ keine Meinung / weiss nicht

Wie viele Male haben Sie seit der letzten Umfrage (Ende 2008) die Stelle innerhalb einer Organisation gewechselt (gleicher Arbeitgeber)?

_____ Mal

Wie viele Male haben Sie seit der letzten Umfrage (Ende 2008) die Stelle zwischen verschiedenen Organisationen gewechselt (anderer Arbeitgeber)?

_____ Mal

Wie viele Male sind Sie seit der letzten Umfrage (Ende 2008) wegen eines Stellenwechsels an einen neuen geographischen Ort gezogen?

_____ Mal

Andere wichtige Veränderungen seit der letzten Umfrage
Gab es irgendwelche wichtigen Veränderungen zwischen der letzten Umfrage und heute, die Ihre Laufbahn beeinflusst haben? Diese Veränderungen können entweder positiv oder negativ gewesen sein und sowohl im beruflichen als auch im privaten Umfeld stattgefunden haben (z.B. Beförderung, Arbeitslosigkeit, Geburt eines Kindes, Scheidung etc.)

_____

Erlauben Sie uns, Ihre Antworten in dieser Umfrage mit denjenigen in der letzten Umfrage verknüpfen?
Momentan können wir Ihre Antworten aus den beiden Umfragen nicht verknüpfen, da beide Umfragen anonym erfolgten. Eine Verknüpfung beider Umfragen würde es uns jedoch erlauben, die Daten noch detaillierter und besser zu erforschen. Unser Ziel ist es, die Zuverlässigkeit eines neuen Modells zu testen - nicht, wie konsistent Sie die gleichen Fragen zweimal beantwortet haben.

Wenn Sie uns unten Ihre E-Mail-Adresse angeben (diejenige, die Sie uns in der ersten Umfrage genannt und über die Sie diese zweite Umfrage erhalten haben), ermöglichen Sie uns die Verlinkung Ihrer beiden Fragebogen. Ihre E-Mail-Adresse wird vertraulich behandelt und zu keinem anderen Zweck verwendet.

_____

Sind Sie interessiert an den Resultaten dieser zweiten Umfrage?
Alle Teilnehmerinnen und Teilnehmer haben die Möglichkeit, eine Zusammenfassung der Resultate dieser zweiten Umfrage zu erhalten. Falls Sie daran interessiert sind, notieren Sie hier bitte eine E-Mail-Adresse, über die wir Ihnen die Resultate zusenden können, sobald diese zur Verfügung stehen. Ihre E-Mail-Adresse wird vertraulich behandelt und zu keinem anderen Zweck als zum Versand der Resultate verwendet.

_____

Sie haben den Fragebogen nun vollständig beantwortet. Ihr Beitrag leistet einen wertvollen Beitrag zum besseren Verständnis von Laufbahnen in der Informatik.
Weitere Informationen und Kontaktdetails finden Sie auf der Projektwebsite

Herzlichen Dank für Ihre Teilnahme an dieser Umfrage.

Appendix 8 – Survey 2 – Online questionnaire

French version

Appendix 8 shows the second questionnaire as it was displayed online.
Navigation buttons (“back” and “forward”) are not depicted.

Loughborough University

Welcome
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Herzlich willkommen
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Bienvenue
Ce questionnaire est disponible en français, en allemand et en anglais. Veuillez sélectionner la langue désirée.

- ○ English
- ○ Deutsch
- ○ Français

Career Orientations in IT

Chère participante, cher participant
Nous vous remercions à votre participation à cette deuxième étude internationale sur les carrières professionnelles des spécialistes en informatique.

Concernant la présente enquête

Le deuxième questionnaire est beaucoup plus court que le premier. Y répondre prend env. 5-10 min.

Le délai de participation à l'étude est le **30 juin 2009.**

Toutes les données seront traitées de manière strictement confidentielle. Les résultats seront transmis aux organisations uniquement dans un état agrégé, de sorte qu'aucune déduction concernant la personne ne soit possible.

Informations détaillées et contact

Pour toute information supplémentaire concernant l'étude, nous vous invitons à visiter le site internet du projet.

Martin Gubler se tient volontiers à votre disposition pour tout renseignement complémentaire:
Martin Gubler, Doctoral Researcher, Loughborough University, UK
(M.Gubler@lboro.ac.uk; +41 77 450 01 37)

Nous vous remercions de votre soutien.

Prof. John Arnold, Dr. Crispin Coombs, Martin Gubler
Business School, Loughborough University, UK

Loughborough University

Déclarations concernant votre carrière professionnelle
Veuillez indiquer à quel point les déclarations suivantes vous correspondent:

1 - ne me correspond pas du tout
2 - ne me correspond pas vraiment
3 - me correspond moyennement
4 - me correspond assez bien
5 - me correspond très bien

	1	**2**	**3**	**4**	**5**	**ne sais pas / pas d'avis**
Je recherche activement des tâches professionnelles qui me permettent d'apprendre des choses nouvelles.	○	○	○	○	○	○
Je demande à d'autres personnes de me donner un feedback sur moi-même et je le prends au sérieux.	○	○	○	○	○	○
J'évalue régulièrement mes points forts et mes faiblesses.	○	○	○	○	○	○
Je sais exactement ce qui est important pour moi dans la vie.	○	○	○	○	○	○
J'estime bien me connaître.	○	○	○	○	○	○
Je sais quels sont les domaines de mon travail qui m'intéressent le plus.	○	○	○	○	○	○
Je définis la réussite professionnelle pour moi-même – personne d'autre n'est à même de le faire pour moi.	○	○	○	○	○	○
Mon développement professionnel devrait reposer sur mes valeurs personnelles et non sur celles que la société considère comme étant importantes.	○	○	○	○	○	○
Finalement, il m'incombe de gérer mon développement professionnel.	○	○	○	○	○	○
J'assume la responsabilité de l'évolution de ma carrière.	○	○	○	○	○	○

Déclarations concernant votre carrière professionnelle
Veuillez indiquer à quel point les déclarations suivantes vous correspondent:

1 - ne me correspond pas du tout
2 - ne me correspond pas vraiment
3 - me correspond moyennement
4 - me correspond assez bien
5 - me correspond très bien

	1	**2**	**3**	**4**	**5**	**ne sais pas / pas d'avis**
J'aurais l'impression d'être perdu si je ne pouvais pas travailler pour mon employeur actuel.	○	○	○	○	○	○
Si mon organisation me garantissait un emploi à vie, je ne chercherais jamais un travail dans une autre organisation.	○	○	○	○	○	○
Je préfère rester dans une entreprise que je connais plutôt que de chercher un emploi ailleurs.	○	○	○	○	○	○
Si je devais choisir, je préférerais changer de profession plutôt que de quitter mon employeur actuel.	○	○	○	○	○	○
Pour moi, il est important de faire partie de mon entreprise actuelle.	○	○	○	○	○	○
Je trouverais motivant d'accepter un emploi dans un autre lieu géographique.	○	○	○	○	○	○
Je préfère rester à un lieu dont la géographie m'est connue que chercher un emploi à un autre endroit.	○	○	○	○	○	○
Par le passé, j'ai déjà réfléchi à accepter un emploi dans un autre lieu géographique et à y déménager.	○	○	○	○	○	○
J'apprécie de travailler avec des personnes externes à mon organisation.	○	○	○	○	○	○
J'apprécie les interventions lors desquelles je travaille en dehors de mon organisation.	○	○	○	○	○	○

Loughborough University

Déclarations concernant votre carrière professionnelle
Veuillez indiquer à quel point les déclarations suivantes vous correspondent:

1 - ne me correspond pas du tout
2 - ne me correspond pas vraiment
3 - me correspond moyennement
4 - me correspond assez bien
5 - me correspond très bien

	1	**2**	**3**	**4**	**5**	**ne sais pas / pas d'avis**
J'ai déjà envisagé de changer de profession.	○	○	○	○	○	○
Je pourrais également être à l'aise dans un travail en dehors du domaine TI.	○	○	○	○	○	○
La pensée d'un changement professionnel atypique m'attire.	○	○	○	○	○	○
Par le passé, j'ai refusé des possibilités de carrière pour des raisons personnelles.	○	○	○	○	○	○
J'ai déjà refusé des offres d'emploi ou des mandats car ils étaient incompatibles avec les valeurs qui sont importantes pour moi dans la vie.	○	○	○	○	○	○
Afin de progresser dans l'organisation, je suis prêt à sacrifier ma work-life-balance personnelle.	○	○	○	○	○	○
Si demain, un emploi à un niveau hiérarchique plus élevé m'était proposé, je l'accepterais indépendamment de ma situation personnelle actuelle.	○	○	○	○	○	○

Dans l'ensemble, quelle est le degré de votre satisfaction de votre situation professionnelle actuelle?

- ○ très satisfait(e)
- ○ plutôt satisfait(e)
- ○ aussi bien satisfait(e) qu'insatisfait(e)
- ○ plutôt insatisfait(e)
- ○ très insatisfait(e)
- ○ pas d'avis / ne sais pas

Comment jugez-vous dans l'ensemble vos perspectives professionnelles personnelles?

- ○ très positives
- ○ plutôt positives
- ○ aussi bien positives que négatives
- ○ plutôt négatives
- ○ très négatives
- ○ pas d'avis/ ne sais pas

Depuis le dernier sondage (fin 2008) et aujourd'hui, combien de fois avez-vous changé d'emploi au sein d'une organisation (même employeur)?

_____ fois

Depuis le dernier sondage (fin 2008) et aujourd'hui, combien de fois avez-vous changé d'emploi entre différentes organisations (autre employeur)?

_____ fois

Depuis le dernier sondage (fin 2008) et aujourd'hui, combien de fois avez-vous déménagé d'endroit géographique en raison d'un changement d'emploi?

_____ fois

D'autres changements importants depuis le dernier sondage
Est-ce que d'importants changements ont influencé votre carrière entre le dernier sondage et aujourd'hui? Ces changements peuvent avoir été positifs ou négatifs et se sont manifestés soit dans le domaine professionnel ou alors dans l'environnement privé (par exemple promotion, chômage, naissance d'un enfant, divorce etc.)

_____

Est-ce que vous nous permettez d'associer vos réponses de ce sondage à ceux du dernier sondage?
En ce moment nous ne pouvons pas associer vos réponses des deux sondages, puisque ceux-ci ont été anonymes. Pourtant une association des deux sondages nous permettrait d'explorer les données de manière plus détaillée. Notre fin est de tester un modèle nouveau et pas si vous avez répondu deux fois de manière cohérente à ces questions.

Si vous nous indiquez ci-dessous votre adresse e-mail (celle que vous nous avez indiquée lors du premier sondage et par laquel vous avez reçu ce deuxième sondage), vous nous permettez la liaison de vos deux questionnaires. Votre adresse e-mail sera traitée de manière confidentielle et ne sera utilisée à aucune autre fin.

_____

Etes-vous intéressé aux résultats de cette deuxième étude?
Toutes les participantes et tous les participants ont la possibilité d'obtenir un résumé des résultats de cette deuxième étude dès que ceux-ci seront disponibles. Si vous êtes intéressé, veuillez mentionner ici votre adresse e-mail que nous utiliserons pour vous informer en temps voulu. Votre adresse e-mail sera traitée confidentiellement et ne sera utilisée à aucune autre fin que l'envoi des résultats.

_____

Vous avez terminé de remplir le questionnaire. Vous avez fourni une précieuse contribution permettant de mieux comprendre les carrières dans le domaine de l'informatique. Vous trouvez des informations et des détails de contact supplémentaires sur le site internet du projet.

Nous vous remercions d'avoir participé à cette enquête.

Appendix 9 – Survey 2 – Factor and cluster analyses

Details of new factors

Appendix 9 provides data analysis details of survey 2.

The table below shows the factor analysis results, both for the options with seven and eight factors.

Factor #	Aspect #	Aspect	Item #	Item	Factor loading (eight factors)	Factor loading (seven factors)
Factor NewF1 – Organizational mobility Variance explained (eight factors): 12.203% Variance explained (seven factors): 12.834% Cronbach's alpha: 0.768	5	Crossing organizational boundaries	22	I would feel very lost if I couldn't work for my current organization.	0.728	0.725
			23	I prefer to stay in an organization I am familiar with rather than look for employment elsewhere.	0.780	0.778
			24	If my organization provided lifetime employment, I would never seek work in other organizations.	0.841	0.847
	7	Feeling independent of any one employer	35	If I had to choose, I would rather change my profession than change my current employer.	0.677	0.675
Factor NewF2 – Geographical mobility Variance explained (eight factors): 8.198% Variance explained (seven factors): 8.622% Cronbach's alpha: 0.728	6b	Crossing geographical boundaries	29	I prefer to stay in a geographical location I am familiar with rather than look for employment elsewhere.	0.858	0.857
			30	I would find it motivating to take on a job in a different geographical location.	0.860	0.860
Factor NewF3 – Feedback Variance explained (eight factors): 7.176% Variance explained (seven factors): n/a Cronbach's alpha: 0.547	1	Being clear on one's needs, motivation, abilities, values and interests	3	I seek out and seriously consider feedback about me from other people.	0.867	n/a
			2	I regularly assess my strengths and my weaknesses.	0.690	n/a

Factor #	Aspect #	Aspect	Item #	Item	Factor loading (eight factors)	Factor loading (seven factors)
Factor NewF4 – Occupational mobility Variance explained (eight factors): 10.756% Variance explained (seven factors): 11.351% Cronbach's alpha: 0.757	6a	Crossing occupa-tional boundaries	27	I have already considered changing jobs into a differ-ent occupation.	0.854	0.849
			26	I could feel comfortable in work other than IT.	0.770	0.778
	11	Considering oneself boundaryless despite existing boundaries	54	I am excited by the thought of making unconventional career moves.	0.763	0.757
Factor NewF5 – Self-knowledge Variance explained (eight factors): 9.127% Variance explained (seven factors): n/a Cronbach's alpha: 0.637	1	Being clear on one's needs, motivation, abilities, values and interests	4	I can define what is important to me in life.	0.704	n/a
			1	I think I know myself well.	0.680	n/a
			5	I know which parts of my work interest me most.	0.819	n/a
Factor NewF(3+5) – Self-knowledge and feedback Variance explained (eight factors): n/a Variance explained (seven factors): 11.025% Cronbach's alpha: 0.673	1	Being clear on one's needs, motivation, abilities, values and interests	4	I can define what is important to me in life.	n/a	0.687
			1	I think I know myself well.	n/a	0.781
			5	I know which parts of my work interest me most.	n/a	0.741
			2	I regularly assess my strengths and my weaknesses.	n/a	0.590

Factor #	Aspect #	Aspect	Item #	Item	Factor loading (eight factors)	Factor loading (seven factors)
Factor NewF6 – Values-guided Variance explained (eight factors): 8.104% Variance explained (seven factors): 8.251% Cronbach's alpha: 0.683	2	Having personal values that are both the guidance as well as the measure of success in one's career	9	Career success is something I define for myself - no one else can do this on my behalf.	0.852	0.850
			6	My own career development should be based on my personal values, not on what society values.	0.824	0.822
Factor NewF7 – Working beyond organizational boundaries Variance explained (eight factors): 8.896% Variance explained (seven factors): 9.346% Cronbach's alpha: 0.850	8	Developing and maintaining non-hierarchic firm-independent networks	40	I enjoy working with people outside of my organization.	0.891	0.897
			38	I enjoy job assignments that require me to work outside of the organization.	0.917	0.913
Factor NewF8 – Rejection of career opportunities for personal reasons Variance explained (eight factors): 9.080% Variance explained (seven factors): 9.640% Cronbach's alpha: 0.803	10	Rejecting career opportunities for personal reasons	48	In the past, I have rejected career opportunities for personal reasons.	0.897	0.904
	2	Having personal values that are both the guidance as well as the measure of success in one's career	10	I have turned down jobs or assignments because they would have gone against what is important to me in life.	0.866	0.858

Table 1: Survey 2 – Details of new factors

Appendix 9 – Survey 2 – Factor and cluster analyses

Factor correlations

Appendix 9 provides data analysis details of survey 2.

The tables below show the factor correlations, both for the options with seven and eight factors.

		F1 (S2)	F2 (S2)	F3 (S2)	F4 (S2)	F5 (S2)	F6 (S2)	F7 (S2)	F8 (S2)
F1 – Organizational mobility (S2)	Pearson Correlation	1							
	Sig. (two -tailed)								
	N	156							
F2 – Geographical mobility (S2)	Pearson Correlation	0.192*	1						
	Sig. (two -tailed)	0.016							
	N	156	161						
F3 – Feedback and Learning (S2)	Pearson Correlation	0.191*	0.147	1					
	Sig. (two -tailed)	0.018	0.063						
	N	155	160	160					
F4 – Occupational mobility (S2)	Pearson Correlation	0.109	0.209**	0.144	1				
	Sig. (two -tailed)	0.181	0.009	0.075					
	N	152	156	155	156				
F5 – Self-knowledge (S2)	Pearson Correlation	0.088	0.013	0.394**	0.107	1			
	Sig. (two -tailed)	0.275	0.868	0.000	0.182				
	N	156	161	160	156	161			
F6 – Self-direction (S2)	Pearson Correlation	0.247**	0.125	0.274**	0.149	0.393**	1		
	Sig. (two -tailed)	0.002	0.116	0.001	0.065	0.000			
	N	155	159	158	154	159	159		
F7 – Working beyond organizational boundaries (S2)	Pearson Correlation	0.140	0.262**	0.273**	0.225**	0.154	0.271**	1	
	Sig. (two -tailed)	0.083	0.001	0.001	0.005	0.053	0.001		
	N	154	159	158	154	159	158	159	
F8 – Rejection of career opportunities (S2)	Pearson Correlation	0.074	-0.014	0.189*	0.082	0.064	0.252**	0.058	1
	Sig. (two -tailed)	0.372	0.864	0.021	0.327	0.435	0.002	0.485	
	N	146	150	149	146	150	148	148	150

*. Correlation significant (p<0.05; two-tailed) / **. Correlation significant (p<0.01; two-tailed)

Table 1: Survey 2 – Factor correlations (solution with eight factors, 25 items)

		NewF1	NewF2	NewF3	NewF4	NewF5	NewF6	NewF7	NewF8
NewF1 – Organizational mobility	Pearson Correlation	1							
	Sig. (two -tailed)								
	N	156							
NewF2 – Geographical mobility	Pearson Correlation	0.199*	1						
	Sig. (two -tailed)	0.013							
	N	156	161						
NewF3 – Feedback	Pearson Correlation	0.109	0.007	1					
	Sig. (two -tailed)	0.179	0.934						
	N	155	160	160					
NewF4 – Occupational mobility	Pearson Correlation	0.061	0.182*	0.041	1				
	Sig. (two -tailed)	0.456	0.023	0.615					
	N	152	156	155	156				
NewF5 – Self-knowledge	Pearson Correlation	0.117	-0.063	0.375**	0.107	1			
	Sig. (two -tailed)	0.147	0.426	0.000	0.182				
	N	156	161	160	156	161			
NewF6 – Values-guided	Pearson Correlation	0.105	0.050	0.194*	0.216**	0.295**	1		
	Sig. (two -tailed)	0.193	0.529	0.014	0.007	0.000			
	N	155	159	158	154	159	159		
NewF7 – Working be-yond organizational boundaries	Pearson Correlation	0.173*	0.196*	0.195*	0.225**	0.154	0.176*	1	
	Sig. (two -tailed)	0.032	0.013	0.014	0.005	0.053	0.027		
	N	154	159	158	154	159	158	159	
NewF8 – Rejection of career opportunities	Pearson Correlation	0.096	-0.078	0.198*	0.082	0.064	0.246**	0.058	1
	Sig. (two -tailed)	0.250	0.340	0.016	0.327	0.435	0.003	0.485	
	N	146	150	149	146	150	148	148	150

*. Correlation significant (p<0.05; two-tailed) / **. Correlation significant (p<0.01; two-tailed)

Table 2: Survey 2 – Factor correlations (solution with eight factors, 20 items)

		NewF1	NewF2	NewF4	NewF6	NewF7	NewF8	NewF(3+5)
NewF1 – Organizational mobility	Pearson Correlation	1						
	Sig. (two -tailed)							
	N	156						
NewF2 – Geographical mobility	Pearson Correlation	0.199*	1					
	Sig. (two -tailed)	0.013						
	N	156	161					
NewF4 – Occupational mobility	Pearson Correlation	0.061	0.182*	1				
	Sig. (two -tailed)	0.456	0.023					
	N	152	156	156				
NewF6 – Values-guided	Pearson Correlation	0.105	0.050	0.216**	1			
	Sig. (two -tailed)	0.193	0.529	0.007				
	N	155	159	154	159			
NewF7 – Working beyond organizational boundaries	Pearson Correlation	0.173*	0.196*	0.225**	0.176*	1		
	Sig. (two -tailed)	0.032	0.013	0.005	0.027			
	N	154	159	154	158	159		
NewF8 – Rejection of career opportunities	Pearson Correlation	0.096	-0.078	0.082	0.246**	0.058	1	
	Sig. (two -tailed)	0.250	0.340	0.327	0.003	0.485		
	N	146	150	146	148	148	150	
NewF(3+5) – Self-knowledge and feed-back	Pearson Correlation	0.129	-0.032	0.105	0.358**	0.179*	0.134	1
	Sig. (two -tailed)	0.109	0.687	0.195	0.000	0.024	0.104	
	N	155	160	155	158	158	149	160

*. Correlation significant (p<0.05; two-tailed) / **. Correlation significant (p<0.01; two-tailed)

Table 3: Survey 2 – Factor correlations (solution with seven factors, 19 items)

Appendix 9 – Survey 2 – Factor and cluster analyses

Matching protean and boundaryless dimensions with new factors in survey 1 and 2

Appendix 9 provides data analysis details of survey 2.

The table below shows how the factor results from survey 2 matched the conceptual dimensions and aspects of protean and boundaryless careers.

Career	Dimension	Aspect #	Aspect	Corresponding factors		
				Survey 1 (eight factors)	Survey 2 (eight factors)	Survey 2 (seven factors)
Protean career	Values-driven	1	Being clear on one's needs, motivation, abilities, values and interests	F5: Self-knowledge	NewF5: Self-knowledge NewF3: Feedback (Option B)	NewF(3+5): Self-knowledge and feedback
		2	Having personal values that are both the guidance as well as the measure of success in one's career	F6: Self-direction	NewF6: Values-guided	NewF6: Values-guided
	Self-directed	4	Having a feeling of independence and of being in charge of one's career		none	none
		3	Being both competent and motivated to learn and to adapt to a changing environment	F3: Feedback and learning	NewF3: Feedback (Option A)	none
Boundary-less career	Physically mobile	5	Crossing organizational boundaries	F1: Organizational mobility	NewF1: Organizational mobility	NewF1: Organizational mobility
		6	Crossing occupational or geographical boundaries	F2: Geographical mobility	NewF2: Geographical mobility	NewF2: Geographical mobility
				F4: Occupational mobility	NewF4: Occupational mobility	NewF4: Occupational mobility
	Psychologically mobile	7	Feeling independent of any one employer	none	none	none
		8	Developing and maintaining non-hierarchic firm-independent networks	F7: Working beyond organizational boundaries	NewF7: Working beyond organizational boundaries	NewF7: Working beyond organizational boundaries
		9	Accumulating employer-independent know-how			
		10	Rejecting career opportunities for personal reasons	F8: Rejection of career opportunities for personal reasons	NewF8: Rejection of career opportunities for personal reasons	NewF8: Rejection of career opportunities for personal reasons
		11	Considering oneself boundaryless despite existing boundaries	none	none	none

Table 1: Matching protean and boundaryless dimensions with the new factors in survey 1 and survey 2

Appendix 9 – Survey 2 – Factor and cluster analyses

Cluster solutions

Appendix 9 provides data analysis details of survey 2.

The tables and figures below show details of the cluster analysis results, both for the options with seven and eight factors.

	NewF1	NewF2	NewF3	NewF4	NewF5	NewF6	NewF7	NewF8
Full sample (n=161)	*3.721 SD=0.811*	*2.935 SD=1.000*	*3.806 SD=0.720*	*3.521 SD=0.927*	*4.248 SD=0.549*	*4.138 SD=0.799*	*4.189 SD=0.739*	*3.197 SD=1.318*
Cluster 1 (n=65)	3.902 SD=0.716	3.277 SD=0.931	3.962 SD=0.663	4.005 SD=0.732	4.339 SD=0.477	4.454 SD=0.564	4.408 SD=0.572	4.266 SD=0.651
Cluster 2 (n=55)	3.580 SD=0.846	2.191 SD=0.802	3.648 SD=0.711	2.846 SD=0.812	4.133 SD=0.579	3.846 SD=0.942	3.973 SD=0.858	3.281 SD=0.750
Cluster 3 (n=41)	3.615 SD=0.870	3.390 SD=0.763	3.768 SD=0.783	3.634 SD=0.826	4.260 SD=0.599	4.026 SD=0.743	4.128 SD=0.723	1.438 SD=0.545

Table 1: Survey 2 – Mean factor scores, option 2 (eight factors, 20 items)

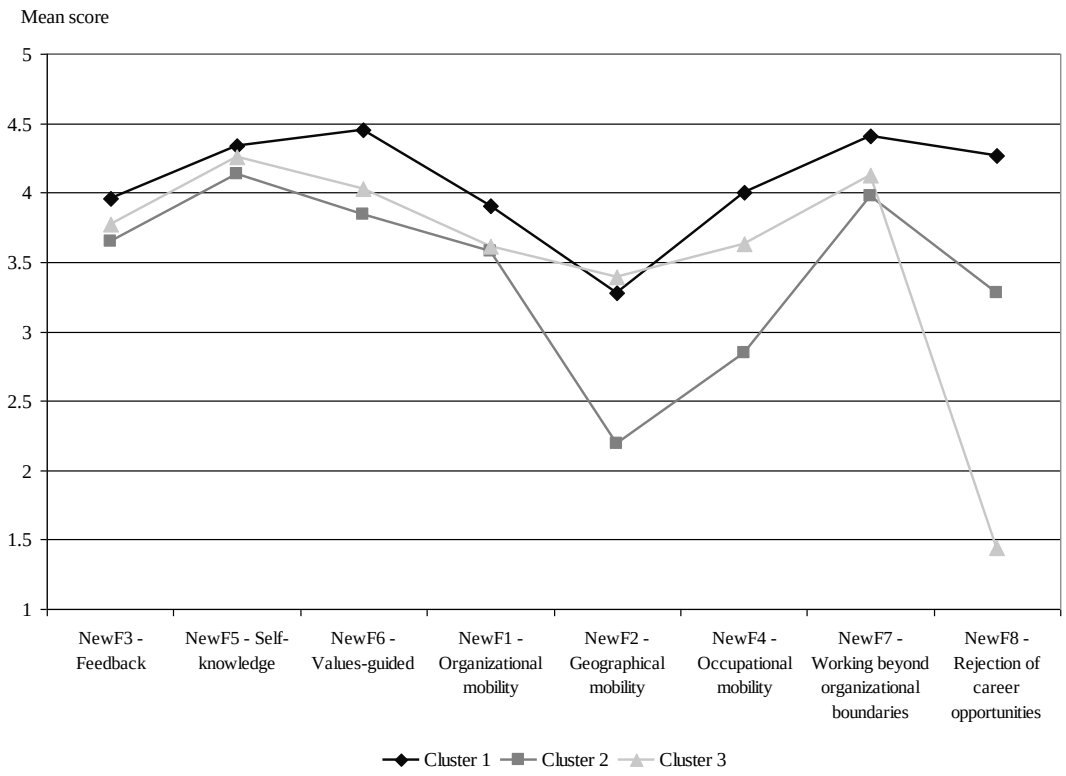

Figure 1: Survey 2 – Three clusters, option 2 (eight factors, 20 items)

	NewF1	NewF2	NewF(3+5)	NewF4	NewF6	NewF7	NewF8
Full sample (n=161)	*3.721 SD=0.811*	*2.935 SD=1.000*	*4.128 SD=0.536*	*3.521 SD=0.927*	*4.138 SD=0.799*	*4.189 SD=0.739*	*3.197 SD=1.318*
Cluster 1 (n=61)	4.008 SD=0.571	3.516 SD=0.701	4.180 SD=0.454	3.949 SD=0.745	4.377 SD=0.610	4.443 SD=0.556	4.103 SD=0.706
Cluster 2 (n=46)	3.490 SD=0.911	1.972 SD=0.716	4.118 SD=0.536	3.033 SD=0.939	4.028 SD=0.924	3.917 SD=0.862	3.643 SD=0.829
Cluster 3 (n=54)	3.602 SD=0.862	3.294 SD=0.772	4.071 SD=0.632	3.515 SD=0.868	3.943 SD=0.801	4.171 SD=0.690	1.465 SD=0.516

Table 2: Survey 2 – Mean factor scores, option 3 (seven factors, 19 items)

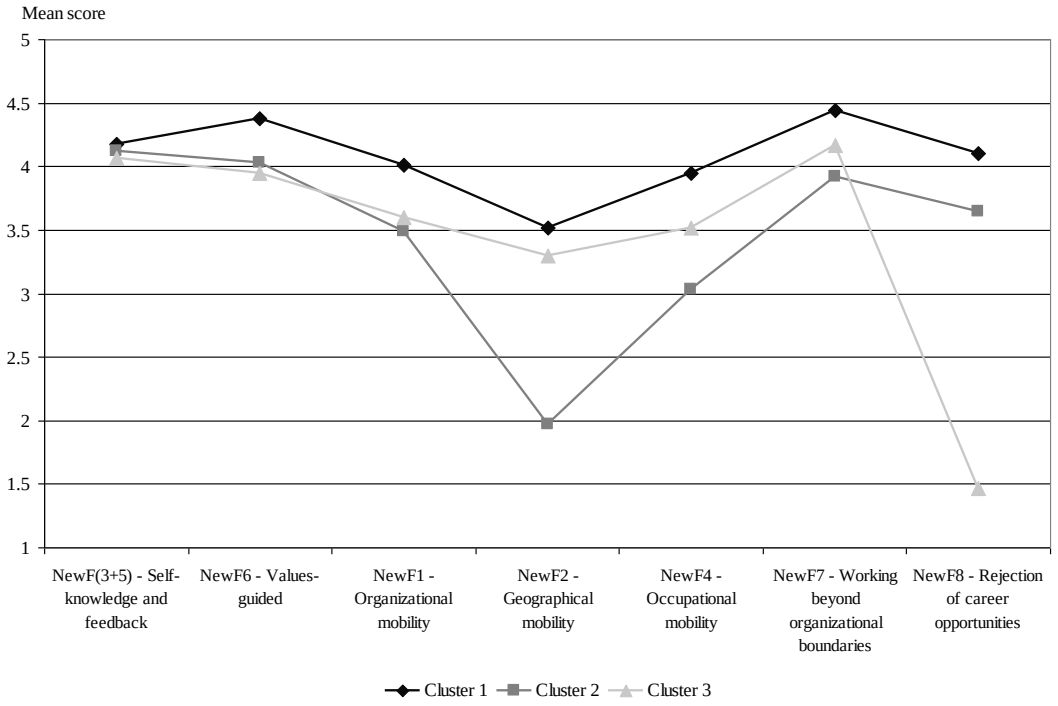

Figure 2: Survey 2 – Three clusters, option 3 (seven factors, 19 items)

Appendix 9 – Survey 2 – Factor and cluster analyses

Cluster membership changes between survey 1 and survey 2

Appendix 9 provides data analysis details of survey 2.

The tables and figures below show details of the cluster membership changes between survey 1 and survey 2.

Survey 1	F1	F2	F3	F4	F5	F6	F7	F8
Cluster 1 (n=458)	3.547	3.378	4.026	3.758	4.440	4.290	4.247	4.369
Cluster 2 (n=468)	3.267	2.019	3.535	2.948	4.252	4.052	3.621	3.057
Cluster 3 (n=398)	3.459	3.863	3.836	3.763	4.277	4.045	4.181	2.469
Survey 2								
Cluster 1 (n=52)	3.831	3.821	4.167	4.040	4.346	4.442	4.510	4.235
Cluster2 (n=63)	3.308	2.460	3.667	3.106	4.175	4.115	3.921	3.580
Cluster3 (n=46)	3.477	3.457	3.920	3.500	4.239	4.068	4.193	1.465
Differences (S2-S1)								
Cluster1	0.284	0.443	0.141	0.282	-0.094	0.152	0.263	-0.134
Cluster2	0.041	0.441	0.132	0.158	-0.077	0.063	0.300	0.524
Cluster3	0.018	-0.407	0.084	-0.263	-0.038	0.023	0.012	-1.003

Table 1: Comparison of cluster centres between survey 1 and survey 2

	Survey 1	Survey 2
Cluster 1 - Protean career architect	62	46
Cluster 2 - Solid citizen	22	50
Cluster 3 – Roamer	45	33
Total	129	129

Table 2: Cluster classifications of participants in survey 1 and survey 2 (n=129)

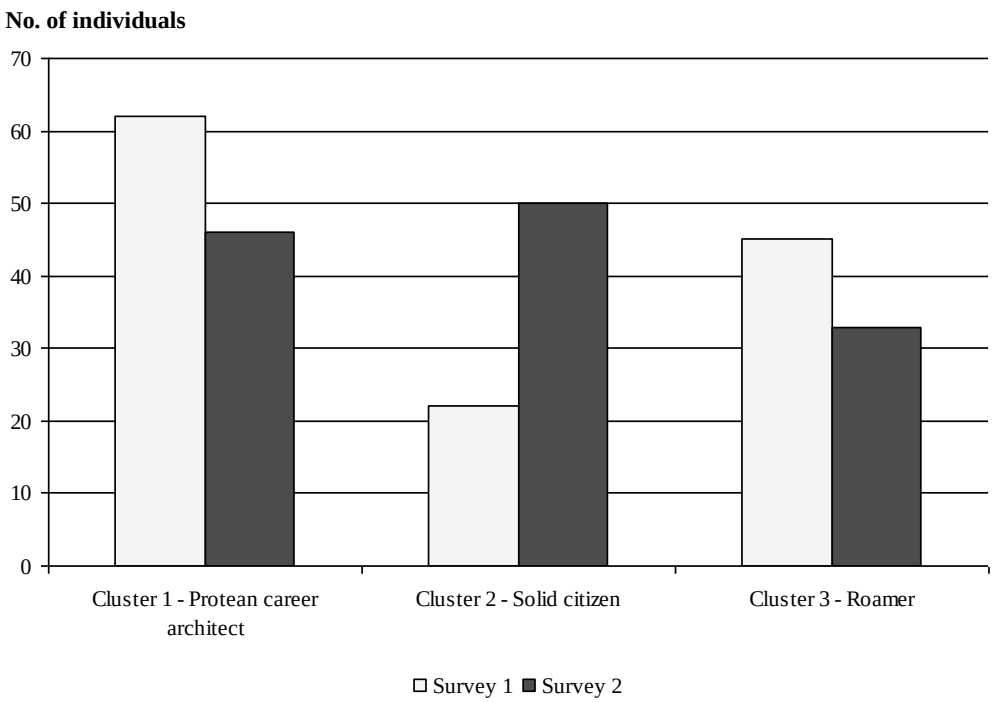

Figure 1: Cluster classifications of participants in survey 1 and survey 2 (n=129)

	S1 - Cluster 1	S1 - Cluster 2	S1 – Cluster 3	Total
S2 - Cluster 1 – Protean career architect	33	1	12	46
S2 - Cluster 2 – Solid citizen	26	13	11	50
S2 - Cluster 3 - Roamer	3	8	22	33
Total	62	22	45	129

Table 3: Cluster membership changes between survey 1 and survey 2 (n=129)

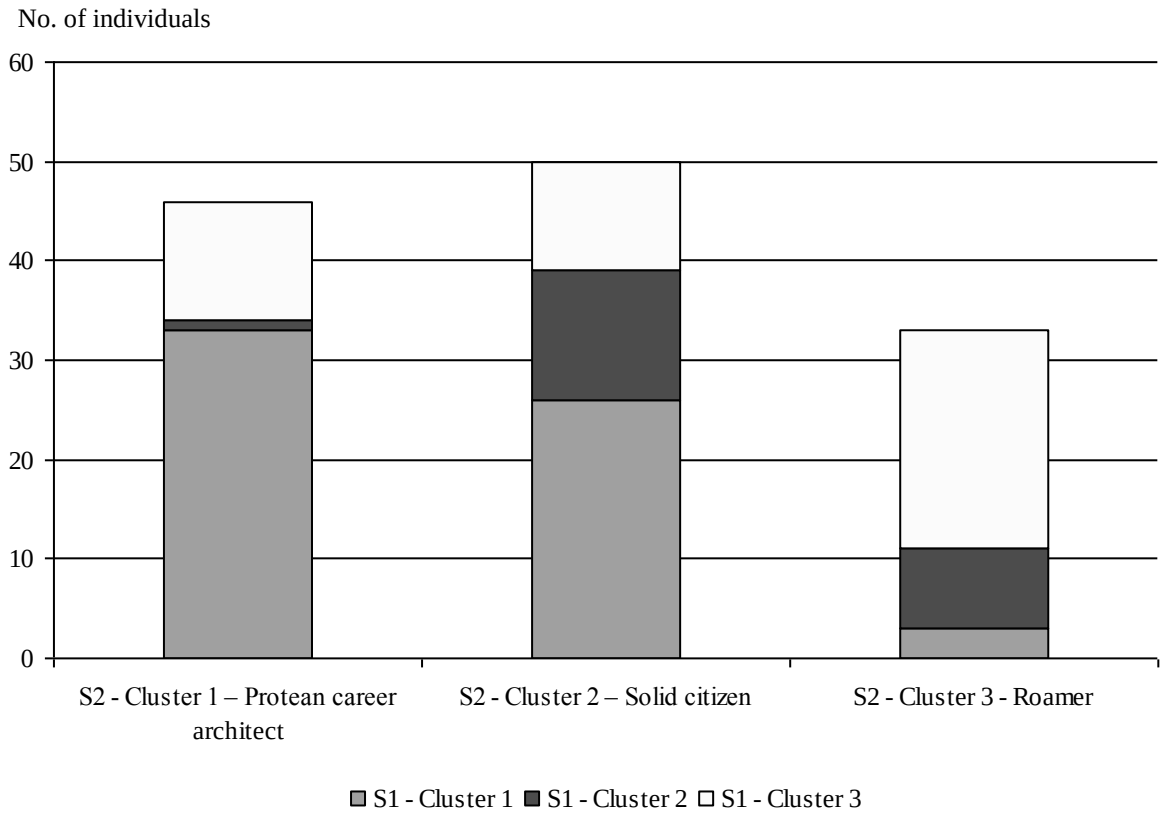

Figure 2: Cluster membership changes between survey 1 and survey 2 (n=129)

	S1 - Cluster 1	S1 - Cluster 2	S1 – Cluster 3	Total
S2 - Cluster 1 – Protean career architect	5	0	1	6
S2 - Cluster 2 – Solid citizen	3	5	1	9
S2 - Cluster 3 - Roamer	1	3	5	9
Total	9	8	7	24*

* One interviewee was clustered as a protean career architect in survey 1 but did not participate in survey 2

Table 4: Cluster membership changes of interviewees between survey 1 and survey 2 (n=24)

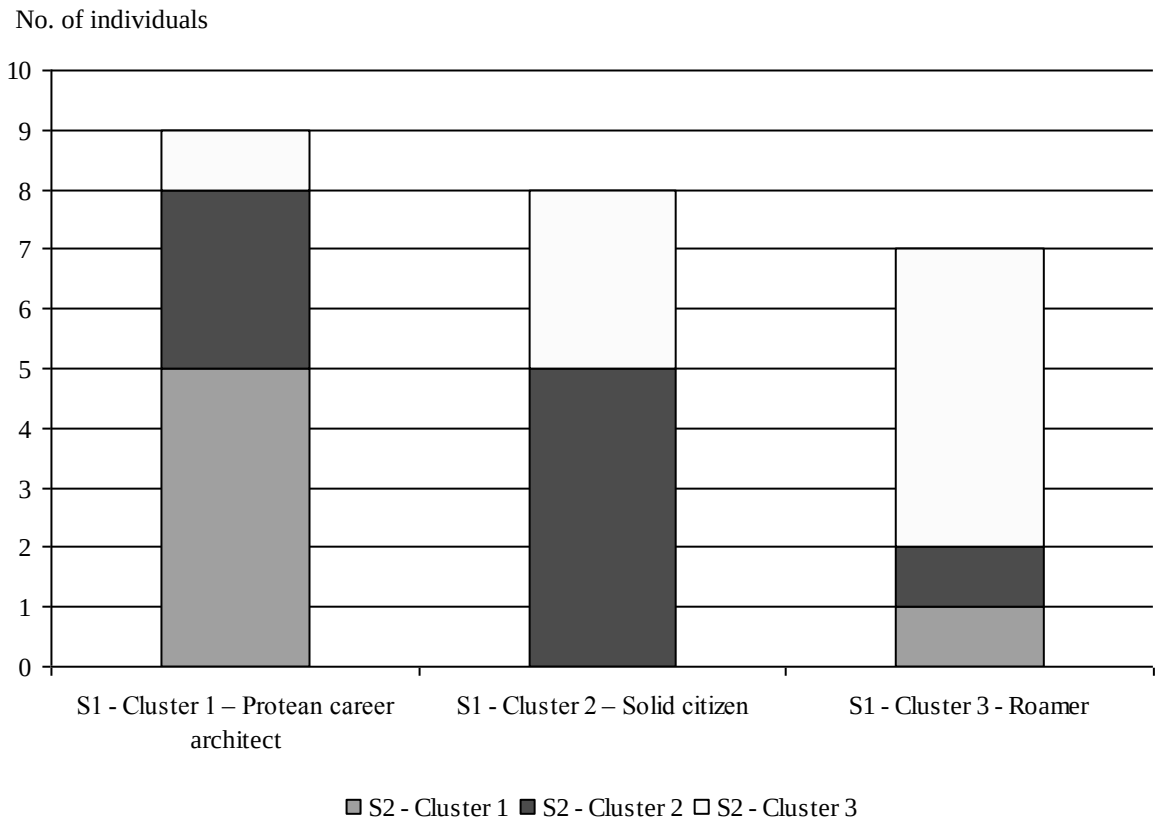

Figure 3: Cluster membership changes of interviewees between survey 1 and survey 2 (n=24)

Appendix 10 – Interview guide

English version

Appendix 10 shows the interview guide. This document was only used by the interviewer; it was not disclosed to the interviewees.

Provide information about

- Interview (45-60 mins) and career anchors (30 mins)
- Recording and confidentiality
- Happy to answer questions about the context after the interview to ensure comparability of interviews

Current position

1. What exactly is current your role and position in the organization?
2. How many people do report to you?

Own career

3. Could you please tell me about some key events in your career?
   - what were they?
   - what was your role in these events?
   - what did you do there/then and why?
   - what did that event mean to you?

4. In the first survey, you expressed a preference for a managerial/specialist career *[depending on their answers in survey 1]*. Could you please explain the reason why?

5. Please think about aspects you especially like about working in IT. What do/did you do to keep or get even more of them?

6. Please think about the aspects you **do not** like about working in IT. What do/did you do to avoid or to minimize them?

Factors

I am going to mention eight different topics. For each of these topics, please describe briefly in a few sentences what it means for your own career (e.g. how important it is to you and why).

7. Organizational mobility
   (e.g. Willingness to change employers)
8. Geographical mobility
   (e.g. Willingness to relocate for a new job)
9. Occupational mobility
   (e.g. Willingness to leave IT and do something completely different)
10. Feedback and learning
    (e.g. Willingness to seek feedback and opportunities to learn something new)
11. Self-knowledge
    (e.g. Being clear on one's motivation, values, abilities and interests)
12. Self-direction
    (e.g. Feeling in charge of one's career, based on personal values that are both the guidance as well as the measure of success in one's career)
13. Willingness to work with people beyond one's own organizational boundaries
14. Rejection of career opportunities for personal reasons

Success and satisfaction

15. In your view, what does "career success" mean?
16. Do you consider yourself successful? Why (not)? Please explain?
17. How satisfied are you with your career? Please explain.
18. How positively or negatively do you see your future career outlook? Please explain.

Next steps

19. Would it be ok if I came back to you if anything occurred to me or unexpectedly came out of the data?

Appendix 10 – Interview guide

German version

Appendix 10 shows the interview guide. This document was only used by the interviewer; it was not disclosed to the interviewees.

Informationen zu

- Interview (45-60 Minuten) and Karriereanker (30 Minuten)
- Aufnahme / Vertraulichkeit
- Fragen rund um Studie / Kontext gerne im Anschluss --> Vergleichbarkeit gewährleisten

Aktuelle Stelle

1. Was ist Ihr aktueller Job und Ihre Position in der Organisation?
2. Wie viele Leute rapportieren an Sie?

Ihre Laufbahn

3. Bitte erzählen Sie mir von ein paar Schlüsselereignissen aus Ihrer Laufbahn:
   - was waren solche Ereignisse?
   - was war Ihre Rolle in diesen Ereignissen?
   - was taten Sie dort/dann und warum?
   - was bedeutete Ihnen dieses Ereignis?

4. In der ersten Umfrage sagten Sie, dass Sie eine Führungslaufbahn / Fachspezialistenlaufbahn bevorzugen. Können Sie mit bitte erklären, warum?

5. Bitte denken Sie an Dinge, die Sie an der Arbeit in der IT besonders mögen. Was tun/taten Sie, um diese Aspekte zu bewahren oder mehr davon zu erhalten?

6. Bitte denken Sie an Dinge, die Sie **nicht** mögen bei der Arbeit in der IT. Was tun/taten Sie, um diese negativen Aspekte zu vermeiden oder zu vermindern?

Faktoren

Ich werde nun acht verschiedene Themen nennen. Für jedes dieser Themen bitte ich Sie, kurz in ein paar wenigen Sätzen zu beschreiben, welche Rolle es für Ihre eigene Laufbahn spielt (z.B. wie wichtig es für Sie ist und warum).

7. Organisationale Mobilität
   (z.B. Bereitschaft, den Arbeitgeber zu wechseln)
8. Geographische Mobilität
   (z.B. Bereitschaft, für einen neuen Job umzuziehen)
9. Berufliche Mobilität
   (z.B. Bereitschaft, die IT zu verlassen und etwas anderes zu arbeiten)
10. Feedback und Lernen
    (z.B. Bereitschaft, Feedback einzuholen und sich Gelegenheiten zu schaffen, Neues zu lernen)
11. Sich selbst kennen
    (z.B. Klarheit haben bezüglich der eigenen Motivation, Werte, Fähigkeiten und Interessen)
12. Eigeninitiative
    (z.B. sich für die eigene Laufbahn verantwortlich fühlen, basierend auf eigenen Werten, die einen führen und als Mass für Erfolg dienen in der eigenen Laufbahn)
13. Bereitschaft, mit Leuten ausserhalb der eigenen Organisation zusammenzuarbeiten.
14. Ablehnung von Karrieremöglichkeiten aus persönlichen Gründen.

Erfolg und Zufriedenheit

15. Was bedeutet “beruflicher Erfolg” aus Ihrer Sicht?
16. Erachten Sie sich selbst als erfolgreich? Warum (nicht)? Bitte erklären Sie.
17. Wie zufrieden sind Sie mit Ihrer Laufbahn? Bitte erklären Sie.
18. Wie positiv oder negativ sehen Sie Ihren zukünftigen Laufbahnaussichten? Bitte erklären Sie.

Nächste Schritte

19. Wäre es ok für Sie, falls ich Sie nochmals kontaktiere, sollten bei der Auswertung irgendwelche Fragen auftauchen?

Appendix 11 – Second report for respondents

Appendix 11 shows the second report as it was sent out to all individuals who had asked for it in survey 2. This report is only available in English.

Research project "Career Orientations in IT"

Summary part II

March 2010

Martin Gubler
Prof John Arnold
Dr Crispin Coombs

Loughborough University, UK

Loughborough University

1. Research project "Career orientations in IT"

The main objective of this research project was to examine facets of individual careers in IT from these four perspectives:

- Career orientations
- Career anchors
- Career development tools
- Career success

One of the key elements of the project was to explore IT professionals' career orientations. In addition, career anchors, preferences for career development tools, individual definitions of career success and demographic variables such as past mobility, intention to quit or career satisfaction were investigated.
As shown in Figure 1, the project consisted of two online surveys, "Survey 1" in late 2008 (n=1708) and "Survey 2" with a small subsample of the first survey in June 2009 (n=162). Finally, 25 individuals took part in semi-structured interviews in late 2009. The anonymized study results were discussed with the participating organizations in early 2009 ("Flash Reports" for preliminary findings) and in early 2010 ("Final Reports"). Respondents of the first survey were sent a brief summary report with some key findings in June 2009. Those who took part in the second survey received a summary report with additional results in March 2010.

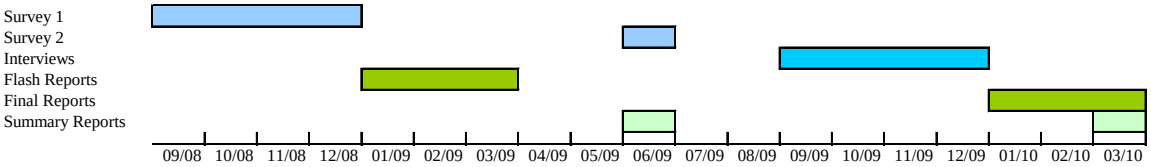

Figure 1: Project time scale

In the summary report of June 2009, career anchors, career development tools and demographic variables were described in detail. This second summary covers the career orientations as well as the definitions of career success. It provides an outline of the overall results only, and does not contain information regarding the significant differences between the participating organizations.

2. Career orientations

A career orientation is "an attitude concerning a person's career [...]. It consists of cognitive, affective, and behaviour-related components and is expressed by superordinate intentions of an individual that will influence career-related decisions [...]" [1]. In this study, career orientations were explored based on two American career concepts, the protean and the boundaryless career.

[1] Gerber, M., Wittekind, A., Grote, G., Conway, N., & Guest, D. (2009). *Generalizability of career orientations: a comparative study in Switzerland and Great Britain*. Journal of Occupational and Organizational Psychology, 82(4), p 780.

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2.1 Background

The "protean career" concept[2] focuses on how self-directed (e.g. whether they are proactive) or values-driven individuals are regarding their own career (e.g. whether they use their own values as a guideline for decisions). The "boundaryless career" concept[3] is about individual mobility, be it physical (e.g. moving between organizations) or psychological (e.g. willingness to work with people outside one's organizational boundaries). Both concepts are widely referred to in current academic literature but still lack solid empirical evidence, especially in a European context.

Our research project applied these two concepts and their four dimensions (physical mobility, psychological mobility, being self-directed, being values-driven). In a preliminary theoretical analysis, eleven different aspects were discovered. These aspects, as presented in Table 1, show the diverse meanings of the four dimensions in current academic literature.

Concept	Dimension	Aspect
Protean career	Values-driven	Being clear on one's needs, motivation, abilities, values and interests
		Having personal values that are both the guidance as well as the measure of success in one's career
	Self-directed	Having a feeling of independence and of being in charge of one's career
		Being both competent and motivated to learn and to adapt to a changing environment
Boundaryless career	Physical mobility	Crossing organizational boundaries
		Crossing occupational or geographical boundaries
	Psychological mobility	Feeling independent of any one employer
		Developing and maintaining non-hierarchic firm-independent networks
		Accumulating employer-independent know-how
		Rejecting career opportunities for personal reasons
		Considering oneself boundaryless despite existing boundaries

Table 1: Dimensions and aspects of protean and boundaryless careers[4]

2.2 Eight factors of career orientations

Based on the eleven aspects above, 55 survey items (five items per aspect) were developed. In late 2008, the respondents answered these items in the first part of the online survey. In a subsequent factor analysis, eight factors, i.e. themes that actually seemed to matter to the respondents, were identified in the data. These factors are listed in Table 2.

[2] Hall, D. T. (2002). *Careers in and out of organizations* (1st ed.). Thousand Oaks: Sage Publications, Inc.

[3] Arthur, M. B., & Rousseau, D. M. (Eds.). (1996). *The boundaryless career: a new employment principle for a new organizational era*. New York: Oxford University Press.

[4] Gubler, M., Arnold, J., & Coombs, C. R. (2009). *The protean/boundaryless matrix – An empirical analysis of IT career orientations in Europe.* Paper presented at Academy of Management Conference, Chicago.

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Factor	Description
Factor 1 Organizational mobility	Willingness to cross organizational boundaries
Factor 2 Geographical mobility	Willingness to cross geographical boundaries
Factor 3 Feedback and learning	Willingness to seek feedback and opportunities to learn something new
Factor 4 Occupational mobility	Willingness to cross occupational boundaries, i.e. to move out of IT
Factor 5 Self-knowledge	Being clear on one's motivation, values, abilities and interests
Factor 6 Self-direction	Feeling in charge of one's career, based on personal values that are both the guidance as well as the measure of success in one's career
Factor 7 Working beyond organizational boundaries	Willingness to work with people beyond one's own organizational boundaries
Factor 8 Rejection of career opportunities for personal reasons	Rejection of career opportunities for personal reasons

Table 2: Eight factors of career orientations

Table 3 shows how these eight factors were linked to the dimensions and aspects of the protean and boundaryless career concepts.

Concept	Dimension	Aspect	Factor
Protean career	Values-driven	Being clear on one's needs, motivation, abilities, values and interests	F5: Self-knowledge
		Having personal values that are both the guidance as well as the measure of success in one's career	F6: Self-direction
	Self-directed	Having a feeling of independence and of being in charge of one's career	
		Being both competent and motivated to learn and to adapt to a changing environ-ment	F3: Feedback and learning
Boundaryless career	Physical mobility	Crossing organizational boundaries	F1: Organizational mobility
		Crossing occupational or geographical boundaries	F2: Geographical mobility F4: Occupational mobility
	Psychological mobility	Feeling independent of any one employer	F7: Working beyond organizational boundaries
		Developing and maintaining non-hierarchic firm-independent networks	
		Accumulating employer-independent know-how	---
		Rejecting career opportunities for personal reasons	F8: Rejection of career op-portunities for personal rea-sons
		Considering oneself boundaryless despite existing boundaries	---

Table 3: Factors matching the dimensions and aspects of the protean and boundaryless careers[5]

[5] Gubler, M., Arnold, J., & Coombs, C. R. (2009). *The protean/boundaryless matrix – An empirical analysis of IT career orientations in Europe.* Paper presented at Academy of Management Conference, Chicago.

Between September and December 2009, 25 individuals (19 men and 6 women) participated in semi-structured interviews regarding their careers. In one part of the interview, the participants were asked to explain what the eight factors above actually meant to them and their careers. The following quotes show the variety of answers provided.

Factor 1 – Organizational mobility

"Well, I am not afraid of such a change, […] I am not somehow bound to a company. I have consciously selected this company […]. But, in that sense, I have actually remained very open for a change. If for any reason there was something that would extremely fascinate me, then a change may well come into question again." (male, 42 years old)

"Quite a few people here were sacked and […] I assume, that this has not been the last time that people were made redundant, that maybe there will be another wave. Personally, I find this uncertainty really gruelling, so to speak. And I am definitely no longer fully, well, loyal. I am not sure whether 'loyal' is the right word [because] I can actually stand behind [this company] and behind what I do. I can really stand behind it. But despite this, I have seen people who were dismissed, who had worked here for twenty years, who had been loyal to the company, too, and in the end they still stood there without a job. And I am not actively looking but I would say, I […] am now simply keeping my eyes open, just in case…" (male, 30 years old)

"I feel very connected with [this company], […] not only because I have had so many opportunities here but also because I think, as an employer they are very, very good and they do very much. So, from that point of view, I would not have […] any interest in changing the employer even if there was another offer from another company […]. I don't think so. […]. I once said: 'They have to kick me out to make sure I leave'. " (female, 39 years old)

Factor 2 – Geographical mobility

"That's easy, I would go anywhere! Literally! And want to! That part is very easy. I mean, it's just me. I think I have become nomadic […]. I just love arriving in new places and new situations. […] That to me is a major driver." (male, 52 years old)

"I've done it! […] I think if the right job is there, you can do it. There are countries I would not move to. I wouldn't move to the US, I wouldn't to the Middle East. But within Western culture, yes, I would certainly move around. I would not like to be moved around, which I think is a difference." (female, 33 years old)

"This is very low for me because I live in such a beautiful place. No!"
(female, 49 years old)

"Oh, that's right down the bottom of my list. You know, I've got my children. We've got them into a good school. […] And, you know, I like being in the same office, as well. I like to come to the same office here and I know the route to work. I know how to get here and how to get home or the best ways where to go when there's roadwork. I like having my desk, you know. I like, you know, knowing where everything is." (male, years old)

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Factor 3 – Feedback and learning

"Probably my biggest driving force, to be honest. […] I would never want to know all the answers. Yeah, so, learning is very important to me. And driving myself forward to acquire more knowledge and more information is key. I think it would be pretty boring to be excellent at something, to be honest. I think it's a great place to be where you are constantly evolving and constantly pushing yourself. So, learning and evolution for me is the biggest driving force of my career." (male, 36 years old)

"That's critical. Especially the feedback. I don't like if people don't tell me if they think I have done something bad. Or if they think I have done something wrong. You cannot improve unless you learn from that. If people are too polite to tell you, that's really annoying because you continue as if you think you are doing the right thing and you're not. And that damages you and it damages everybody else. So, I don't think you'll ever stop learning or if you think you've stopped learning, if you think you know it all, then just give up and go home." (female, 33 years old)

"You know, I quite often will tell my boss when I've done something good […] and it's always nice to, you know, have somebody saying: "Oh, well done" or "How did you do that?" And so, that's great kind of stuff. I never ask somebody what's wrong with something […]. That's not the feedback I like." (male, 41 years old)

Factor 4 – Occupational mobility

"I absolutely have it! Before I came here, I considered whether I had had enough of IT and whether I wanted to do something new. But then, this sounded like an exciting challenge here. However, I can very well imagine doing something else than IT again – or also something different within IT." (male, 32 years old)

"Not at all, no. Well, even in 10 or 15 years I still see myself in a job somehow of the kind I am doing it at the moment – very technical, very IT-oriented." (male, 40 years old)

Factor 5 – Self-knowledge

"This is the most important thing for me. […] It is in the centre. […] The experience of my own values, what my task is in life. […] "Where do I want to go? What would I like to change? Do I want to change something at all?" and so on, this is actually […] in the centre also of the professional environment. […] If I can't be myself in the job, then I might probably fall ill, go drinking in the evenings or whatever. Therefore, the identification of the job with the values I have is extremely important." (male, 37 years old)

"I would say that is important for me but [it] gets forgotten a bit, I would say. The focus is more on other things and less really on oneself and what one actually wants oneself, isn't it?" (female, 26 years old)

Factor 6 – Self-direction

"This is highly important. So, I do it and I like doing it. Precisely because one has a certain self-control if one does it. If one doesn't do it, anything will just happen and this does not need to be what one wants." (male, 40 years old)

"You're never in control in a company like this. End of story. You're not! That's one of the things that disappoints me. I wish I felt I had more control. […] It is event-driven. You can't dictate when an outstanding opportunity will occur any more than you can dictate when a lousy opportunity will occur. It's naturally and quite rightly, business-driven. So, you can't guarantee, you can't really expect to achieve in a company and I don't expect to achieve. Hence, you need to get lucky sometimes. And I have been very lucky."
(male, 52 years old)

"[This is] actually difficult because I feel, I am well a person who lets oneself drift a bit. […] So I am, at the moment at least, little active myself or with little self-initiative. […] There is rather a certain trust in [this organization] that I may say: "Yes, they […] will guide me there." But rarely I do it myself." (female, 26 years old)

Factor 7 – Working beyond organizational boundaries

"No problem at all! It is always exciting because you then always hear different points of view. So, I don't have any problem with it at all. On the contrary! Even within [this company] there are these trenches, they exist everywhere in such [companies] and […] I am actually someone who often brings people together because I have still many acquaintances from my former job. These are on this side of the trench and the others there. And most often it works, I bring them together in a good way. So, I don't have a problem with it, I don't think so." (female, 39 years old)

"It's an unavoidable part of work, I think, no matter what you do in IT. Because in a lot of cases, as a minimum, you're having to deal with vendors. And you have to have a good working relationship with your vendors. It's not just tell them that they've delivered a pile of rubbish or anything. You actually really have to engage. And they're not the enemy, they're part of what you need to get your job done. And the same to customers. They're not the enemy, they're who you're there to serve. You don't exist without them."
(female, 33 years old)

"Love doing it! That's what motivates me. I really […] love getting outside of IT. […] I think, generally speaking, […] quite too many IT people seem to think that IT […] has a right to exist in its own right. No, it doesn't. Absolutely not. If it's not serving the business, there's no point. And I think, too many people in IT seem to think that they're important. You've got to earn respect, right? You've got to give them some reason for wanting you. So, I think, one of the main challenges for IT these days is to get it across to the business why IT is important […]" (male, 52 years old)

Factor 8 – Rejection of career opportunities for personal reasons

"Yeah, had to. Many times! I know I could probably move faster in my career if I was a bit more geographically mobile, perhaps. I don't know. It hasn't held me back, actually. You know, I am really pleased with how my career has progressed. […] I possibly could go and earn two, three, four times what I earn here if I went [somewhere else]. I earn enough to […] keep the lifestyle I want. So, why do I want more, you know? For me it's more about well-being. […]. For me it would be quite a big thing to give that up. I don't think I want to give that up!" (male, 36 years old)

"I have done it twice. […] I have the feeling, it sometimes is a double-edged sword, to leave out opportunities. And I also have the impression that a second opportunity will not come so soon again and even less with the same employer. It depends a bit on the management. […] But in most cases, something will break if one says 'No'."
(male, 37 years old)

"Rejection has actually not happened so far. Because up to my current level I have always experienced some benefits of some kind." (male, 46 years old)

"I don't know what could hinder me [from accepting a career opportunity]. […] If there was such an offer, I would not decline it upfront and I would be, I guess, very flexible […]" (male, 38 years old)

2.3 Three career orientation clusters

Based on these eight factors, a cluster analysis revealed three distinct clusters into which the respondents could be grouped.

- Cluster 1 – Protean career architects
- Cluster 2 – Solid citizens
- Cluster 3 – Roamers

Figure 2 shows an overview of the three clusters and the mean factor scores for each of them.

Two of the three career orientation clusters (protean career architects and solid citizens) had been predicted in previous career literature[6]. Roamers, however, emerged as a new group. The three clusters all showed highly similar self-declared scores for the "protean" factors (feedback and learning, self-knowledge, self-direction). Also, they did not vary greatly regarding organizational mobility. The factors with the most significant differences between the clusters were the willingness to relocate geographically and the willingness to reject career opportunities for personal reasons.

The three clusters had distinct characteristics, not only regarding their factor scores but also in terms of demographic variables, career anchors, definitions of career success or preferences for certain career development tools. The differences between the three clus-

[6] Briscoe, J. P., & Hall, D. T. (2006). *The interplay of boundaryless and protean careers: combinations and implications.* Journal of Vocational Behavior, 69(1), 4-18.

ters were also confirmed in the interviews, where protean career architects, solid citizens and roamers spoke in different ways about their career histories, current jobs and future career plans. The following section highlights some statistically significant demographic characteristics of each cluster.

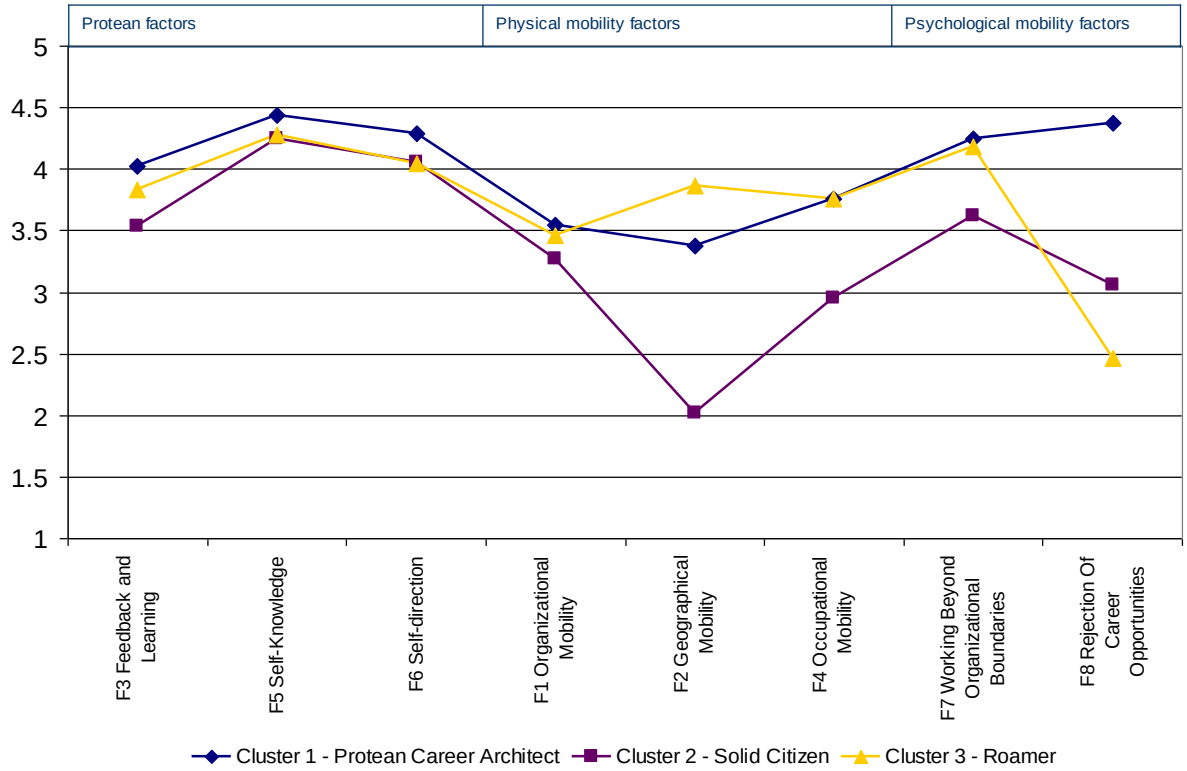

Figure 2: Clusters of protean and boundaryless career orientations[7]

Cluster 1 – Protean career architects (n=458)

Individuals in cluster 1 were significantly better educated than those in cluster 2, had been more mobile over the last five years (intra- and inter-organizationally as well as geographically) and were more likely to be looking for a new job at the time of the survey. Also, they had spent significantly less time in their current position than those in cluster 2, perceived their remuneration as significantly less adequate and were significantly less satisfied with their careers. They expressed a significantly lower preference for a specialist career than respondents in cluster 2 but a significantly higher one than those in cluster 3. Also, they were significantly older, had more dependents, had spent more time in IT, worked significantly less full time, and rated their careers compared with their peers significantly more positively than respondents in cluster 3. It was the cluster most frequently found among UK citizens in the study.

[7] Gubler, M., Arnold, J., & Coombs, C. R. (2009). *The protean/boundaryless matrix – An empirical analysis of IT career orientations in Europe.* Paper presented at Academy of Management Conference, Chicago.

Cluster 2 – Solid citizens (n=468)
Respondents in cluster 2 had significantly lower degrees than those in the other clusters. They had moved significantly less within and across organizations (compared with cluster 1) as well as geographically (compared with clusters 1 and 3). Yet, they seemed to be the most satisfied among all respondents. They had been in their current position for longer, were significantly less likely to be looking for a new job at the time of the survey, considered the likelihood to remain in their jobs significantly higher, perceived their remuneration as significantly more adequate and were significantly more satisfied with their careers than respondents in clusters 1 and 3. Also, they had a significantly higher preference for specialist careers than the others. Furthermore, some significant differences compared with cluster 3 were found: The average respondent in cluster 2 was older and was responsible for more dependents. At work, finally, they managed less reports, had worked longer both in the IT industry as well as for their employer but had not been promoted as recently as respondents in cluster 3. It was the most frequently found cluster among Swiss participants.

Cluster 3 – Roamers (n=398)
Individuals in cluster 3 had significantly higher degrees, managed more reports and had significantly more often moved geographically over the past five years than those in cluster 2. They were also significantly more likely to work full time than those in cluster 1. At the same time, they scored significantly lower on many other aspects: They were the youngest among the three clusters, had the least dependents, had worked the least in IT and showed the lowest preference for a specialist career. Respondents in cluster 3 ranked their own careers compared with those of their peers significantly lower than respondents in cluster 1. Also, compared with cluster 2, their last promotion was more recent and they had spent less time with the employer as well as in their current position. They were significantly less likely to remain in their job and more likely to be looking for a new one, perceived their remuneration as significantly less adequate and felt significantly less satisfied with their career situation. It was the most prevalent cluster among German IT professionals in the study.

2.4 Reconfirmation of factor and cluster results
In June 2009, a second survey was launched. Its purpose was to reconfirm the findings of the first survey, especially the factors and the resulting clusters. Instead of the 55 items in the first survey, the second survey only included 25 items that were significant for the eight factors. The results of the second survey (n=162, 60.5% response rate) fully supported the initial findings.

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3. "Career success means…"

In the first online survey, the participants were asked to complete the sentence "Career success means…" in their own words. 1328 participants (77.8%) provided usable definitions.

Individual answers differed considerably and were often a complex combination of several themes. In total, 41 sub-categories were identified which were then grouped into 16 main categories. Table 4 provides some typical examples for each main category.

16 categories of career success	
1 Performance and achievement *"...always striving to do my best"* *"...achieving goals"* *"...completing my work successfully"* *"...performing well"*	2 Advancement *"...getting ahead"* *"...a high management role, director, CEO…"* *"...promotion"* *"...having the authority to make decisions"* *"...being allowed to take on more responsibility"*
3 Self-development *"...realising my potential"* *"...growing and developing"* *"...continuously updating my knowledge"* *"...developing specialist knowledge"* *"...being able to use your skills in full"*	4 Satisfaction and happiness in general *"...being satisfied"* *"...happiness"* *"...being happy with myself"*
5 Satisfaction and happiness at work *"...enjoying my work"* *"...doing what I like"* *"...having a job which is stimulating and rewarding"* *"...finding professional happiness"* *"...work has to be fun"* *"...satisfaction with the work done"*	6 Life outside work *"...being able to enjoy my out of work life"* *"...having a life when I go home"* *"...having a lot of free time"* *"...work-life balance"* *"...having a happy family life"*
7 Independence and freedom *"...being able to organize my time flexibly"* *"...working independently"* *"...freedom to choose my own role"*	8 Cooperation *"...being part of a highly effective team"* *"...passing knowledge on to others"* *"...having a good time with my peers"* *"...getting on well with my boss and my team"*
9 Contribution *"...believing to have achieved positive matters"* *"...making a difference"* *"...doing something meaningful"* *"...making the world better"* *"...that my software is used productively"* *"...solving important tasks for my employer"* *"...that our customers are happy"*	10 Challenge *"...having interesting work"* *"...being given exciting assignments"* *"...constantly facing new challenges"* *"...solving the problems presented to me"* *"...working on demanding tasks"*

16 categories of career success	
11 Motivation *"...being highly motivated"* *"...commitment"* *"...looking forward to going to work on Mondays"* *"...being happy to get out of bed and go to work"*	12 Security *"...feeling secure"* *"...having a secure job"* *"...reaching retirement without experiencing redundancy"* *"...job security"*
13 Recognition *"...being adequately recognized"* *"...being held in high esteem"* *"...being respected and appreciated by my team"* *"...customers being satisfied with what I have done"* *"...being recognized as a specialist in my field"* *"...feeling trusted"*	14 Remuneration *"...not to worry about money"* *"...being able to provide for my family"* *"...having the freedom to buy what one desires"* *"...enough money so that I don't have to work 100%"* *"...getting pay rises"* *"...being well paid"* *"...getting paid based on my performance"* *"...being paid for what I do at work"*
15 Importance of career success *"...very much but not everything"* *"...less to me than my private life"* *"...nothing to me"*	16 Other *"...not being over-stretched"* *"...avoiding too much stress"* *"...health"* *"...a good work environment"*

Table 4: "Career success means..." – Selected definitions

Overall, 223 definitions (16.8%) included both objective (i.e. externally observable achievements such as a hierarchical promotion or a pay rise) and subjective elements of career success (i.e. individually perceived factors such as job satisfaction). A typical definition including both objective and subjective elements was *"Career success means being happy with your job and being paid well".*

Only 66 definitions (5.0%) were limited to one or both of the two categories of commonly used proxies for objective career success ("advancement" and "remuneration") and did not contain any further reference to elements of subjective career success.

Although the category "remuneration" was the second most frequently named category, a more detailed analysis provided some unexpected results. For example, the majority of the respondents who mentioned "remuneration" did not define career success in terms of being paid a high salary. Instead, they referred to aspects like "financial security" or "being appropriately paid". Also, statements about the importance of non-material recognition (e.g. *"Career success means being respected by your peers"*) were more frequently made than definitions referring to high financial rewards.

Figure 3 shows the relative frequencies of the 16 main categories of career success.

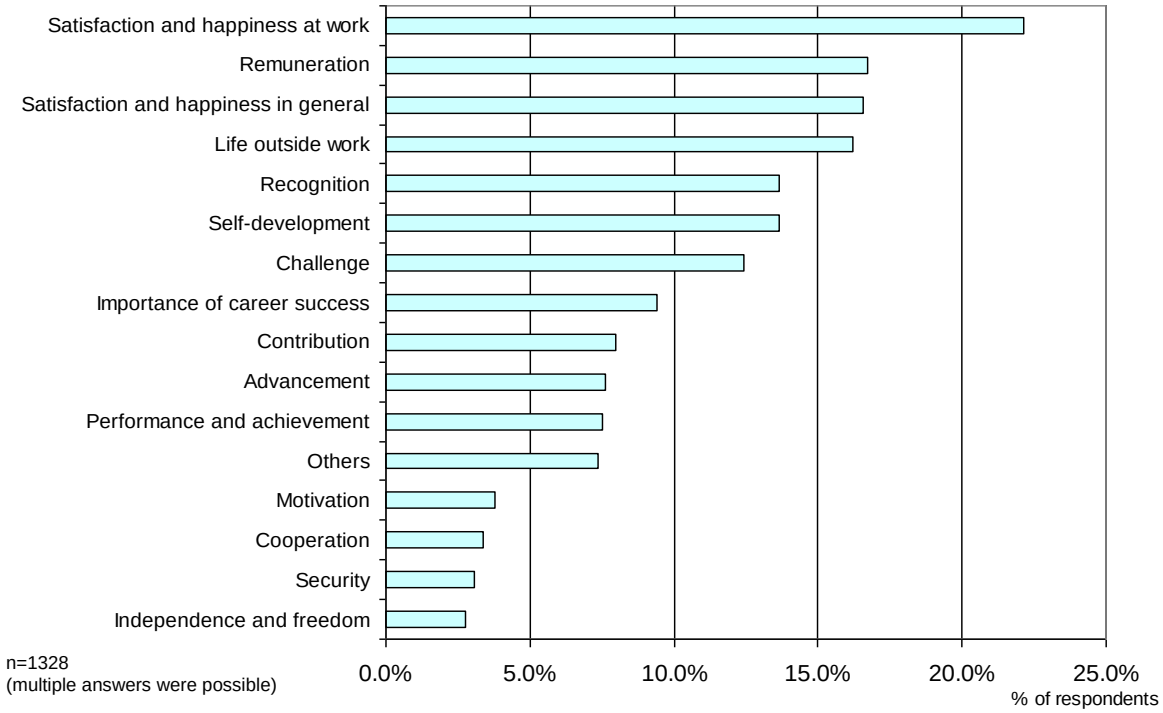


Figure 3: Categories of career success[8]

[8] Gubler, M., Arnold, J., Hartley, R., & Coombs, C. (2010). *What career success means to European IT professionals.* Paper to be presented at Academy of Management Conference, Montreal.

Loughborough University

4. Reports and publications

4.1 Reports

In early 2010, all participating organizations received a detailed report with their specific results as well as a full report of the overall findings. The reports were presented to HR representatives and/or senior IT managers in each organization.

The feedback was highly positive since the results were perceived as new and helpful input for future decisions regarding career development. Implications and potential next steps were discussed with each organization.

4.2 Conferences and publications

Several papers based on this study will be presented at conferences this year.

- Arnold, J., Gubler, M., & Coombs, C. (2010). *Designing work for career development as well as current satisfaction: Different work characteristics required?* Paper to be presented at EAWOP Small Group Meeting on "The Future of Quality of Working Life in Europe and Beyond", Paris, March
- Gubler, M., Arnold, & Coombs, C. (2010). *Career anchors as a tool for organizational career management in the IT sector.* Paper to be presented at ICAP International Conference of Applied Psychology, Melbourne, July
- Gubler, M., Arnold, J., Hartley, R., & Coombs, C. (2010). *What career success means to European IT professionals.* Paper to be presented at Academy of Management Conference, Montreal, August

Finally, some articles for academic journals are planned.

The submission of the doctoral thesis based on this study is expected for 2011.

5. Contact

For any further information, please contact Martin Gubler (m.gubler@lboro.ac.uk).

Appendix 12 – Final report for organizations

Appendix 12 shows the final report for organizations as it was discussed with HRM representatives and line managers in each organization (except Org03).

This report is based on data of all organizations. In addition, all management teams were presented a report with their organizational results only.

The “flash reports”, presented to all organizations in early 2009, had the same format. However, they only comprised preliminary results of career anchors, career management tools, and demographic variables.

Summary - all organizations

Career Orientations in IT

Final report
February 2010

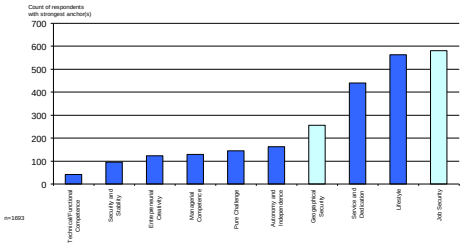
1. Research overview
2. Protean and boundaryless career orientations
3. Career anchors
4. Career development tools
5. Definitions of career success
6. Demographic variables

Online data collection:
11 September - 12 December 2008 (Survey 1)
17 June - 30 June 2009 (Survey 2)

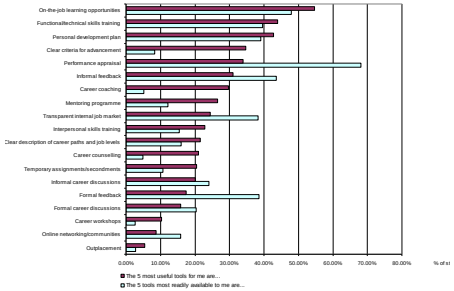
Interviews:
30 September - 11 December 2009

Martin Gubler
Loughborough University
m.gubler@lboro.ac.uk

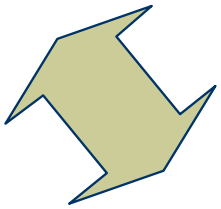
1. Research overview

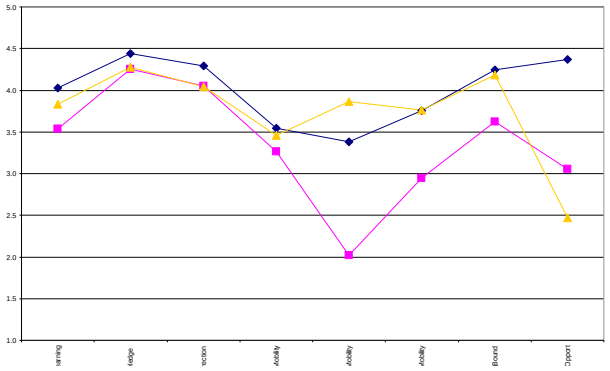


Career anchors

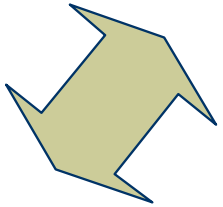


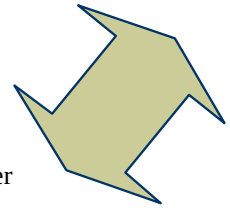
Career development tools



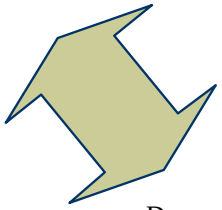


Protean and boundaryless career orientations





Definitions of career success



Demographic variables
- Gender
- Age
- Actual mobility
- ...

Figure 1: Research overview

2. Protean and boundaryless career orientations

What are "protean" and "boundaryless" careers?

"The protean career is a process which the person, not the organization, is managing. [...] The protean career is not what happens to the person in any one organization. The protean person's own personal career choices and search for self-fulfillment are the unifying or integrative elements in his or her life."
Hall, D. T. (1976). Careers in organizations. Glenview: Scott, Foresman and Company.

Boundaryless careers, "[…] are the opposite of 'organizational careers' - careers conceived to unfold in a single employment setting."
Arthur, M. B., & Rousseau, D. M. (Eds.). (1996). The boundaryless career: a new employment principle for a new organizational era. New York: Oxford University Press.

Key questions of protean and boundaryless career orientations

Protean career orientation

Is person self-directed?
Is person values-driven?

Boundaryless career orientation

Is person physically mobile?
Is person psychologically mobile?

Elements of protean and boundaryless careers according to literature

Concept	Dimension	Aspect
Protean career	Values-driven	Being clear on one's needs, motivation, abilities, values and interests
		Having personal values that are both the guidance as well as the measure of success in one's career
	Self-directed	Having a feeling of independence and of being in charge of one's career
		Being both competent and motivated to learn and to adapt to a changing environment
Boundaryless career	Physical mobility	Crossing organizational boundaries
		Crossing occupational or geographical boundaries
	Psychological mobility	Feeling independent of any one employer
		Developing and maintaining non-hierarchic firm-independent networks
		Accumulating employer-independent know-how
		Rejecting career opportunities for personal reasons
		Considering oneself boundaryless despite existing boundaries

Table 1: Elements of protean and boundaryless careers

Factors of protean and boundaryless career orientations

Factor 1 – Organizational mobility (5 items)
Willingness to cross organizational boundaries

Factor 2 – Geographical mobility (3 items)
Willingness to cross geographical boundaries

Factor 3 – Feedback and learning (3 items)
Willingness to seek feedback and opportunities to learn something new

Factor 4 – Occupational mobility (3 items)
Willingness to cross occupational boundaries, i.e. to move out of IT

Factor 5 – Self-knowledge (3 items)
Being clear on one's motivation, values, abilities and interests

Factor 6 – Self-direction (4 items)
Feeling in charge of one's career, based on personal values that are both the guidance as well as the measure of success in one's career

Factor 7 – Working beyond organizational boundaries (2 items)
Willingness to work with people beyond one's own organizational boundaries

Factor 8 – Rejection of career opportunities for personal reasons (2 items)
Rejection of career opportunities for personal reasons

Concept	Dimension	Aspect	Factor
Protean career	Values-driven	Being clear on one's needs, motivation, abilities, values and interests	F5: Self-knowledge
		Having personal values that are both the guidance as well as the measure of success in one's career	F6: Self-direction
	Self-directed	Having a feeling of independence and of being in charge of one's career	
		Being both competent and motivated to learn and to adapt to a changing environment	F3: Feedback and learning
Boundaryless career	Physical mobility	Crossing organizational boundaries	F1: Organizational mobility
		Crossing occupational or geographical boundaries	F2: Geographical mobility F4: Occupational mobility
	Psychological mobility	Feeling independent of any one employer	F7: Working beyond organizational boundaries
		Developing and maintaining non-hierarchic firm-independent networks	
		Accumulating employer-independent know-how	---
		Rejecting career opportunities for personal reasons	F8: Rejection of career opportunities for personal reasons
		Considering oneself boundaryless despite existing boundaries	---

Table 2: Factors of protean and boundaryless career orientations

Interview quotes

Factor 1 – Organizational mobility

"Well, I am not afraid of such a change, […] I am not somehow bound to a company. I have consciously selected this company […]. But, in that sense, I have actually remained very open for a change. If for any reason there was something that would extremely fascinate me, then a change may well come into question again, yes." (male, 42 years old)

"Quite a few people here were sacked and it can be guessed, or I assume, that this has not been the last time that people were made redundant, that maybe there will be another wave. Personally, I find this uncertainty really gruelling, so to speak. And I am definitely no longer fully, well, loyal. I am not sure whether 'loyal' is the right word [because] I can actually stand behind [this company] and behind what I do. I can really stand behind it. But despite this, I have seen people who were dismissed, who had worked here for twenty years, who had been loyal to the company, too, and in the end they still stood there without a job. And I am not actively looking but I would say, I […] am now simply keeping my eyes open, just in case…" (male, 30 years old)

"[…] I feel very connected with [this company], […] not only because I have had so many opportunities here but also because I think, as an employer they are very, very good and they do very much. So, from that point of view, I would not have […] any interest in changing the employer even if there was another offer from another company […]. I don't think so. […]. I once said: 'They have to kick me out to make sure I leave'. " (female, 39 years old)

Factor 2 – Geographical mobility

"That's easy, I would go anywhere! Literally! And want to! That part is very easy. I mean, it's just me. I think I have become nomadic […]. I just love arriving in new places and new situations. […] That to me is a major driver." (male, 52 years old)

"I've done it! […] I think if the right job is there, you can do it. There are countries I would not move to. I wouldn't move to the US, I wouldn't to the Middle East. But within Western culture, yes, I would certainly move around. I would not like to be moved around, which I think is a difference." (female, 33 years old)

"Oh, that's right down the bottom of my list. You know, I've got my children. We've got them into a good school. […] And, you know, I like being in the same office, as well. I like to come to the same office here and I know the route to work. I know how to get here and how to get home or the best ways where to go when there's roadworks. I like having my desk, you know. I like, you know, knowing where everything is." (male, 41 years old)

"This is very low for me because I live in such a beautiful place. No!" (female, 49)

Factor 3 – Feedback and learning

"Probably my biggest driving force, to be honest. […] I would never want to know all the answers. Yeah, so, learning is very important to me. And driving myself forward to acquire more knowledge and more information is key. I think it would be pretty boring to be excellent at something, to be honest. I think it's a great place to be where you are constantly evolving and constantly pushing yourself. So, learning and evolution for me is the biggest driving force of my career." (male, 36 years old)

"That's critical. Especially the feedback. I don't like if people don't tell me if they think I have done something bad. Or if they think I have done something wrong. You cannot improve unless you learn from that. If people are too polite to tell you, that's really annoying because you continue as if you think you are doing the right thing and you're not. And that damages you and it damages everybody else. So, I don't think you'll ever stop learning or if you think you've stopped learning, if you think you know it all, then just give up and go home." (female, 33 years old)

"You know, I quite often will tell my boss when I've done something good […] and it's always nice to, you know, have somebody saying: "Oh, well done" or "How did you do that?" And so, that's great kind of stuff. I never ask somebody what's wrong with something […]. That's not the feedback I like." (male, 41 years old)

Factor 4 – Occupational mobility

"I absolutely have it! Before I came here, I considered whether I had had enough of IT and whether I wanted to do something new. But then, this sounded like an exciting challenge here. However, I can very well imagine doing something else than IT again – or also something different within IT." (male, 32 years old)

"Not at all, no. Well, even in 10 or 15 years I still see myself in a job somehow of the kind I am doing it at the moment – very technical, very IT-oriented." (male, 40 years old)

Factor 5 – Self-knowledge

"This is the most important thing for me. […] It is in the centre. […] The experience of my own values, what my task is in life. […] "Where do I want to go? What would I like to change? Do I want to change something at all?" and so on, this is actually […] in the centre also of the professional environment. […] If I can't be myself in the job, then I might probably fall ill, go drinking in the evenings or whatever. Therefore, the identification of the job with the values I have is extremely important." (male, 37 years old)

"I would say that is important for me but [it] gets forgotten a bit, I would say. The focus is more on other things and less really on oneself and what one actually wants oneself, isn't it?" (female, 26 years old)

Factor 6 – Self-direction

"This is highly important. So, I do it and I like doing it. Precisely because one has a certain self-control if one does it. If one doesn't do it, anything will just happen and this does not need to be what one wants." (male, 40 years old)

"You're never in control in a company like this. End of story. You're not! That's one of the things that disappoints me. I wish I felt I had more control. […] It is event-driven. You can't dictate when an outstanding opportunity will occur any more than you can dictate when a lousy opportunity will occur. It's naturally and quite rightly, business-driven. So, you can't guarantee, you can't really expect to achieve in a company and I don't expect to achieve. Hence, you need to get lucky sometimes. And I have been very lucky."
(male, 52 years old)

"[This is] actually difficult because I feel, I am well a person who lets oneself drift a bit. […] So I am, at the moment at least, little active myself or with little self-initiative. […] There is rather a certain trust in [this organization] that I may say: "Yes, they […] will guide me there." But rarely I do it myself." (female, 26 years old)

Factor 7 – Working beyond organizational boundaries

"No problem at all! It is always exciting because you then always hear different points of view. So, I don't have any problem with it at all. On the contrary! Even within [this company] there are these trenches, they exist everywhere in such [companies] and […] I am actually someone who often brings people together because I have still many acquaintances from my former job. These are on this side of the trench and the others there. And most often it works, I bring them together in a good way. So, I don't have a problem with it, I don't think so." (female, 39 years old)

"It's an unavoidable part of work, I think, no matter what you do in IT. Because in a lot of cases, as a minimum, you're having to deal with vendors. And you have to have a good working relationship with your vendors. It's not just tell them that they've delivered a pile of rubbish or anything. You actually really have to engage. And they're not the enemy, they're part of what you need to get your job done. And the same to customers. They're not the enemy, they're who you're there to serve. You don't exist without them."
(female, 33 years old)

"Love doing it! That's what motivates me. I really […] love getting outside of IT. […] I think, generally speaking, […] quite too many IT people seem to think that IT […] has a right to exist in its own right. No, it doesn't. Absolutely not. If it's not serving the business, there's no point. And I think, too many people in IT seem to think that they're important. You've got to earn respect, right? You've got to give them some reason for wanting you. So, I think, one of the main challenges for IT these days is to get it across to the business why IT is important […]" (male, 52 years old)

Factor 8 – Rejection of career opportunities for personal reasons

"Yeah, had to. Many times! I know I could probably move faster in my career if I was a bit more geographically mobile, perhaps. I don't know. It hasn't held me back, actually. You know, I am really pleased with how my career has progressed. […] I possibly could go and earn two, three, four times what I earn here if I went [somewhere else]. I earn enough to […] keep the lifestyle I want. So, why do I want more, you know? For me it's more about well-being. […]. For me it would be quite a big thing to give that up. I don't think I want to give that up!" (male, 36 years old)

"I have done it twice. […] I have the feeling, it sometimes is a double-edged sword, to leave out opportunities. And I also have the impression that a second opportunity will not come so soon again and even less with the same employer. It depends a bit on the management. […] But in most cases, something will break if one says 'No'."
(male, 37 years old)

"Rejection has actually not happened so far. Because up to my current level I have always experienced some benefits of some kind." (male, 46 years old)

"I don't know what could hinder me. […] If there was such an offer, I would not decline it upfront and I would be, I guess, very flexible […]" (male, 38 years old)

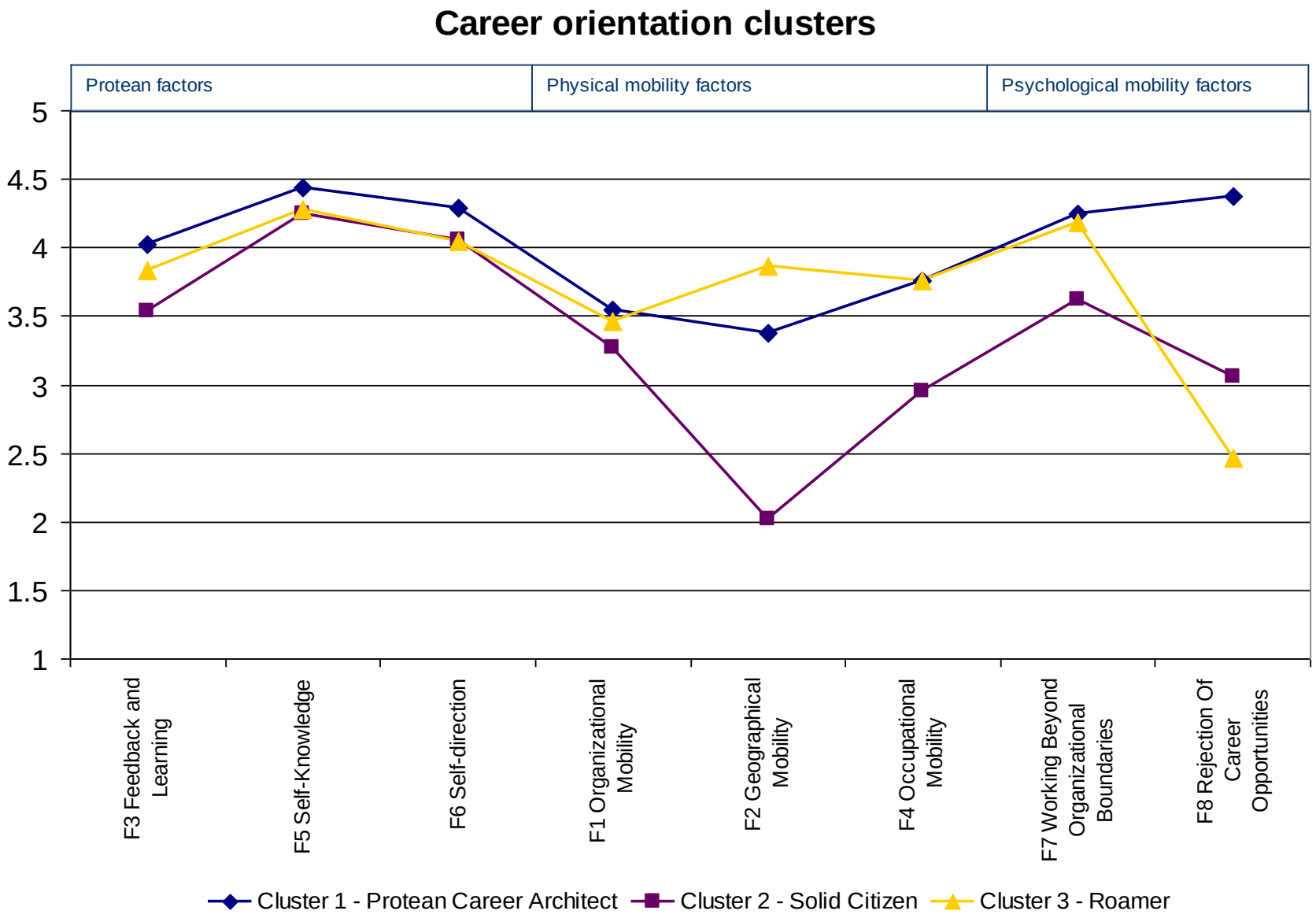


Figure 2: Three career orientation clusters

Career orientation cluster characteristics

Cluster 1 - Protean career architects (n=458)

Respondents in cluster 1 showed the highest scores on the "protean" factors. Their openness to feedback and learning, their self-knowledge and their self-direction were all significantly higher than in the other two clusters. Regarding physical mobility, people in cluster 1 expressed a relatively high willingness for organizational, geographical as well as occupational mobility. While all mobility preferences were significantly higher than in cluster 2, the willingness to relocate geographically was significantly lower than in cluster 3. In terms of psychological mobility, cluster 1 showed the highest scores as well. Their willingness to work beyond organizational boundaries was significantly higher than in cluster 2, their past rejection of career opportunities for personal reasons was significantly higher than in both other clusters.

Regarding career anchors, cluster 1 scored significantly higher than the other clusters on the four anchors autonomy and independence, service and dedication, pure challenge and lifestyle. Compared with cluster 2, respondents in this cluster showed significantly higher scores on entrepreneurial creativity and managerial competence but significantly lower scores on technical/functional competence as well as on geographical and job security. In comparison with cluster 3, though, cluster 1 showed significantly higher scores on geographical security but lower scores on managerial competence.

In terms of career development tools, respondents in cluster 1 considered mentoring programmes and outplacement as significantly more useful than did respondents in cluster 2. Also, respondents in cluster 1 ranked clear criteria for advancement as significantly less useful than those in cluster 2 and formal career discussions as significantly less useful than those in cluster 3.

When asked to define what career success means to them, respondents in cluster 1 referred significantly more frequently to self-development, personal goal attainment, continuous learning as well as to family and friends. At the same time, they mentioned advancement and satisfaction/happiness in general significantly less frequently than average.

People in cluster 1 were significantly better educated than those in cluster 2, had been more mobile over the last five years (intra- and inter-organizationally as well as geographically) and were more likely to be looking for a new job at the time of the survey. Also, they had spent significantly less time in their current position than those in cluster 2, perceived their remuneration as significantly less adequate and were significantly less satisfied with their careers. They expressed a significantly lower preference for a specialist career than people in cluster 2 but a significantly higher one than those in cluster 3. Also, they were significantly older, had more dependents, had spent more time in IT, worked significantly less full time, and rated their careers compared with their peers significantly more positively than respondents in cluster 3.

Cluster 1 was most frequently found among IT consultants, IT security staff, line managers and system architects. Also, it was the pattern most frequently associated with UK citizens.

Cluster 2 - Solid citizens (n=468)

People in cluster 2 scored significantly lower on all but one factor compared with respondents in the other clusters. Be it willingness for organizational, geographical or occupational mobility, openness to work beyond organizational boundaries or feedback and learning – on all those factors the scores in cluster 2 were significantly lower than both in clusters 1 and 3. In addition, self-knowledge, self-direction and the past rejection of career opportunities for personal reasons were all significantly lower than in cluster 1. Only regarding the rejection of career opportunities, cluster 2 scored significantly higher than cluster 3. Despite the statistically significant differences, the "protean" factors (feedback and learning, self-knowledge and self-direction) were much closer to the scores of the other clusters than the "boundaryless" ones. Respondents in cluster 2 mainly differed regarding their lower physical (especially geographical and occupational) mobility as well as their lower willingness to work beyond organizational boundaries.

In terms of career anchors, cluster 2 scored significantly higher than both other clusters on technical/functional competence as well as on geographical and job security. Also, lifestyle was ranked significantly higher than in cluster 3. Managerial competence and entrepreneurial creativity, however, both ranked significantly lower than in the other two clusters. On top of that, autonomy and independence, service and dedication, pure challenge and lifestyle also scored significantly lower than in cluster 1.

Regarding career development tools, respondents in cluster 2 thought that clear criteria for advancement were significantly more useful to them than did respondents in cluster 1 and they considered on-the-job learning opportunities as significantly more useful than did those in cluster 3. Conversely, people in cluster 2 ranked both mentoring programmes and outplacement as significantly less useful than did respondents in clusters 1 and 3.
When defining what career success means to them, respondents in cluster 2 mentioned satisfaction and happiness in general significantly more frequently than average. Yet, they significantly less frequently referred to performance and achievement, self-development, personal goal attainment, continuous learning and being challenged.

Respondents in cluster 2 had significantly lower degrees than people in the other clusters. They had moved significantly less within and across organizations (compared with cluster 1) as well as geographically (compared with clusters 1 and 3). Yet, they seemed to be the most satisfied among all respondents. They had been in their current position for longer, were significantly less likely to be looking for a new job at the time of the survey, considered the likelihood to remain in their jobs significantly higher, perceived their remuneration as significantly more adequate and were significantly more satisfied with their careers than respondents in clusters 1 and 3. Also, they had a significantly higher preference for specialist careers than the others. Furthermore, some significant differences compared with cluster 3 were found: The average respondent in cluster 2 was older and was responsible for more dependents. They had earned their last degree longer ago than those in cluster 3. At work, finally, they managed fewer reports, had worked longer both in the IT industry as well as for their employer but had not been promoted as recently as respondents in cluster 3.
Cluster 2 was most prevalent in IT operations, in quality management, in service and delivery, in software development as well as in user and production support. It was the pattern most frequently found among Swiss citizens.

Cluster 3 - Roamers (n=398)

Regarding the "protean" factors (feedback and learning, self-knowledge and self-direction), cluster 3 was very similar to cluster 2. Only feedback and learning scored significantly higher than in cluster 2, while all three factors were significantly lower than in cluster 1. The "boundaryless" factors on physical mobility were similar to cluster 1, being significantly higher on the organizational and occupational mobility factors than cluster 2. The willingness to move geographically was significantly higher than in both other clusters. While the willingness to work beyond one's own organization did not differ between clusters 1 and 3, it was significantly higher than in cluster 2. The past rejection of career opportunities for personal reasons was significantly lower than in both other clusters.

Cluster 3 had significantly higher scores on managerial competence than clusters 1 and 2 and scored higher on entrepreneurial creativity than cluster 2. However, on all other career anchors, respondents in this cluster scored lower than those in clusters 1 and 2. Geographical security and lifestyle were significantly lower than in both other clusters while pure challenge, autonomy and independence as well as service and dedication scored significantly lower than in cluster 1. In addition, job security and technical/functional competence both were ranked significantly lower than in cluster 2.

In terms of career development tools, respondents in cluster 3 considered mentoring programmes and outplacement as significantly more useful than did those in cluster 2 and they also thought that formal career discussions were significantly more useful to them than did respondents in cluster 1. However, respondents in cluster 3 felt that on-the-job learning opportunities were significantly less useful to them than did respondents in cluster 2.

Regarding their career success definitions, respondents in cluster 3 significantly more frequently mentioned performance and achievement, advancement, self-development, personal goal attainment, continuous learning and being challenged. However, satisfaction and happiness in general as well as family and friends were significantly less frequently referred to.

People in cluster 3 had significantly higher degrees, managed more reports and had significantly more often moved geographically over the past five years than those in cluster 2. They were also significantly more likely to work full time than those in cluster 1. At the same time, they scored significantly lower on many other aspects: They were the youngest among the three clusters, had the least dependents, had worked the least in IT and showed the lowest preference for a specialist career. Respondents in cluster 3 ranked their own careers compared with those of their peers significantly lower than respondents in cluster 1. Also, compared with cluster 2, their last promotion was more recent and they had spent less time with the employer as well as in their current position. They were significantly less likely to remain in their job and more likely to be looking for a new one, perceived their remuneration as significantly less adequate and felt significantly less satisfied with their career situation.

Cluster 3 was most frequently found among business analysts, business engineers and network specialists. It was the most prevalent cluster among German IT professionals.

3. Career anchors

Schein's Typology of Career Anchors

1. Technical/Functional Competence (TF)
Primarily excited by the content of the work itself; prefers advancement only in his/her technical or functional area of competence: generally disdains and fears general management as too political.

2. Managerial Competence (MC)
Primarily excited by the opportunity to analyze and solve problems under conditions of incomplete information and uncertainty; likes harnessing people together to achieve common goals: stimulated (rather than exhausted) by crisis situations.

3. Security and Stability
Comprises the two sub-dimensions geographical security (GS) and job security (JS):
Primarily motivated by job security and long-term attachment to one organization; willing to conform and to be fully socialized into an organization's values and norms; tends to dislike travel and relocation.

4. Entrepreneurial Creativity (EC)
Primarily motivated by the need to build or create something that is entirely their own project; easily bored and likes to move from project to project; more interested in initiating new enterprises than in managing established ones.

5. Autonomy and Independence (AI)
Primarily motivated to seek work situations which are maximally free of organizational constraints; wants to set own schedule and own pace of work; is willing to trade off opportunities for promotion to have more freedom.

6. Service and Dedication to a Cause (SD)
Primarily motivated to improve the world in some fashion; wants to align work activities with personal values about helping society; more concerned with finding jobs which meet their values than their skills.

7. Pure Challenge (PC)
Primarily motivated to overcome major obstacles, solve almost unsolvable problems, or win out over extremely tough opponents; define their careers in terms of daily combat or competition in which winning is everything; very single-minded and intolerant of those without comparable aspirations.

8. Lifestyle (LS)
Primarily motivated to balance career with lifestyle; highly concerned with such issues as paternity/maternity leaves, day-care options, etc.; looks for organizations that have strong pro-family values and programs.

Based on:Schein, E. H. 1990. Career Anchors: Discovering Your Real Values. San Diego, CA: Pfeiffer & Company; as quoted in Feldman, D. C., & Bolino, M. C. (1996). Careers within careers: reconceptualizing the nature of career anchors and their consequences. Human Resource Management Review, 6(2), 89-112

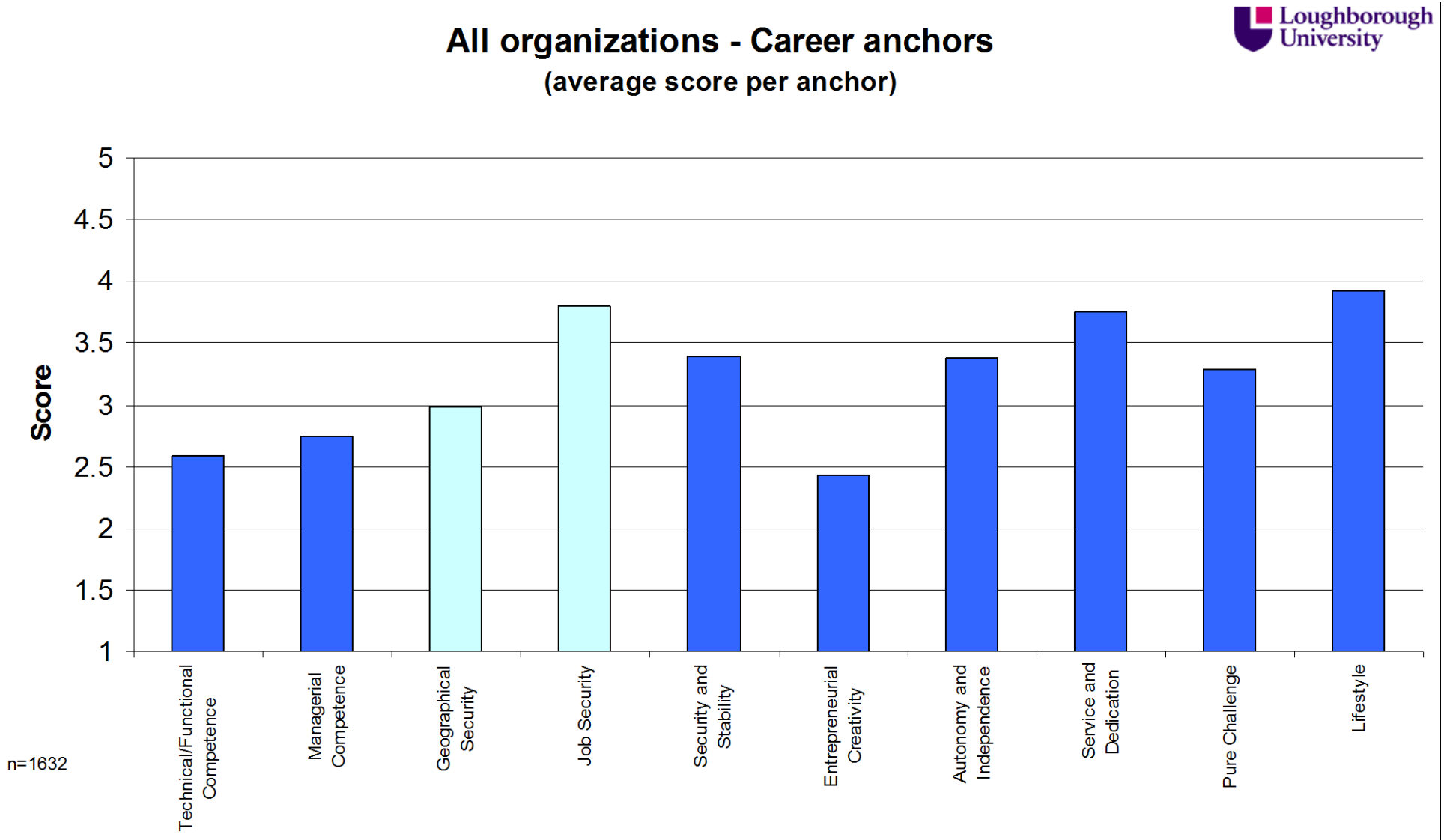


Figure 3: Career anchors – Average scores

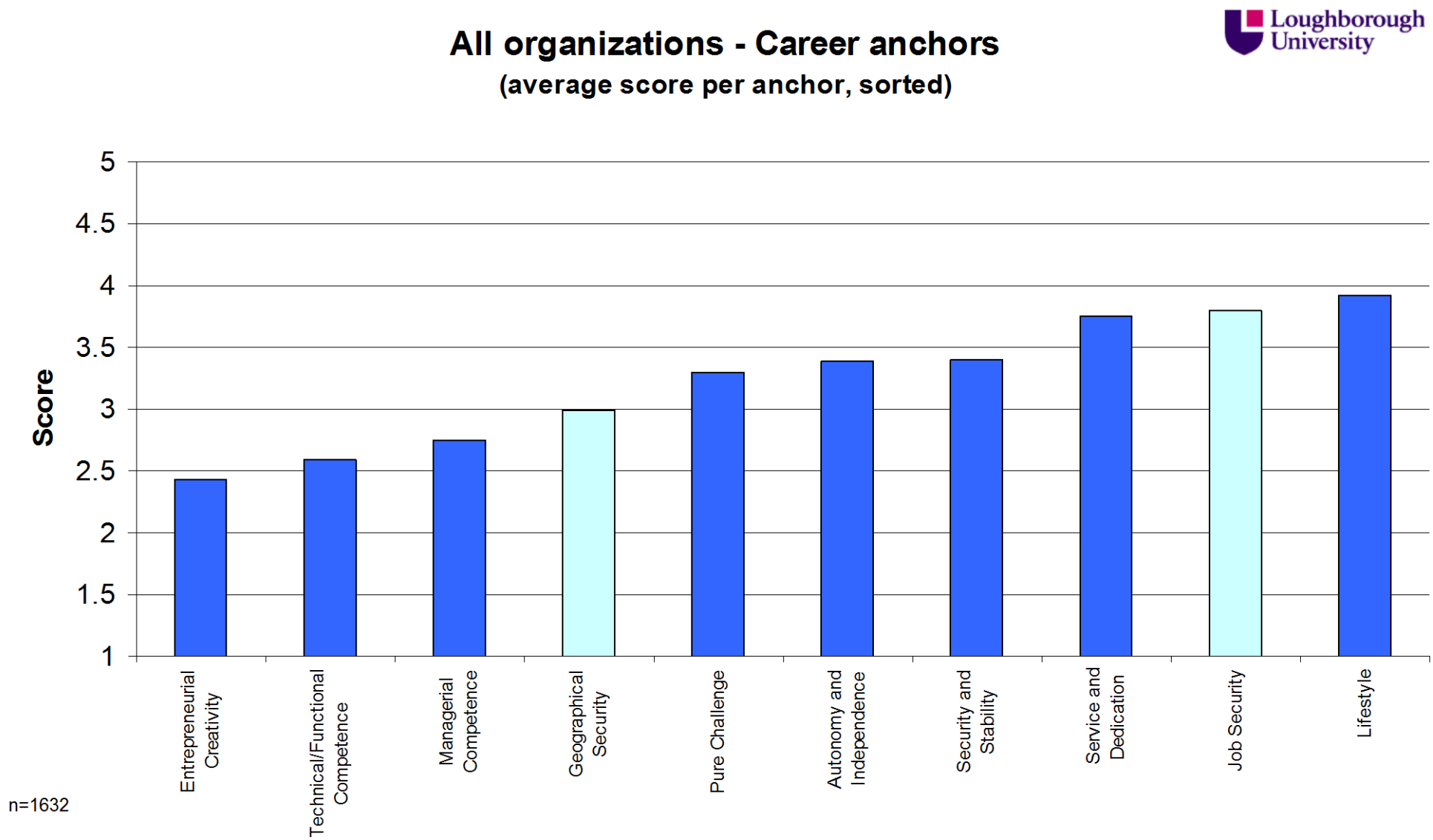


Figure 4: Career anchors – Average scores (sorted)

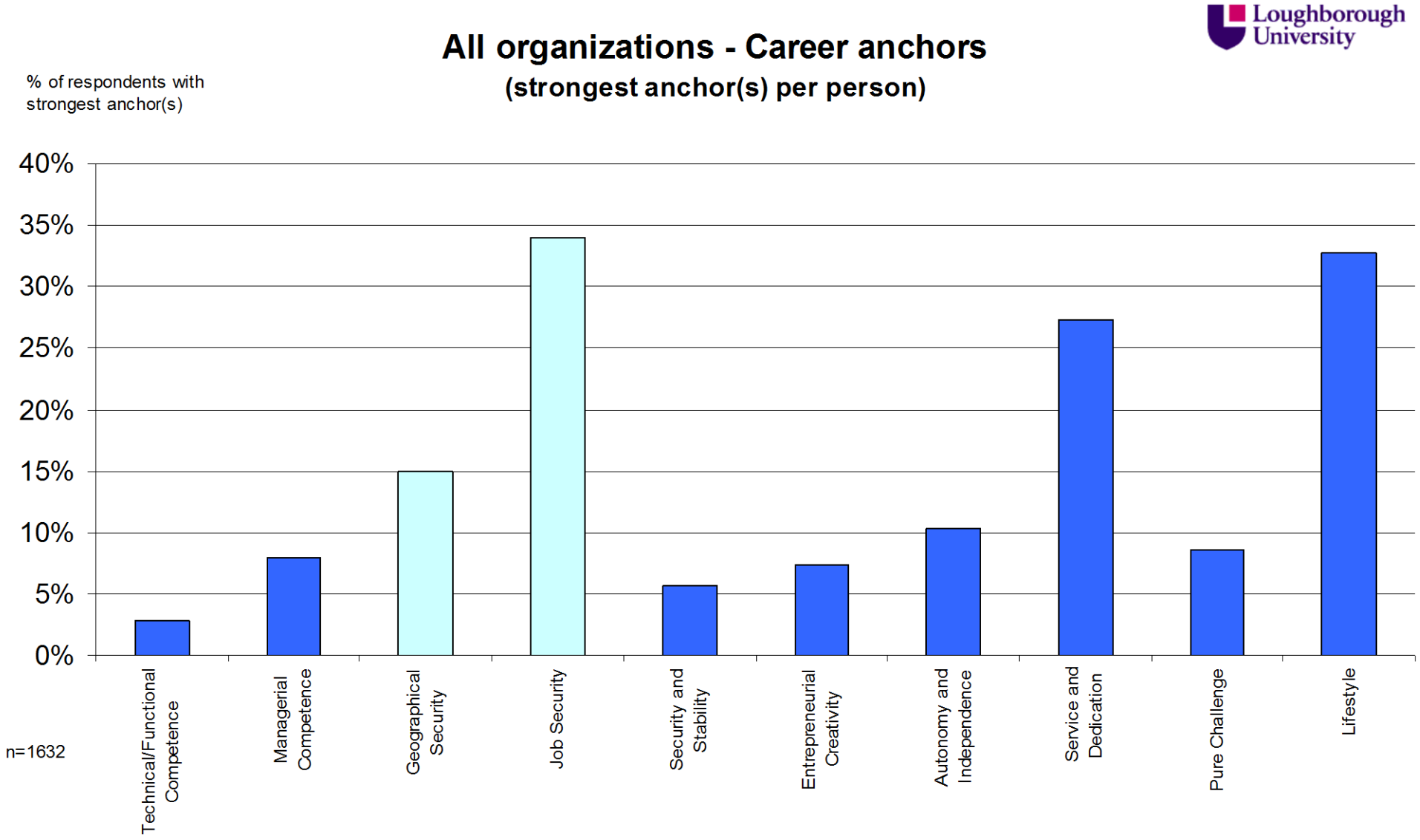


Figure 5: Career anchors – Strongest anchors

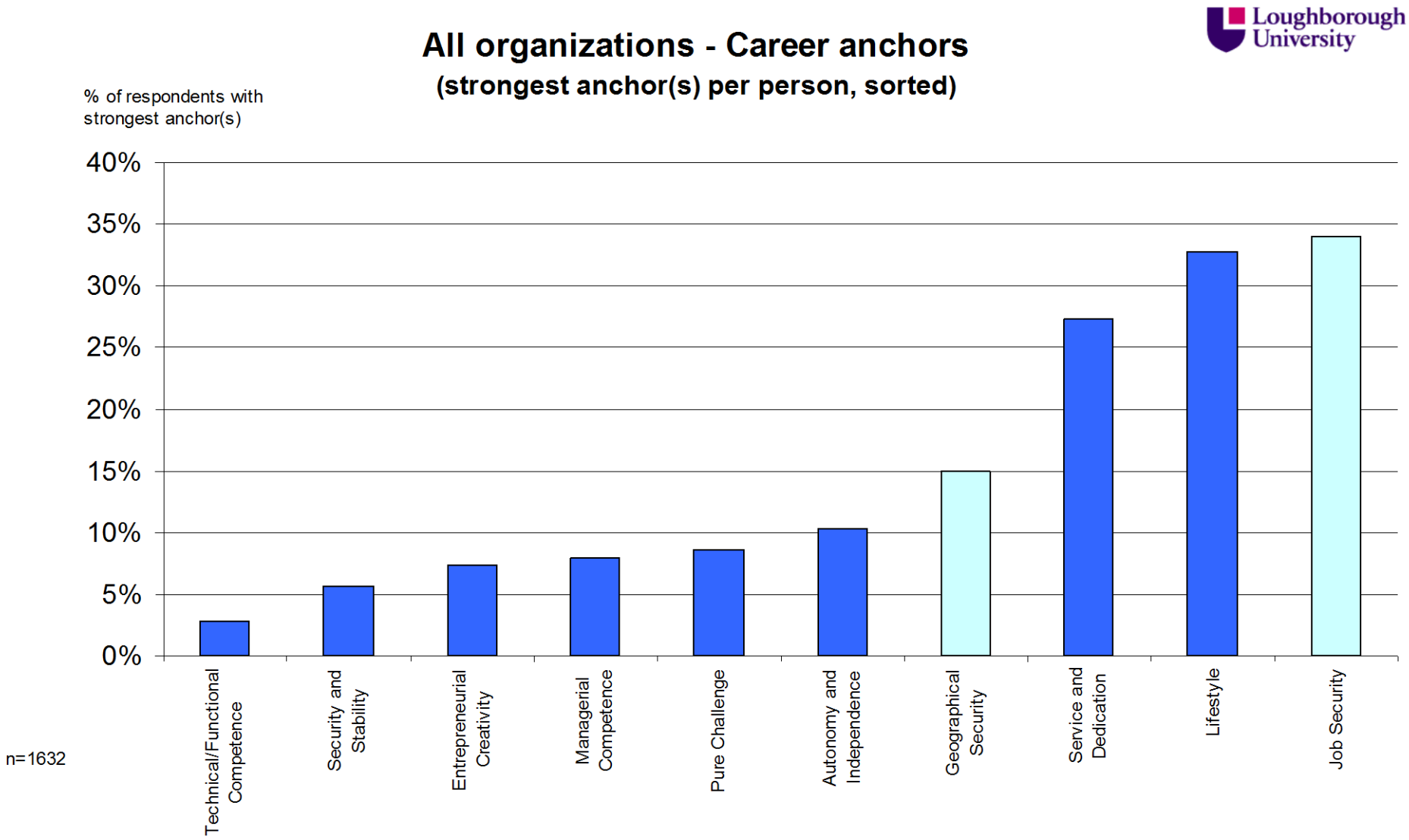


Figure 6: Career anchors – Strongest anchors (sorted)

4. Career development tools

	The 5 most useful tools for me are...		The 5 tools most readily available to me are...	
	Count	%	Count	%
Career coaching	507	29.7%	89	5.2%
Career counselling	359	21.0%	84	4.9%
Career workshops	175	10.2%	44	2.6%
Clear criteria for advancement	595	34.8%	141	8.3%
Clear description of career paths and job levels	371	21.7%	273	16.0%
Formal career discussions	274	16.0%	350	20.5%
Formal feedback	300	17.6%	661	38.7%
Functional/technical skills training	754	44.1%	680	39.8%
Informal career discussions	344	20.1%	412	24.1%
Informal feedback	531	31.1%	745	43.6%
Interpersonal skills training	392	23.0%	268	15.7%
Mentoring programme	452	26.5%	208	12.2%
Online networking/communities	149	8.7%	272	15.9%
On-the-job learning opportunities	939	55.0%	823	48.2%
Outplacement	94	5.5%	47	2.8%
Performance appraisal	580	34.0%	1167	68.3%
Personal development plan	733	42.9%	673	39.4%
Temporary assignments/secondments	350	20.5%	182	10.7%
Transparent internal job market	420	24.6%	654	38.3%

n=1,708

Table 3: Career development tools

Examples for each tool in alphabetical order

Career coaching *(e.g. individual coach for developing certain skills)*

Career counselling *(e.g. option to get individual advice on personal career development)*

Career workshops *(e.g. sessions about self-management)*

Clear criteria for advancement *(e.g. transparent and freely accessible definitions of promotion criteria)*

Clear description of career paths and job levels *(e.g. transparent and freely accessible descriptions of internal IT career paths)*

Formal career discussions *(e.g. mid-year and year-end discussions with line manager)*

Formal feedback *(e.g. regular 360° feedback from managers, peers, clients and team members)*

Functional/technical skills training *(e.g. course on a programming language or a hardware component)*

Informal career discussions *(e.g. option to discuss career issues outside the formal mid-year and year-end review)*

Informal feedback *(e.g. spontaneous praise or criticism from managers, peers, clients or team members)*

Interpersonal skills training *(e.g. course on conflict-solving)*

Mentoring programme *(e.g. option to be assigned to an internal mentor or to become a mentor oneself)*

Online networking/communities *(e.g. option to discuss career issues online with a group of IT professionals in a similar position or with similar interests)*

On-the-job learning opportunities *(e.g. opportunity to develop new skills through active participation in a new project)*

Outplacement *(e.g. support to find a new position outside the current organization)*

Performance appraisal *(e.g. yearly discussion with manager about individual performance and goal achievement)*

Personal development plans *(e.g. yearly revised plan on personal development activities)*

Temporary assignments/secondments *(e.g. international assignment or job rotation to another function)*

Transparent internal job market *(e.g. option to apply for all internally available positions)*

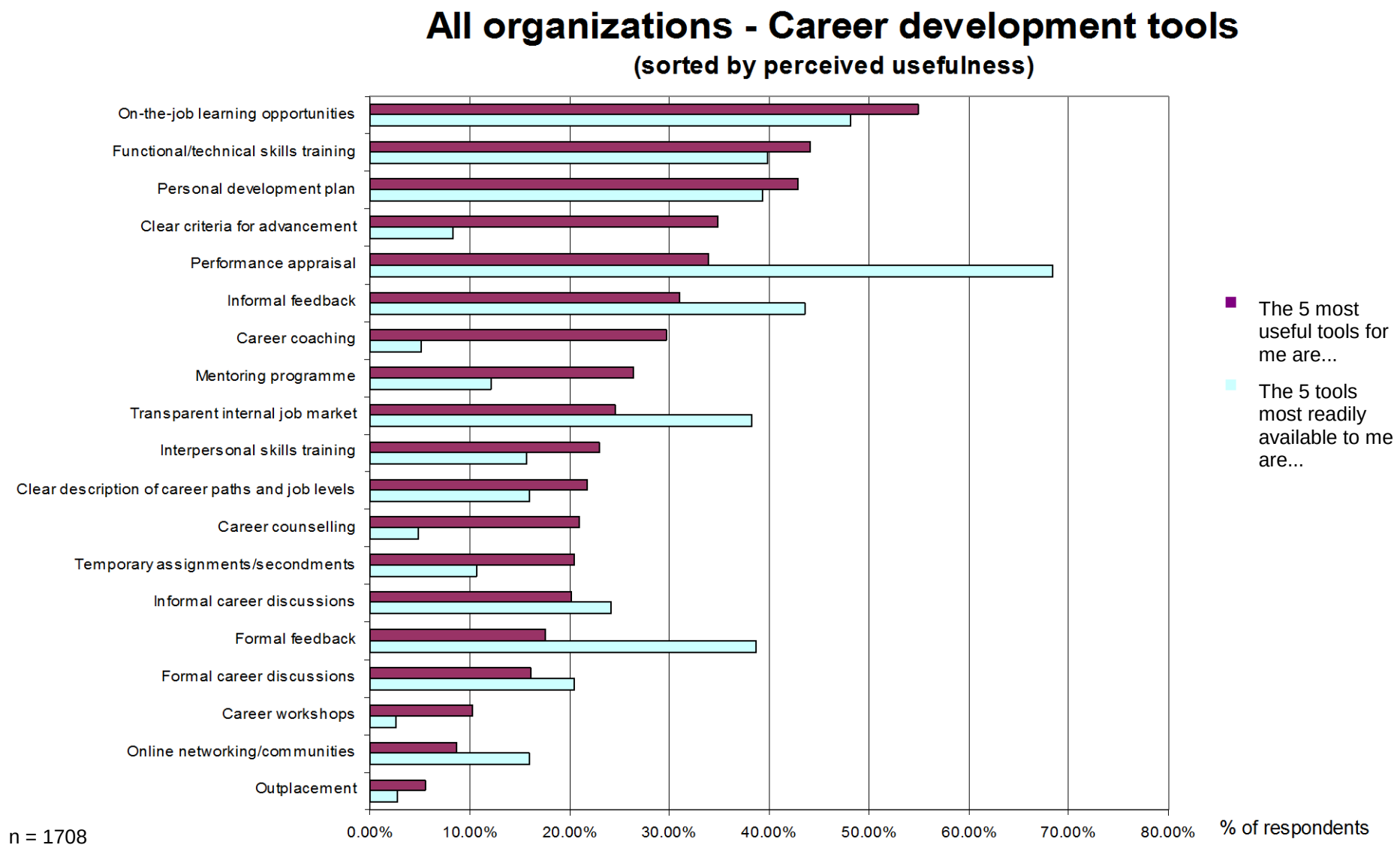
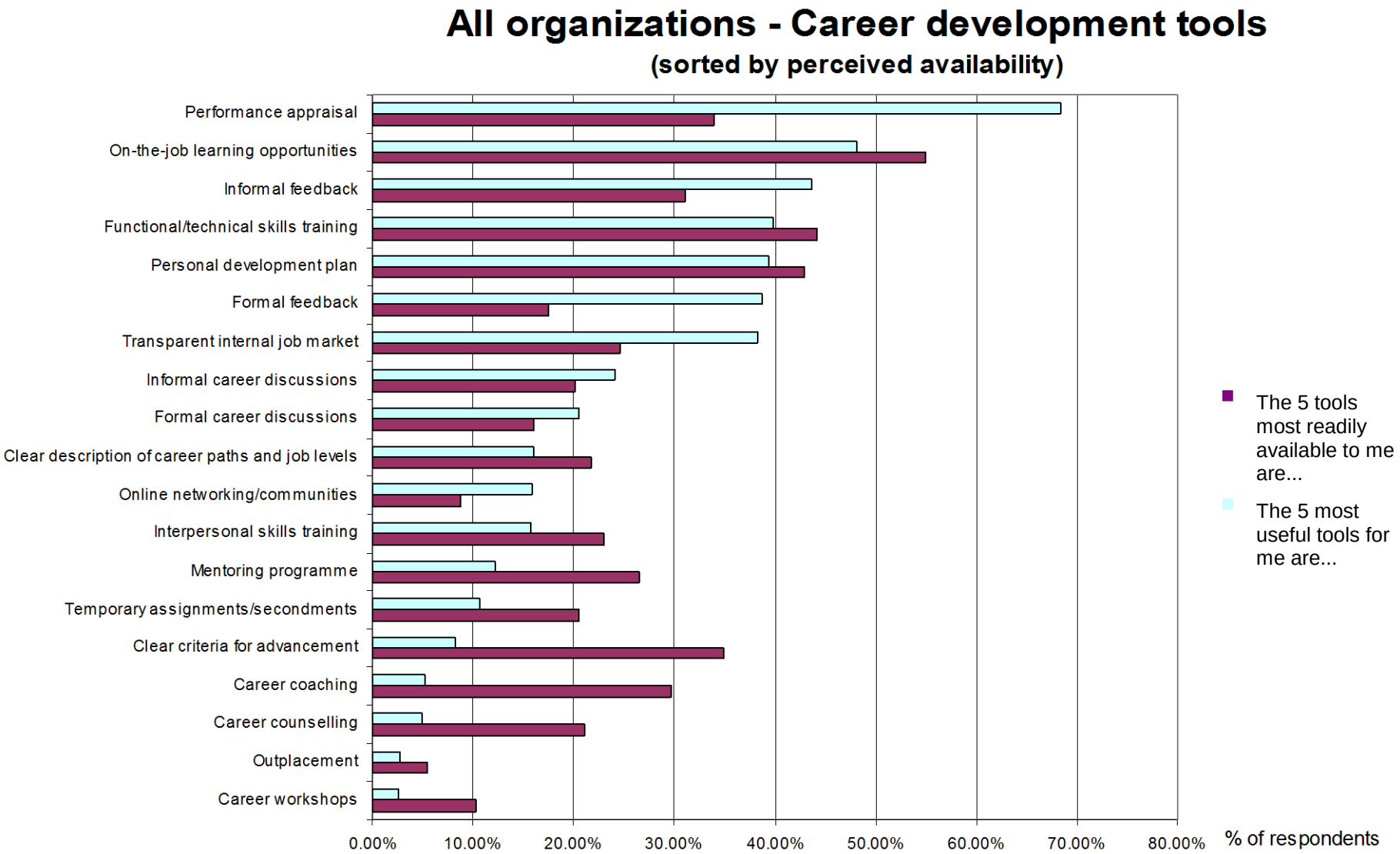


Figure 7: Career development tools – Perceived usefulness



n = 1708

Figure 8: Career development tools – Perceived availability

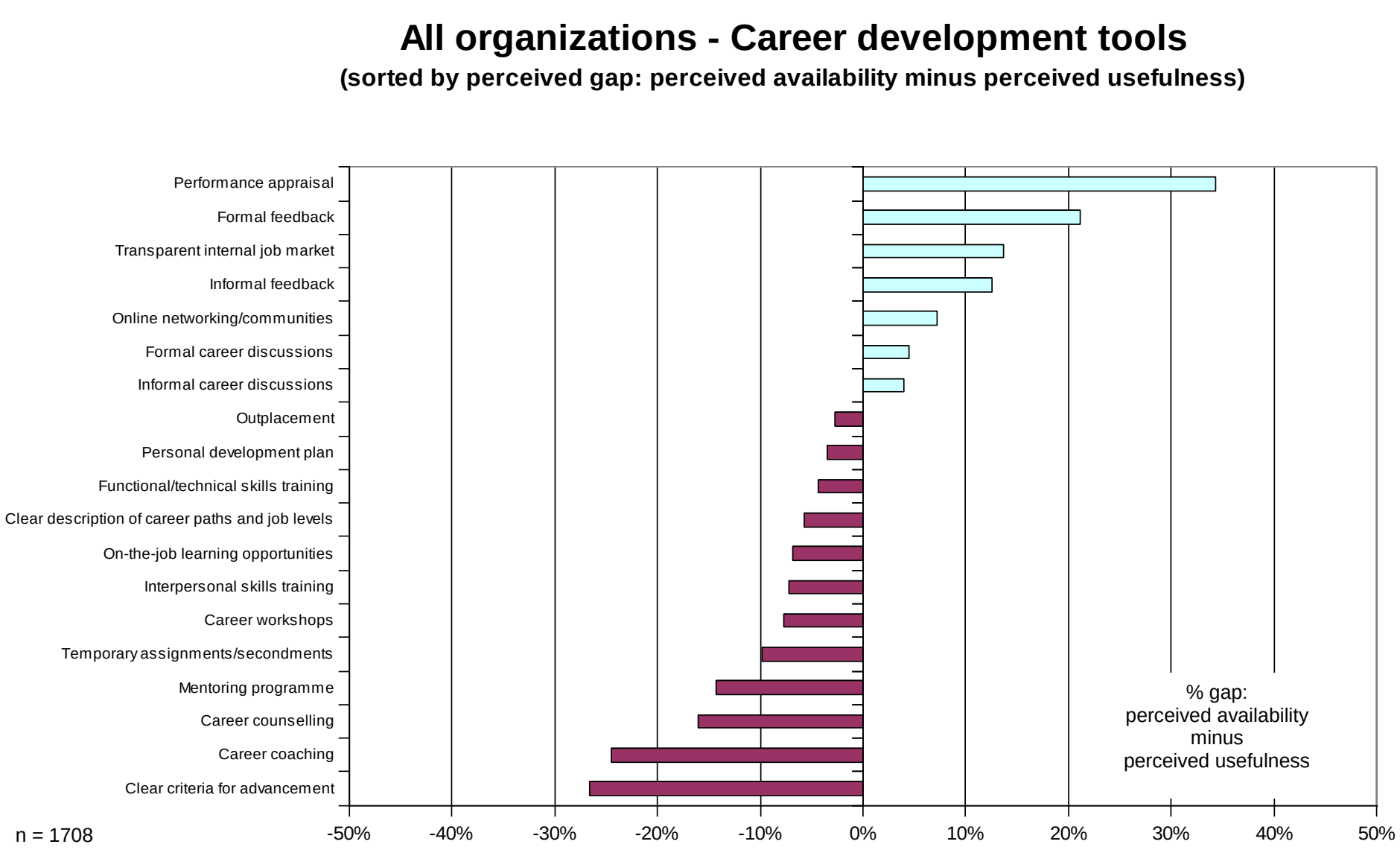


Figure 9: Career development tools – Gaps between usefulness and availability

5. Definitions of career success

Category		Sub-category		# of statements	
1	**Performance and achievement**			**100**	
		1a	Performing well		23
		1b	Achieving goals/targets		77
2	**Advancement**			**101**	
		2a	Advancement (generic)		26
		2b	Hierarchical advancement		24
		2c	Power and influence		51
3	**Self-development**			**181**	
		3a	Self-development (generic)		50
		3b	Personal goal attainment		56
		3c	Continuous learning		28
		3d	Using one's skills		31
		3e	Career self-management		16
4	**Satisfaction and happiness in general**			**220**	
		4a	Being satisfied (generic)		65
		4b	Being happy (generic)		155
5	**Satisfaction and happiness at work**			**294**	
		5a	Enjoying work (generic)		183
		5b	Being happy at work		91
		5c	Achievement satisfaction		20
6	**Life outside work**			**215**	
		6a	Valuing life outside work (generic)		94
		6b	Balance		98
		6c	Family and friends		23
7	**Independence and freedom**			**37**	
		7a	Independence and flexibility		22
		7b	Freedom		15
8	**Cooperation**			**45**	
		8a	Cooperating with others		32
		8b	Relationship with others		13
9	**Contribution**			**106**	
		9a	Contribution (generic)		65
		9b	Contribution to organizational success		41
10	**Challenge**			**165**	
		10a	Having interesting work		57
		10b	Being challenged		108
11	**Motivation**			**50**	
		11a	Being motivated		50
12	**Security**			**41**	
		12a	Security (generic)		27
		12b	Job security		14
13	**Recognition**			**181**	
		13a	Recognition (generic)		84
		13b	Non-material recognition		97
14	**Remuneration**			**222**	
		14a	Financial rewards (generic)		37
		14b	Financial security		33
		14c	Financial independence		25
		14d	Enough/satisfactory finanancial rewards		35
		14e	High rewards / more money		58
		14f	Appropriate rewards		34
15	**Importance of career success**			**125**	
		15a	Career success - high importance		65
		15b	Career success - some importance		42
		15c	Career success - low importance		18
16	**Other**			**98**	
		16a	Miscellaneous		98

n=1,328 (multiple answers were possible)

Table 4: Definitions of career success

“Career success means...“	
1 Performance and achievement *"...always striving to do my best"* *"...achieving goals"* *"...completing my work successfully"* *"...performing well"*	2 Advancement *"...getting ahead"* *"...a high management role, director, CEO…"* *"...promotion"* *"...having the authority to make decisions"* *"...being allowed to take on more responsibility"*
3 Self-development *"...realising my potential"* *"...growing and developing"* *"...continuously updating my knowledge"* *"...developing specialist knowledge"* *"...being able to use your skills in full"*	4 Satisfaction and happiness in general *"...being satisfied"* *"...happiness"* *"...being happy with myself"*
5 Satisfaction and happiness at work *"...enjoying my work"* *"...doing what I like"* *"...having a job which is stimulating and reward-ing"* *"...finding professional happiness"* *"...work has to be fun"* *"...satisfaction with the work done"*	6 Life outside work *"...being able to enjoy my out of work life"* *"...having a life when I go home"* *"...having a lot of free time"* *"...work-life balance"* *"...having a happy family life"*
7 Independence and freedom *"...being able to organize my time flexibly"* *"...working independently"* *"...freedom to choose my own role"*	8 Cooperation *"...being part of a highly effective team"* *"...passing knowledge on to others"* *"...having a good time with my peers"* *"...getting on well with my boss and my team"*
9 Contribution *"...believing to have achieved positive matters"* *"...making a difference"* *"...doing something meaningful"* *"...making the world better"* *"...that my software is used productively"* *"...solving important tasks for my employer"* *"...that our customers are happy"*	10 Challenge *"...having interesting work"* *"...being given exciting assignments"* *"...constantly facing new challenges"* *"...solving the problems presented to me"* *"...working on demanding tasks"*
11 Motivation *"...being highly motivated"* *"...commitment"* *"...looking forward to going to work on Mondays"* *"...being happy to get out of bed and go to work"*	12 Security *"...feeling secure"* *"...having a secure job"* *"...reaching retirement without experiencing redun-dancy"* *"...job security"*
13 Recognition *"...being adequately recognized"* *"...being held in high esteem"* *"...being respected and appreciated by my team"* *"...customers being satisfied with what I have done"* *"...being recognized as a specialist in my field"* *"...feeling trusted"*	14 Remuneration *"...not to worry about money"* *"...being able to provide for my family"* *"...having the freedom to buy what one desires"* *"...enough money so that I don't have to work 100%"* *"...getting pay rises", "...being well paid"* *"...getting paid based on my performance"*
15 Importance of career success *"...very much but not everything"* *"...less to me than my private life"* *"...nothing to me”*	16 Other *"...not being over-stretched"* *"...avoiding too much stress"* *"...health"* *"...a good work environment"*

Table 5: Career success – Exemplary quotes

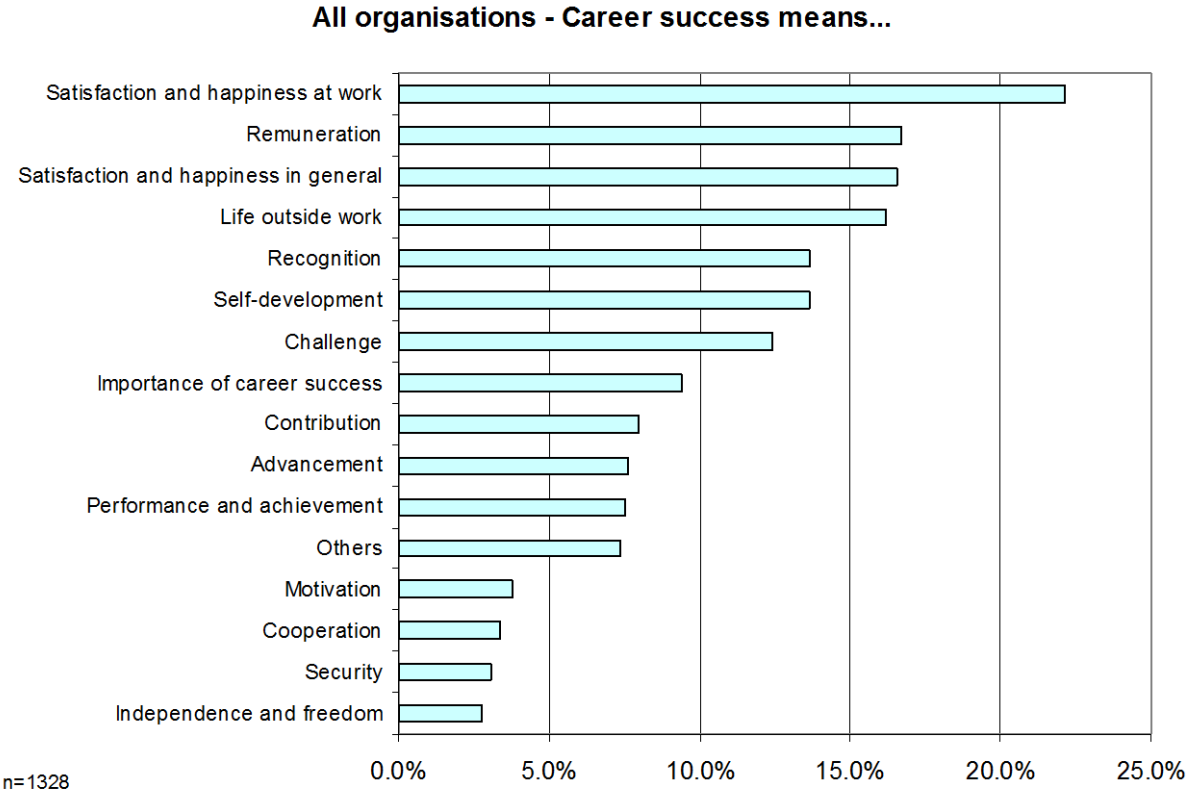
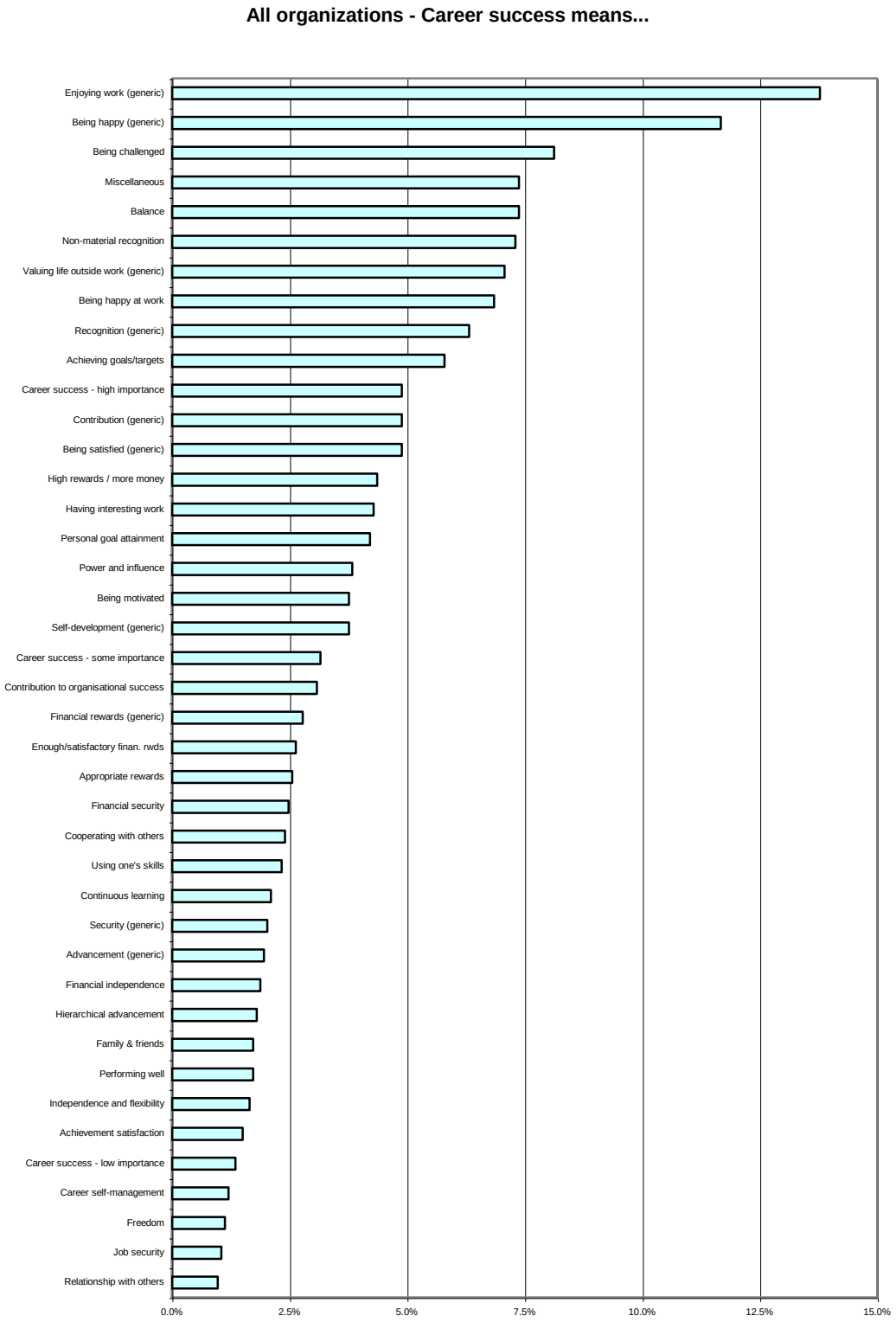


Figure 10: Career success – Frequencies of 16 categories



n=1328

Figure 11: Career success – Frequencies of 41 sub-categories

6. Demographic variables

Country of residence

		Frequency	%	Valid %
Valid	Germany	148	8.7	8.8
	Switzerland	1136	66.5	67.5
	United Kingdom	363	21.3	21.6
	United States of America	1	0.1	0.1
	France	9	0.5	0.5
	Greece	1	0.1	0.1
	Hong Kong, (China)	16	0.9	1.0
	Hungary	4	0.2	0.2
	India	2	0.1	0.1
	Russia (Russian Federation)	1	0.1	0.1
	Spain	1	0.1	0.1
	Total	1682	98.5	100.0
Missing	No response	26	1.5	
Total		1708	100.0	

I am a citizen of

		Frequency	%	Valid %
Valid	Switzerland	895	52.4	54.1
	United Kingdom	336	19.7	20.3
	Germany	248	14.5	15.0
	Italy	26	1.5	1.6
	India	24	1.4	1.5
	United States of America	15	0.9	0.9
	Hong Kong, (China)	12	0.7	0.7
	Austria	11	0.6	0.7
	France	11	0.6	0.7
	Other	76	4.5	4.5
	Total	1654	96.8	100.0
Missing	No response	54	3.2	
Total		1708	100.0	

Highest degree achieved

		Frequency	%	Valid %
Valid	Apprenticeship	217	12.7	12.9
	High school diploma, A-levels, etc.	372	21.8	22.0
	Bachelors degree	561	32.8	33.2
	Masters degree	462	27.0	27.4
	PhD or DBA	54	3.2	3.2
	Other	22	1.3	1.3
	Total	1688	98.8	100.0
Missing	No response	20	1.2	
Total		1708	100.0	

Year of highest degree

		Frequency	Mean
			1994
Valid	Total	1635	
Missing	System missing	73	
Total		1708	

No. of years since highest degree

		Frequency	Mean
			13.6
Valid	Total	1635	
Missing	System missing	73	
Total		1708	

Completed degree in IT

		Frequency	%	Valid %
Valid	Not quoted	812	47.5	47.5
	Quoted	896	52.5	52.5
	Total	1708	100.0	100.0

Completed degree in Engineering

		Frequency	%	Valid %
Valid	Not quoted	1285	75.2	75.2
	Quoted	423	24.8	24.8
	Total	1708	100.0	100.0

Completed degree in Natural Sciences

		Frequency	%	Valid %
Valid	Not quoted	1519	88.9	88.9
	Quoted	189	11.1	11.1
	Total	1708	100.0	100.0

Completed degree in Social Sciences

		Frequency	%	Valid %
Valid	Not quoted	1366	80.0	80.0
	Quoted	342	20.0	20.0
	Total	1708	100.0	100.0

Completed degree in another topic

		Frequency	%	Valid %
Valid	Not quoted	1631	95.5	95.5
	Quoted	77	4.5	4.5
	Total	1708	100.0	100.0

Year of birth

		Frequency	Mean
			1968
Valid	Total	1503	
Missing	System missing	205	
Total		1708	

Age at time of survey

		Frequency	Mean
			39.8
Valid	Total	1503	
Missing	System missing	205	
Total		1708	

Gender

		Frequency	%	Valid %
Valid	Male	1432	83.8	85.3
	Female	246	14.4	14.7
	Total	1678	98.2	100.0
Missing	No response	30	1.8	
Total		1708	100.0	

Marital status

		Frequency	%	Valid %
Valid	Married	918	53.7	54.4
	Single	374	21.9	22.2
	Living with a partner	295	17.3	17.5
	Divorced	72	4.2	4.3
	Widowed	3	0.2	0.2
	Other	24	1.4	1.4
	Total	1686	98.7	100.0
Missing	No response	22	1.3	
Total		1708	100.0	

Are there any dependents (children, elderly, others)?

		Frequency	%	Valid %
Valid	No	866	50.7	50.7
	Yes	842	49.3	49.3
	Total	1708	100.0	100.0

Current IT job category

		Frequency	%	Valid %
Valid	Business Analysis and Business Engineering	170	10.0	10.0
	Business Management	61	3.6	3.6
	IT Consulting	101	5.9	5.9
	IT Operations	108	6.3	6.4
	IT Security	28	1.6	1.6
	Line Management	86	5.0	5.1
	Network	62	3.6	3.7
	Project Management	242	14.2	14.3
	Quality Management & Testing	60	3.5	3.5
	Service and Delivery Management	62	3.6	3.7
	Software Development and Application Architecture	477	27.9	28.1
	System Architecture and System Engineering	107	6.3	6.3
	User and Production Support	65	3.8	3.8
	Other	69	4.0	4.1
	Total	1698	99.4	100.0
Missing	No response	10	0.6	
Total		1708	100.0	

Full time or part time work (in %)

		Frequency	%	Valid %
Valid	Part time (20-39%)	4	0.2	0.2
	Part time (40-59%)	13	0.8	0.8
	Part time (60-79%)	44	2.6	2.6
	Part time (80-99%)	158	9.3	9.3
	Full time	1478	86.5	87.1
	Total	1697	99.4	100.0
Missing	No response	11	0.6	
Total		1708	100.0	

Contract type - terms of employment

		Frequency	%	Valid %
Valid	Contractor	49	2.9	2.9
	Fixed-term employee	20	1.2	1.2
	Permanent employee	1620	94.8	95.6
	Other	6	0.4	0.4
	Total	1695	99.2	100.0
Missing	No response	13	0.8	
Total		1708	100.0	

Current hierarchical position in organization

		Frequency	%	Valid %
Valid	Non-managerial position	1119	65.5	66.1
	Lower management position	386	22.6	22.8
	Middle management position	152	8.9	9.0
	Senior management position	30	1.8	1.8
	Other	7	0.4	0.4
	Total	1694	99.2	100.0
Missing	No response	14	0.8	
Total		1708	100.0	

Are there any reports (direct/indirect)?

		Frequency	%	Valid %
Valid	No	1102	64.5	66.7
	Yes	549	32.1	33.3
	Total	1651	96.7	100.0
Missing	System missing	57	3.3	
Total		1708	100.0	

Perceived adequacy of remuneration

		Frequency	%	Valid %
Valid	Not adequate	433	25.4	25.6
	Adequate	1194	69.9	70.7
	More than adequate	63	3.7	3.7
	Total	1690	98.9	100.0
Missing	No response	18	1.1	
Total		1708	100.0	

Years worked in IT

		Frequency	Mean
			13.6
Valid	Total	1692	
Missing	System missing	16	
Total		1708	

No of job changes within organization over last 5 years

		Frequency	Mean
			1.2
Valid	Total	1678	
Missing	System missing	30	
Total		1708	

No of job changes across organizations over last 5 years

		Frequency	Mean
			0.7
Valid	Total	1676	
Missing	System missing	32	
Total		1708	

Geographical changes because of job change over last 5 years

		Frequency	Mean
			0.3
Valid	Total	1675	
Missing	System missing	33	
Total		1708	

Years with current employer

		Frequency	Mean
			8.5
Valid	Total	1691	
Missing	System missing	17	
Total		1708	

Years in current job/role

		Frequency	Mean
			3.5
Valid	Total	1685	
Missing	System missing	23	
Total		1708	

Estimated likelihood to remain here in 12 months (in %)

		Frequency	Mean
			78.8
Valid	Total	1681	
Missing	System missing	27	
Total		1708	

Are you currently looking for a new job?

		Frequency	%	Valid %
Valid	No	1309	76.6	78.1
	Yes	367	21.5	21.9
	Total	1676	98.1	100.0
Missing	No response	32	1.9	
Total		1708	100.0	

Have you ever been promoted?

		Frequency	%	Valid %
Valid	No	684	40.0	40.5
	Yes	1003	58.7	59.5
	Total	1687	98.8	100.0
Missing	No response	21	1.2	
Total		1708	100.0	

Years since last promotion

		Frequency	Mean
			5.1
Valid	Total	1003	
Missing	System missing	705	
Total		1708	

Preference for management or specialist career

		Frequency	%	Valid %
Valid	Managerial career	601	35.2	35.8
	Specialist career	1077	63.1	64.2
	Total	1678	98.2	100.0
Missing	No response	30	1.8	
Total		1708	100.0	

Rating of whether own career is on schedule

		Frequency	%	Valid %
Valid	Behind schedule	670	39.2	40.1
	On schedule	924	54.1	55.3
	Ahead of schedule	77	4.5	4.6
	Total	1671	97.8	100.0
Missing	No response	37	2.2	
Total		1708	100.0	

Rating of own career compared with peers

		Frequency	%	Valid %
Valid	Less successful	336	19.7	20.1
	Equally successful	1060	62.1	63.3
	More successful	279	16.3	16.7
	Total	1675	98.1	100.0
Missing	No response	33	1.9	
Total		1708	100.0	

Overall career satisfaction (Survey 1)

		Frequency	%	Valid %
Valid	Highly dissatisfied	73	4.3	4.3
	Moderately dissatisfied	240	14.1	14.2
	Satisfied and dissatisfied in equal measure	375	22.0	22.2
	Moderately satisfied	770	45.1	45.5
	Highly satisfied	234	13.7	13.8
	Total	1692	99.1	100.0
Missing	No response	11	0.6	
	No opinion/don't know	5	0.3	
	Total	16	0.9	
Total		1708	100.0	

Overall career satisfaction (Survey 2)

		Frequency	%	Valid %
Valid	Highly dissatisfied	9	5.6	5.6
	Moderately dissatisfied	19	11.7	11.7
	Satisfied and dissatisfied in equal measure	28	17.3	17.3
	Moderately satisfied	73	45.1	45.1
	Highly satisfied	33	20.4	20.4
	Total	162	100.0	100.0

Overall career outlook (Survey 1)

		Frequency	%	Valid %
Valid	Very negative	42	2.5	2.5
	Moderately negative	169	9.9	10.0
	Positive and negative in equal measure	405	23.7	24.0
	Moderately positive	840	49.2	49.9
	Very positive	229	13.4	13.6
	Total	1685	98.7	100.0
Missing	No response	9	0.5	
	No opinion/don't know	14	0.8	
	Total	23	1.3	
Total		1708	100.0	

Overall career outlook (Survey 2)

		Frequency	%	Valid %
Valid	Very negative	2	1.2	1.2
	Moderately negative	18	11.1	11.2
	Positive and negative in equal measure	38	23.5	23.6
	Moderately positive	74	45.7	46.0
	Very positive	29	17.9	18.0
	Total	161	99.4	100.0
Missing	No opinion/don't know	1	0.6	
Total		162	100.0	