Changing information technology strategies to cope with funding changes within Higher Education

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Abstract

This report analyses the trends in expected changes for strategic direction of information technology departments and also the service delivery within higher education institutions through the use of a questionnaire. It finds a common trend amongst higher education institutions whereby there is a shift towards the outsourcing of Information Technology (IT) services. It highlights the need for change management methodologies for these types of changes to be a success and also how benefits of change if properly managed can be successfully realised.

Contents

List of acronyms and abbreviations

BR: Benefits Realisation

BRM: Benefits Realisation Management

BPR: Business Process Reengineering

HE: Higher Education

HEFCE: The Higher Education Funding Council for England

HRM: Human Resource Management

IS: Information Services / Information Systems

IT: Information Technology

JISC: Joint Information Systems Committee

ROI: Return On Investment

TQM: Total Quality Management

Introduction

Higher Education's (HE) institutions in England and Wales are facing a particularly challenging period. Resources are being effectively cut in most institutions, and at a time when all institutions are dealing with better-informed (and thus probably more demanding) 'consumers' of their 'product'. IT services occupy a crucial role in all these institutions - not just in providing efficient support services but also responding directly to consumers [primarily students] increasing expectations.

In 2010 the Browne report and the Government's Comprehensive Spending Review signalled a step change in the way that Higher Education will function in the UK. IT is already a key strategic tool for institutions. This project will look at how IT service provision is changing to cushion the blow of the funding changes, and help institutions to position themselves for future success. It will focus on changes in service delivery (insourcing, co-sourcing and outsourcing), IT strategy and change management techniques. The results will be fed back into IT departments in the HE sector. This is important and useful as it will help analyse how IT is changing to accommodate changes in external influencing areas.

Whilst the specific focus of this project is on change within IT, the analysis will draw upon theoretical concepts from the wider field of organisational change and strategic management of change. Although most literature focuses on private sector organisations many of the theories can still be applied higher education institutions.

Due to the funding changes, higher education sector institutions are finding themselves with less financial resources but with an increasing demand for quality IT services delivered to both staff and especially the students who, with the increased fees, are likely to be looking for increased quality, Thompson and Bekhradnia (2010). With this in mind I intend to analyse the expected change in strategies to cope with this change, to see what tools will be used, if the changes will be analysed for benefits and if those benefits are likely to be successfully realised.

“HEFCE distributes public money for teaching, research and related activities. In 2010-11 HEFCE will distribute over £7.4 billion to 130 higher education institutions and 124 further education colleges.“ HEFCE (2011).

The HE sector invested £500 million per year in IT in 1998, as outlined by the Information Systems and Technology Management: Value for money study by HEFCE (1998). More recently in 2011 HEFCE invested £12.5 million in shared IT Services under the Universities Modernisation Fund, HEFCE (2011).

Aims of the research

1. Identify current priorities of IT Departments and evaluate them
2. Identify current IT service delivery within IT Departments and evaluate them
3. Identify trends for the next 5 years as perceived by IT management staff
4. Identify organisational culture within IT departments, as perceived by IT management staff
5. Identify change management methodologies used by IT departments
6. Research in a non-biased way

Objectives

- Produce recommendations based on findings
- Identify possible improvements
- Identify further related research

Literature review

The Drivers for Change – the HE and IT environments

All organisations, whether public or private, exist within a dynamic rather than static environment - as the Greek philosopher Heraclitus observed, “the only constant is change”. Society is continually changing as new economic, political, social and technological developments occur. Hall, Jones and Raffo (2004) have identified four areas of change that are particularly relevant to business organisations. These are changes resulting from legislation, changes in the market, technological change and finally changes in customer preferences. All of these areas are relevant to this project, as follows.

A] Legislative change: although legislation does impact upon the HE IT environment [for example, in relation to data privacy], change over the last decade has been more relevant to the general HE context. Successive Governments have pursued an agenda of bringing more market forces to bear upon the HE sector, initially through competition for research funding and more input from ‘consumers’ through the National Student Survey, and today through differential tuition fees. This, combined with general cutbacks in public spending as the national economic position has worsened, has meant a new era of financial restraint for the HE sector, leading to pressure for greater internal efficiency and cost-cutting. One important point to note here, however, is that this does not necessarily mean cutbacks in IT resourcing - it is reasonable to assume that in some cases, maintaining or even increasing investment in IT will be seen as a means of achieving efficiencies elsewhere in the organisation.

B] Market change: tuition fees have clearly had an impact upon the market for higher education, but it has been limited. Final figures for 2012 recruitment are not available at the time of writing, but UCAS estimates an overall decrease in the region of 9%, Coughlan (2011). This headline figure incorporates some much bigger changes among certain types of applicants. The decrease in applications from mature students, for example, is over 20%; applications from international students have

actually risen for 2012 entry, although it remains to be seen what will happen here in the longer run. In terms of HE's core market – home students aged under 25 – the decrease is estimated at 12%, but the fact remains that demand still far outstrips supply. League tables for research, teaching and the 'student experience' however mean that HE's customers are now able to make a much better informed choice between HE institutions.

C] Technological change: continuous and rapid change in IT has been a constant feature in the IT environment for decades, for example Moore's Law of hardware growth, hardware capacity doubling every two years, Moore (1965). A more modern example would be the current stress upon development of mobile devices such as smart phones and tablets. The pace and scope of change is such that IT departments in HE institutions are now facing up to the central question of whether they can continue to provide all the required IT services themselves and keep up with the demand for change (latest smart phones supported for work use, integrated social media use, large amounts of cloud storage, email, available free for personal use from Google etc.) and to find the most cost effective way of delivering a service, or whether they now look to outsource at least some of their services.

D] Customer change: change in trends and tastes have a powerful role to play in IT, as it must adapt to changing technology driven by customer demands. While Universities' main customers are their students, it must be remembered that they are not the only ones as Universities also rely on research and enterprise streams. The IT department must serve these users and all of the supporting staff as well. The user's perception will determine the success of a new technology or service, which means that IT departments have realised that different user groups need to be identified, and their requirements analysed.

Marketing theory offers a different perspective on change, although there is considerable overlap with the business organisation theory above. Jobber's Principles and Practice of Marketing (2001) identifies the marketing environment as being made up of two parts, the macroenvironment and the microenvironment:

The macroenvironment consists of the following areas:

- Economic
- Social
- Political
- Legal
- Physical
- Technological

The microenvironment consists of the following areas:

- Suppliers
- Distributors
- Customers
- Competitors

Jobber goes on to describe a technique called ‘environmental scanning’ - the process of monitoring and analysing the environmental factors above to help predict and improve the response of changes. In the context of this project both the microenvironment and macroenvironment are relevant. The macroenvironment will cover the change in legislation and the technological changes that influence IT regularly. The microenvironment will cover the areas such as strategic partnerships, outsourcing and the move towards a competitive market with increased competition.

All change needs to be properly managed Mullins defines management as “the process of achieving organisational objectives within a changing environment by balancing efficiency, effectiveness and equity, obtaining the most from limited resources and working with and through people” (Mullins 2005:195)

The need for a strategic approach to the challenges of change

HE institutions, like other publically funded bodies, are not always masters of their own destiny, having to work within the changing parameters of government decisions on resourcing. This can lead to them having a common reactive approach to change, rather than a proactive approach that focuses on identifying and achieving desirable

future objectives. Yeates and Cadle (1996) argue that a good strategy should be clear, concentrated, flexible, well led and 'full of surprises' . Whilst it may seem a bit optimistic to assume it is possible to combine a concentrated focus with flexibility, the basic point is that an organisation must think for itself about its future objectives, and not just wait for any outside body to define its future for it. Turner (2007:19) takes the argument even further, arguing that a strategic vision is one of the defining characteristics of organisation itself - "Projects are undertaken to help organisations deliver their strategic plans. The strategic planning process is essential for the survival of organizations, and it is the strategic planning process that generates projects. There is not one without the other, and there is no organization without either."[1]

IT Departments are even more vulnerable to the risk of failing to think strategically about the future, as they have to react to a constantly changing technical environment and this often entails a change in customer demands. They can find themselves driven entirely by incorporating each new technological development as it comes along, without giving proper thought as to what should best be done with these new capabilities to maximise their benefits. A prime example of this would be updating Operating Systems to the latest version, often done to keep up without the benefits of the new features being exploited fully. Strategic thinking is therefore very important in the HE IT environment – as a major HEFCE (1998) report put it "an IS/IT strategy which is driven by the information needs of the institution is more likely to support the achievement of the institution's overall strategic objectives than one driven by technical considerations…. The development of information systems and the use of information technology is however very expensive, not only in terms of the financial investment required to procure the equipment, but perhaps more significantly in terms of the staff resource required to promote and support its effective use. As institutions continue to invest significant resources in the development and use of information systems and technology, it is therefore essential that appropriate management arrangements are in place to ensure that this investment provides value for money." This highlights the need to properly cost

analyse services against the benefits to the University, weighted according to their strategic priority.

This is a point made in more general terms by Zahra and Bogner (1999), who argue that technological strategy is one of the most important aspects of an organisation's strategic posture, especially in dynamic environments. The overall higher education environment could be considered quite static compared with others that can have frequent large amounts of change [for example, technology companies]. However, due to legislative and funding changes over the last decade, a large amount of change cannot be avoided by higher education. This means that HE IT Departments are subject to two change drivers - fast pacing technological change and significant changes in the overall political and economic context. In their study, Zahra and Bogner found that the strategy that had the most effect in a changeable time was 'frequent product upgrades', focussing on improvements in service quality and integration of services. Prahalad and Hamel (1990) had a similar viewpoint which was to focus on core competences; this presumably also alludes to not expanding into new areas and competences and focusing on improving the current ones.
As existing services are looked at for improvements and streamlining the concept of service delivery is invariably focused on.

IT Service delivery

All IT Departments in HE are, in essence, *service* departments. They exist to provide services for their users, whether that be very visible services like email or a Virtual Learning Environment for staff and students, or less visible but equally crucial services like IT infrastructure and backup systems. As such, IT Departments will always have two kinds of preoccupation – improving what they already do, and making strategic decisions about what else to do [or stop doing] in the future, what to provide in their service portfolio. In terms of the theoretical literature, therefore, it is necessary to examine insights that relate primarily to improving what is already done [Total Quality Management], to changing delivery methods [insourcing and outsourcing] and to strategic thinking about what it is best for the Department to

focus on, and how to measure whether or not it is achieving its goals [Benefits Realisation and Business Process Re-engineering].

Service Delivery - Total Quality Management (TQM)

Hall, Jones and Raffo (2004:241) describe Total Quality Management as:
"a managerial approach which focuses on quality and aims to improve the effectiveness, flexibility, and competitiveness of the business."

At first sight, TQM may seem to be little more than a restatement of general principles of management – aiming to improve effectiveness and competitiveness is surely a core feature of any managerial strategy – and TQM does incorporate some conventional 'top-down' managerial processes. So, for example, TQM requires an organisation to have control over the processes that make up the product or service. These processes need to be consistent and well documented and should be regularly monitored and audited to ensure quality is being maintained and then reviewed if it is thought quality can be improved. One method this can be done by is Statistical Process Control (SPC) which involves collecting quantitative data on a particular process for analysis, this can then be used to highlight any problem areas or areas for potential improvement.

Where TQM differs from other managerial strategies, however, is in its stress upon the role and importance of each individual in the organisation, not just those at the top. TQM states every individual is to take quality into account at all times in every process. This can also be referred to as a Quality Chain where every step of the delivery of a product or service to the customer has to meet the required quality standards, the chain is broken if the quality does not met these expectations at any point, highlighting the importance of every individual performance in a product or service life cycle. Clearly, for this strategy to work, TQM needs to be used throughout an organisation, from senior management downwards, and it requires staff to be committed to their job and to take pride in their work. As well as staff commitment, TQM stresses the importance of teamwork for decision making to increase ownership of changes and to improve morale and trust.

Hall, Jones and Raffo summarise the benefits of TQM as follows:

- Helps focus on customer needs and customer relations
- Improve quality in every area
- Improve business process efficiency
- Measure performance
- Use Team work for problem solving
- Develop procedures for communication and acknowledgment of work
- Continually review process for improvement
- Process focused not product or service
- Large amount of documentation and procedures are needed
- Complete organisational buy in is needed for TQM to be a success

Cole (1996) in his discussion of TQM, also emphasises the vital importance of commitment throughout the staff of an organisation, coming up with the memorable maxim that 'each employee is a customer to every other employee'. Cole's summary of the standards that should be adhered to under TQM, set out below, overlaps to a considerable extent with that of Hall, Jones and Raffo above, but adds the useful emphasis that TQM is about getting things right in the first place, not simply correcting errors after they have occurred:

- To prevent errors, not detect them and correct them
- Tasks should be done right first time
- Management must be committed to TQM
- Customers requirements must be met
- Each employee is a customer to every other employee
- There must be continuous improvement
- Quality assurance should be used to review and measure performance
- Quality is everyone's responsibility

Both Cole and Hall, Jones and Raffo offer a prescriptive approach to TQM – as a manager, you must do this and ensure others do that – but do not say much about *how* this can be achieved. Yeates and Cadle (1996) do address this, arguing that in order to get the commitment of all staff to the organisation's mission statement, and

to make continual striving for improvement a core feature of the organisation's culture, organisations must spend money and adopt a distinctive managerial style. The two key features they identify are:

- Removal of hierarchical differentiators, same privileges for management and staff alike
- Application of resources, quality improvement teams to identify and solve quality problems

TQM, then, suggests that if an organisation is facing a situation of incremental change, it is desirable if not crucial to adopt a managerial style that is inclusive and inspirational. By treating all staff as part of a team, by removing hierarchical differentiators, it is argued an organisation will be able to respond effectively to changes in its environment. In the context of this project – IT Departments within relatively large organisations, this raises two questions:

- How realistic is it to assume the removal of hierarchical differentiators?
- Does TQM make sufficient allowance for the effect of *specialised knowledge* within organisations? If you are managing a team in which each member has specialised knowledge and experience not shared by any other team members, what challenges are involved in getting equal commitment across the board?

These are questions to which we will return having analysed the empirical evidence.

Service Delivery - Insourcing and Outsourcing

TQM is about improving what an organisation does, but it assumes the organisation will continue to provide goods or services directly. In IT Departments, however, the impact of technological change has brought about more fundamental organisational changes. The rapid development of internet based services, particularly web-based services, has meant that institutions have increasingly questioned the need or

desirability of developing their own services – why build your own search engine, for example, when you can simply incorporate Google into your own site, or why develop your own VLE when you can simply use Moodle or Blackboard. Harrington (1998) makes a valid point when arguing that for an organisation to make a big jump in savings from outsourcing, they would have had to be operating very inefficiently before, but this doesn't take into account the impact of technological change. An IT Department may have been relatively efficient when developing its own email and VLE services ten years ago, but the scope of services offered by suppliers today such as Google mean that outsourcing becomes the most cost-effective solution. The net effect of this over the last decade has seen most IT Departments move some of their activities from in-house to using external suppliers – outsourcing. Lacity et al (1996) states that "interest in outsourcing largely results from a shift in business strategy". Whilst this may be true generally, technological change and the costs associated with it are a much greater driver in the sphere of IT.

In some situations internal markets can become a factor whereby different departments look to obtain IT services from outside of the internal IT department creating additional internal competitive markets, as outlined by Woods (2003).

Foogooa (2008) defines outsourcing as "the use of an external provider of goods or services instead of having recourse to internal resources to provide the same goods or services". Rudd and Lloyd have defined the different forms of service delivery as follows:

- Insourcing – Utilising internal resource to design, develop, implement, maintain or support services.
- Co-sourcing – A combination of insourcing and outsourcing which can feature one or more external organisations working together to design, develop, implement, maintain or support services.
- Outsourcing – Utilising the resources of an external organisation to provide a well-defined portion of a service design, develop, implement, maintain or support. (Rudd and Lloyd 2007)

In the HE IT context, there is considerable overlap between ‘co-sourcing’ and ‘outsourcing’, as it is the norm for suppliers [Google being a good example] to offer a degree of tailoring of their products to fit each institution’s needs. Most HE institutions have very similar needs, however – mail, VLE, student records, etc. - so there is less need to work with suppliers on individual outputs. As Read (2010) points out, outsourcing of IT services can increase collaboration with other organisations outsourcing with the same methods using the same external providers, so in what follows co-sourcing and outsourcing will be treated as one category, ‘outsourcing’.

Lonsdale and Cox (2000:446) state “Research in the UK has shown that the “revolution in outsourcing” has impacted more upon firms’ support activities than its primary supply chain activities.” The supply chain for a service industry such as education is hard to define as they do not have physical raw materials to be processed into a product, but there are clear support activities involved such as IT services, which would fit into this statement. Lacity et al (1996) said that although outsourcing IT was a rapidly growing trend particularly throughout American organisations, growing ten times the size it was in 1989 through to 1996, organisations have started to move to “selective sourcing” meeting the customer needs whilst keeping risks to a minimum with a selection of insourcing, outsourcing and co-sourcing rather than the previous trend of wholly outsourcing IT Services. Foogooa (2008) however points out that this growth has now slowed down but is still expanding regularly and now more of a common regular practice than before.

Although technological development has driven IT Departments towards outsourcing, in-house services remain important. Whilst all HE institutions want much the same thing from something like an email system, each may have different requirements in other areas like student records or assessment. As Willcocks and Lester (1997:64) observed, “There is no incentive for an organisation to outsource its IS/IT function when its in-house capability is equivalent to or better than that available in the external market”. Moreover, in some areas – especially those relating to personal data – the potential risks of out-sourcing and losing a degree of control outweigh any potential efficiency savings. IT services that contain highly sensitive data are not good candidates for outsourcing without considerable risk, as Read

(2010) highlights. He also goes on to point out that outsourcing from within the European Union to the United States is also considered a higher risk among researchers as the US Patriot Act will enable a third party to analyse data stored on a US based service.

These parameters serve as a reminder that outsourcing is a process that should only be undertaken after careful consideration. All of the points below should be done before and during any outsourcing process:

- Outsourcing changes need to be implemented carefully.
- In house capabilities should be assessed
- Investment evaluation should be conducted
- Benefits realisations should be conducted
- Risk assessment should be conducted
- Outsourcing relationships should be properly managed
- Procedures to monitor the quality of external processes should be implemented

Service Delivery - Business Process Re-engineering (BPR)

The term re-engineering was first used in the business context by Hammer & Champy in 1993 who described it as:

“Re-engineering ... is the fundamental rethinking and radical redesign of business process to achieve dramatic improvements in critical contemporary measures of performance such as cost, quality, service and speed.” Hammer & Champy (1993:32)

Whilst the terminology may be bolder than that employed in TQM [‘fundamental’, ‘radical’, ‘dramatic’, etc], there is actually some overlap between the two approaches. Both, for example, stress the importance of teamwork and the empowerment of team members and flatter hierarchies. Nevertheless, whilst TQM is appropriate for organisations wishing to improve within a relatively static environment, BPR is clearly

a strategy designed to address major change – both within the organisation, and to adapt to major changes in the organisation's environment. As Hammer and Champy (1993) argue, due to change in the modern climate, faster changes, more competition, and higher customer expectations, it is essential to move away from being focused on tasks and structure and to move to focus more upon the business processes.

To re-engineer a business process is to completely rethink the way it works from beginning to end, question everything from a customer perspective and from an internal efficiency perspective; as such, it is about being innovative and requires lateral thinking 'outside of the box'. As Archer and Bowker (1995:31) puts it, BPR is "a vision led structured methodology for the fundamental rebuilding of business process through the balanced interaction of work tasks, people, information and technology". Wastell, White and Kawalek (1994:24) offer a similar view, defining BPR as "the endeavour to augment organisational performance by improving efficiency, effectiveness and adaptability of key processes." Hammer & Champy (1993) bring out just how radical BPR can be in terms of organisational re-structuring, suggesting seven principles for BPR initiatives:

1. Organise around outcomes not tasks
2. People who use the output should perform the process
3. People who produce information should process it
4. Treat geographically dispersed resources as if they were centralised
5. Link parallel activities instead of integrating
6. Put the decision point where the work is performed
7. Capture information once at its source

As can be seen from this, BPR is likely to entail not just reorganisation of roles and responsibilities, but also what are likely to be some fundamental changes in the organisational culture. Davenport and Short (1990) summarise the culture on which successful BPR must rest:

- From hierarchies to teams
- From controlling to empowering

- From analysis to action
- From risk aversion to calculated risk taking
- From boundaries to networks

Hammer & Champy (1993) believe this can lead to:

- Tasks being combined
- Staff involved in process design increasing ownership
- Processes more focused on differing customer requirements
- Task order and dependencies changing
- Single point of contact for the customer
- Staff reorganised into process focused groups
- Empowered staff
- Staff have greater understanding of why a process in happening not just how it happens
- Cultural change where the staff see the customers as more important than their managers
- Flatter organisational structure
- Senior management take the role of culture leaders

Such a reorientation would be unlikely to go unchallenged within most organisations; Davenport and Short offer a useful summary of the most probable obstacles:

- Resistance to change
- Limitations of existing systems
- Lack of executive consensus
- Lack of senior executive champion
- Unrealistic expectations
- Lack of cross-functional project teams
- Inadequate skills
- IS staff involved too late
- Project charter too narrow

Although there are many texts describing BPR and its benefits there are also many critiques who describe its shortfalls.

Coulson-Thomas (1994) argues that processes are not always re-engineered through innovation but rather simplified within existing frameworks. He also makes the point that it can be used as a tool to reduce staff and make remaining staff work harder and more efficiently. Furthermore, with the focus being on the external customer, internal customers can suffer and those who supply them with services can be thought of as less important.

Talwar, R (1994) states re-engineering can do damage to the organisation when used as a blunt cost cutting tool. The point is also made, however, that it is a critical tool for rethinking a process from start to finish and thus more suited for redesign of a business as a whole - organisational change rather than process change.

Hammer and Champy (1993) responded to these criticisms with a revised edition of their text that stated that:

- BPR and TQM are complimentary towards each other and do not conflict.
- BPR is a process for re-engineering a process not reducing workforce

Their argument stresses that BPR is an on-going process which should be repeated, that organisations should view change as the norm, and that BPR is not about a one-off slimming down of the workforce but rather an on-going commitment to a particular focus. In practice, however, there is evidence to suggest that in its early years, there was a tendency for BPR to be used as a one-off exercise that did often result in staff losses. Harvey D (1995) reported on a survey of 128 UK Companies by Business Intelligence which found 87 had undertaken BPR projects, of these 15% focused on a single process, 47% on several process and 31% corporate wide. However, another more recent survey from the year 2000 by Graham, Lloyd, Slack & Williams (2000) [which used both research from previous texts on BPR and interviews with relevant people involved with BPR] came to the conclusion that BPR has moved from a radical process used only by early adopters and often producing radical change, to one of many tools used by consultants in change management. Even though it still has a negative image as a tool for reducing staffing, it has been broken

down into multiple techniques and methodologies making at least part of it useful and used in change management programmes. In some of the early adopter cases BPR had evolved into a hybrid with TQM (total quality management) and HRM (human resource management). They concluded that BPR is flexible and now that it has been fragmented organisations could be using one of many techniques and still be considered to be using BPR.

Another group which has conducted research into BPR is the Centre for Re-engineering Business Processes (REBUS), established at Brunel University to provide a multidisciplinary environment for research into BPR and its success factor, Hlupic, Choudrie and Patel (2000)

REBUS researches into how to improve the success rate of BPR, examples are:

- Reducing risks
- Reducing resistance to change
- Understanding the role of IT in BPR
- Realistic goals

This approach was developed in 1997 2 years after Hammer and Champy 1995 reported BPR failure rates as high as 70%

These are the factors that need to be considered for BPR success in the REBUS approach:

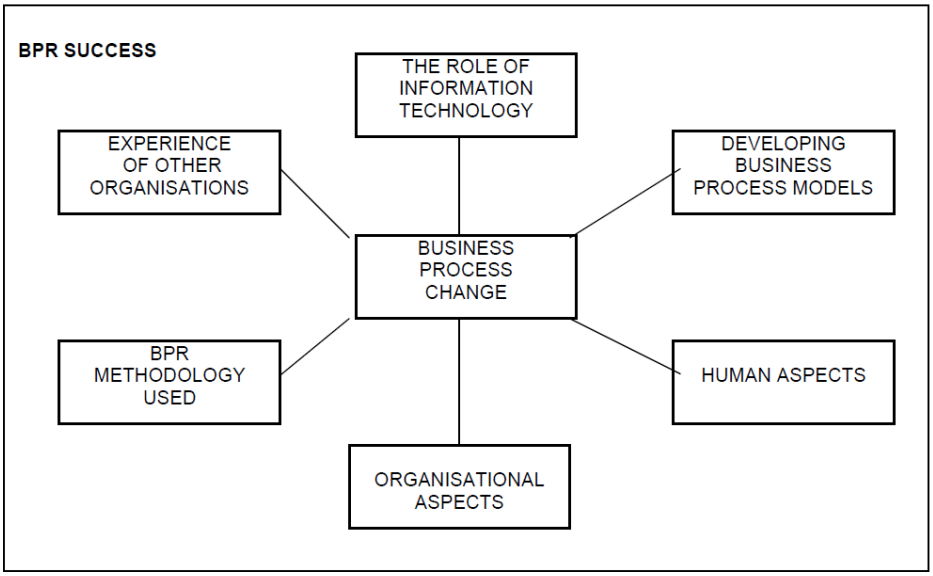


Diagram from Hlupic, Choudrie and Patel (2000:5)

Overall, BPR to date has something of a mixed record. Whilst its insistence on analysing all business processes from the viewpoint of the customer encourages organisations to rethink their established operating procedures and processes, its 'start with a blank sheet of paper' approach can easily produce significant [and, from the perspective of current staff, probably disproportionate] changes in both organisational structure and human resources. As such, it could be argued to be an overly optimistic prescription, because it doesn't give sufficient recognition to the challenges of actually implementing such change – it is surely not coincidental that, as noted above, as BPR has developed, it has become a much less clearly defined model, and applied with less rigour.

Service Delivery - Benefits Realisation

Benefits realisation management (BRM) can be defined as "The process of organising and managing, so that potential benefits, arising from investment in change, are actually achieved." Bradley (2010:23). Bradley goes on to state that the roots of BRM are from organisations looking to calculate their Return On Investment (ROI) for Information Technology (IT) spend during the 1980s. It has since been adapted into use in any change management project, not just IT related ones, to ensure maximum potential is met.

Nicol and Coen (2003) state that, although there has been a considerable amount of research into evaluating benefits and identifying full costs for IT support services within HE, there was little linking the two. They then go on to provide a framework to aid in decision making based around these two variables. Barriers to this are as follows:

- Existing financial systems rarely contain the required cost information
- Evaluation of benefits tends to be too narrowly defined
- Benefits are rarely considered in relation to the strategic objectives of the institution
- The contribution of ICT in teaching and learning cannot be isolated
- Comparing benefits across ICT projects is problematic

Ashurst and Hodges (2010) found in their research that post project evaluation of benefits was not carried out consistently or effectively. They also point out that benefits are not introduced with new technology, they are introduced with new processes people use. Ashurst and Doherty (2003) found that projects were virtually all focused on technology rather than organisational change and benefits realisation. This may have changed in more recent years as more formal training in project and change management methodologies that do stress the importance of benefits realisation, such as PRINCE2 and ITIL v3, have become more widespread. That is not to say, however, that projects are not still primarily driven by technological changes rather than potential benefits. Ashurst and Hodges (2010) also found in their research that it was a critical success factor to have the relevant skills to conduct successful benefits realisation, and identified PRINCE2 training as relevant in this context. The point can also be made that the newer, more IT-focused training available in ITIL v3 would be just as effective; ideally if knowledge was gained in both areas then one could pick and choose those elements that best fit a particular organisation or project.

Ashurst, Doherty and Peppard (2008) outline the four core competences for benefits realisation as:

Competence	Definition
Benefits Planning	'the ability to effectively identify the planned outcomes of an IS development project and make explicit the means by which they will be achieved'
Benefits Delivery	'the ability to design and execute the programme of organisational change necessary to realise all of the benefits specified in the benefits plan'
Benefits Review	'the organisation's ability to effectively assess the success of the project in terms of the benefits already delivered and the identification of the ways and means by which further benefits might be realised'
Benefits Exploitation	'the adoption of the portfolio of practices required to realise the potential benefits from information, applications and IT services, over their operational life'

It has been argued by Lin, Pervan, McDermid (2007) that once decisions on insourcing and outsourcing have been taken, a benefits realisation model should be implemented immediately to manage the change and realise the benefits. I would argue, however, that benefits realisation can help in the justification process before the change commences, and also that the threat of outsourcing can motivate staff to improve performance and innovate services making them perform a more fit for purpose service based on customer demands, rather than a generic catch all service (Lacity and Willcocks 1997). Similarly, Hirschheim and Lacity (2000) stated that outsourcing might not be perceived as successful due to the fact different stakeholders have different expectations and perceptions of the results, but this could be minimised through proper management and dissemination of information relating to benefits realisation of the outsourcing change, both the benefits targeting stage before the change and the benefits realisation after the change.

It's important when conducting benefits analysis that all stakeholders are thought of and all areas of potential benefits are explored. A framework of potential areas can help with this.

Nicol and Coen (2003) state that benefits in IT for HE can be categorised into three areas:

1. Educational
2. Organisational
3. External

It could be argued that research should be another category or that the benefits could be categorised into the three streams of university business:

1. Learning & teaching
2. Research
3. Enterprise

Nicol and Coen (2003) go on to say that these can then contain benefit types that are assigned one or more evaluation methods for example:
Enhanced quality of student learning could have the following evaluation methods:

- Exam results
- Teaching quality assessment reports
- Student surveys

And Staff satisfaction could have:

- Staff satisfaction surveys
- Staff turnover rates
- Appraisal information

These can then be weighted according to strategic priority of the institution.

Change Management and Organisational Culture

"Each year UK industry invests around £100bn on change." Bradley (2010:1)

Implementing change

Identifying the different types of drivers for change is one thing, but deciding what to do about such change, and then implementing those decisions, is arguably the most important aspect of the whole change process. Jobber (2001) goes on from the mapping of types of change to make the point that organisations can and do respond

in different ways to a changing environment, identifying five possible organisational responses to environmental change:

- Ignorance - continue as normal no change is made
- Delay - waiting for various reasons then making the change
- Retrenchment - tackling the efficiency problems but ignoring effective problems. For example cutting back on costs but not generating more income, the problems remain but are lessened.
- Gradual strategic repositioning - slow measured and planned move to adapt to the change
- Radical strategic repositioning - a large change in response to the environmental change

This is an important typology, as it reminds us that just because change has taken place in the environment, it does not necessarily mean that corresponding changes take place within organisations. What may appear to anyone outside an organisation to be an obvious or inevitable change may not be perceived in the same light by those inside the organisation. Organisational change may offer opportunities for career advancement, but it may also threaten job security and career progression. Change also disrupts routine and standard operating procedures, which can make the organisation's staff apprehensive and consequently resistant. Again, Jobber (2001) offers a useful typology termed the 'ladder of support', which identifies the different stages of acceptance which can be shown by those affected by the change:

- Opposition - openly against the change and direct and forceful in trying to stop it
- Resistance - less openly against the change and more passive in tactics to delay or stop it
- Compliance - will act in accordance to the change but still believe it is not the best option so do so with minimal effort
- Acceptance - a high level of support where staff realise the benefits and will work towards the change
- Commitment - staff are committed to the change and fully believe in it and work towards it with conviction and enthusiasm

It is important to note that this is not a simple hierarchical chain - people can start anywhere on the ladder and – crucially for the organisation - can move in either direction.

The JISC infokit on Change Management in the education sector JISC (2011) makes a similar point with its concept of the Transition Curve. It notes, however, that these responses are not always iterative, as different people can react in different ways, missing sections and repeating sections:

- Endings
    - This can start with numbness, denial and disbelief, it can also include confusion and uncertainty, other issues can be anger, blame and resentment as people lose control over their predictable comfortable environments.
- Neutral Zone
    - This is a limbo state where things aren't as they were but are not yet how they will be. This can create anxiety, fear, frustration and isolation but can also spark creativity and start to create optimism.
- New beginnings
    - This is where the change is accepted, there is adaptation and relief and enthusiasm.

Kotter (2011), a Harvard business professor and leading thinking and author on organizational change management, brings together these points about organisations not necessarily reacting 'rationally' to change and the importance of recognising different perceptions on the part of organisational staff. He sets out an eight step model for dealing with change:

Step 1: Acting With Urgency

- Examine market and competitive realities
- Identify and discuss crises, potential crises or major opportunities

Step 2: Developing the Guiding Coalition

- Assemble a group with enough power to lead the change effort
- Encourage the group to work as a team

Step 3: Developing a Change Vision

- Create a vision to help direct the change effort
- Develop strategies for achieving that vision

Step 4: Communicating the Vision Buy-in

- Use every vehicle possible to communicate the new vision and strategies
- Teach new behaviours by the example of the Guiding Coalition

Step 5: Empowering Broad-based Action

- Remove obstacles to change
- Change systems or structures that seriously undermine the vision
- Encourage the risk-taking and non-traditional ideas, activities, and actions

Step 6: Generating Short-term Wins

- Plan for visible performance improvements
- Create those improvements
- Recognize and reward employees involved in the improvements

Step 7: Don't Let Up

- Use increased credibility to change systems, structures and policies that don't fit the vision
- Hire, promote, and develop employees who can implement the vision
- Reinvigorate the process with new projects, themes, and change agents

Step 8: Make Change Stick

- Articulate the connections between the new behaviours and organizational success
- Develop the means to ensure leadership development and succession

As can be seen, Kotter is offering a prescriptive model, encouraging organisations to not only identify and act upon environmental change, but also to do so in a fashion which explicitly recognises the need to get organisation staff engaged and committed to the process of change. Yeates and Cadle (1996), in their work on project management for information systems, emphasise the importance of this latter aspect. They argue that successful change management is achieved through proper consideration of people issues, as people are critical to implementing the change, and information systems are only tools to enable the people to make better decisions. Change should be identified and planned for as early as possible, and then a change programme should be used to run through the change project as well as before and after it. Any such planning should take into account that organisational staff will be in one of four 'phases of change' -

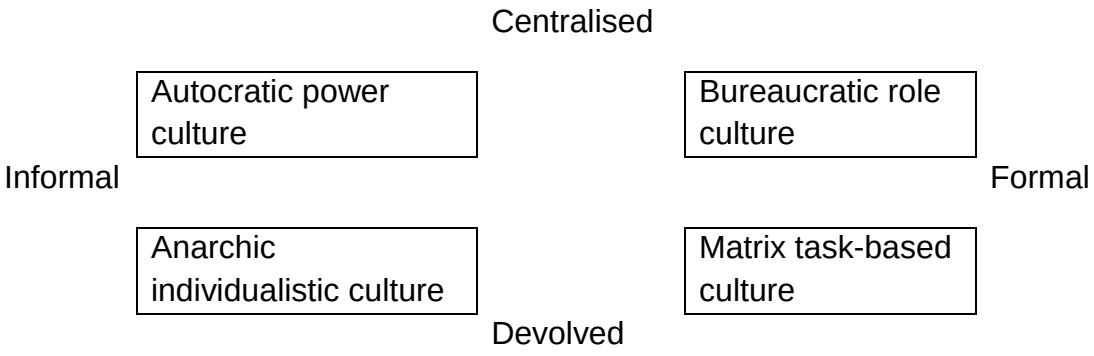
- Denial – deny the need to change
- Resistance – resist and oppose the change
- Exploration – take interest in the change
- Confidence – Believe in the benefits of the change

With this in mind, Yeates and Cadle(1996) identify four key considerations for any programme of organisational change:

- Plan the change programme the same way as planning a project
- Include communication, training and an impact analysis of the change on those effected
- Phase the changes so people have time to accept each one and are comfortable with it
- Involve end users in the planning and implementing of the change programme

Yeates and Cadle (1996) go on to offer two further useful refinements to their general model. Firstly, they make the point that managing change may well involve more than just identifying objectives and communicating them to staff – depending on the nature of the change, managing it can involve changing the whole managerial

culture of an organisation. Managerial cultures are commonly categorised into the sections below:



Autocratic power culture – led by management, an autocratic leader who can be charismatic and well respected

Bureaucratic role culture – formal and centralised where everyone has a role clearly defined and relationships are also clearly set out. However there are often informal relationships and roles which people exploit to get things done quicker and easier than using the formal channels. As will be seen, this can be particularly important in areas of organisations which have a specific technological expertise

Matrix task-based culture – tasks are devolved to the lowest practical level in a project management style.

Anarchic individualistic culture – informal decentralised where everybody has a say in all decisions.
(We should also bear in mind that HE institutions may have some unique characteristics – Farrant (1984) states that Universities often have an anarchic culture where by decision making is driven primarily by political considerations rather than economic rationality).

Secondly, they make an important point about the *scale* of change, reminding us that there is no one-size-fits-all solution to change management; the strategy adopted should match the type and scale of change involved. The table below shows which

change management technique Yeats and Cadle (1996) recommend, depending on the type of change and what period of time the change will take place:

Type of Change	Short Term (3-9 months)	Long Term (1 year +)
Radical	Restructuring and redeployment of staff	Business Process Re-engineering [BPR]
Incremental	Process automation and refinement	Total Quality Management [TQM], innovation schemes

- If changes are large and have to be implemented in a short time then it may require hiring and/or firing of staff as well as restructuring to ensure that the relevant skills are in the right place.
- If the changes are large but there is more time for the implementation then business process re-engineering can be used as staff will have time to develop the skills needed.
- If the change is incremental or only affects a small proportion of users but implementation must be done in the short term then processes can be analysed for refinement and automation. The processes will be tweaked in this case where as in BPR they are totally re-engineered.
- If the change is incremental or only affects a small proportion of users but implementation can be done over a number of years then total quality management can be used for gradual process improvements.

Hypotheses

The literature review above suggests a multiplicity of specific points that need to be addressed in any examination of changing IT strategies in HE. Reflecting on the above, I have identified 16 such specific points, but these can be summarised into four main hypotheses:

1. Strategic priorities
    a. Due to the changes in funding, IT strategies priority will be expected to change focus to improving and integrating rather than expanding and innovating.
    b. Institutions will seek to utilise more external resources and enter in more strategic partnerships with both public and private companies in a bid to save resources and to reduce risk by sharing responsibility.
    c. There is a growing awareness of environmental concerns and a desire to adopt greener practices.
    d. Institution type will not affect the priorities, all institutions will be similar.
    e. There is a large amount of change expected within IT strategy priority over the next five years.

    Hypothesis One: External factors will cause a change in strategic direction for IT Departments – from service expansion to service improvement – and this improvement will be sought in part through more external partnerships; all types of HE institutions will experience this change.

2. Service Delivery
    a. Some services will be expected to become more outsourced but systems that contain sensitive data are more likely to remain insourced.
    b. Large changes are expected in service delivery towards both insourcing and outsourcing as service delivery is changed to try and improve cost effectiveness.
    c. Higher levels of management will expect more outsourcing of services.

d. Older institutions will expect less service delivery than newer universities.
e. Institutions who are expecting large amounts of change in service delivery will also currently target and realise benefits more than those who are not expecting as much change.

Hypothesis Two: IT Departments will continue some in-house service delivery and seek to make it more efficient, but the major change will be in an expansion of out-sourcing; the greater the degree of change, the more likely it is that institutions will attempt to both identify and target specific benefits, and subsequently realise them.

3. Business Process Re-engineering and Benefits Realisation

a. Institutions who have used Business Process Re-engineering (BPR) in the past are more likely to expect large shifts in change in service delivery.
b. IT projects target benefits more than they successfully realise them.
c. Institutions who use formal change management methodologies such as ITIL and PRINCE2 are more likely to have used BPR than those who do not and as a result are more likely to have successfully realised benefits more often.
d. Institutions who successfully realise benefits more often are more likely to fully use change management methodologies such as PRINCE2 or ITIL.

Hypothesis Three: The use of change management methodologies increases the chances of successful benefits realisation.

4. Change management and Organisational Hierarchy

a. Although different types of institution will have different organisational cultures and management styles, a factor in common is that higher levels of management perceive the organisational culture of the institution differently to those in middle management.

b. Higher levels of management believe benefits are being targeted and realised more than middle managers.

Hypothesis Four: perceptions of successful benefits realisation will differ according to a person's position in the organisational hierarchy.

Research Methodology

There are three types of data collection as outlined by Swan (2008):

1) Secondary Participation

This does not require direct contact to collect the data, examples of this would be, web based surveys, telephone interviews and mail based questionnaires/surveys.

2) In-person Observations

This does require direct contact to collect the data, examples of this would be, interviews, face to face surveys and focus groups

3) Content analysis

This is based on collecting existing data from existing research and literature

From researching existing literature around this area it became apparent that no research had been done in this specific area, there has been research on benefits realisation and IT strategy but none relating it together and analysing it against change management methodologies and organisational culture, institution types and managerial positions within the he hierarchy. The most suitable type of data collection was secondary participation and also if time permitted in-person observations.

Due to the complex nature of my hypotheses a large amount of quantitative data was required from a wide range of institutions so that it could be analysed and compared to get an idea of common trends, for this reason a survey was decided to be the best option.

The research was primarily quantitative, comprising of a questionnaire of mainly closed questions. This was appropriate because the hypothesis of the research was clearly defined and it was possible to formulate questions, which related directly to them. Leeds-Hurwitz, Wendy. (1995), points out that quantitative research is best

suited for hypothesis testing in most situations although not exclusively. This was augmented with open-ended questions so that the respondent could provide comments. This qualitative aspect is important in providing the 'rich' data, which describes the issues, as the respondent perceives them. Miles & Huberman (1994) point out that although quantitative data is more efficient and able to test hypotheses it can miss contextual detail, where qualitative can pick up this 'rich' data. It can provide insights, which the researcher had not anticipated.

Although this exploratory aspect of the research was included, the questionnaire was designed with the subsequent coding and analysis clearly in mind.

Therefore a quantifiable approach would be best suited for this project, as comparative analysis of data collected was required to look for trends and links based on the hypotheses.

Data collection techniques research from Rachhod and Zhou (2001) indicates that the use of online surveys is more positively received by those with high technological awareness. The other major advantage of an online survey over a postal one is that it saves time both in sending and receiving the questionnaire and also entering into the computer for analysis. The only disadvantage is it could be thought of as junk mail or spam and not responded to.

To minimise the disadvantage of an email containing a questionnaire to appear to be 'junk mail' or 'spam' it has to have a carefully worded covering letter/pretext before the questionnaire and it also has to come from what would be deemed a safe sender. Mixed format strategy could be used where by both postal and online surveys are sent out to maximise response rates, this is discussed by Dillman (2000). However as the email in this case was coming from a reputable source it would be more beneficial to contact them with the link and the pretext explanation of the reasons for the survey in the same email. This could then be followed up with individual emails with a repeat of the outline of the surveys purpose and a link to take the survey to other members of UCISA from the institutions who had not replied, this is a proven technique as outlined Kaplowitz, Hadlock, and Levine (2004).

In this case the initial group email sent out was sent from the Director of IT Services at Loughborough University and the pretext was as follows:

Subject: IT Strategy survey for academic research project

Dear UCISA Directors colleague

Please could I draw your attention to the survey questionnaire link below, relating to an academic research project examining institutional IT Strategies, and how they are changing in the face of the current financial climate. This work is part of a joint research project involving Loughborough School of Business and Economics, and IT Services.

Survey questionnaire link:
https://www.survey.lboro.ac.uk/itstrategy

We appreciate this is a busy time of year. The survey questionnaire should take about ten minutes to complete, and is aimed at directors and/or other senior managers with responsibility for IT. If colleagues were able to find time to look at this, we would be extremely grateful.

We will summarise the results and report back to the community in due course.

Regards,
Phil Richards pp Jeremy Byrne, IT Services, Loughborough University

Dr Phil Richards
Director of IT
Loughborough University
N1.10 Haslegrave Building
Leicestershire LE11 3TU

t: 01509 226001
f: 01509 223987
e: P.Richards@lboro.ac.uk
w: www.lboro.ac.uk or http://ラフバラ大学.com/

The above email was sent to the UCISA group, UCISA stands for Universities and Colleges Information Systems Association and represents almost all major UK universities and higher education colleges. It provides a network of contacts within the industry which can be utilised for mutually beneficial projects such as this one. UCISA was officially created on the 1st of April 1993 after the 1992 Education Act created a single higher education sector. It was made up of three existing IT related bodies:

1. IUCC, the Inter-University Computing Committee
2. PCCC, the Polytechnics and Colleges Computer Committee
3. Management Information Systems Committee

This was the obvious choice of contact method due to the research into IT users responding more to online questionnaires and also due to the large number of contacts in the list, [132 Higher Education institutions]. At times contact was made with universities via the email address for IT departments published on their web sites but this produced a very low response rate. This list provided a direct contact to senior management within IT departments, although this did not guarantee the senior management would respond on occasion they would delegate the task to another member of staff.

Pilot

The questionnaires first iteration contained a wide selection of questions which were piloted to selected members of the IT department within Loughborough University at various levels of the departmental hierarchy. The feedback suggested that the questionnaire was too long; there were also some suggestions for minor adjustments of the wording of some questions to remove ambiguity. Two examples of this are:

Question 19 “Are you currently using any formal methodologies for change management?” was thought to be confusing, after I explained PRINCE2 and ITIL were examples of change management methodologies the pilot test users understood that change management methodologies were often contained within project management methodologies. I didn’t want to change the wording to project management as it was just the management of change I was interested in, so I added the examples in the question, after the change it read “Are you currently using any formal methodologies for change management (for example, ITIL or PRINCE2)?”.

Question 20, was originally “Has Business Process Reengineering (BPR) ever been used in your department?” but some responders pointed out they did not know what Business Process Reengineering was, so I decided to define the phrase in the question and changed it to “Business process re-engineering. To re-engineer a business process is to completely rethink the way it works from beginning to end, question everything from a customer perspective and from an internal efficiency perspective; it is about being innovative and requires lateral thinking 'outside of the box'. Has this ever been used in your department?” This removed any ambiguity over the question.

Taking this feedback the number of questions was reduced down, questions were removed about forecasting technological, marketing and financial factors. These were initially included as research was intended to look if forecasting techniques were in use to predict expected change in these areas and then in turn if those who did forecasting were expecting more change. The forecasting questions were saved for any follow up face to face or telephone interviews at a later date.

Acronyms were also removed to avoid confusion as a large number are used within the IT industry some can have multiple meanings.

The questionnaire was then piloted a second time, including the initial sample group of people and also a new sample group to take a fresh look. These groups came

back with positive feedback, there was a slight concern it was still too long but due to the hypothesis a large amount of data was needed, so all questions remained.

Design

The final design of my questionnaire can be seen in Appendix B, below is an overview of the questions asked.

Section One: Personal information

1) **Name (Optional)**

This was asked to provide a named contact for follow up questions if needed, it was an optional question so that responders could remain anonymous if they so wished.

2) **E-mail Address (Optional)**

This was asked to provide a method of contacting responders for follow up questions and clarifications; again it was an optional question so that responders could remain anonymous.

3) **Do you wish to receive an email of the results of my survey? (results will have personal information removed)**

This was asked to give responders an incentive to fill out the survey as they will see the trends I have found and the results and recommendations which are produced, which could benefit their departments.

4) **Job title**

This was asked for analysis of trends in the results based on the role of the responder. This question was multiple choice with an open ended ‘Other’ category for those who thought they did not fall into any of the options. The job titles were based on job titles within IT services at Loughborough University this worked well in the pilot stages but once live it created a large amount of ‘Other’ responses due to different institutions using different descriptive job titles for similar roles. To improve this the questionnaire could have been piloted to different institutions not just within

Loughborough University or the question could have been reworded to use more generic roles, rather than job title.

5) Institution Type

This was asked for analysis of trends based on institution type, the categories for this are based on the date of their foundation, again an open ended 'Other' category was provided for responders who decided they did not fall into any of the options.

Section Two: Current situation

6) In terms of the current strategy of your Department, please indicate the priority given to the following

This was a list of IT Service related strategies drawn up from an analysis of both Loughborough Universities IT strategies and common IT service strategies from UK Universities from researching their web sites for strategic plans. This was to gain an understanding of the responders current strategic priorities within their IT department with a later repeat question for the same strategic priorities in five years' time.

7) Further Comment

This provided the responder the opportunity to add any further comments to the answers given in question 6 as that was limited to multiple choice the responder may have been unable to express their exact views.

8) How are the following IT services delivered at present?

This question was a list of IT Services drawn up from the IT services provided by Loughborough University based on their current IT Service Catalogue. This was to gain an understanding of how current IT Services were delivered for comparison with a later repeat question for the same service expected deliveries in five years' time. This could have been improved with a pilot sent to other institutions as they may have highlighted some services they provide which Loughborough University does not.

9) Further Comment

This provided the responder the opportunity to add any further comments to the answers given in question 8 as that was limited to multiple choice the responder may have been unable to express their exact views.

10) **To what extent are your University's IT projects used to explicitly target the following types of benefit?**

This was to look to see how often institutions were looking to target these common IT and University strategic benefits from IT related projects. The list was drawn up from personal experience and from researching other institutions IT web sites.

11) **Further Comment**

This provided the responder the opportunity to add any further comments to the answers given in question 10 as that was limited to multiple choice the responder may have been unable to express their exact views.

12) **To what extent are benefits, in each of the following areas, successfully realised from your University's IT projects?**

This question was to analyse which institutions are successfully realising the same list of benefits highlighted in question 10.

13) **Further Comment**

This provided the responder the opportunity to add any further comments to the answers given in question 12 as that was limited to multiple choice the responder may have been unable to express their exact views.

Section Three: Five Years Time

14) **In terms of the strategy of your Department over the next five years, please indicate the priority given to the following.**

This question was a repeat of question 6 but this focused on the perceived priority in five years' time of the same strategies. This was to find out if the importance was expected to change in any areas and if so by what magnitude.

15) Further Comment

This provided the responder the opportunity to add any further comments to the answers given in question 14 as that was limited to multiple choice the responder may have been unable to express their exact views.

16) How do you expect the following IT Services to be delivered in 5 years time?

This question was a repeat of question 8 but this was focused on the expected service delivery in five years' time of the same services. This was to find out if the service deliveries were expected to change in any areas and if so by what magnitude.

17) Further Comment

This provided the responder the opportunity to add any further comments to the answers given in question 16 as that was limited to multiple choice the responder may have been unable to express their exact views.

Section Four: Change Management

18) How accurate are the following descriptions of your organisation?

This was to determine the organisational culture and leadership within the department.

19) Are you currently using any formal methodologies for change management (for example, ITIL or PRINCE2)?

This was to find out if the organisations are currently using any change management methodologies. This was a multiple choice question with 'Yes', 'Partly', 'Not yet but planning to', 'No' and 'Don't know' as optional answers followed by an open ended question to ask if they have what have they used? Two examples of the most commonly used change management methodologies were included as the pilot reported this was ambiguous.

20) **Business process re-engineering To re-engineer a business process is to completely rethink the way it works from beginning to end, question everything from a customer perspective and from an internal efficiency perspective; it is about being innovative and requires lateral thinking 'outside of the box'. Has this ever been used in your department?**

This was again to look to see if institutions had used BPR to enable a change before. This was a multiple choice question with the options, ‘Yes often’, ‘Yes sometimes’, ‘Yes once or twice’ and ‘No’, again it was followed by an open ended question to ask for an example if they have used it.

21) **If you have used business process engineering would you use it again?**

This was to analyse if they deemed the process successful and useful enough to re-use it. This was multiple choice with ‘Yes’, ‘No’ and an open ended ‘Other’ category.

Questions 6, 8, 10, 12, 14, 16 and 18 all contain a Likert scale, a Likert scale is a multiple choice scale of answers such as, ‘Always’, ‘Usually’, ‘Sometimes’, ‘Rarely’ and ‘Never’. Intervals between options cannot be presumed equal as highlighted by research from Jamieson, Susan (2004), for example: ‘Always’, ‘Usually’, ‘Sometimes’, ‘Rarely’ and ‘Never’ can be interpreted in different ways:

Always	100% of the time	100% of the time
Usually	90% of the time	80% of the time
sometimes	50% of the time	40% of the time
Rarely	25% of the time	10% of the time
Never	0% of the time	0% of the time

In the above table both the intervals are not equal and the perceived values are different. To improve the questionnaire a value was placed against each option to try to remove any ambiguity and misinterpretation.

Always	5
Usually	4
sometimes	3
rarely	2

never	1

To further improve this a percentage could have been used to make it clearer, for my analysis I am presuming an equal distance between measures:

Always	100% of the time
Usually	75% of the time
sometimes	50% of the time
rarely	25% of the time
never	0% of the time

Repeat questions

Questions were repeated for a capture of data now and in five years' time to get an exact measure on the amount of predicted change in this time frame. To improve this I could have conducted the survey twice with a five year gap between the surveys although this was not possible within the time frame of the project.

Organisational culture question not mentioning the cultures by name

For this question the descriptions of the different organisational cultures were used but descriptive names were purposely withheld so that the responder was not influenced by any positive or negative preconceived connotations they may have had about the culture.

Multiple choice

The majority of the questions were designed to be multiple choice to enable comparable analysis without the need to make large amounts of assumptions. The disadvantage can often be that the responder feels they lie between two options and has to choose one.

Additional comments boxes

Additional comments boxes were provided on questions so the responder had a chance to elaborate on any options they have chosen or if they needed to explain their choice if for example they were torn between two options or thought none of the supplied options fitted the answer they wanted to give.

An introduction was written to provide the responder with an overview of what the questionnaire was and how long it would take to fill out.

This survey is part of a series of research that we at Loughborough are undertaking into institutional IT strategies, as part of a joint project involving IT Services and the School of Business and Economics.

We are looking for feedback on how your IT strategy has changed and how you anticipate that it will change in response to the changing Higher Education environment, in particular the new funding regime.

Our survey questionnaire should take about ten minutes to complete, and is aimed at Directors of IT and other senior managers with responsibility for IT.

Thank you in advance for your time.

Regards,

Jeremy Byrne
Loughborough University

Implementation

Various online survey providers were assessed for the use of hosting the online survey, some provided a paid service others were free to use but placed adverts within the survey. However the Bristol Online Survey service was recommended internally by a colleague and it provided suitable data analysis and control, good support from system administrator and was free of advertisements.

Couper, Mick, Tragott, Michael and Lamias, Mark (2001) research found that not only the wording of a questionnaire but also the style and layout also had an effect on the answers and response rates. With this in mind the layout was kept simple and functional to minimise any effect additional graphics and styling's may have.

Follow up emails

The approach to gain the maximum overall response was to use follow up emails, utilising an email list of IT contacts. This was initially sent as a template email to the UCISA group as a whole.

Then after a week this was followed this up with individual emails to the primary contacts of the institutions who had not responded, then if a response had not been received after one week the same email would be sent to the secondary contact for the institutions who had still not responded, then after another week and if they had not replied a third email was sent to the final contacts from the institutions who had not responded. So an institution could receive a maximum of four emails, consisting of one group email and three individual emails all to separate IT contacts within the institution. This technique meant that those institutions who had responded did not get contacted multiple times unless they answered the questionnaire anonymously in which case they would have received the other follow up emails.

Response rate

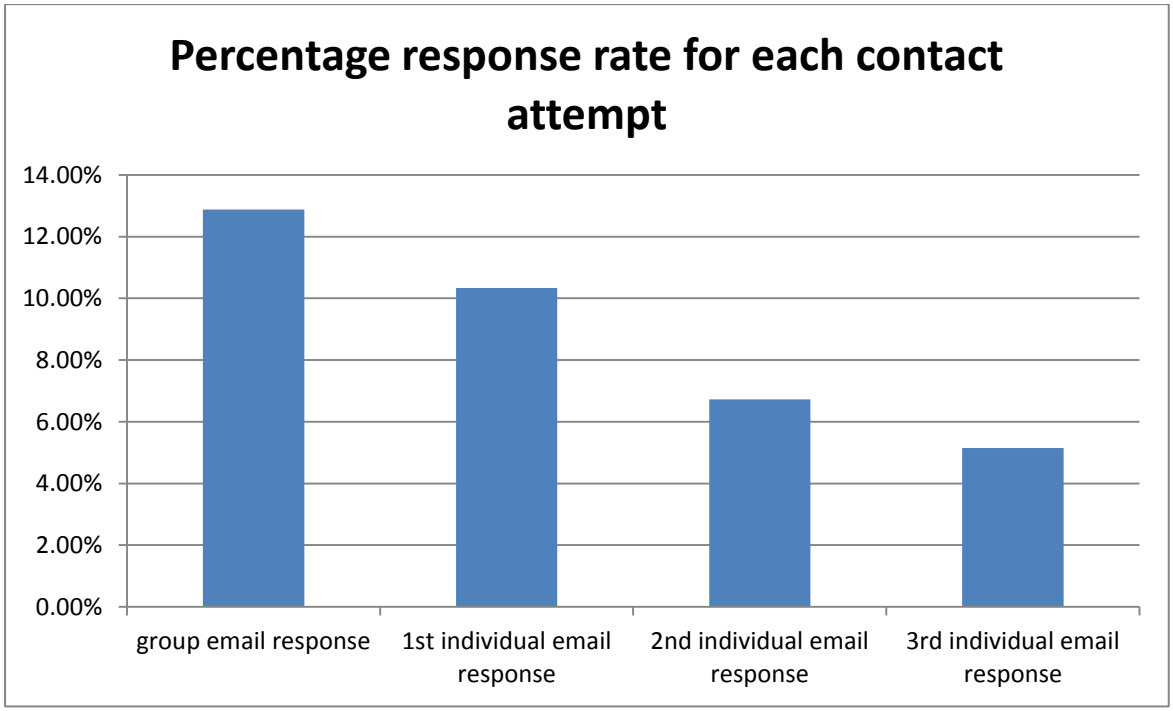
The first initial group email was sent to an email list consisting of 132 institutions, this was responded to by 17 institutions who filled out the questionnaire, providing an initial response rate of 12.88%. One of these responders was anonymous.

The first round of follow up emails were sent as separate targeted emails to individuals at the remaining 116 institutions who were yet to respond, although one of these could have potentially been the anonymous response from the initial group email response. This generated a further 12 responses which meant the response rate was 10.34%, however two of these were also anonymous.

The second round of follow up emails was to the second named contact for the institution. This time from the remaining 104 institutions it generated another 7 responses a rate of 6.73%.

The last round of individual targeted emails went to the remaining 97 institutions and resulted in another 5 responses a rate of 5.15%.

Below is a graph to show the response rate percentage against each round of emails:



Overall 132 institutions were contacted and there were 41 responses (38 named and 3 anonymous) an overall response rate of institutions contacted was 31.06%.

In total one group email was sent to 132 people and then a further 317 individual emails were sent to named individuals from the UCISA list, totalling 449 emails with 41 replies means the total response rate to emails was 9.13%.

This had the potential to be improved with additional emails to the contacts or additional contact methods such as telephone or post, however the sample set was large enough to analyse.

Telephone interviews

Telephone interviews were planned for after data analysis to clarify any ambiguity raised and to collect some qualitative data to accompany the qualitative, but due to time constraints this aim was not completed. However the further comments questions provided some qualitative data but most responders did not take the opportunity.

Face to face interviews

An interview the Vice Chancellor of Loughborough University, Shirley Pearce was conducted due to an opportunity arising early on in the project. The full interview is in Appendix A, but relevant highlights are:

- No substantial changes to services are expected although some may occur and although they may incur risks these might be necessary to gain a competitive advantage.
- Partnerships with both external private and public institutions are gaining importance, for cost savings and for gaining a competitive advantage.
- The VC is personally involved in the change management of the current change from faculties to schools helping those affected realise the benefits and move to becoming committed to the change.
- The VC admits there could be more benefits realisation done but some aspects are in place already and they are interested in doing more.
- Competitive change is thought to become more important, some areas we are world leaders and other institutions will want to challenge that and other areas we want to improve.
- Researching and forecasting is conducted by the university paying particular attention to key decision makers who can directly affect the university.

Research Results Summary

The results are listed in Appendix C but below are the key elements analysed.

Data cleaning

The total responders for the questionnaire were 41, 38 named responses and 3 anonymous responses. Anonymous responses were omitted so there would be no chance of the same institution being included more than once. If multiple responses from institutions but from differing people were available they could have been analysed for differing viewpoints from staff within a particular institution but as there was only one answer per institution it was decided to analyse one response per institution and to remove any anonymous responses.

Although the majority of the data was fit for purpose mainly due to the fact that the questionnaire was online so there were no issues with handwriting causing ambiguity, there were still a number questions which could be cleaned up using appropriate assumptions:

Question 3: Do you wish to receive an email of the results of my survey? (results will have personal information removed)

3. Do you wish to receive an email of the results of my survey? (results will have personal information removed)			
Yes:		100.0%	37
No:		0.0%	0

One responder left this unanswered; all other responders did indicate they would like to receive results of the survey. The assumption was made that the responder who did not answer this would have answered yes if the question was mandatory and as such they will be included in the group receiving an email of my results.

Question4: Job Title?

4. Job Title:			
IT Services Director:		31.6%	12
Assistant Director:		15.8%	6
Team Manager:		2.6%	1
Project Manager:		2.6%	1
Service Manager:		2.6%	1
Other *(please specify)*:		44.7%	17
Associate IT Director			
CIO			
Director of Academic Services			
Director of Corporate Information Services			
Director of ICT			
Director of Information			
Director of Information Services			
Director of Information, Media and Technology Services			
Head of Information Systems			
Head of IT			
Head of Relationship Management			
Head of Section			
Head of Technical Infrastrucutre			
ICT Governance Manager			
ICT Programme Manager			
Infrastructure Manager			
IT Director			

This question was too specific meaning 17 people decided to opt for other and enter their specific job title. If the question was more generic such as;

1) Director/head of department or section
2) Assistant director/ assistant head of department or section
3) Team/programme manager
4) Project manager
5) Service/area manager

6) Other

Associate IT Director	Assistant Director
CIO	Other
Director of Academic Services	IT Director
Director of Corporate Information Services	IT Director
Director of ICT	IT Director
Director of Information	IT Director
Director of Information Services	IT Director
Director of Information, Media and Technology Services	IT Director
Head of Information Systems	IT Director
Head of IT	IT Director
Head of Relationship Management	IT Director
Head of Section	IT Director
Head of Technical Infrastrucutre	IT Director
ICT Governance Manager	Service Manager
ICT Programme Manager	Team Manager
Infrastructure Manager	Service Manager
IT Director	IT Director

Then the results would have been:

4. Job Title:			
IT Services Director:		63.2%	24
Assistant Director:		18.4%	7
Team Manager:		5.3%	2
Project Manager:		2.6%	1
Service Manager:		7.9%	3
Other *(please specify)*:		2.6%	1
CIO			

The decision was made to clean the data to the above statistics as it was deemed a true representation of the job role groups the responders belong in. This assumption will make the analysis of this field more useful as 42.1% has now been moved from 'Other' to what was presumed to be a more accurate response.
Another assumption which can be made here is to categorise them into Higher and Middle Management. These groups would contain, IT Services Directors, Assistant Directors and CIO into Higher Management (31 members) and Team Managers, Project Managers and Service Managers in Middle Management (7 members).
The risk of this assumption is that some responders if given the more generic question outlined above may have chosen differently to the answers presumed. In hind sight the question would have been written with more generic job roles, for example:

Please select your most appropriate management Level for your job role: Higher management (director or assistant director) or middle management (team managers, project managers and service managers). I would also include an 'Other' category again to allow people to elaborate if they deemed it necessary.

Question 5: Institution Type?

5. Institution Type:			
Ancient University:		7.9%	3
Red Brick University:		18.4%	7
Plate Glass University:		13.2%	5
Post-1992 University that was a former polytechnic:		31.6%	12
Post-1992 University that was not a former polytechnic:		10.5%	4
Post 2005 University:		7.9%	3
Other *(please specify)*:		10.5%	4
None of the above			
Private College with degree awarding powers			
We are "The" Red Brick University:-)			

We gained University title in 2005

This question was also cleaned by making two assumptions for two of the responses that fall into the other category. Assumption one was that the response 'We are "The" Red Brick University;-)' would fall into the Red Brick University category and not the other category. The second assumption is that the university which gained its title in 2005 should be moved to post 1992 that was not a former polytechnic, this assumption was made after researching the institution which gave that response. The risk in these assumptions would be that the institution that gained university status in 2005 could possibly be seen to be in either the post 1992 or the post 2005 category depending on personal perspective.

5. Institution Type:			
Ancient University:		7.9%	3
Red Brick University:		21.1%	8
Plate Glass University:		13.2%	5
Post-1992 University that was a former polytechnic:		31.6%	12
Post-1992 University that was not a former polytechnic:		13.2%	5
Post 2005 University:		7.9%	3
Other *(please specify)*:		5.3%	2
None of the above			
Private College with degree awarding powers			

The above table shows the cleaned responses for this question.

Question 6: In terms of the current strategy of your department, please indicate the priority given to the following:

In the responses to this question there were three blank answers where nothing had been selected. These were removed these from the results and where a comparison has been taken between this question and question 14 which was a repeat of this question but based on expected priority in five years' time, the corresponding answer in question 14 was also

removed. This question was mandatory so the blank answers could have been an error by the hosts of the questionnaire not capturing the response or by allowing a question to be missed.

Question 8: How are the following IT Services delivered at present?

In the responses to this question there were three blank answers where nothing had been selected. These were removed these from the results and where a comparison was taken for this question (8) and question 16 which is a repeat of this question but based on expected priority in five years' time the corresponding answer in question 16 was also removed. This question was mandatory so again the blank answers could have been an error by the hosts of the questionnaire not capturing the response or by allowing a question to be missed.

1) Hypothesis results on strategic priority

Hypothesis 1A

Due to the changes in funding, IT strategies priority will be expected to change over the next five years to focus more on:

- Improving efficiencies
- Integrating services
- improving quality

Areas expected to drop in priority are:

- Widening the service portfolio
- Expanding existing services
- Adopting innovative technology

This is because research highlighted in the literature review by Zahra and Bogner (1999) and also Prahalad and Hamel (1990) suggests when large amounts of change are affecting organisations existing services should be improved rather than the focus being put on the expansion of existing and new services.

Test

Two sets of questions were compared, sets as detailed in the table below to highlight priorities now and expected priorities in five years' time.

Area	Question set one	Question set two
Improving efficiencies	Question 6d	Question 14d
Improve Integrating services	Question 6e	Question 14e
improving quality	Question 6f	Question 14f
Widening the service portfolio	Question 6k	Question 14k
Expanding existing services	Question 6c	Question 14c
Adopting innovative technology	Question 6a	Question 14a

Result

Using the Likert scale asked in the questions of:

5. Very high priority
4. High priority
3. Medium Priority
2. Low priority
1. Very low priority

The average scores of all responders were:

Area	Average score for perceived priority now	Average score for perceived priority in 5 years' time	Difference
Improving efficiencies	4.34	4.53	0.19
Improve Integrating services	4.25	4.39	0.14
improving quality	4.46	4.61	0.15
Widening the service portfolio	3.34	3.61	0.27
Expanding existing services	3.50	3.58	0.08
Adopting innovative technology	3.45	3.55	0.10

Table 1: Strategic Priorities Results

The above data represented in a graph looks like this:

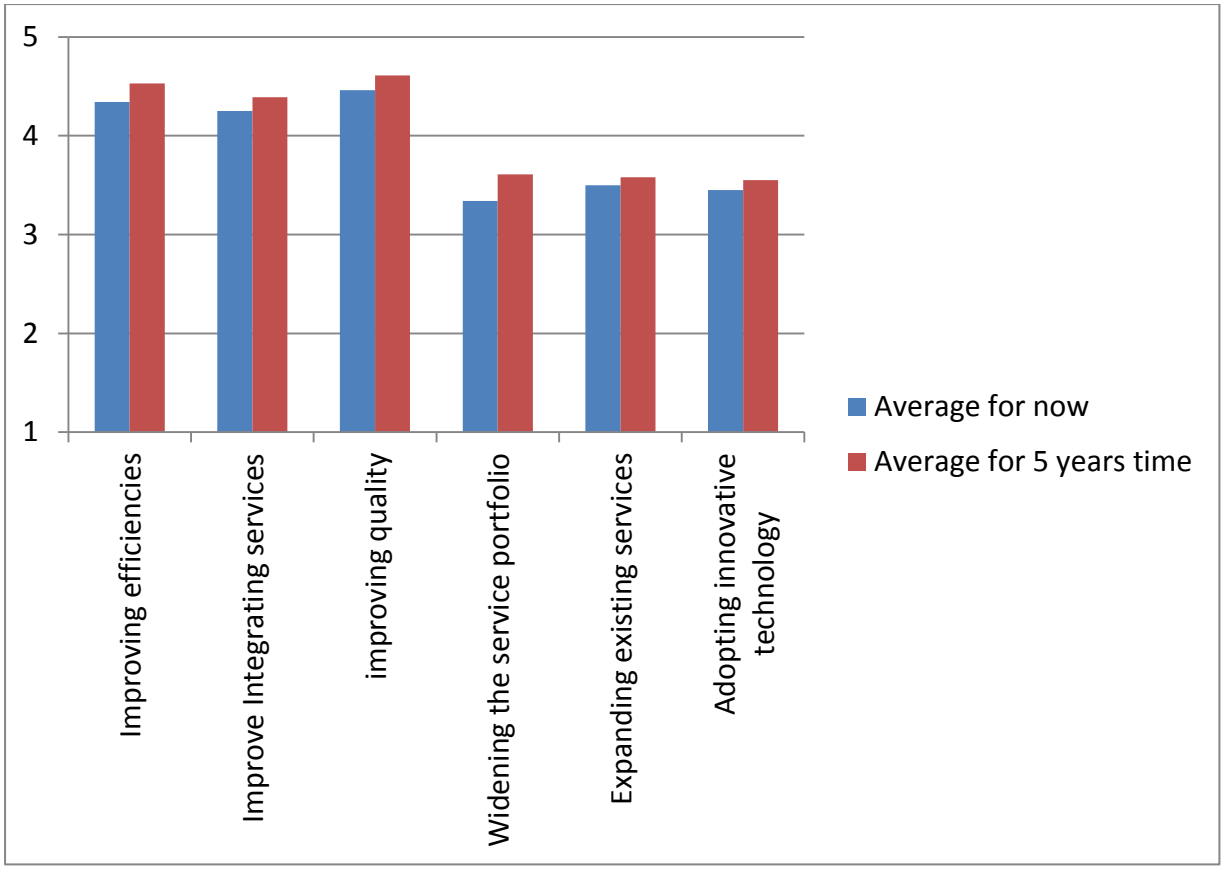


Figure 1: Strategic priorities

The Y axis represents the 5 priority levels asked in the questions and the X axis represents the IT strategies which were prioritised.

One result left in the additional comments box requested that reducing the services portfolio was becoming an increasing priority rather than increasing the service portfolio becoming less of one.

Discussion

There was not much change expected on average in any of these areas of strategy and they all increased in expected priority, however the strategies expected to fall in this hypothesis were all significantly lower than the ones expected to rise. This could mean that the affects have already been felt and the strategic priorities have been adjusted already, or that these priority levels are not related to the changes taking place and they have been this way before and are unaffected by the changes in funding.

Conclusion

To conclude the strategies expected to increase in importance did increase although not by as much as expected. The strategies expected to decrease also increased which was unexpected, again change was minimal. However the strategies expected to increase were deemed to be a higher priority on average than the group expected to decrease. Strategic focus is currently and expected to stay more on improvement of services than expansion and creation of new services.

Hypothesis 1B

Institutions over the next five years will seek to utilise more external resources and enter in more strategic partnerships with both public and private companies in a bid to save resources and to reduce risk by sharing responsibility, this will in turn reduce the amount of software and services developed in house. This is based on the assumption that a shift towards outsourcing will continue to grow as outlined by Foogooa (2008) and Lacity et al. (1996) who also highlighted that co-sourcing and selective sourcing will also continue to grow.

Test

Two sets of questions were compared, sets as detailed in the table below to highlight priorities now and expected priorities in five years' time.

Area	Question set one	Question set two
Utilise more external resource	Question 6j	Question 14j
Strategic partnerships with private companies	Question 6h	Question 14h
Strategic partnerships with public organisations	Question 6i	Question 14i
Develop more software and services in house	Question 6b	Question 14b

Result

Using the scale asked in the questions of:

5. Very high priority
4. High priority

3. Medium Priority
2. Low priority
1. Very low priority

The average scores of all responders were:

Area	Average score for perceived priority now	Average score for perceived priority in 5 years' time	Difference
Utilise more external resource	3.08	3.58	0.50
Strategic partnerships with private companies	2.74	3.08	0.34
Strategic partnerships with public organisations	2.97	3.29	0.32
Develop more software and services in house	2.13	2.00	-0.13

Table 2: Strategic Priorities Results

The above data represented in a graph looks like this:

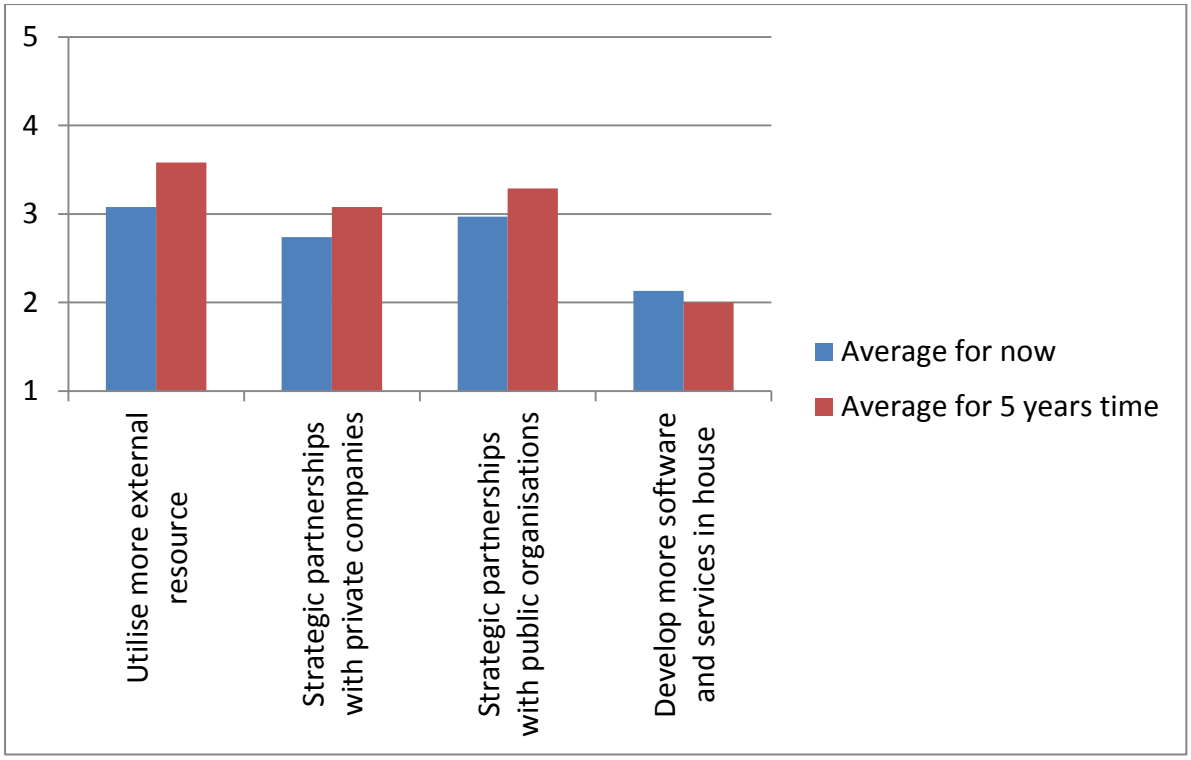


Figure 2: Strategic Priorities

The Y axis represents the 5 priority levels asked in the questions and the X axis represents the selected IT strategies which were prioritised.

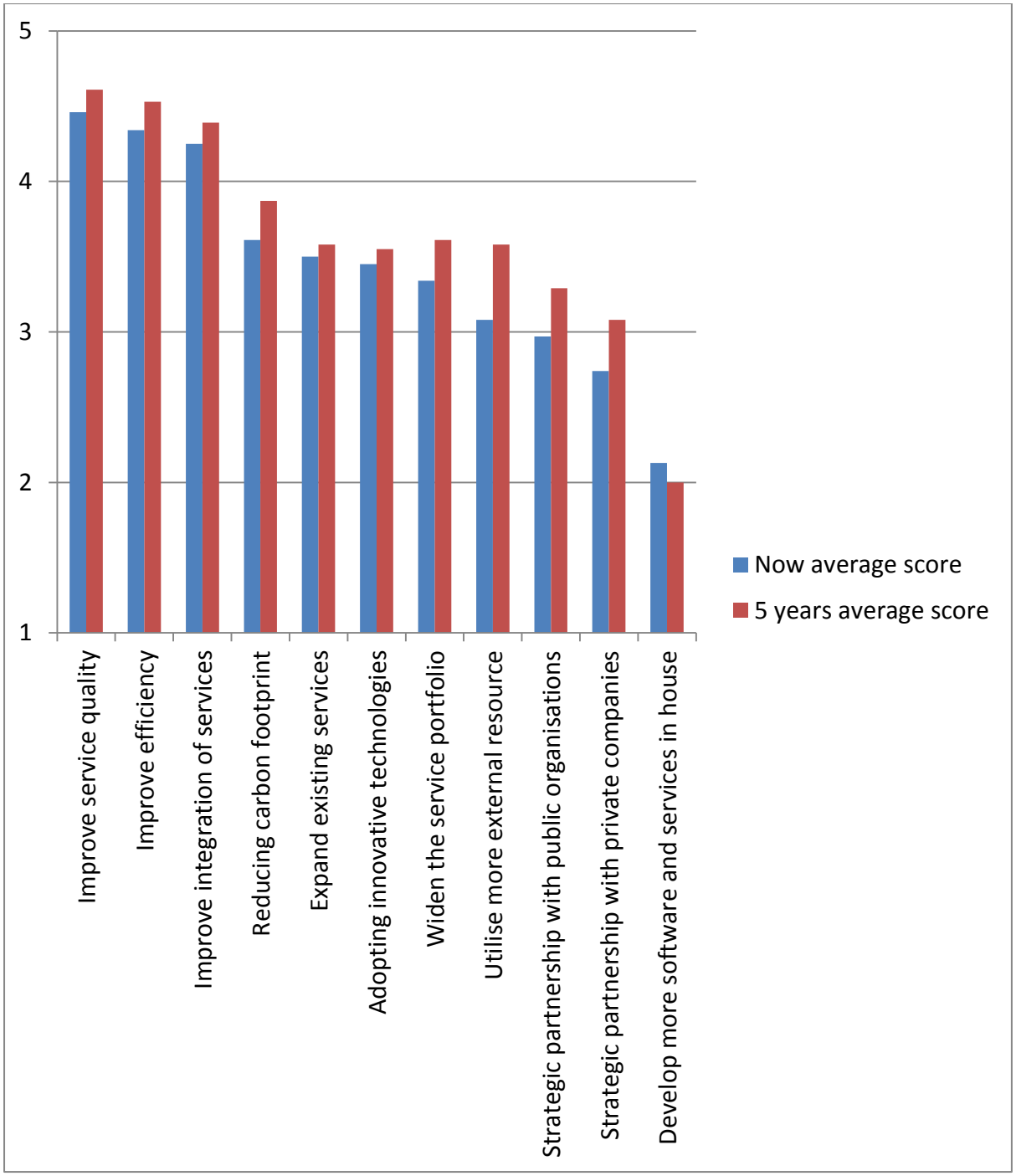


Figure 3: Strategic Priorities

The Y axis represents the 5 priority levels asked in the questions and the X axis represents all the IT strategies which were prioritised.

This second graph highlights that utilising more external resource gained the most expected priority increase 0.5 (Table 2) although they were all still notably below the top three highlighted in Hypothesis 1A.

Discussion

The priorities did increase as expected for the strategies for utilising more external resource and for strategic partnerships with both public and private sector organisations. Developing more software and services in house also dropped as expected however it was already low, which like in hypothesis 1A could be due to either the effects of the change coming earlier than expected or this trend is not effected by the change as it was already low. The increase and decrease could be less than expected as it is only predicted and also an average across many institutions.

Conclusion

Priorities changed as expected, there is a perceived increase in priorities for outsourcing related strategies, however the increase is less than expected, and in turn a decrease on in-house development strategic priority is also expected. This meets the expectations of the hypothesis.

Hypothesis 1C

Reducing carbon footprint is already a high priority strategy and will continue to be so over the next five years or increase in priority. Even though reductions in funding and resources will inevitably effect IT departments within HE institutions there will still be an expectation to maintain and improve on reducing the carbon footprint of the department as they can often be very large compared with other departments within an HE institution. This is based on research into institutions strategic plans published to their web sites commonly stating that reducing the carbon footprint is a high priority aim.

Test

Two sets of questions were compared, sets as detailed in the table below to highlight priorities now and expected priorities in five years' time.

Area	Question set one	Question set two
Reducing carbon footprint	Question 6g	Question 14g

Result

Using the Likert scale asked in the questions of:

5. Very high priority
4. High priority
3. Medium Priority
2. Low priority
1. Very low priority

The average scores of all responders were:

Area	Average score for perceived priority now	Average score for perceived priority in 5 years' time	Difference
Reducing carbon footprint	3.61	3.87	0.26

Table 3: Carbon footprint

The above data represented in a graph looks like this:

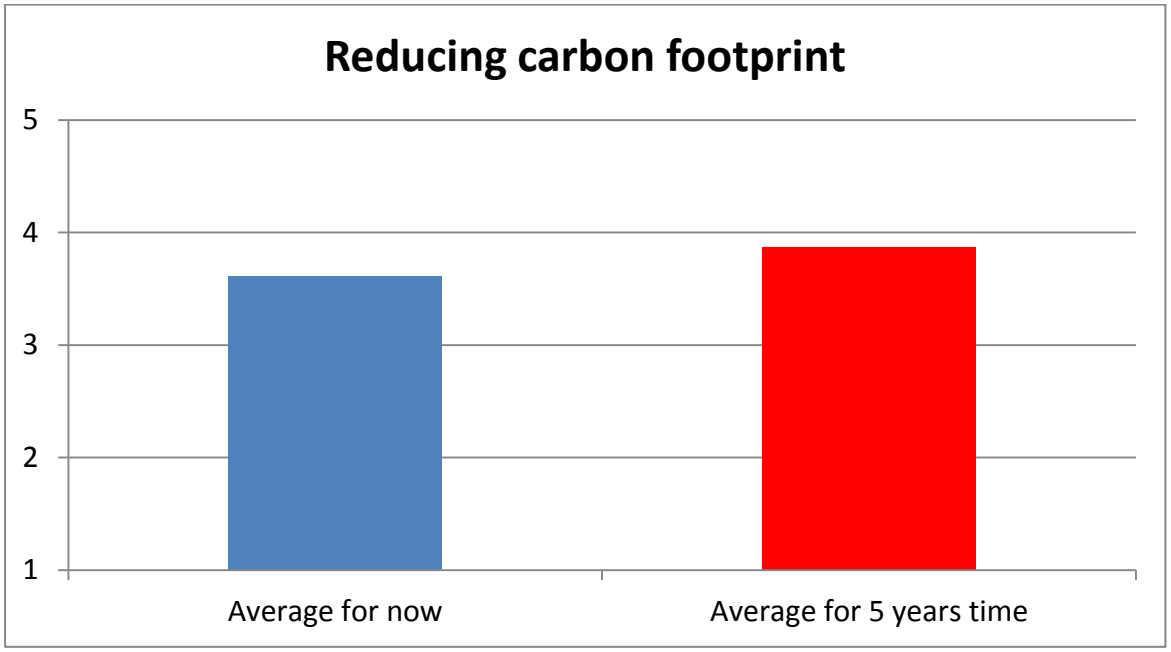


Figure 4: Carbon footprint

The Y axis represents the 5 priority levels asked in the questions and the X axis represents the average result for institutions now and expected to be in five years' time.

Discussion

The priority did increase although the average was deemed to be between 'Medium' and 'High' both now and in five years' time, this was lower than expected as it is

often included as a high priority within institutions overall strategic plans. This will also be achieved as a by-product of outsourcing service.

Conclusion

Reducing the carbon footprint of IT departments will increase in priority, although again the increase is less than expected it still meets the expectations of the hypothesis.

Hypothesis 1D

The type of institution will not have an effect on the priorities they have both now and expected in five years' time, for example an Ancient University who will generally have more money than a Post 1992 former polytechnic will have similar priorities and expect similar change. This is based on the large amount of environmental change in conjunction with the consistent technological change and as highlighted in the literature review it is expected for institutions to have a common reactive approach to change.

Test

Three sets of questions were compared, sets as detailed in the table below to highlight priorities now and expected priorities in five years' time. cross referencing against institution type.

	Question set one	**Question set two**	**Question set three**
Question number	Question 6	Question 14	Question 5
Question title	In terms of the current strategy of your Department, please indicate the priority given to the following	In terms of strategy of your department over the next five years, please indicate the priority given to the following.	Institution Type

Result

Using the Likert scale asked in the questions of:

5. Very high priority
4. High priority
3. Medium Priority
2. Low priority
1. Very low priority

The average scores for current priorities grouped by institution type were:

	Ancient University	Red Brick University	Plate Glass University	Post-1992 University that was a former polytechnic	Post-1992 University that was not a former polytechnic	Post 2005 University	Other
Adopting innovative technologies	3.67	3.00	3.40	3.75	3.20	3.33	4.00
Develop more software and services in house	2.00	1.88	2.20	2.33	2.20	1.33	3.00
Expand existing services	3.33	3.38	4.00	3.33	3.60	3.67	3.50
Improve efficiency	4.33	4.50	4.40	4.50	3.60	4.67	4.00
Improve integration of services	4.33	4.13	4.60	4.25	4.00	4.00	4.50
Improve service quality	4.67	4.38	4.60	4.42	4.50	4.33	4.50
Reducing carbon footprint	3.67	3.25	3.60	3.75	3.80	3.67	3.50
Strategic partnership with private companies	2.00	3.00	3.00	3.00	2.20	2.67	2.00
Strategic partnership with public	4.00	2.50	3.60	3.00	3.00	2.67	2.00

organisations							
Utilise more external resource	3.00	2.88	3.60	3.42	2.60	2.67	2.50
Widen the service portfolio	2.67	3.25	4.20	3.25	3.20	4.00	2.50

Table 4: Strategic Priorities and institution type, now

The above data represented in a graph to show current priorities:

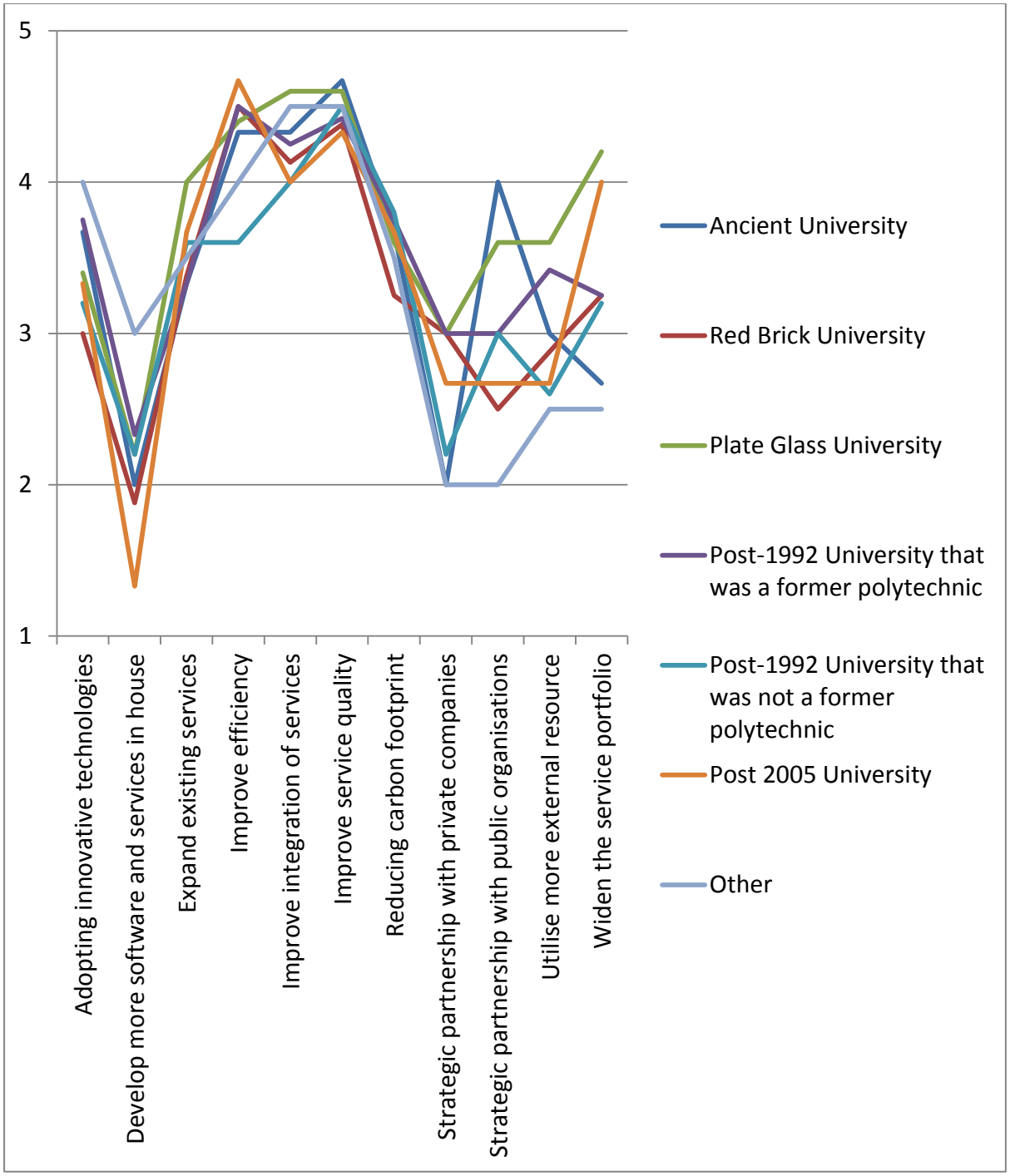


Figure 5: Strategic Priorities and institution type, now

The Y axis represents the 5 priority levels asked in the questions and the X axis represents the IT strategies which were prioritised, the lines then represent the different types of institution.

The average scores for priorities in five years' time grouped by institution type were:

	Ancient University	Red Brick University	Plate Glass University	Post-1992 University that was a former polytechnic	Post-1992 University that was not a former polytechnic	Post 2005 University	Other
Adopting innovative technologies	4.33	3.00	3.60	3.75	3.40	3.67	3.50
Develop more software and services in house	2.00	2.00	1.80	2.08	2.20	1.67	2.00
Expand existing services	3.00	3.25	3.80	3.67	3.80	4.00	3.50
Improve efficiency	4.33	4.50	4.60	4.75	4.00	4.67	4.50
Improve integration of services	4.00	4.50	4.80	4.42	4.00	4.33	4.50
Improve service quality	4.67	4.50	5.00	4.58	4.40	4.67	4.50
Reducing carbon footprint	4.33	3.75	4.00	3.92	3.80	3.67	3.50
Strategic partnership with private companies	2.67	3.25	3.60	3.42	2.00	3.00	2.50
Strategic partnership with public organisations	4.00	2.88	4.20	3.33	3.00	3.00	2.50
Utilise more external resource	4.33	3.50	3.80	3.67	3.00	3.00	4.00
Widen the service portfolio	3.33	3.25	4.20	3.58	3.40	4.33	3.50

Table 5: Strategic Priorities and institution type, in five years

The above data represented in a graph to show priorities in five years' time:

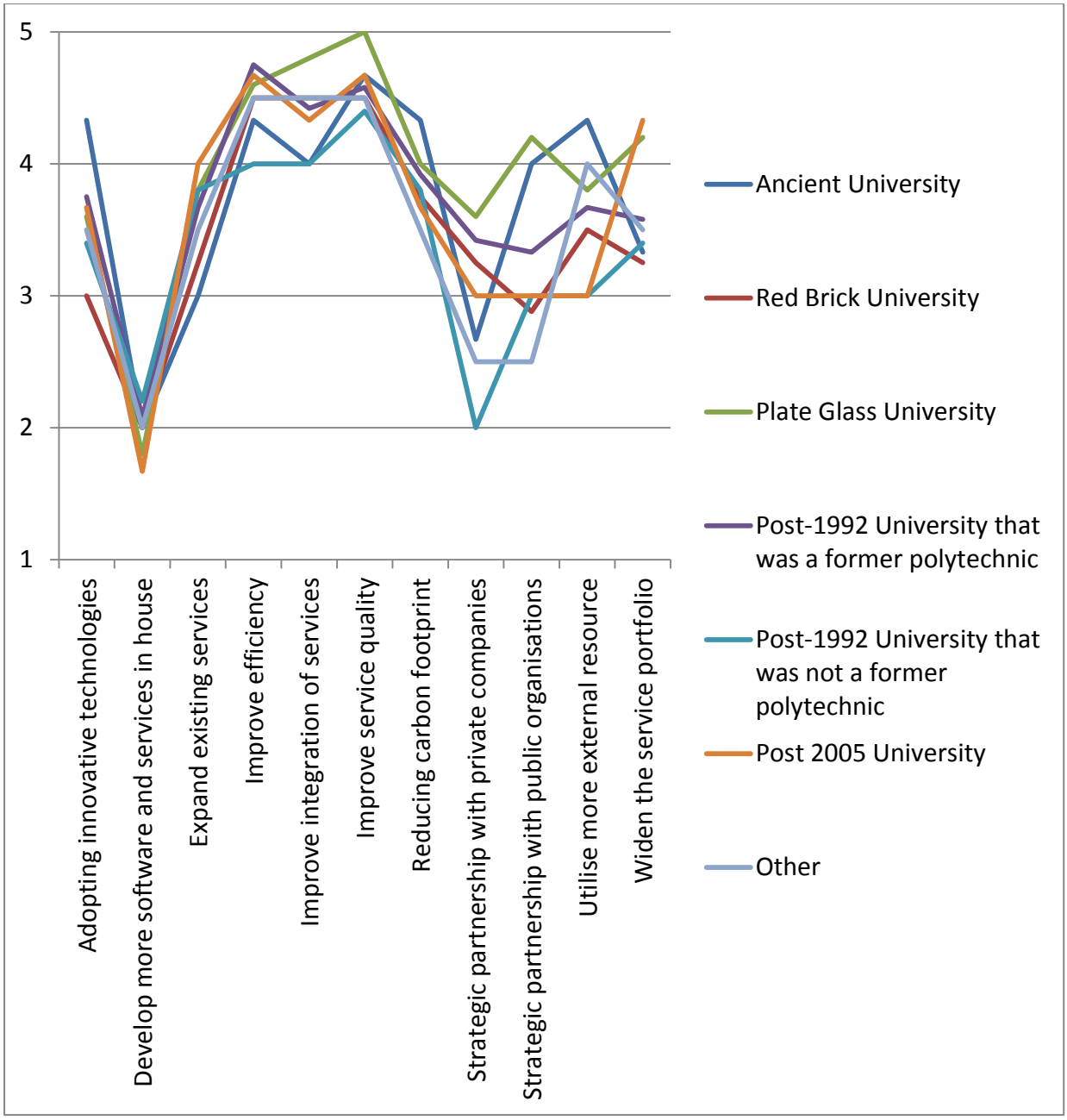


Figure 6: Strategic Priorities and institution type, in five years

The Y axis represents the 5 priority levels asked in the questions and the X axis represents the IT strategies which were prioritised, the lines then represent the different types of institution.

Discussion

There is a common trend amongst institutions for priorities both now (Figure 5) and expected priorities in five years' time (Figure 6). Even where there are some differences in the later strategies relating to strategic partnerships and utilising more

external resource these are still small. It should also be noted that sample sizes are small for some institution types, so accuracy of data could be improved with a larger data set.

Conclusion

All institutions are prioritising strategies in a similar way both now and in five years' time, this satisfies the hypothesis made that institution type bears no relevance on strategic priorities.

Hypothesis 1E

There will be a large shift in priorities between now and expected in 5 years as environmental changes in funding mean strategic priorities in general will change in either direction, higher or lower, by approximately the same amount to accommodate the changes. This is based on research highlighted in the literature review by Yeates and Cadle (1996) who state that strategy should be flexible to adapt to change, Zahra and Bogner (1998) have also stated the need to change strategic priorities to accommodate change in dynamic environments.

Test

Two sets of questions were compared, sets detailed in the table below to highlight priorities now and expected priorities in five years' time and measure the amount of change in steps, up and down in priority on the Likert scale (below).

5 Very high priority
4 High priority
3 Medium priority
2 Low priority
1 Very low priority

	Question set one	Question set two
Question number	Question 6	Question 14
Question title	In terms of the current strategy of your	In terms of strategy of your department over the next

	Department, please indicate the priority given to the following	five years, please indicate the priority given to the following.

Result

Table to show the number of institutions who fall into each category.

	no change	1 step change	2 step change	Blank answer
Adopting innovative technologies	36	2	0	0
Develop more software and services in house	25	13	0	0
Expand existing services	25	12	1	0
Improve efficiency	24	13	1	0
Improve integration of services	24	12	1	1
Improve service quality	23	15	0	0
Reducing carbon footprint	23	10	3	2
Strategic partnership with private companies	22	16	0	0
Strategic partnership with public organisations	22	16	0	0
Utilise more external resource	20	17	1	0
Widen the service portfolio	16	19	3	0

Table 6: Strategic priority change

This table can then be totalled as follows:

	Totals	Percentages
no change	260	61%
1 step change	145	34%
2 step change	20	4%
Blank answer	3	1%

Table 7: Strategic priority change

The following graph can be produced:

Step change in service priority over five years

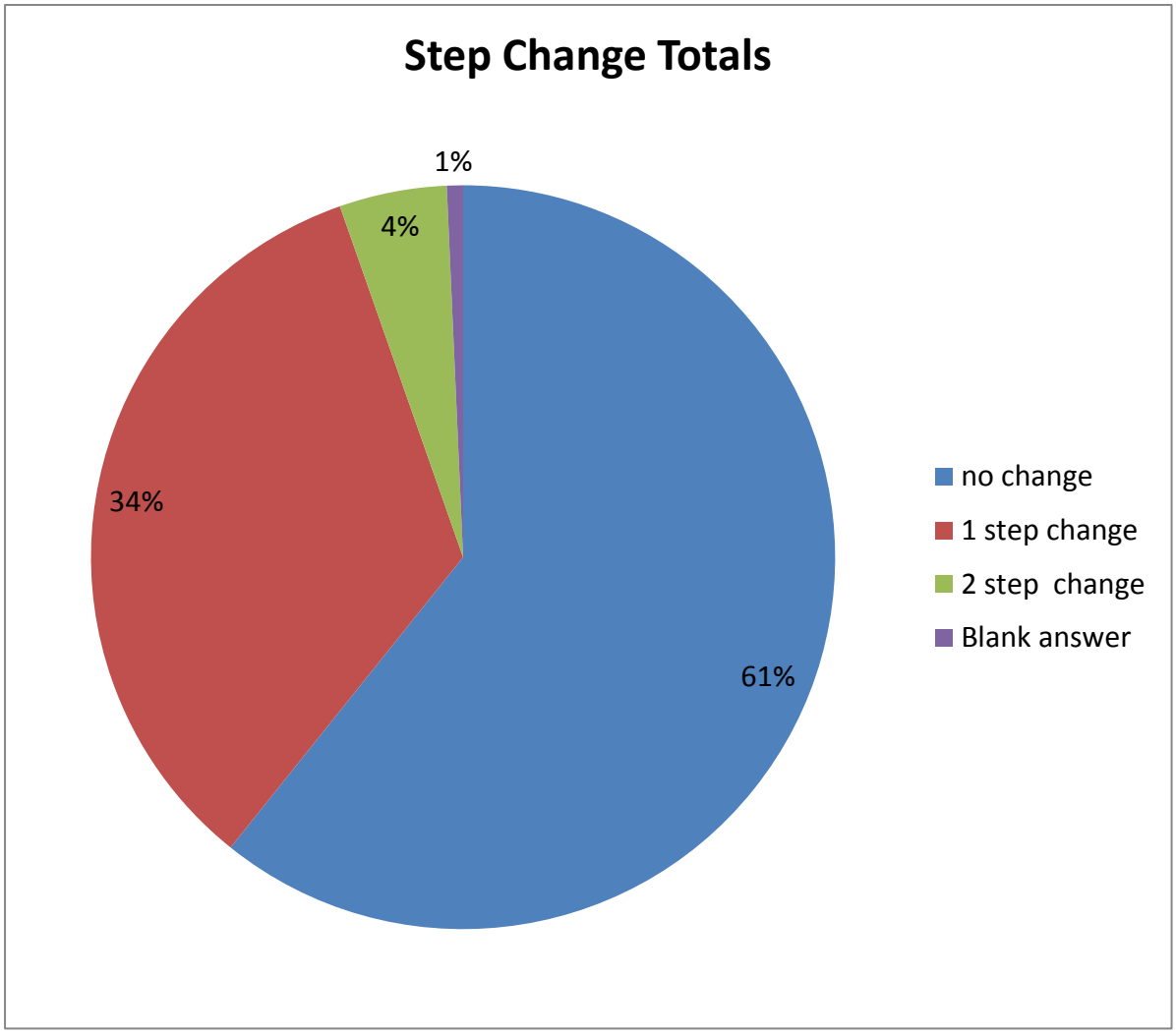


Figure 7: Strategic priority change

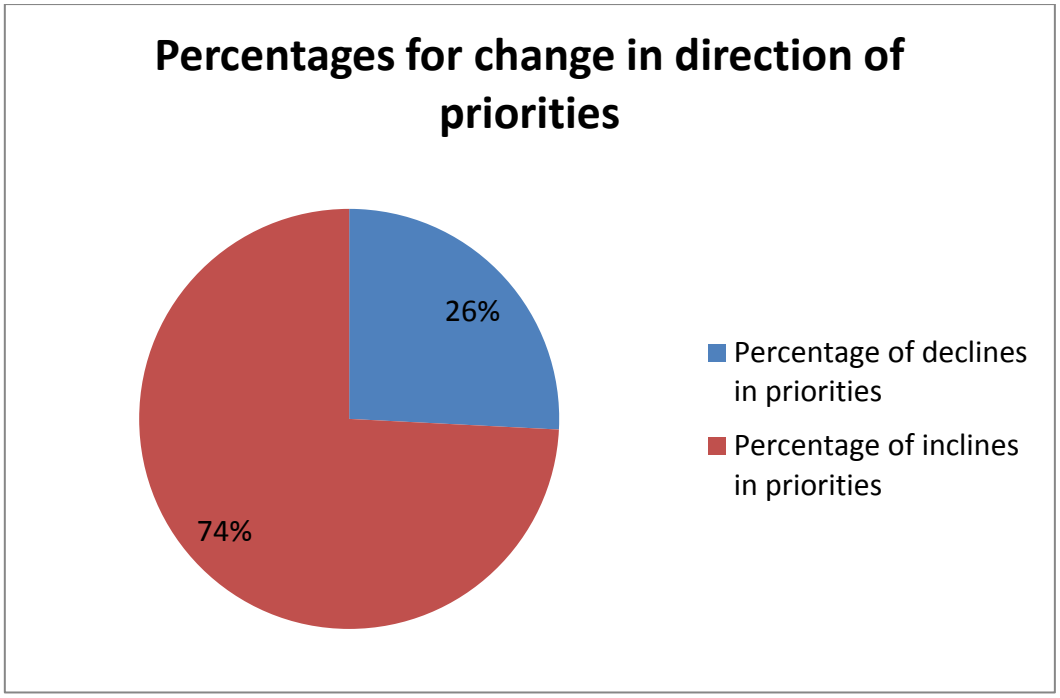


Figure 8: Strategic priority change

Conclusion

The change is a lot less than expected with largely no change expected in strategic priorities over the next five years (Figure 7). This gradual strategic repositioning - slow measured and planned move to adapt to the change, is one of Jobbers responses to environmental change. However I was expecting more of a radical strategic repositioning - a large change in response to the environmental change as the change to funding has happened relatively quickly and is relatively large. I also expected the change to be in both directions with some gaining priority and some declining in priority however as highlighted in Hypothesis 1B on average the only strategy declining is develop more software in-house. It's also worth noting that no institution thought there would be a three or four step change in priority of any strategy. The move in priorities is largely towards an increase as well with nearly three quarters of the change (figure 8).

Conclusion

The hypothesis was found to be incorrect, there is not a large shift in strategic priorities expected and when the data is further analysed the shift is more towards an increase than a decrease, not approximately even as predicted.

2) Hypothesis results on service delivery

Hypothesis 2A

Some services will be expected to become more outsourced to save costs and spread/share risk but others will remain in houses due to data sensitivity or due to having physical aspects rather than purely software.

Areas expected to be more outsourced:

- Desktop Software Management
- Staff file storage
- Student file storage
- Staff email and groupware
- Student email and groupware
- Departmental / enterprise server hosting
- Server backup service
- Desktop backup service

Areas not expected to be more outsourced:

- Datacentre physical hardware
- Desktop hardware management
- Finance system
- High performance computing
- Human resources system
- Networking service
- Service desk
- Student labs

This is based on research by Read (2010) highlighted in the literature review which states the importance of maintaining sensitive data in house and on personal experience of projects that have analysed the advantages and disadvantages for various IT services within Loughborough University.

Test

Two sets of questions were compared, sets as detailed in the table below to highlight service delivery now and expected service delivery in five years' time. Measure the average score from all institutions based on the priority on the Likert scale

5 Wholly outsourced

4 More insourced than outsourced

3 Equally co-sourced

2 More outsourced than insourced

1 Wholly outsourced

	Question set one	Question set two
Question number	Question 8	Question 16
Question title	How are the following IT services delivered at present?	How do you expect the following IT Services to be delivered in 5 years time?

Result

Using the Likert scale outlined above the average scores of all responders were:

Area	Average for now	Average for 5 years' time	Difference
Desktop Software Management	4.82	3.47	1.35
Staff file storage	4.84	3.03	1.81
Student file storage	4.54	2.11	2.43
Staff email and groupware	4.29	2.18	2.11
Student email and groupware	2.78	1.24	1.54
Departmental / enterprise server hosting	4.68	3.03	1.65
Server backup service	4.61	3.13	1.48

Desktop backup service	4.89	2.97	1.92
Datacentre physical hardware	4.58	3.21	1.37
Desktop hardware management	4.63	3.26	1.37
Finance system	4.46	3.46	1.00
High performance computing	4.79	2.82	1.97
Human resources system	4.41	3.11	1.30
Networking service	4.71	3.68	1.03
Service desk	4.79	3.87	0.92
Student labs	4.95	4.22	0.73

Table 8: Service delivery change

The above data represented in a graph looks like this:

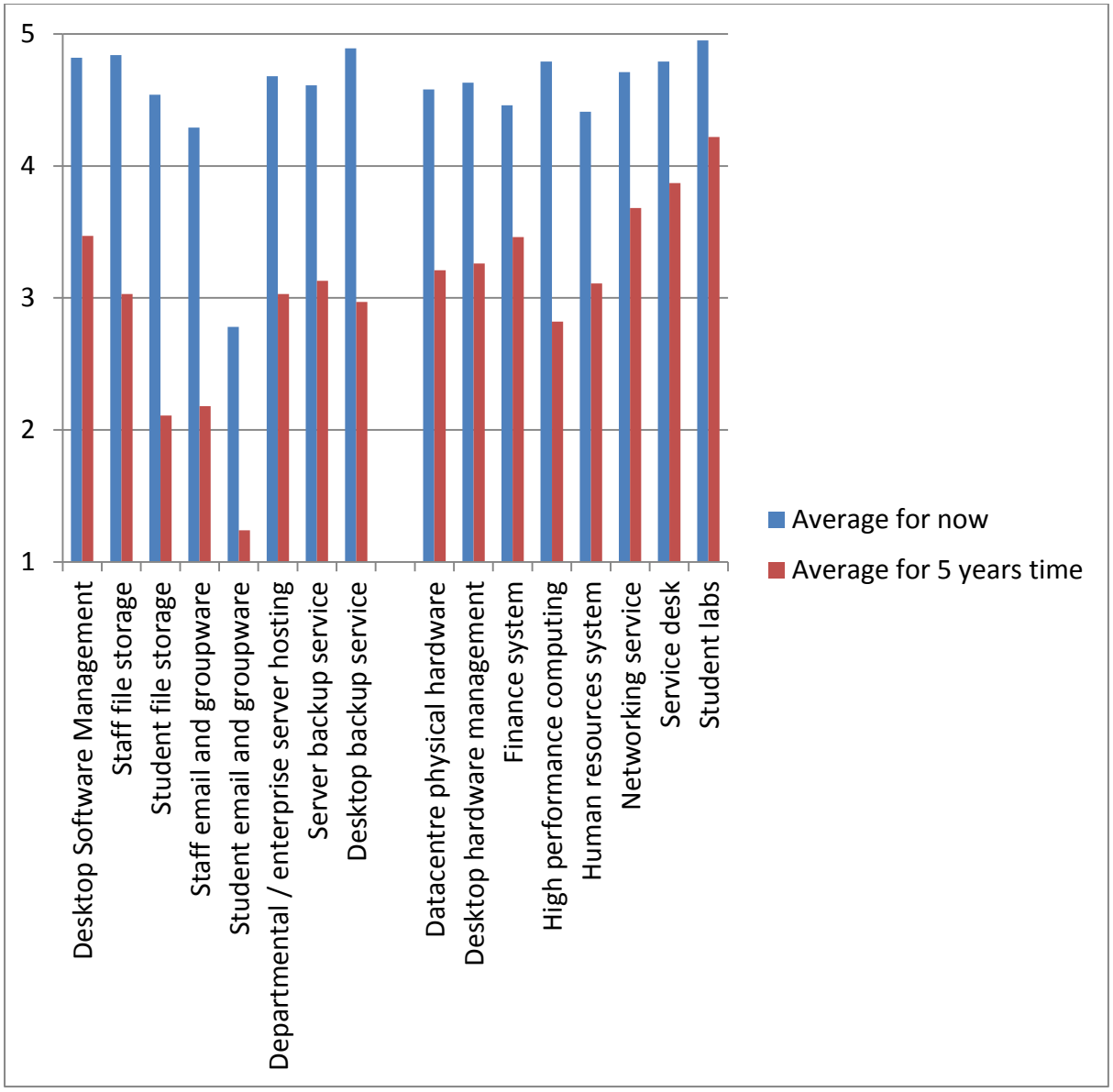


Figure 9: Service delivery change

The Y axis represents the 5 levels of service delivery asked in the questions and the X axis represents the IT areas which were asked about their current and future delivery. The blue bar represents the average now and the red bars represent the average expected in five years.

Discussion

The change towards outsourcing is across all areas, however areas which are mostly physical or that contain particularly sensitive data such as finance or HR information are expected to be slightly less outsourced than those which are not. Student email is the only service currently more outsourced than insourced on average and is expected to move even more in the outsourced direction. The

services expected to remain in-house are approximately between co-sourced and more insourced than outsourced. Whereas the other services are more between co-sourced and more outsourced than insourced.

Conclusion

The hypothesis is party correct, the services with physical elements or sensitive data are on average being outsourced less than other services which don't have those characteristics, however a degree of outsourcing is still expected.

Hypothesis 2B

There will be a large shift in service delivery between now and expected in 5 years as changes in funding mean services will change in how they are delivered in general and will change in either direction, as either insourcing or outsourcing a service can be beneficial in different circumstances. This is based on research by Willcocks and Lester (1997) who stated that services are better in-house when you have the capability equal to or more than the external market.

Test

Two sets of questions were compared, sets as detailed in the table below to highlight service delivery now and expected service delivery in five years' time. Measure the amount of change in steps, up and down in priority on the Likert scale:

5 Wholly outsourced

4 More insourced than outsourced

3 Equally co-sourced

2 More outsourced than insourced

1 Wholly outsourced

	Question set one	**Question set two**
Question number	Question 8	Question 16
Question title	How are the following IT services delivered at present?	How do you expect the following IT Services to be delivered in 5 years' time?

Result

	no change	1 step change	2 step change	3 step change	4 step change	Blank answer
Datacentre physical hardware infrastructure	7	15	11	5	0	0
Desktop hardware management	9	16	4	8	1	0
Desktop software management	7	18	6	7	0	0
Finance system	16	11	6	2	2	1
High performance computing	3	5	7	2	1	20
Human resources system	10	13	5	5	4	1
Staff file store	3	13	9	8	4	1
Student file store	2	9	9	6	11	1
Staff e-mail and groupware	11	5	3	7	12	0
Student e-mail and groupware	20	2	1	1	13	1
Departmental/ enterprise server hosting	2	17	13	4	2	0
Networking service	12	16	7	3	0	0
Service desk	11	20	6	1	0	0
Student labs	17	15	3	1	0	2
Server backup service	6	17	9	3	3	0
Desktop backup service	2	11	6	6	2	11

Table 9: Service delivery step change

These were all moves towards outsourcing apart from four, one institute who already wholly outsources their student email and groupware thought that in 5 years' time this would move by a step of one to, 'More outsourced than insourced'. The same institute also thought their Human Resource system would move from 'More outsourced than in sourced' to 'More insourced than outsourced'. One other institution currently rated staff file store as 'More outsourced than in sourced' and thought in five years' time it would move to 'More outsourced than insourced' and the last institute thought their human resource system was currently 'More outsourced than insourced' and it would move to 'Equally co-sourced'

This can be added up and totalled as a percentage below:

no change	138	22.70%
1 step change	203	33.39%
2 step change	105	17.27%
3 step change	69	11.35%
4 step change	55	9.05%
blank answer	38	6.25%

Table 10: Service delivery step change

This can then be shown as a graph:

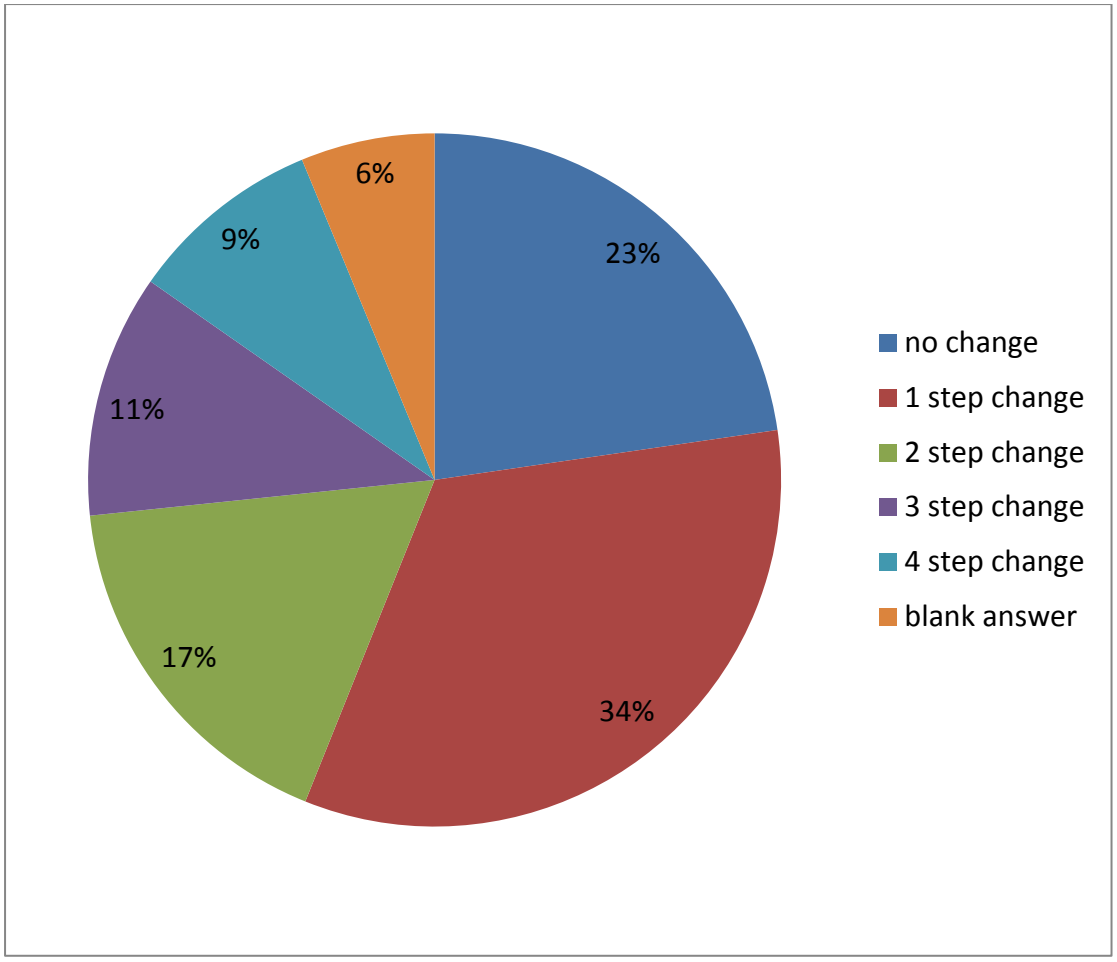


Figure 10: Service delivery step change

Change in service delivery in steps, expressed as a percentage of the overall answers.

When you compare this side by side with strategic priority change from hypothesis 1E it highlights how much more this is moving compared to that:

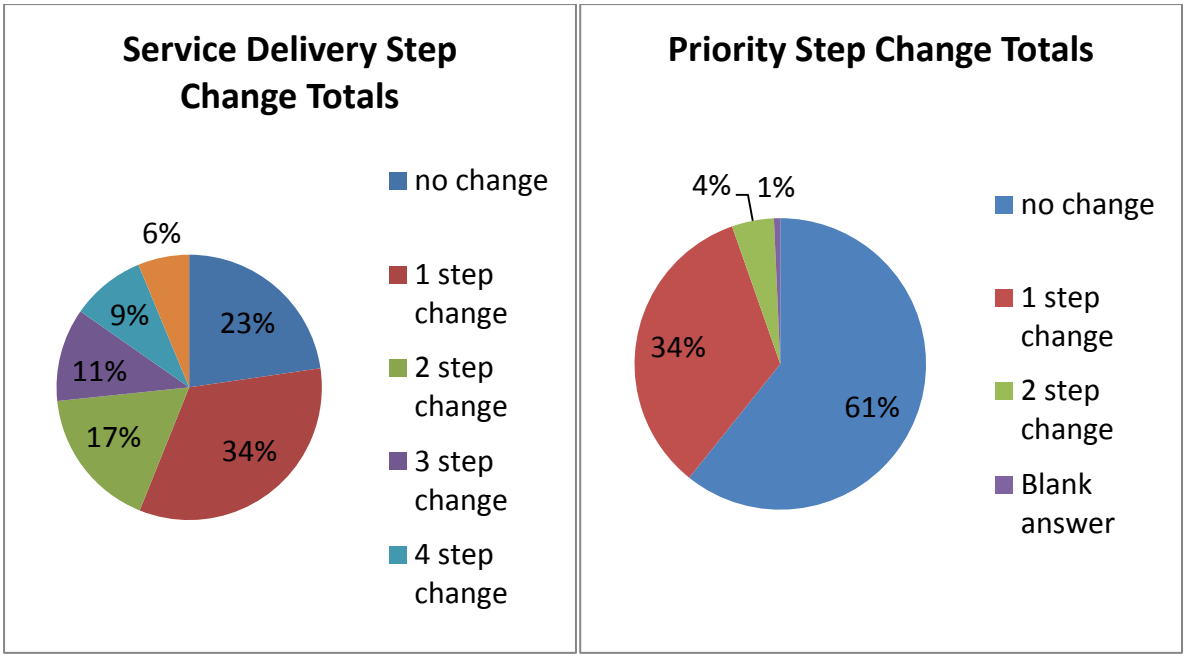


Figure 11: Step change comparison

62% of strategic priorities will stay the same but only 23% services will stay with the same delivery

Discussion

There is a large shift in the ways services are expected to be delivered over the next five years with an almost unanimous move (99% of the moves) towards an increase of outsourcing IT services, only four exceptions moving in the other direction (1% of the moves), out of a total of 608 answers. This was extremely surprising as insourcing can also be seen as a cost saving exercise. However the large shift is expected as Jobbers responses to environmental change predict a radical strategic repositioning - a large change in response to the environmental change. This makes Willcocks and Lester's 1996 findings look out of date as it would seem that the external resource has equal or better capabilities of internal resource, either that or institutions are will to trade off capabilities for cost effectiveness and shared responsibility.

Conclusion

The hypothesis was partly correct, there was a large shift in service delivery however the shift was almost unanimously towards outsourcing.

Hypothesis 2C

Different responders from different levels of management will have different viewpoints on the amount of outsourcing to expect over the next five years. Higher management will be more inclined to think a service will be outsourced in five years than a member of middle management, because higher management traditionally has the role of longer term strategic thinking and will be looking to the future of outsourcing and all of its highly publicised benefits, such as cloud computing. Whereas middle management, for example team managers, are often tasked with shorter term upgrades and system developments and will be looking more to improving systems internally with their team resources. This hypothesis is based on personal experience from the IT Services department at Loughborough University.

Test

As data was collected from one individual per institution a comparison of the same institution with different levels of management cannot be made; however an average analysis for each IT service surveyed for higher managers and middle managers can be made.

Three sets of question sets as detailed in the table below were compared to highlight service delivery now and expected service delivery in five years' time. Average scores from the Likert scale below were grouped by management level of the responder.

5) Wholly outsourced
4) More insourced than outsourced
3) Equally co-sourced
2) More outsourced than insourced
1) Wholly outsourced

	Question set one	**Question set two**	**Question set three**
Question number	Question 8	Question 16	Question 4

Question title	How are the following IT services delivered at present?	How do you expect the following IT Services to be delivered in 5 years' time?	Job Title?

Result

	Higher management service delivery (now)	Middle management service delivery (now)	Higher management service delivery (5 years)	Middle management service delivery (5 years)
Datacentre physical hardware infrastructure	4.52	4.86	3.26	3.14
Desktop hardware management	4.68	4.43	3.29	3.29
Desktop software management	4.81	4.86	3.55	3.57
Finance system	4.53	4.14	3.50	3.71
High performance computing	4.71	5.00	3.07	3.50
Human resources system	4.30	4.86	3.07	3.71
Staff file store	4.80	5.00	3.00	3.42
Student file store	4.47	4.86	2.07	2.57
Staff e-mail and groupware	4.13	5.00	2.29	1.86
Student e-mail and groupware	2.67	3.29	1.33	1.00
Departmental/enterprise server hosting	4.65	4.86	3.03	3.29
Networking service	4.68	4.86	3.68	4.00

Service desk	4.77	4.86	3.90	4.14
Student labs	4.93	5.00	4.34	4.57
Server backup service	4.52	5.00	3.13	3.43
Desktop backup service	4.87	5.00	3.04	3.25

Table 11: Service delivery by management level, now and in five years

The data above put into a graph makes it easy to see that the trends exist in both higher and middle management and that no one is notably more or less inclined one way as to the other:

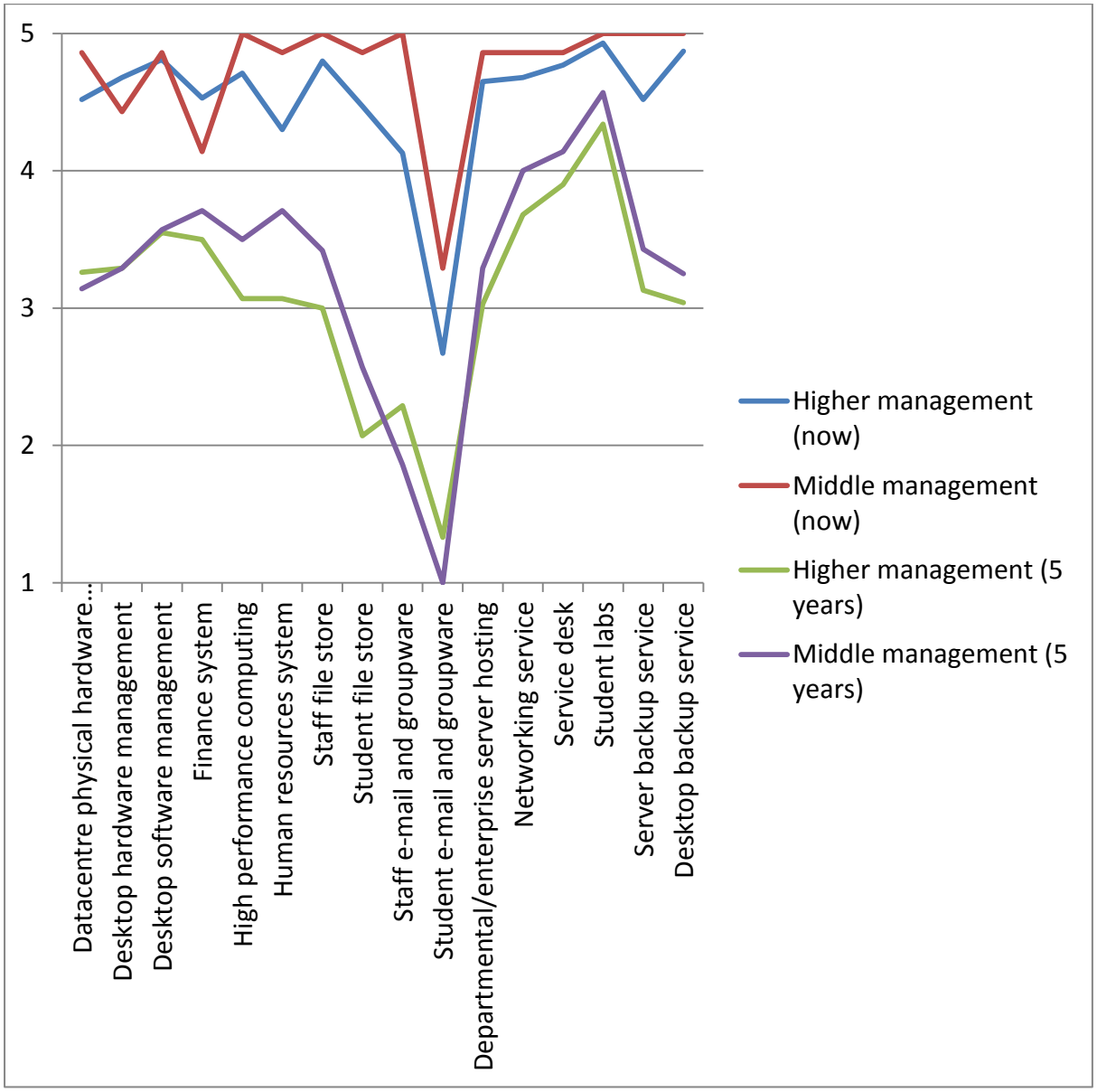


Figure 12: Service delivery by management level, now and in five years

Discussion

It should be noted that this data set contains a large amount of data cleaning to ascertain the level of management of the responder which could introduce inaccuracy. Both higher and middle management expect the similar trends towards outsourcing across all services.

Conclusion

The hypothesis is incorrect as far as this data set is concerned there is no clear indication that different levels of management will have different perceptions of service delivery now or expected service delivery in five years' time.

Hypothesis 2D

Older Universities will expect less change than newer ones as they are more stable and constant in their practices compared to newer universities which have more dynamic attributes to adapt to change quickly to fulfil market demands. This hypothesis is based on research on types of courses offered to students, newer emerging course demand is often first filled by newer institutions.

Test

Three sets of questions were compared as detailed in the table below to highlight service delivery now and expected service delivery in five years' time. Average scores from the Likert scale below were grouped by institution type of the responder.

5 Wholly outsourced

4 More insourced than outsourced

3 Equally co-sourced

2 More outsourced than insourced

1 Wholly outsourced

	Question set one	**Question set two**	**Question set three**
Question number	Question 8	Question 16	Question 5
Question title	How are the	How do you	Institution

	following IT services delivered at present?	expect the following IT Services to be delivered in 5 years' time?	type?

Result

Table to show the differences between score now and score then for service delivery on average for each institution type.

	Ancient University	Red Brick University	Plate Glass University	Post-1992 University that was a former polytechnic	Post-1992 University that was not a former polytechnic	Post 2005	Other
Datacentre physical hardware infrastructure	1.67	0.75	1.20	1.83	1.00	0.50	2.50
Desktop hardware management	1.67	1.38	0.40	1.50	1.40	1.50	2.50
Desktop software management	1.67	1.25	1.20	1.67	1.40	0.00	1.00
Finance system	1.33	0.75	1.75	1.00	0.80	0.00	1.00
High performance computing	2.00	1.00	1.50	2.50	1.00	NA	2.00
Human resources system	2.67	1.63	1.25	1.33	0.80	2.00	1.00
Staff file store	2.33	1.63	2.00	2.00	1.60	1.00	3.00
Student file store	1.67	2.13	2.80	2.50	2.20	1.00	3.50
Staff e-mail and groupware	1.33	2.00	2.40	2.00	2.40	0.00	4.00
Student e-mail and groupware	0.00	2.250	1.60	1.42	0.80	0.00	4.00

Departmental/enterprise server hosting	1.67	1.38	2.00	1.92	1.00	1.00	1.50
Networking service	1.00	0.88	0.20	1.42	0.80	0.50	2.50
Service desk	0.33	0.88	0.80	1.25	0.80	0.00	1.50
Student labs	0.67	0.29	0.60	0.91	0.80	0.00	1.00
Server backup service	1.33	0.88	2.00	1.92	1.60	0.00	1.50
Desktop backup service	1.50	1.60	2.00	2.11	2.00	0.00	2.00

Table 12: Service delivery differences by institution type

The data above shown as a graph:

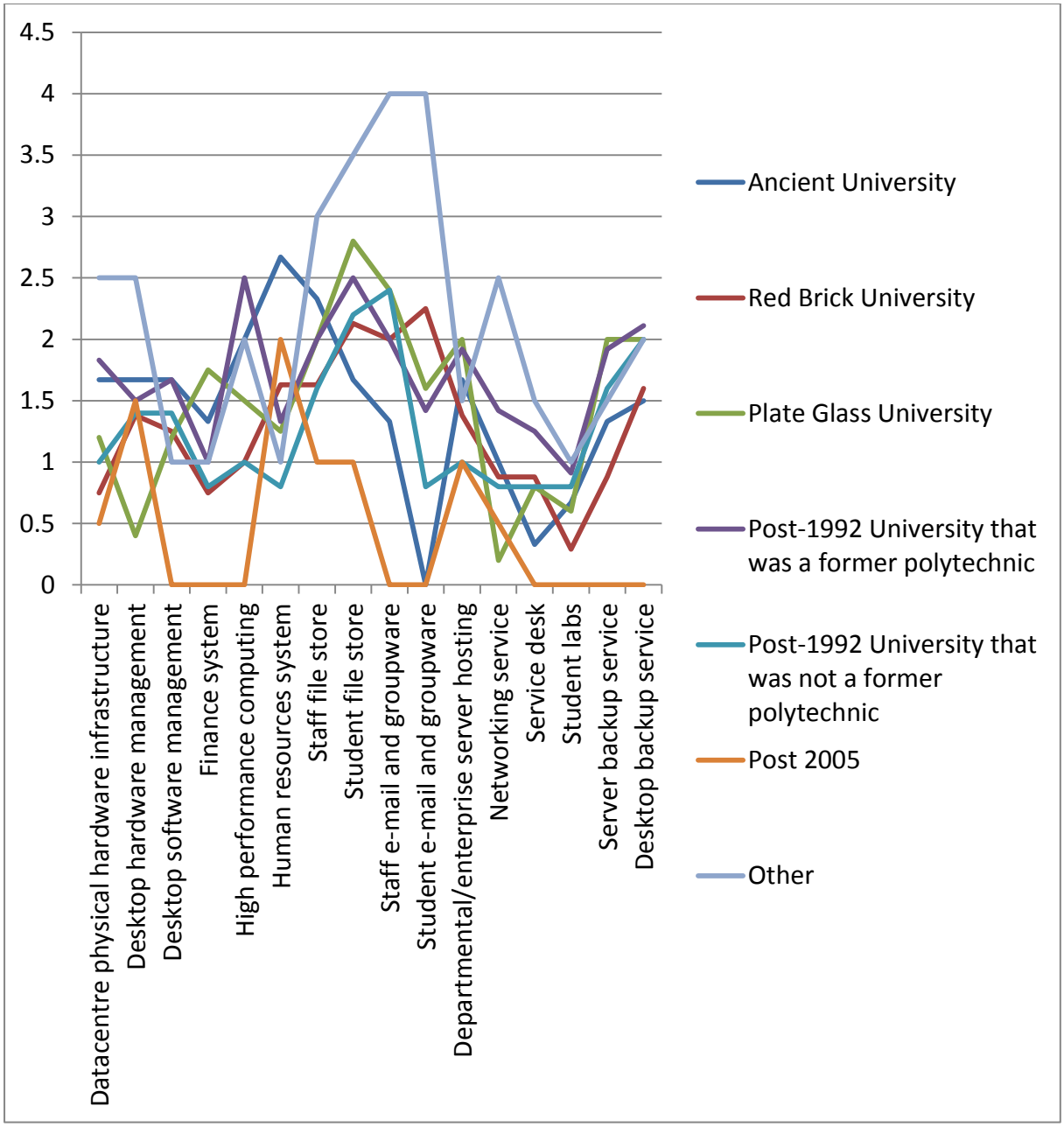


Figure 13: Service delivery differences by institution type

The Y axis is the difference of the average of service delivery rating now to in 5 years, the x axis are the IT services and the lines represent the institution types. The difference is always a shift towards outsourcing as on average no service moved toward insourcing.

The two groups ‘Post 2005’ and ‘Other’ are out of sync with the rest but this could be due to them only having two institutions in their group. If we remove them the graph looks like this:

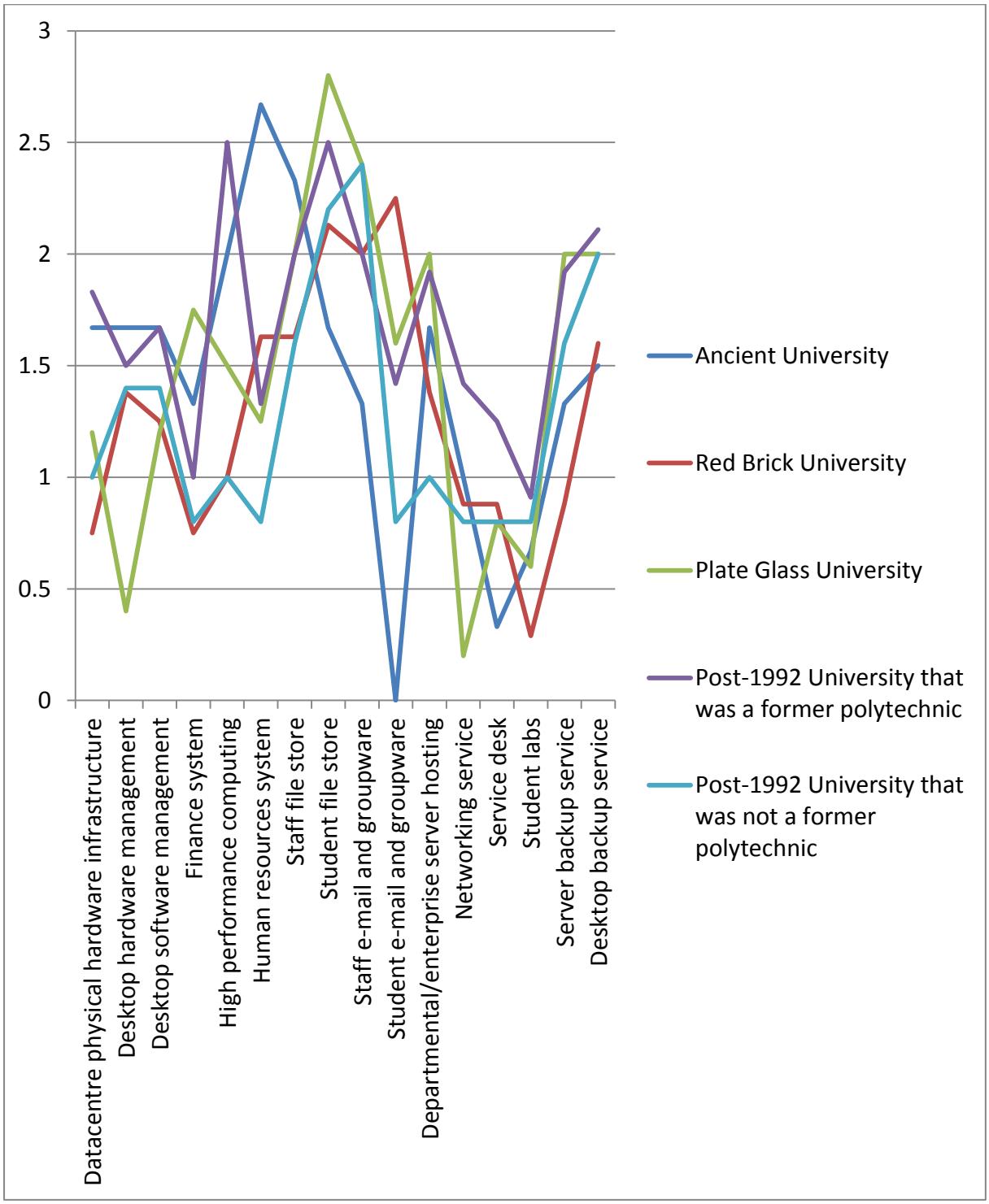


Figure 14: Service delivery differences by institution type

This graph shows the trend more clearly and even though the ancient university group only consists of three institutions the average still falls within the range to show a common trend.

Discussion

Institution type does not affect the amount of change expected in service delivery; on average they all seem to follow a similar pattern despite their differences. However due to some groups of institutions consisting of such small sample sets there could be a degree of inaccuracy.

Conclusion

The hypothesis is incorrect the institution type, based on the year it was founded, does not correlate to a larger or smaller shift in expected change in service delivery.

Hypothesis 2E

Institutions expecting the most amount of change in service delivery will also conduct the benefits analysis/targeting more often and successfully realise those benefits more often than institutions expecting a small amount of change. If an institution analyses benefits, then targets them and then successfully realises them then they are more likely to look to change as a way of improvement through the creation and maximisation of any potential benefits. Whereas an institution which does not do this as often is less likely to look to change services as they are less aware of the benefits of doing so and haven't successfully realised them as often previously.

Test

Four sets of question sets were compared as detailed in the table below to highlight the amount of change expected in service delivery based on the Likert scale below:

5 Wholly outsourced

4 More insourced than outsourced

3 Equally co-sourced

2 More outsourced than insourced

1 Wholly outsourced

With each institution's average score for benefits targeting and successful realisation based on the Likert scale below:

5 Always

4 Usually

3 Sometimes

2 Rarely

1 Never

	Question set one	**Question set two**	**Question set three**	**Question set four**
Question number	Question 8	Question 16	Question 10	Question 12
Question title	How are the following IT services delivered at present?	How do you expect the following IT Services to be delivered in 5 years' time?	To what extent are your University's IT projects used to explicitly target the following types of benefit?	To what extent are benefits, in each of the following areas, successfully realised from your University's IT Projects?

Result

	Average score for benefits analysed	Average score for benefits realised	Average score for amount of service delivery change
Institution 1	3.58	3.36	2.08
Institution 2	3.33	3.17	1.17
Institution 3	3.33	3.00	0.92
Institution 4	3.50	3.17	1.46
Institution 5	3.25	3.00	1.43
Institution 6	3.08	3.33	0.77
Institution 7	3.83	3.58	3.46
Institution 8	4.83	4.83	1.54

Institution 9	3.50	3.08	2.23
Institution 10	4.17	3.50	2.50
Institution 11	4.08	3.58	2.62
Institution 12	3.83	3.33	2.08
Institution 13	3.67	3.92	0.25
Institution 14	3.83	3.75	1.38
Institution 15	4.00	4.00	2.07
Institution 16	3.67	4.25	2.71
Institution 17	4.17	3.75	3.00
Institution 18	3.75	3.42	1.54
Institution 19	3.67	3.33	0.58
Institution 20	4.17	3.42	1.64
Institution 21	3.92	3.75	2.17
Institution 22	3.25	3.58	0.62
Institution 23	4.08	3.33	1.85
Institution 24	3.75	3.25	1.54
Institution 25	4.00	4.00	0.38
Institution 26	3.92	3.42	2.00
Institution 27	4.50	4.00	1.93
Institution 28	2.75	3.08	0.58
Institution 29	3.33	4.00	1.00
Institution 30	2.67	2.75	1.33
Institution 31	2.67	2.17	3.29
Institution 32	3.42	4.00	0.54
Institution 33	3.08	3.33	1.83
Institution 34	3.50	4.00	2.79
Institution 35	3.67	3.09	0.92
Institution 36	3.08	3.92	1.77
Institution 37	3.42	2.92	2.23
Institution 38	3.33	3.50	1.64

Table 13: Average score for benefits analysed, realised and service delivery change

Once these are ordered by institution with the highest average score for amount of service delivery change expected down to the lowest a graph can be used to show if the trend follows with benefits targeted and successfully realised.

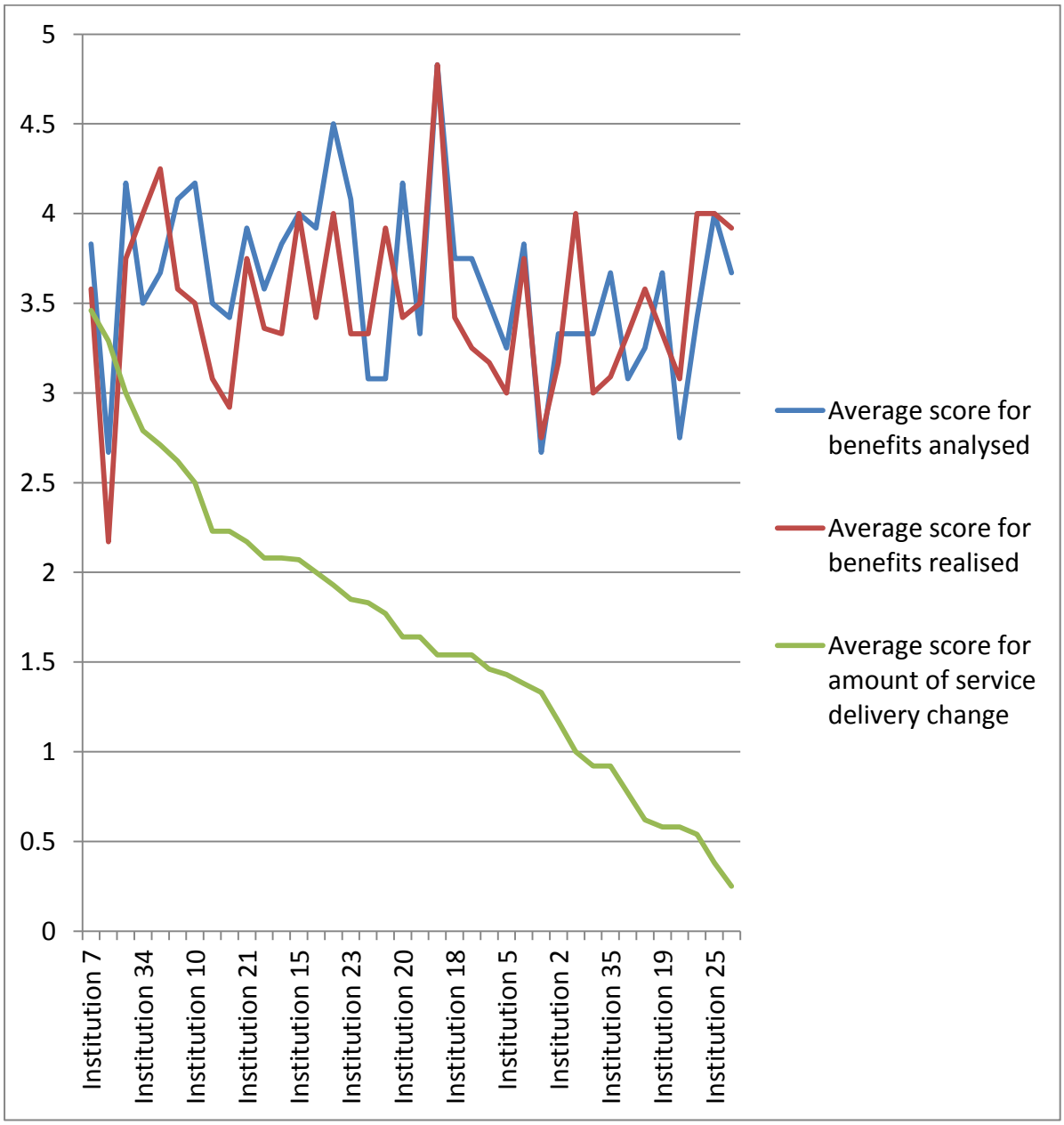


Figure 15: Average score for benefits analysed, realised and service delivery change

The Y axis is the score from the table above and the X axis are the 38 institutions which responded, with the three lines representing the three questions asked. Ordered by the amount of expected service delivery change.

Discussion

This shows there is no correlation between those who target and successfully realise benefits to those who are expecting a large amount of change to IT service delivery. However it does highlight that institutions do approximately the same amount of benefits targeting as they successfully realise.

Conclusion

The hypothesis is incorrect; there is no correlation between the amount of expected change in service delivery and the frequency of benefits realisation conducted by an institution.

3) Hypothesis results on benefits realisation

Hypothesis 3A

Although IT projects often look for benefits and target them they are less often actually successfully realise them. Hypothesis 2E highlighted that the frequency of benefits targeted by institution was close to the frequency of benefits successfully realised. I would expect however for benefits to be frequently targeted as part of a change management methodology but for the actual measurement of success to be lower due to the measurements not taking place after the change has 'gone live' or due to the expected benefits changing as the change evolves. This is based on personal experience and also from research in the literature review from Ashurst and Hodges (2010) who found in their research that post project evaluation of benefits was not carried out consistently.

Test

Two sets of question sets were compared as detailed in the table below to highlight the difference between benefits targeting and successful realisation.

	Question set one	Question set two
Question number	Question 10	Question 12

Question title	To what extent are your University's IT projects used to explicitly target the following types of benefit?	To what extent are benefits, in each of the following areas, successfully realised from your University's IT Projects?

Result

Areas	Number of institutions who target benefit more than realise it	Number of institutions who equally target and realise	Number of institutions who realise benefit more than target it
Improving system reliability, measurable by number of issues logged with the service desk	14	17	7
Improving fix times for logged issues, measurable through service desk statistics	8	19	11
Improving IT service availability, reducing planned and unplanned downtime	14	21	3
Reducing environmental impact / carbon footprint	8	21	9

Improving data security	9	20	9
Reducing training needed, simplification and integration of systems	11	23	3
Improving system performance, faster and more efficient systems	11	25	2
Improvements to the efficiency and effectiveness of administrative processes	14	19	5
Enhanced support for and access to research	10	21	7
Improvements to managerial decision-making	10	20	8
Improvements to the quality of teaching through e-learning initiatives	7	27	4
Enhanced communications with existing and potential students	7	23	7

Table 14: Institution by benefits targeted and realised

There was one blank answer under “Reducing training needed, simplification and integration of systems” that data set contains 37 responders not 38 like the other data sets.

The table above expressed as a graph:

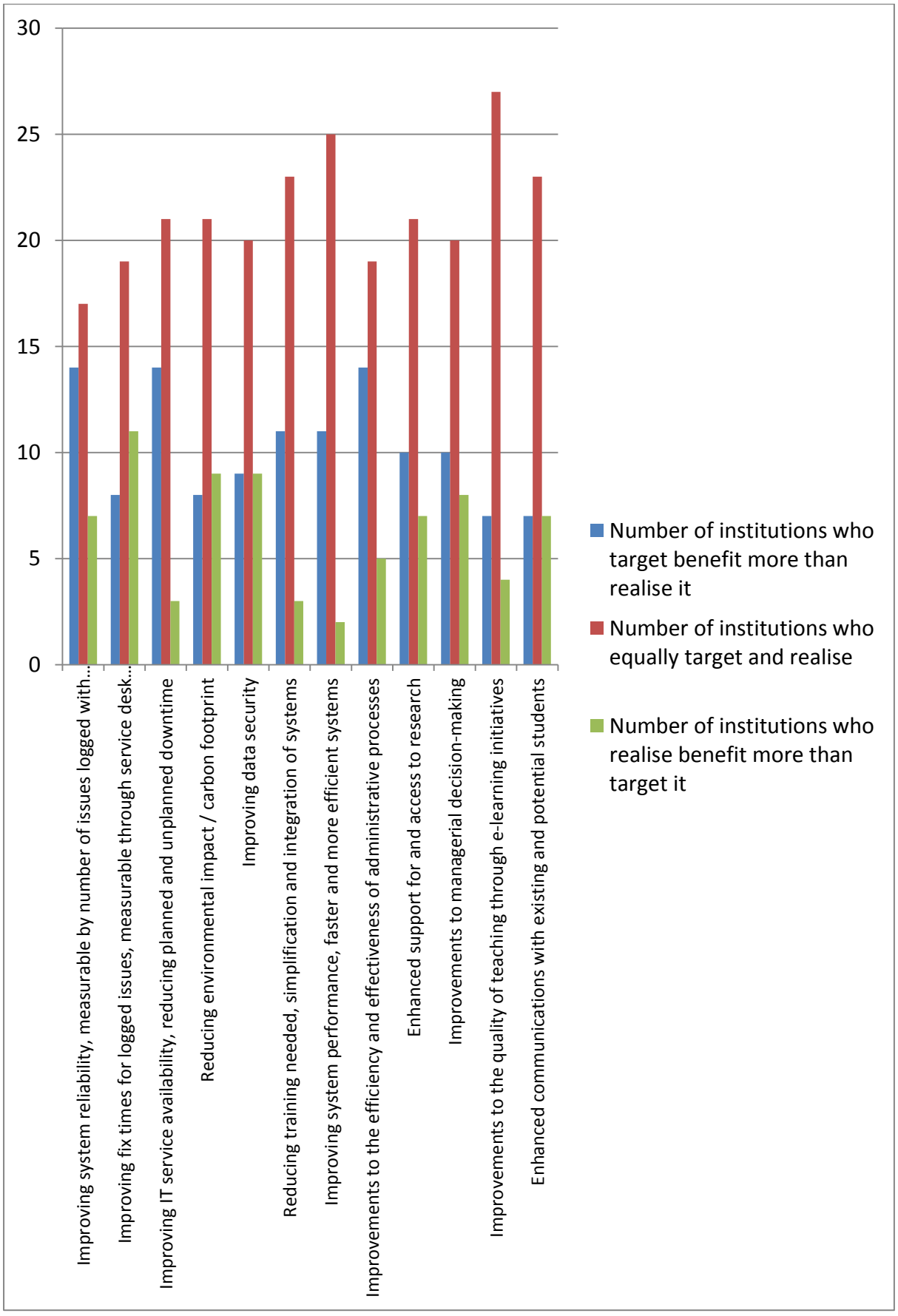


Figure 16: Institution by benefits targeted and realised

The Y axis represents the number of institutions, the X axis represents the areas from the questions and the bars represent if an institution targets that particular area more, equally or less than it successfully realises it.

Discussion

This was surprising as it wasn't expected that any areas would have benefits realised more than they were targeted. The number who equally target and then successfully realise them is also much higher than expected. More research could be done in this area to find out why and how this is happening.

Conclusion

The hypothesis is incorrect, some benefits are being successfully realised more often than they are targeted.

Hypothesis 3B

Institutions who successfully realise benefits more often are more likely to fully use change management methodologies such as PRINCE2 or ITIL.

Test

Two question sets were compared as detailed in the table below to highlight a correlation between high scores in frequency of benefits realisation using the Likert scale below:

5 Always
4 Usually
3 Sometimes
2 Rarely
1 Never

And institutions who use change management methodologies based on the scale below:

1 Yes
2 Partly

3 Not yet but planning to

4 No

	Question set one	Question set two
Question number	Question 19	Question 12
Question title	Are you currently using any formal methodologies for change management (for example, ITIL or PRINCE2)?	To what extent are benefits, in each of the following areas, successfully realised from your University's IT Projects?

Result

	Average score for benefits realised	Using formal change management methodologies
Institution 1	3.36	1
Institution 2	3.17	1
Institution 3	3.00	2
Institution 4	3.17	4
Institution 5	3.00	3
Institution 6	3.33	1
Institution 7	3.58	1
Institution 8	4.83	1
Institution 9	3.08	1
Institution 10	3.50	2
Institution 11	3.58	2
Institution 12	3.33	1
Institution 13	3.92	2
Institution 14	3.75	1

Institution 15	4.00	1
Institution 16	4.25	1
Institution 17	3.75	2
Institution 18	3.42	1
Institution 19	3.33	1
Institution 20	3.42	1
Institution 21	3.75	1
Institution 22	3.58	2
Institution 23	3.33	1
Institution 24	3.25	1
Institution 25	4.00	2
Institution 26	3.42	1
Institution 27	4.00	1
Institution 28	3.08	2
Institution 29	4.00	1
Institution 30	2.75	2
Institution 31	2.17	3
Institution 32	4.00	2
Institution 33	3.33	1
Institution 34	4.00	1
Institution 35	3.09	1
Institution 36	3.92	2
Institution 37	2.92	1
Institution 38	3.50	1

Table 15: Benefits by change management methodologies

If the above table is expressed in a graph and is ordered by if the institution uses formal change management methodologies, it shows that the lower the score the more they do, so the left hand side answered yes and when the red line rises they answered partly then not yet but planning to then the last institution on the right hand side answered no.

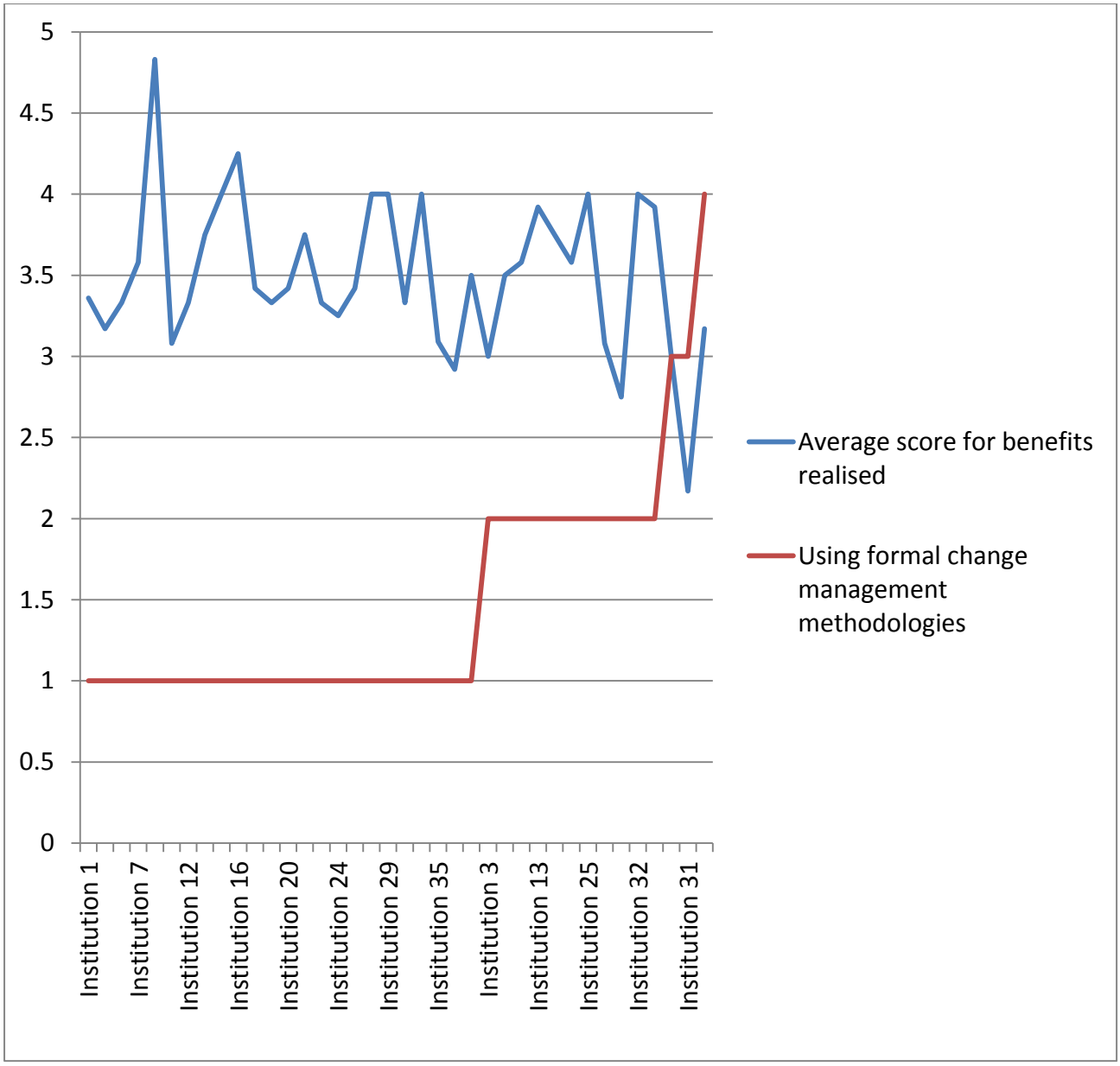


Figure 17: Benefits by change management methodologies

It looks like there might be a very slight trend of benefits realisation being higher when the formal change management methodologies are being used.

Simplified it looks like:

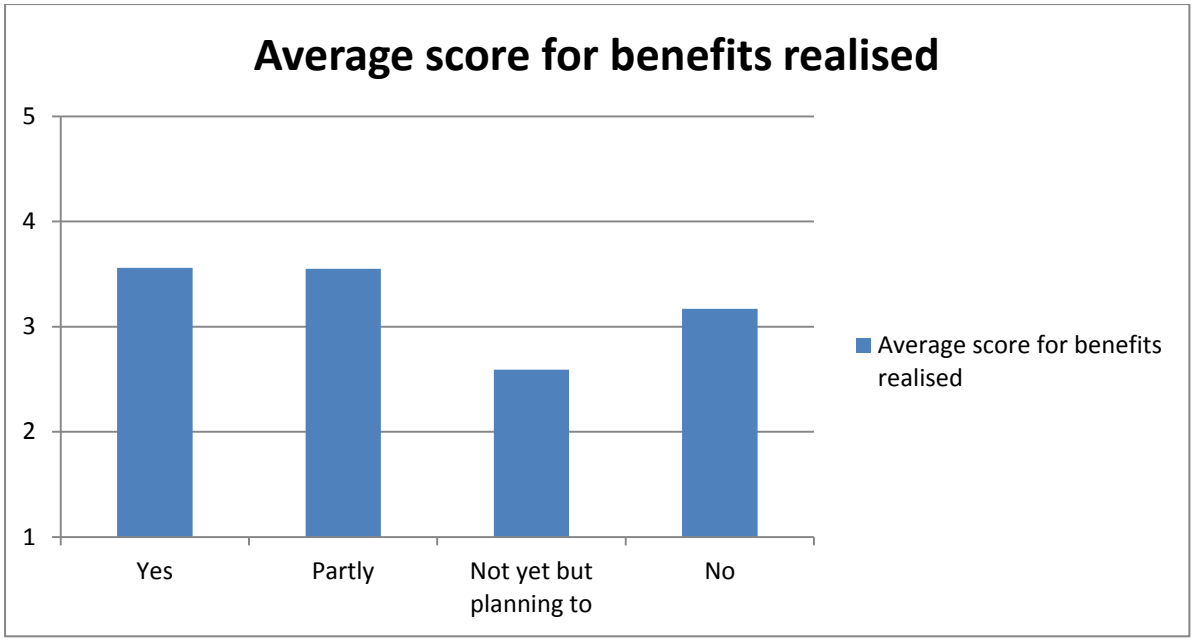


Figure 18: Average benefits by change management methodologies

And the average score is averaged out for all the answers in each category. As there was only two responses in the '3 = Not yet but planning to' answer and only one in the '4 = No' the data sets are too small to draw a solid conclusion.

Discussion

There could be a very slight decrease in the amount of benefits realised when not implementing a formal change management methodology although with this size data sample it isn't enough to tell, further research using a larger data set may produce a more definite trend.

Conclusion

The hypothesis is inconclusive due to the size of the data set for the groups analysed.

Hypothesis 3C

Higher levels of management believe benefits are being targeted and realised more than middle managers. Higher level managers will be looking at project initiation documents with benefits of proposed projects and will believe these will be managed and met by middle managers in charge of these projects, however targets are often set during system development and improvement projects for measurable benefits which can be recorded once the system is live but once the system does go live

these are often forgotten about as the main focus is fixing any initial problems that occur which weren't picked up in the testing and pilot phases. It is then hard to draw the line of the system fully live and initial problems fixed so that real benefits analysis can be done. Even if they are remembered and resource is still available to monitor and analyse the benefits the additional problem can be that the initial targets set in the project planning phase are now unrealistic or inaccurate compared with how the system has developed and changed through the project process.

Test

Compare three sets of question sets as detailed in the table below to highlight the amount of benefits targeting and successful realisation shown against management level, attained from job title.

	Question set one	Question set two	Question set three
Question number	Question 10	Question 12	Question 4
Question title	To what extent are your University's IT projects used to explicitly target the following types of benefit?	To what extent are benefits, in each of the following areas, successfully realised from your University's IT Projects?	Job Title:

Result

	Total benefits analysed	Total benefits realised	Job Title
Institution 1	3.58	3.36	Middle Management
Institution 2	3.33	3.17	Higher Management
Institution 3	3.33	3.00	Higher

			Management
Institution 4	3.50	3.17	Higher Management
Institution 5	3.25	3.00	Middle Management
Institution 6	3.08	3.33	Middle Management
Institution 7	3.83	3.58	Higher Management
Institution 8	4.83	4.83	Higher Management
Institution 9	3.50	3.08	Higher Management
Institution 10	4.17	3.50	Higher Management
Institution 11	4.08	3.58	Middle Management
Institution 12	3.83	3.33	Higher Management
Institution 13	3.67	3.92	Higher Management
Institution 14	3.83	3.75	Higher Management
Institution 15	4.00	4.00	Higher Management
Institution 16	3.67	4.25	Higher Management
Institution 17	4.17	3.75	Higher Management
Institution 18	3.75	3.42	Higher Management

Institution 19	3.67	3.33	Higher Management
Institution 20	4.17	3.42	Higher Management
Institution 21	3.92	3.75	Higher Management
Institution 22	3.25	3.58	Higher Management
Institution 23	4.08	3.33	Higher Management
Institution 24	3.75	3.25	Middle Management
Institution 25	4.00	4.00	Higher Management
Institution 26	3.92	3.42	Higher Management
Institution 27	4.50	4.00	Middle Management
Institution 28	2.75	3.08	Higher Management
Institution 29	3.33	4.00	Higher Management
Institution 30	2.67	2.75	Middle Management
Institution 31	2.67	2.17	Higher Management
Institution 32	3.42	4.00	Higher Management
Institution 33	3.08	3.33	Higher Management
Institution 34	3.50	4.00	Higher

			Management
Institution 35	3.67	3.09	Higher Management
Institution 36	3.08	3.92	Higher Management
Institution 37	3.42	2.92	Higher Management
Institution 38	3.33	3.50	Higher Management

Table 16: Benefits analysed and realised by management level

There are only seven middle managers who responded compared to thirty one in the higher management category, but if I rearrange the order of institutions so that the middle managers are the last seven then put the data into a graph it looks like this:

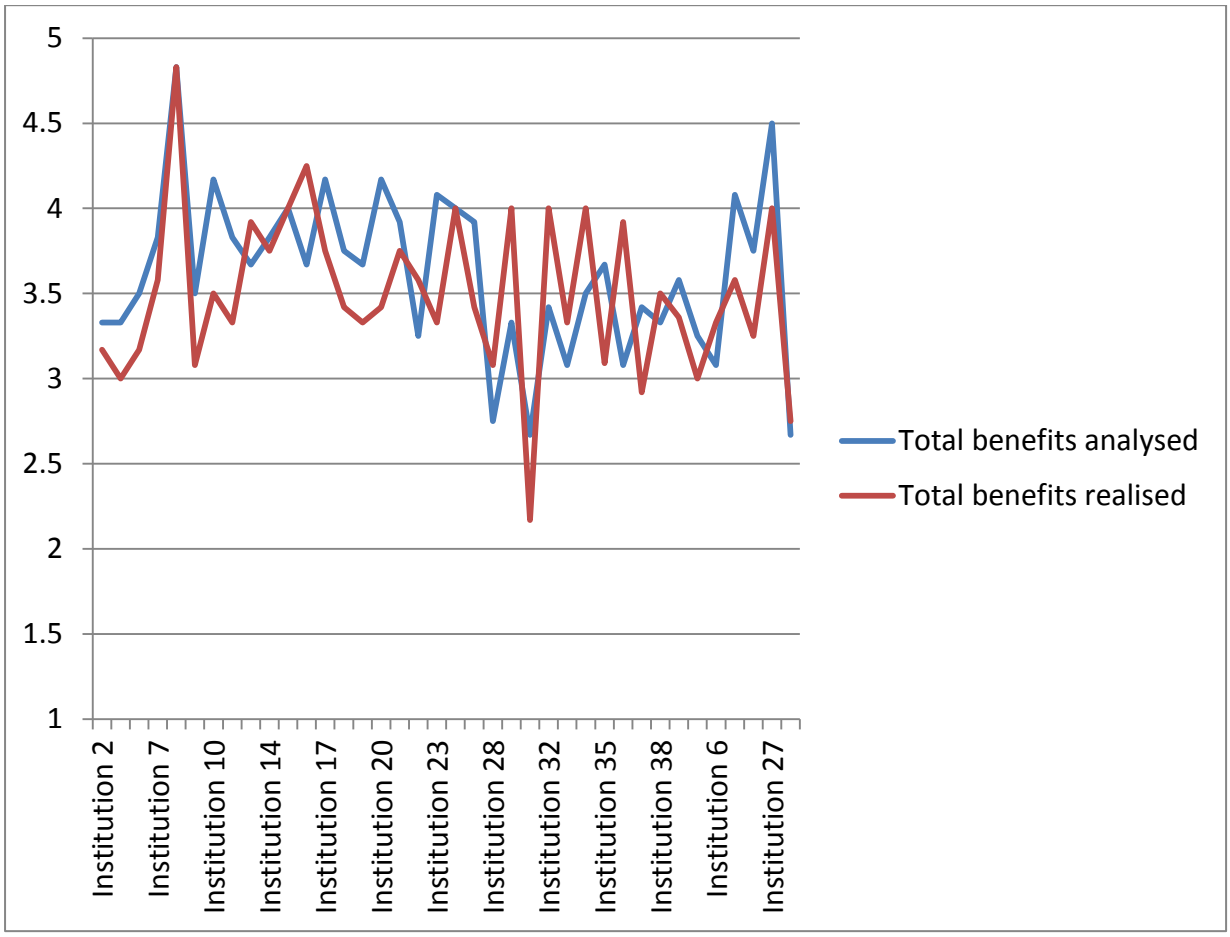


Figure 19: Benefits analysed and realised by management level

It doesn't look like a pattern exists at all, however if the average for both higher and middle management is compared it shows a slight difference, as below:

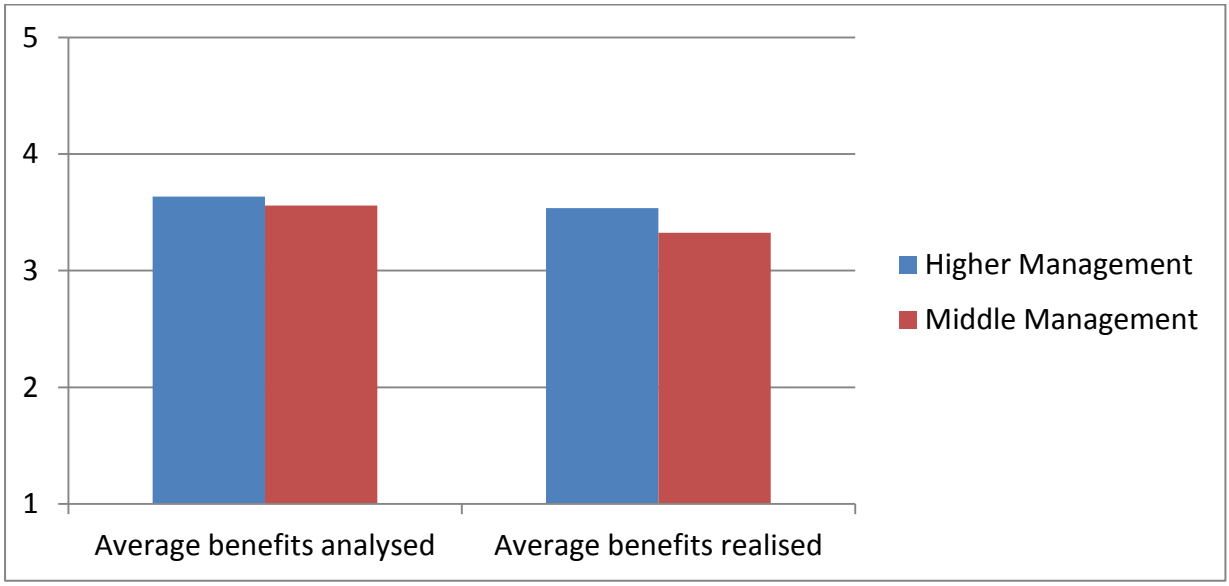


Figure 20: Average benefits analysed and realised by management level

With the Y axis being:

5 = Always

4 = Usually

3 = Sometimes

2 = Rarely

1 = Never

And the X axis the average amount of benefits analysed realised for each management group.

Conclusion

There is a very slight decrease but a larger sample group would be needed to confirm the hypothesis.

4) Hypothesis results on change management

Hypothesis 4A

Higher levels of management perceive the organisational culture of the institution differently to those in middle management. It's very rare that an organisation culture

will be perceived the same at all levels of management, as there is large amount of research into the benefits of having the culture perceived the same at all levels, although it is often noted that this is difficult to achieve.

Test

Two sets of question were compared as detailed in the table below to compare organisational culture against management level attained from the job title.They used the following Likert scale:

5 = Strongly Agree

4 = Agree

3 = Neutral

2 = Disagree

1 = Strongly Disagree

	Question set one	Question set two
Question number	Question 18	Question 4
Question title	How accurate are the following descriptions of your organisation?	Job Title:

Result

	Higher management	Middle Management
Average score for: IT staff are led by a charismatic and well respected management team	3.87	3.00
Average score for: IT staff	3.84	3.71

roles are clearly defined and relationships are also clearly set out		
Average score for: IT staff use informal relationships and roles to get things done quicker and easier than using the formal channels	3.26	4.00
Average score for: IT staff are assigned tasks in the lowest practical level in a project management style	3.23	3.00
Average score for: IT staff are consulted on all decisions	3.10	2.86

Table 17: Organisational culture by management level

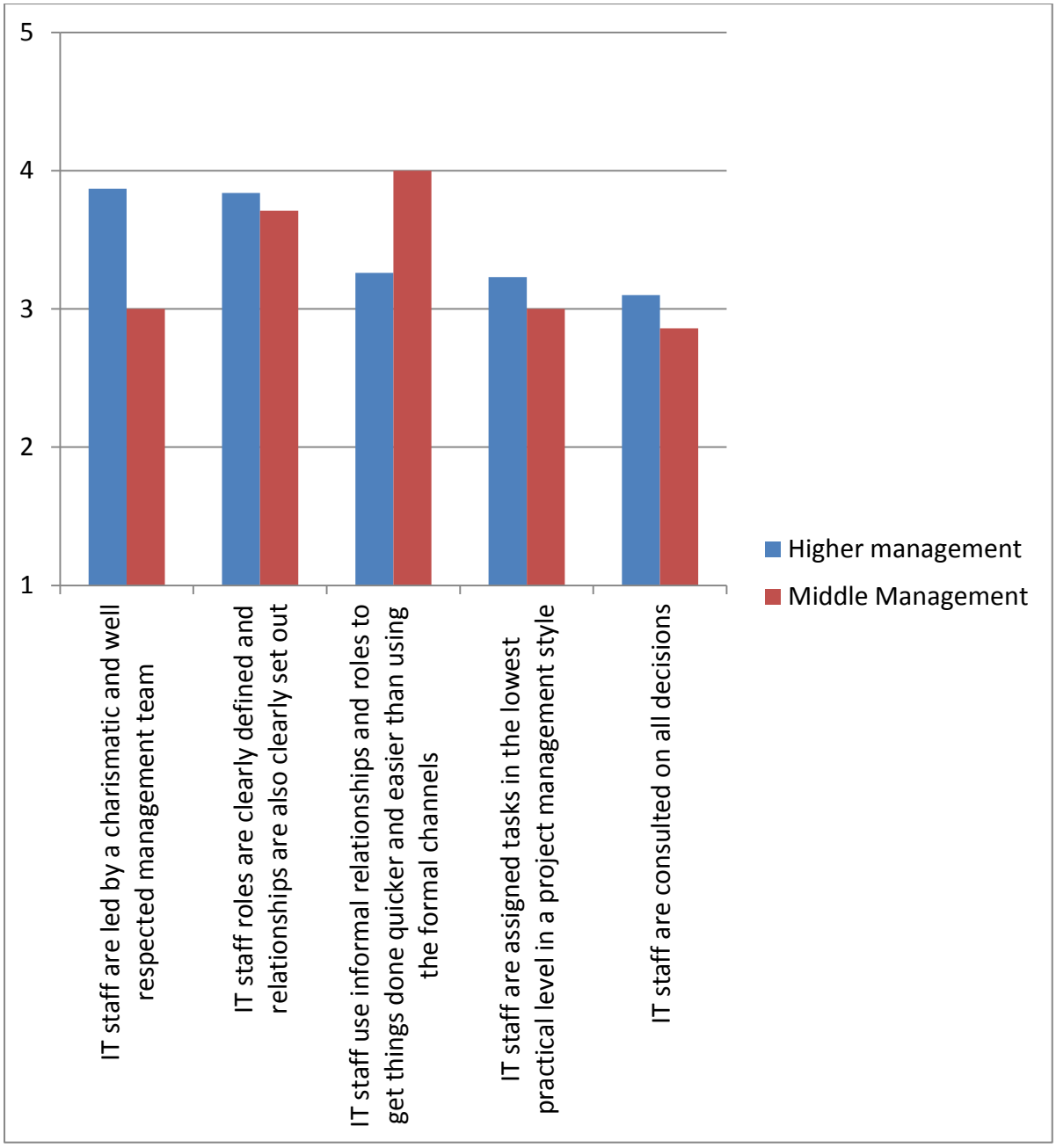


Figure 21: Organisational culture by management level

The Y axis is:

5 = Strongly Agree

4 = Agree

3 = Neutral

2 = Disagree

1 = Strongly Disagree

The X axis relates to the questions on organisational culture.

Discussion

This graph highlights that the higher management levels believe there is an autocratic power based culture with a charismatic leadership with elements of a bureaucratic culture with relations oriented leadership. However if you look further down the management ladder we see that middle management believe the bureaucratic culture still exists but staff have to use informal relationships to get tasks completed quickly and easily. So there does seem to be a distinct difference in perception of organisational culture based on level within the hierarchy.

Conclusion

The hypothesis is correct there is a difference in perception of organisational culture across different levels of management.

Hypothesis 4B

Different types of institution will have different organisational cultures. Older more traditional institutions will have a different organisational culture to newer more modern institutions.

Test

Two question sets were compared as detailed in the table below to compare organisational cultures against institution type.

	Question set one	Question set two
Question number	Question 18	Question 5
Question title	How accurate are the following descriptions of your organisation?	Institution type

Result

The table below shows the average score from each institution type for the different organisational cultures using a Likert scale of:

5 = Strongly Agree

4 = Agree

3 = Neutral

2 = Disagree

1 = Strongly Disagree

	Ancient University	Red Brick University	Plate Glass University	Post-1992 University that was not a former polytechnic	Post 1992 that was a former polytechnic	Post 2005 University	Other
IT staff are led by a charismatic and well respected management team	4.00	3.50	3.20	3.40	4.00	4.00	4.00
IT staff roles are clearly defined and relationships are also clearly set out	3.67	3.38	3.40	4.00	4.25	3.67	4.00
IT staff use informal relationships and roles to get things done quicker and easier than using the formal channels	3.67	3.00	3.60	3.80	3.58	3.00	2.50
IT staff are assigned tasks in the lowest practical level in a project management	3.00	3.00	3.20	3.00	3.50	3.67	2.00

style							
IT staff are consulted on all decisions	3.33	2.63	2.60	3.60	3.00	3.67	3.50

Table 18: Organisational culture by institution type

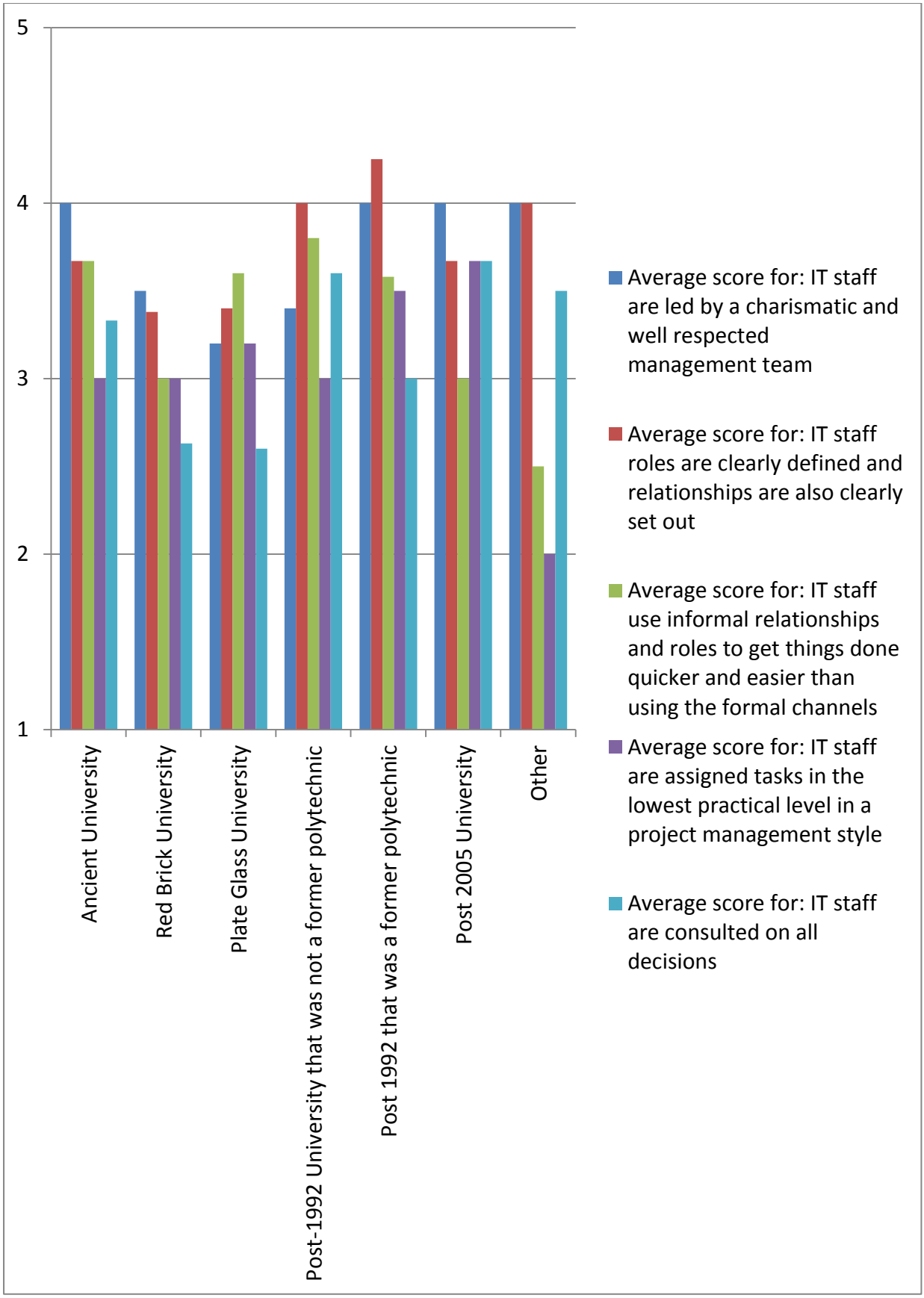


Figure 22: Organisational culture by institution type

Discussion

There is no pattern to organisational culture types being particular relevant to a particular institution type; any difference seems more likely to be based on level within the hierarchy as in the previous hypothesis. However some data sets for different institution types were small so further research may reveal a correlation.

Conclusion

The hypothesis appears to be incorrect although a larger data set would be needed to provide a definite answer.

Hypothesis 4C

Institutions who have used Business Process Re-engineering (BPR) in the past are more likely to expect large shifts in change in service delivery, for example from wholly insourced to wholly outsourced. This is based on the research in the literature review which highlights the BPR technique as most suited to a complete change of process or service.

Test

Three sets of question were compared as detailed in the table below to compare large shifts in service delivery against BPR use.

	Question set one	**Question set two**	**Question set three**
Question number	Question 8	Question 16	Question 20
Question title	How are the following IT services delivered at present?	How do you expect the following IT Services to be delivered in 5 years' time?	Business process re-engineering Has this ever been used in your department?

Results

The below table has a row for each institution ordered by the amount of BPR they do, the question ‘Has Business process re-engineering ever been used in your department?’ uses the coded answers below:

1 = Yes often

2 = Yes sometimes

3 = Yes once or twice

4 = no

Has Business process re-engineering ever been used in your department?	number of moves from wholly outsourced to wholly insourced service delivery
1	7
1	0
1	4
1	3
1	0
1	2
1	0
1	0
1	3
1	2
1	0
1	0
2	0
2	0
2	0
2	3
2	0
2	1
2	0
2	0

2	0
2	8
2	2
2	0
3	0
3	0
3	0
4	1
4	0
4	2
4	4
4	0
4	5
4	0
4	2
4	2
4	4
4	0

Table 19: Business process reengineering by service delivery change

Has Business process re-engineering ever been used in your department?	Average number of moves from wholly outsourced to wholly insourced service delivery
Yes often	1.75
Yes sometimes	1.17
Yes once or twice	0.00
no	1.82

Table 20: Business process reengineering by average service delivery change

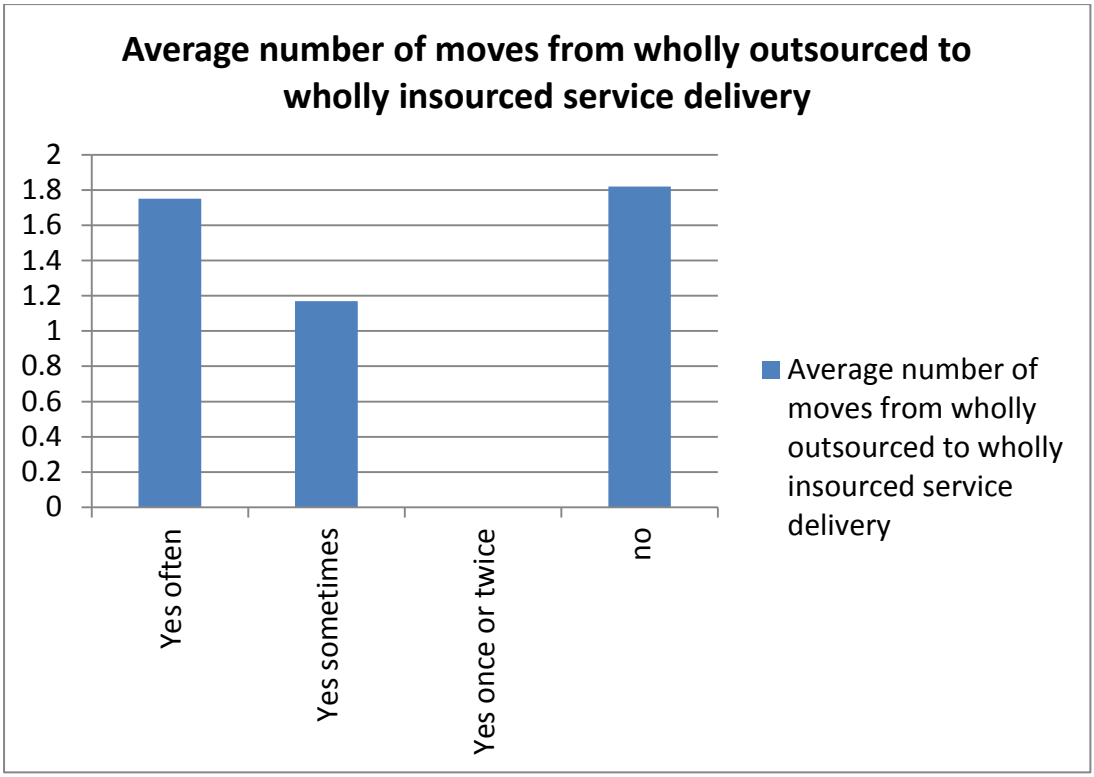


Figure 23: Business process reengineering by average service delivery change

Discussion

The results could be improved with a larger data set, but the graph still shows that institutions that do not use BPR are moving services from wholly insourced to wholly outsourced just as much as those who do use it.

Conclusion

The hypothesis is incorrect the use of BPR doesn't mean you are more or less likely to consider moving a service from wholly insourced to wholly outsourced.

Hypothesis 4D

Institutions which use formal change management methodologies such as ITIL and PRINCE2 are more likely to have used BPR than those who do not and as a result are more likely to have successfully realised benefits more often.

Test

Three sets of question sets were compared as detailed in the table below to compare change management methodology use with BPR use referencing the amount of successful benefits realisation.

	Question set one	Question set two	Question set three
Question number	Question 12	Question 19	Question 20
Question title	To what extent are benefits, in each of the following areas, successfully realised from your University's IT projects?	Are you currently using any formal methodologies for change management (for example, ITIL or PRINCE2)?	Business process re-engineering Has this ever been used in your department?

Results

The table in Appendix D has a row for each institution
I have categorised the response to the change management methodologies question into two groups, group one for those who answered Yes or Partly for using change management methodologies (Group = Yes) and group two for those who as yet haven't (Group = No).

I categorised the BPR responses into two groups, group one for those who answered Yes or Yes Sometimes or Yes once or twice (Group = Yes) for using BPR and group two for those who answered No (Group = No).

The table now looks like this:

Total benefits realised	Are you currently using any formal methodologies for change management?	Has Business process re-engineering ever been used in your department?
3.17	Yes	No

3.00	Yes	Yes
3.17	Yes	Yes
3.58	No	No
4.83	No	No
3.08	Yes	Yes
3.50	Yes	Yes
3.33	Yes	Yes
3.92	Yes	Yes
3.75	Yes	No
4.00	Yes	Yes
4.25	Yes	Yes
3.75	Yes	Yes
3.42	Yes	No
3.33	Yes	Yes
3.42	Yes	Yes
3.75	Yes	No
3.58	Yes	Yes
3.33	Yes	Yes
4.00	Yes	Yes
3.42	Yes	Yes
3.08	Yes	No
4.00	Yes	Yes
2.17	Yes	No
4.00	Yes	Yes
3.33	Yes	Yes
4.00	Yes	Yes
3.09	Yes	Yes
3.92	Yes	Yes
2.92	Yes	No
3.50	No	No

3.36	Yes	No
3.00	Yes	Yes
3.33	Yes	Yes
3.58	Yes	Yes
3.25	Yes	Yes
4.00	Yes	Yes
2.75	Yes	Yes

Table 21: Benefits realised by change methodology by business process reengineering

	Number of Institutions	Average score for successful benefits realisation
Using change management methodologies to some degree and have used BPR at least once	27	3.53
Using change management methodologies to some degree and have not used BPR	8	3.20
Used BPR at least once but not using change management methodologies to any degree	0	NA
Not using change management methodologies and never used BRP	3	3.97

Table 22: Average score for benefits realised by change methodology by business process reengineering

This shows that doing both change management methodologies and BPR does give you a higher score on the average amount of successful benefits realisation than only doing change management and not BPR. However the score for not doing either is even higher although that group only consisted of three institutions.

The graph below shows the percentages of institutions who fall into each category:

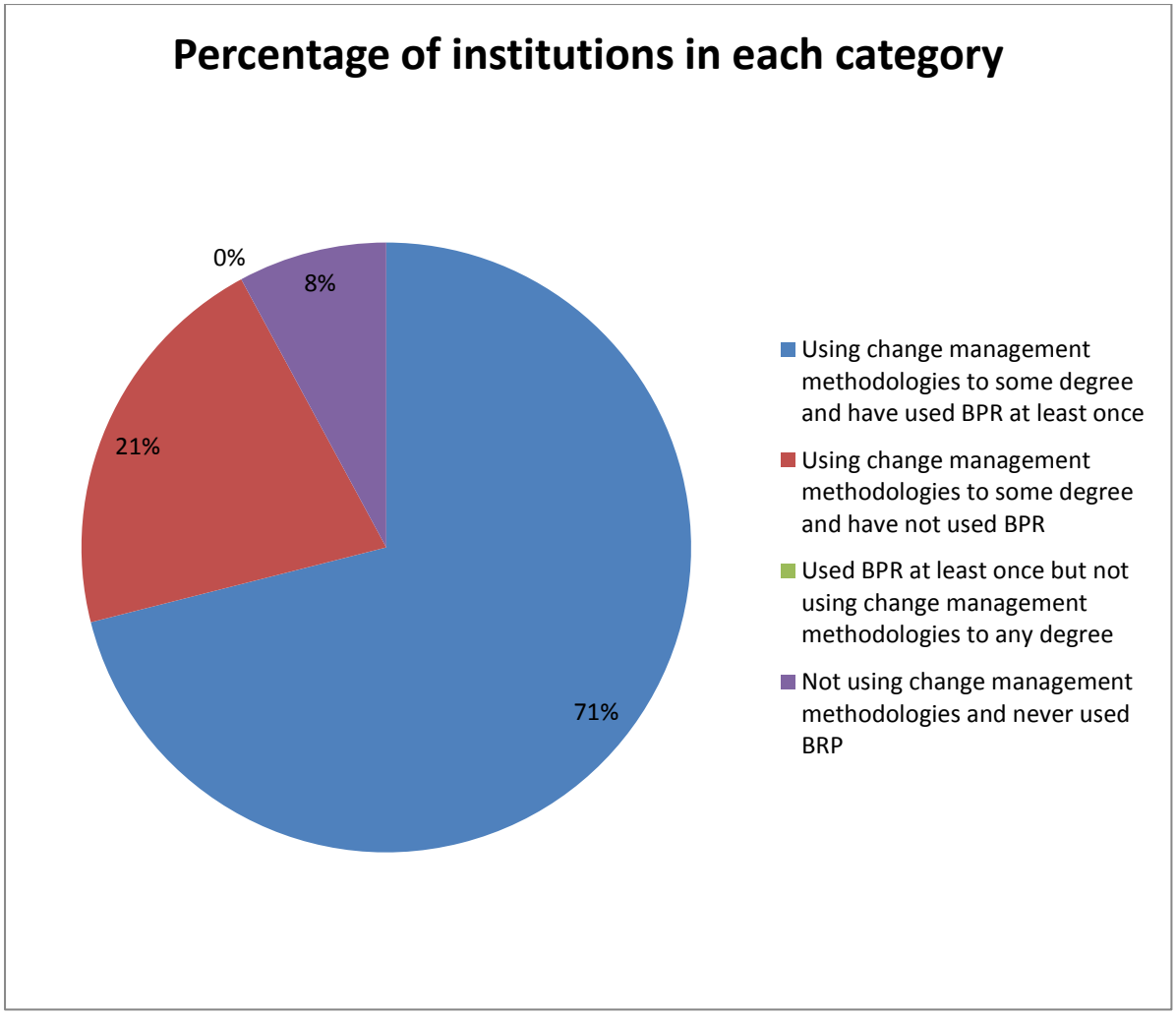


Figure 24: Average score for benefits realised by change methodology by business process reengineering

Discussion

No institution uses BPR without doing some degree of formal change management methodology; however the benefits realisation data is too small to draw conclusions from.

Conclusion

The hypothesis is partly correct, institutions which use BPR also use formal change management methodologies, but without obtaining a larger data set it cannot be proved that this increases successful benefits realisation.

Discussion and Conclusions

In overall terms, the survey evidence confirms some of the suppositions posited in the hypotheses, but has produced some unanticipated responses in a number of areas, particularly to do with the nature and extent of out-sourcing, the widespread use of formal change management techniques and processes, and the uniformity of trends across the spectrum of institutional types. Care should be taken with interpreting some of the results, however, as without time-series data it is hard to reach a definite conclusion about some aspects of the change process. The following summarises the findings in relation to each of the principal hypotheses:

Hypothesis One: External factors will cause a change in strategic direction for IT Departments – from service expansion to service improvement – and this improvement will be sought in part through more external partnerships; all types of HE institutions will experience this change.

The results confirm that expansion of services is not a current priority for most IT Departments. This is not unexpected in the context of increasing financial restraint, although one might have expected to see more emphasis upon expansion resulting from technological development. Improving existing services has become a more important priority than it used to be with most IT Departments, but the important point to note here is that there has been relatively little change. It would seem reasonable to assume that this is because service improvement is a process that has been underway for some time now and is already well embedded into departmental processes, but it is impossible to prove this without further time-series data.

Much the same can be said about the prioritisation of the environmental perspective. Reducing carbon footprint does gain in importance as hypothesised, but not by as much as anticipated. As with service improvement, it may well be the case that this is because the concern is already being addressed.

As hypothesised, when examining future priorities over the next five years, utilising more external resource will be given a higher priority than it has at present, and in-house development of software and services is set to decline in importance. Interestingly, the data relating to this part of the survey demonstrates very little difference across all types of institution. This may seem counter-intuitive, given the

sample encompasses institutions ranging from internationally recognised, often well-resourced research intensive Universities to those which are much more focussed upon teaching and domestic student recruitment, and are often less well-resourced. It suggests that the *nature* of the work involved is a much more important factor in determining policies and procedures than the *context* in which the work is undertaken. As we shall see, this uniformity across the institutional sector is found in other areas of the results as well.

One important thread running throughout the results in this section is that the amount of change anticipated by institutions is significantly *less* than hypothesised. Given the many fundamental changes that have taken place in the resourcing arrangements for Universities, combined with the inexorable rate of technological development in the wider IT community, one might have expected to see significant changes either taking place or being anticipated. Instead, the picture across the board is of IT Departments continuing to prioritise their activities in much the same way as they have over the recent past – with one exception, the move to out-sourcing.

Hypothesis Two: IT Departments will continue some in-house service delivery and seek to make it more efficient, but the major change will be in an expansion of out-sourcing; the greater the degree of change, the more likely it is that institutions will attempt to both identify and target specific benefits, and subsequently realise them.

As hypothesised, there is a significant shift in the ways services are expected to be delivered over the next five years, with an almost unanimous move towards an increase of outsourcing IT services across the board. Again, as hypothesised, some services, especially those involving sensitive data such as Finance or HR, are usually undertaken in-house. An unanticipated result, however, was that even these services are anticipated to move at least partly into outsourcing. It may be that institutions have developed more trust in the reliability of outsourcing, or it may be just that financial considerations and cost-savings now outweigh any such possible concerns. This would require further research.

The hypothesis was disproved on the linkage between amount of change anticipated, and the use of benefits realisation techniques. The amount of expected change does not correlate to the amount of benefits realisation undertaken - some

who expect a lot of change in the near future do undertake benefit realisation exercises, but others who also expect a lot of change do not conduct much in the way of a benefits realisation approach, and the same is true for those who expect little change. Given the widespread use of formal change management methodologies and benefits realisation across most institutions, this suggests that most IT Departments have recognised the advantages of such formal project planning, and undertake it regardless of the amount of change in their environment. As with Hypothesis One, this finding again suggests that the *nature* of the work involved is a much more important factor in determining policies and procedures than the *context* in which the work is undertaken.

Overall, the change towards outsourcing has been much larger than expected across all services. Levels of management do not have different perceptions of this even though it was hypothesised that higher management would expect more, and middle managers would expect less [due to their having a more hands on approach with the day to day running of the systems and being more likely to know of reasons - such as integrations with other systems - that they cannot be outsourced easily]. Once again, institution type also bears no relevance on amount of change expected, disproving the hypothesis that older institutions might be expecting less change than their newer counterparts.

Hypothesis Three: The use of change management methodologies increases the chances of successful benefits realisation.

Unfortunately, the data does not provide a definitive answer. It suggests that there could be a very slight decrease in the amount of benefits realised when not implementing a formal change management methodology, but the sample size is too small to be certain of this. This would require further time-series data on perceived benefit realisation. What is interesting, however, is that BPR and change management methodologies are inextricably linked – none of the institutions that have undertaken a BPR process have done so without also using formal change management methodologies such as those incorporated in ITIL and PRINCE2.

Hypothesis Four: perceptions of successful benefits realisation will differ according to a person's position in the organisational hierarchy.

This hypothesis was largely borne out by the data, but the effect is small. Perceptions on the part of higher management and middle management are different, with the former claiming that benefits realisation is undertaken to a greater degree and with more success than their middle management colleagues think. The sample set for middle management, however – some 7 out of 38 – is too small for definitive judgements. In any future research, it would be important to secure more responses from middle management, although it is gratifying that so many senior managers did agree to complete this survey.

Conclusions

1. Despite significant changes in the external environment [both in terms of resourcing and technological change], there is relatively little change underway or anticipated in the strategies adopted by IT Departments, apart from the continuing trend towards out-sourcing.

2. Utilising external resource, whether in the form of strategic partnerships or complete out-sourcing, will continue to expand. There is also a decrease in priority for developing services in house. The positive aspects of outsourcing in the current economic climate are out weighing the negatives.

3. Reducing carbon footprint is still an important priority; however, improvement to services is still seen as a higher priority.

4. Management level or Institution type bears no relevance on strategic priorities (either now or in five years), or on service delivery changes.

5. Services with largely physical aspects or services that contain more sensitive data are less likely to be outsourced than other services – but even here there is a clear trend towards out-sourcing.

6. There is a significant move towards outsourcing across all IT services, and across all types of institution.

7. Benefits realisation is in regular use, even amongst those institutions who expect the least amount of change.

8. Benefits can be successfully realised without being specifically targeted

9. It is probable (though not proven through data capture) that benefits realisation is more successful in conjunction with change management methodologies such as ITIL and PRINCE2.

10. Higher management are more likely to believe successful benefits realisation is undertaken than middle management, but the differences between the two sub-sets are small.

11. Perception of organisational culture is different throughout the organisational hierarchy.

12. Institution types do not bear relevance on organisational cultures

13. Use of BPR doesn’t mean an institution is more or less likely to consider moving a service from wholly insourced to wholly outsourced.

14. No institution undertakes BPR without doing some degree of formal change management methodology

Improvements to this research

- This analysis could have been improved with more historical data, by taking sample data five years ago to look further back, thus allowing more trend analysis to be done.
- Some questions and options for answers could have been clearer to lessen the need for data cleaning which can induce errors.
- Follow up contact could have been made with responders to find any missing data.
- Ideally, survey research could be undertaken in five-year intervals to get a true representation of priorities and service delivery, rather than expected ones.
- Ideally, the survey could have been followed up with telephone interviews to see what motivators are deemed to be affecting strategic priorities.
- The questionnaire could have been piloted in institutions other than Loughborough University. This might have addressed some problems encountered with delineating job titles [reducing the 'other' responses received in this category. Scrutiny of other institution's strategic priorities via their web sites did, however, enable a full list in the survey questions, so additional trialling was not necessary for this important aspect.
- Putting percentage values on Likert scales would have helped to highlight the fact the options are equidistant from each other.
- Data about forecasting for change could have been collected

Possibilities for further research

- Investigate if projects are now led by technological change or potential benefits
- Investigate if organisations are using weighting systems on potential benefits based on strategic priorities
- Larger survey producing time-series data
- Investigate why strategic priorities are static
- Is benefits realisation done before making a decision to change? Or is it part of the change process after it has already been decided?

Recommendations

- Review strategic priorities regularly to keep in line with organisational level strategies and also to be flexible to change.
- Use strategic priorities to weight benefits to change in service delivery to decide if they should be insourced, co-sourced or outsourced.
- Use formal change management methodologies
- Target benefits and measure to see if they are successfully realised
- Use BPR when drastically changing an IT service delivery
- Compare strategies with other institutions regardless of type
- Ensure organisational culture is perceived the same throughout the hierarchy of the institution
- Collaborate with other organisations from both the public and private sector for mutual benefits

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Appendix

A) Interview with the Vice Chancellor of Loughborough University

1) Would you see improving current service quality as more important than widening services offered?

The University is not planning substantial changes in its range of activities, although continuous development is important to remain current and relevant and it is always looking for ways to improve the service it provides. This doesn't mean however that the University will not take risks as sometimes you have to take risks to gain a competitive advantage and to be innovative.

2) IT Services are entering into a strategic partnership with a private company Logicalis, are there any other existing strategic partnerships currently with private companies? And do you see the importance of these increasing in the next five years?

We expect Sponsorships/Partnerships to increase. Our strong partnerships with business, industry and the professions are a competitive advantage and existing partners include BAE, EON, Ford, JCB, Rolls Royce, Lotus, Caterpillar and many more.

3) Are any strategic partnerships with public organisations currently in place around the University? And do you see the importance of these increasing in the next five years?

We are planning on building more partnerships like the current one with Birmingham and Nottingham, the Midlands Energy Consortium. We are currently in the early stages of a partnership with Leicester University for purchasing together to save money. We are also looking at sharing expensive equipment with local institutions such as Leicester, Nottingham and Birmingham. This could be used, for example, for laboratory equipment.

4) How are staff likely to react to organisational change, with regard to the following stages?

    a. Opposition - Openly against the change and direct and forceful in trying to stop it
    b. Resistance - Less openly against the change and more passive in tactics to delay or stop it
    c. Compliance - Will act in accordance to the change but still believe it is not the best option so do so with minimal effort
    d. Acceptance - A high level of support where staff realise the benefits and will work towards the change
    e. Commitment - Staff are committed to the change and fully believe in it and work towards it with conviction and enthusiasm

The removal of Faculties and the move to Schools has given rise to lots of mixed reactions, and the Senate minutes reflect this. We set up a working group to help get people on board and I have personally chaired the Project Management Board and ensured strong staff

representation. As the project to move to Schools has progressed more staff are realising the benefits and becoming more and more committed to the change.

5) With regards to the change processes and the project to manage these processes how much benefits realisation has been done? Are potential benefits explored? Are they checked they have been achieved? And are future benefits investigated and exploited to maximise them?

The project group has probably not done enough work on benefit realisations, but I would be very interested in the current work IT Services are doing to introduce monitoring these in a more structured way. We have however run a number of value-for-money projects with specific targets and with periodic reviews which do conform to the models of benefits realisation.

6) Rank these change motivators in order of importance for the next five years?

    a. Legislative change
    b. Competitive change
    c. Efficiency Change
    d. Business Survival

They are all important, of course. Business survival is currently not an issue for Loughborough University as we are in a strong position especially when compared to other institutions. Competitive change is a challenge as in many areas Loughborough University is very good, indeed in some areas world leading, whilst in other areas we are not as good as all our competitors.

7) Do you use any forecasting techniques to predict changes in the market or legislation? If so what are they and how often are they carried out?

We research demographics and social classes. We pay particular attention to key decision makers who can directly affect the University. We see forecasting as very important to helping us plan and react to change.

B) Survey

University IT Strategic Direction Survey

Loughborough University

Information Technology Services - Strategic Direction Survey

This survey is part of a series of research that we at Loughborough are undertaking into institutional IT strategies, as part of a joint project involving IT Services and the School of Business and Economics.

We are looking for feedback on how your IT strategy has changed and how you anticipate that it will change in response to the changing Higher Education environment, in particular the new funding regime.

Our survey questionnaire should take about ten minutes to complete, and is aimed at Directors of IT and other senior managers with responsibility for IT.

Thank you in advance for your time.

Regards,

Jeremy Byrne
Loughborough University

Section One: Personal Information

Please note your name and e-mail address are entirely optional, please leave blank if you wish to remain anonymous. Your details if provided will be removed from any results and publications and will only be used by myself for contact for a follow up interview.

1. Name *(Optional)* More Info

2. E-mail address *(Optional)* More Info

3. Do you wish to receive an email of the results of my survey? (results will have personal information removed) *(Optional)*

- ○ Yes
- ○ No

4. Job Title: More Info

Select an answer

If you selected Other, please specify:

5. Institution Type: More Info

- ○ Ancient University
- ○ Red Brick University
- ○ Plate Glass University
- ○ Post-1992 University that was a former polytechnic
- ○ Post-1992 University that was not a former polytechnic
- ○ Post 2005 University
- ○ Other *(please specify)*:

Section Two: Current Situation

This section is focuses upon your IT Services Department at this moment in time.

6. In terms of the current strategy of your Department, please indicate the priority given to the following.

	5) Very High Priority	4) High Priority	3) Medium Priority	2) Low Priority	1) Very Low Priority
a. Adopting innovative technology	○	○	○	○	○
b. Develop more software and services in house	○	○	○	○	○
c. Expand existing services	○	○	○	○	○
d. Improve efficiency	○	○	○	○	○
e. Improve integration of services	○	○	○	○	○
f. Improve service quality	○	○	○	○	○
g. Reducing carbon footprint	○	○	○	○	○
h. Strategic partnership with private companies	○	○	○	○	○
i. Strategic partnership with public organisations	○	○	○	○	○
j. Utilise more external resource	○	○	○	○	○
k. Widen the service portfolio	○	○	○	○	○

7. Further Comment *(Optional)*

8. How are the following IT services delivered at present?

More Info

	5) Wholly insourced	4) More insourced than outsourced	3) Equally co-sourced	2) More outsourced than insourced	1) Wholly outsourced	Not an IT service provided
a. Datacentre physical hardware infrastructure						
b. Desktop hardware management						
c. Desktop software management						
d. Finance system						
e. High performance computing						
f. Human resources system						
g. Staff file store						
h. Student file store						
i. Staff e-mail and groupware						
j. Student e-mail and groupware						
k. Departmental/enterprise server hosting						
l. Networking service						
m. Service desk						
n. Student labs						
o. Server backup service						
p. Desktop backup service						

9. Further Comment *(Optional)*

10. To what extent are your University's IT projects used to explicitly target the following types of benefit?

	5) Always	4) Usually	3) Sometimes	2) Rarely	1) Never
a. Improving system reliability, measurable by number of issues logged with the service desk					
b. Improving fix times for logged issues, measurable through service desk statistics					
c. Improving IT service availability, reducing planned and unplanned downtime					
d. Reducing environmental impact / carbon footprint					
e. Improving data security					
f. Reducing training needed, simplification and integration of systems					
g. Improving system performance, faster and more efficient systems					
h. Improvements to the efficiency and effectiveness of administrative processes					
i. Enhanced support for and access to research					
j. Improvements to managerial decision-making					
k. Improvements to the quality of teaching through e-learning initiatives					
l. Enhanced communications with existing and potential students					

11. Further Comment *(Optional)*

12. To what extent are benefits, in each of the following areas, successfully realised from your University's IT projects?

	5) Always	4) Usually	3) Sometimes	2) Rarely	1) Never
a. Improving system reliability, measurable by number of issues logged with the service desk					
b. Improving fix times for logged issues, measurable through service desk statistics					
c. Improving IT service availability, reducing planned and unplanned downtime					
d. Reducing Environmental impact / carbon footprint					
e. Improving data security					
f. Reducing training needed, simplification and integration of systems					
g. Improving system performance, faster and more efficient systems					
h. Improvements to the efficiency and effectiveness of administrative processes					
i. Enhanced support for and access to research					
j. Improvements to managerial decision-making					
k. Improvements to the quality of teaching through e-learning initiatives					
l. Enhanced communications with existing and potential students					

13. Further Comment *(Optional)*

Section Three: The next five years

This section focuses upon where you envisage your IT Services Department to be in five years time.

14. In terms of the strategy of your Department over the next five years, please indicate the priority given to the following.

	5) Very High Priority	4) High Priority	3) Medium Priority	2) Low Priority	1) Very Low Priority
a. Adopting innovative technology					
b. Develop more software and services in house					
c. Expand existing services					
d. Improve efficiency					
e. Improve integration of services					
f. Improve service quality					
g. Reducing carbon footprint					
h. Strategic partnership with private companies					
i. Strategic partnership with public organisations					
j. Utilise more external resource					
k. Widen the service portfolio					

15. Further Comment *(Optional)*

16. How do you expect the following IT Services to be delivered in 5 years time?

More Info

	5) Wholly insourced	4) More insourced than outsourced	3) Equally co-sourced	2) More outsourced than insourced	1) Wholly outsourced	Not an IT service provided
a. Datacentre physical hardware infrastructure						
b. Desktop hardware management						
c. Desktop software management						
d. Finance system						
e. High performance computing						
f. Human resources system						
g. Staff file store						
h. Student file store						
i. Staff e-mail and groupware						
j. Student e-mail and groupware						
k. Departmental/enterprise server hosting						
l. Networking service						
m. Service desk						
n. Student labs						
o. Server backup service						
p. Desktop backup service						

17. Further Comment *(Optional)*

Section Four: Change Management

18. How accurate are the following descriptions of your organisation?

	5) Strongly Agree	4) Agree	3) Neutral	2) Disagree	1) Strongly Disagree
a. IT staff are led by a charismatic and well respected management team					
b. IT staff roles are clearly defined and relationships are also clearly set out					
c. IT staff use informal relationships and roles to get things done quicker and easier than using the formal channels					
d. IT staff are assigned tasks in the lowest practical level in a project management style					
e. IT staff are consulted on all decisions					

19. Are you currently using any formal methodologies for change management (for example, ITIL or PRINCE2)?

- ○ Yes
- ○ Partly
- ○ Not yet but planning to
- ○ No
- ○ Don't Know

If so, what are you using?

20. Business process re-engineering

To re-engineer a business process is to completely rethink the way it works from beginning to end, question everything from a customer perspective and from an internal efficiency perspective; it is about being innovative and requires lateral thinking 'outside of the box'.

Has this ever been used in your department?

- ○ Yes often
- ○ Yes sometimes
- ○ Yes once or twice
- ○ No

If Yes can you give an example? *(Optional)*

21. If you have used business process engineering would you use it again? *(Optional)*

- ○ Yes
- ○ No
- ○ Other *(please specify)*:

End of the survey

Thank you for taking the time to complete this survey.

C) Survey Results

3. Do you wish to receive an email of the results of my survey? (results will have personal information removed)			
Yes:		100.0%	37
No:		0.0%	0

4. Job Title:			
IT Services Director:		31.6%	12
Assistant Director:		15.8%	6
Team Manager:		2.6%	1
Project Manager:		2.6%	1
Service Manager:		2.6%	1
Other *(please specify)*:		44.7%	17

View All Responses - There are too many responses to display on this page and so all the responses to this question are available on a separate page.

5. Institution Type:			
Ancient University:		7.9%	3
Red Brick University:		18.4%	7
Plate Glass University:		13.2%	5
Post-1992 University that was a former polytechnic:		31.6%	12
Post-1992 University that was not a former polytechnic:		10.5%	4
Post 2005 University:		7.9%	3
Other *(please specify)*:		10.5%	4

View All Responses - There are too many responses to display on this page and so all the responses to this question are available on a separate page.

Section Two: Current Situation

6. In terms of the current strategy of your Department, please indicate the priority given to the following.			
6.a. Adopting innovative technology			
5) Very High Priority:		10.5%	4
4) High Priority:		31.6%	12
3) Medium Priority:		50.0%	19
2) Low Priority:		7.9%	3
1) Very Low Priority:		0.0%	0
6.b. Develop more software and services in house			
5) Very High Priority:		0.0%	0
4) High Priority:		2.6%	1
3) Medium Priority:		34.2%	13
2) Low Priority:		36.8%	14
1) Very Low Priority:		26.3%	10
6.c. Expand existing services			
5) Very High Priority:		7.9%	3
4) High Priority:		36.8%	14
3) Medium Priority:		52.6%	20
2) Low Priority:		2.6%	1
1) Very Low Priority:		0.0%	0
6.d. Improve efficiency			
5) Very High Priority:		47.4%	18
4) High Priority:		42.1%	16
3) Medium Priority:		7.9%	3
2) Low Priority:		2.6%	1
1) Very Low Priority:		0.0%	0
6.e. Improve integration of services			
5) Very High Priority:		41.7%	15
4) High Priority:		41.7%	15
3) Medium Priority:		16.7%	6
2) Low Priority:		0.0%	0

1) Very Low Priority:		0.0%	0
6.f. Improve service quality			
5) Very High Priority:		54.1%	20
4) High Priority:		37.8%	14
3) Medium Priority:		8.1%	3
2) Low Priority:		0.0%	0
1) Very Low Priority:		0.0%	0
6.g. Reducing carbon footprint			
5) Very High Priority:		13.2%	5
4) High Priority:		47.4%	18
3) Medium Priority:		26.3%	10
2) Low Priority:		13.2%	5
1) Very Low Priority:		0.0%	0
6.h. Strategic partnership with private companies			
5) Very High Priority:		5.3%	2
4) High Priority:		10.5%	4
3) Medium Priority:		50.0%	19
2) Low Priority:		21.1%	8
1) Very Low Priority:		13.2%	5
6.i. Strategic partnership with public organisations			
5) Very High Priority:		5.3%	2
4) High Priority:		15.8%	6
3) Medium Priority:		55.3%	21
2) Low Priority:		18.4%	7
1) Very Low Priority:		5.3%	2
6.j. Utilise more external resource			
5) Very High Priority:		0.0%	0
4) High Priority:		34.2%	13
3) Medium Priority:		42.1%	16
2) Low Priority:		21.1%	8
1) Very Low Priority:		2.6%	1

6.k. Widen the service portfolio			
5) Very High Priority:		5.3%	2
4) High Priority:		34.2%	13
3) Medium Priority:		50.0%	19
2) Low Priority:		10.5%	4
1) Very Low Priority:		0.0%	0

7. Further Comment

Submit - There are too many responses to display on this page and so all the responses to this question are available on a separate page.

8. How are the following IT services delivered at present?			
8.a. Datacentre physical hardware infrastructure			
5) Wholly insourced:		65.8%	25
4) More insourced than outsourced:		28.9%	11
3) Equally co-sourced:		2.6%	1
2) More outsourced than insourced:		2.6%	1
1) Wholly outsourced:		0.0%	0
Not an IT service provided:		0.0%	0
8.b. Desktop hardware management			
5) Wholly insourced:		73.7%	28
4) More insourced than outsourced:		21.1%	8
3) Equally co-sourced:		0.0%	0
2) More outsourced than insourced:		5.3%	2
1) Wholly outsourced:		0.0%	0
Not an IT service provided:		0.0%	0
8.c. Desktop software management			

5) Wholly insourced:		81.6%	31
4) More insourced than outsourced:		18.4%	7
3) Equally co-sourced:		0.0%	0
2) More outsourced than insourced:		0.0%	0
1) Wholly outsourced:		0.0%	0
Not an IT service provided:		0.0%	0
8.d. Finance system			
5) Wholly insourced:		65.8%	25
4) More insourced than outsourced:		21.1%	8
3) Equally co-sourced:		2.6%	1
2) More outsourced than insourced:		5.3%	2
1) Wholly outsourced:		2.6%	1
Not an IT service provided:		2.6%	1
8.e. High performance computing			
5) Wholly insourced:		45.9%	17
4) More insourced than outsourced:		2.7%	1
3) Equally co-sourced:		0.0%	0
2) More outsourced than insourced:		2.7%	1
1) Wholly outsourced:		0.0%	0
Not an IT service provided:		48.6%	18
8.f. Human resources system			
5) Wholly insourced:		71.1%	27
4) More insourced than outsourced:		10.5%	4
3) Equally co-sourced:		2.6%	1
2) More outsourced than insourced:		10.5%	4

1) Wholly outsourced:		2.6%	1
Not an IT service provided:		2.6%	1
8.g. Staff file store			
5) Wholly insourced:		89.5%	34
4) More insourced than outsourced:		7.9%	3
3) Equally co-sourced:		0.0%	0
2) More outsourced than insourced:		2.6%	1
1) Wholly outsourced:		0.0%	0
Not an IT service provided:		0.0%	0
8.h. Student file store			
5) Wholly insourced:		73.0%	27
4) More insourced than outsourced:		16.2%	6
3) Equally co-sourced:		2.7%	1
2) More outsourced than insourced:		8.1%	3
1) Wholly outsourced:		0.0%	0
Not an IT service provided:		0.0%	0
8.i. Staff e-mail and groupware			
5) Wholly insourced:		73.7%	28
4) More insourced than outsourced:		10.5%	4
3) Equally co-sourced:		0.0%	0
2) More outsourced than insourced:		2.6%	1
1) Wholly outsourced:		13.2%	5
Not an IT service provided:		0.0%	0
8.j. Student e-mail and groupware			
5) Wholly insourced:		37.8%	14
4) More insourced than outsourced:		5.4%	2

3) Equally co-sourced:		0.0%	0
2) More outsourced than insourced:		10.8%	4
1) Wholly outsourced:		45.9%	17
Not an IT service provided:		0.0%	0
8.k. Departmental/enterprise server hosting			
5) Wholly insourced:		71.1%	27
4) More insourced than outsourced:		26.3%	10
3) Equally co-sourced:		2.6%	1
2) More outsourced than insourced:		0.0%	0
1) Wholly outsourced:		0.0%	0
Not an IT service provided:		0.0%	0
8.l. Networking service			
5) Wholly insourced:		78.9%	30
4) More insourced than outsourced:		15.8%	6
3) Equally co-sourced:		2.6%	1
2) More outsourced than insourced:		2.6%	1
1) Wholly outsourced:		0.0%	0
Not an IT service provided:		0.0%	0
8.m. Service desk			
5) Wholly insourced:		78.9%	30
4) More insourced than outsourced:		21.1%	8
3) Equally co-sourced:		0.0%	0
2) More outsourced than insourced:		0.0%	0
1) Wholly outsourced:		0.0%	0
Not an IT service provided:		0.0%	0
8.n. Student labs			

5) Wholly insourced:		94.6%	35
4) More insourced than outsourced:		5.4%	2
3) Equally co-sourced:		0.0%	0
2) More outsourced than insourced:		0.0%	0
1) Wholly outsourced:		0.0%	0
Not an IT service provided:		0.0%	0
8.o. Server backup service			
5) Wholly insourced:		73.7%	28
4) More insourced than outsourced:		21.1%	8
3) Equally co-sourced:		0.0%	0
2) More outsourced than insourced:		2.6%	1
1) Wholly outsourced:		2.6%	1
Not an IT service provided:		0.0%	0
8.p. Desktop backup service			
5) Wholly insourced:		63.2%	24
4) More insourced than outsourced:		7.9%	3
3) Equally co-sourced:		0.0%	0
2) More outsourced than insourced:		0.0%	0
1) Wholly outsourced:		0.0%	0
Not an IT service provided:		28.9%	11

9. Further Comment
Submit - There are too many responses to display on this page and so all the responses to this question are available on a separate page.

10. To what extent are your University's IT projects used to explicitly target the following types of benefit?			
10.a. Improving system reliability, measurable by number of issues logged with the service desk			
5) Always:		15.8%	6
4) Usually:		52.6%	20
3) Sometimes:		15.8%	6
2) Rarely:		10.5%	4
1) Never:		5.3%	2
10.b. Improving fix times for logged issues, measurable through service desk statistics			
5) Always:		7.9%	3
4) Usually:		50.0%	19
3) Sometimes:		13.2%	5
2) Rarely:		26.3%	10
1) Never:		2.6%	1
10.c. Improving IT service availability, reducing planned and unplanned downtime			
5) Always:		26.3%	10
4) Usually:		57.9%	22
3) Sometimes:		15.8%	6
2) Rarely:		0.0%	0
1) Never:		0.0%	0
10.d. Reducing environmental impact / carbon footprint			
5) Always:		7.9%	3
4) Usually:		42.1%	16
3) Sometimes:		34.2%	13
2) Rarely:		15.8%	6
1) Never:		0.0%	0
10.e. Improving data security			
5) Always:		13.2%	5
4) Usually:		44.7%	17
3) Sometimes:		39.5%	15
2) Rarely:		2.6%	1
1) Never:		0.0%	0

10.f. Reducing training needed, simplification and integration of systems			
5) Always:		5.3%	2
4) Usually:		50.0%	19
3) Sometimes:		39.5%	15
2) Rarely:		5.3%	2
1) Never:		0.0%	0
10.g. Improving system performance, faster and more efficient systems			
5) Always:		15.8%	6
4) Usually:		63.2%	24
3) Sometimes:		21.1%	8
2) Rarely:		0.0%	0
1) Never:		0.0%	0
10.h. Improvements to the efficiency and effectiveness of administrative processes			
5) Always:		21.1%	8
4) Usually:		50.0%	19
3) Sometimes:		26.3%	10
2) Rarely:		2.6%	1
1) Never:		0.0%	0
10.i. Enhanced support for and access to research			
5) Always:		10.5%	4
4) Usually:		10.5%	4
3) Sometimes:		57.9%	22
2) Rarely:		15.8%	6
1) Never:		5.3%	2
10.j. Improvements to managerial decision-making			
5) Always:		7.9%	3
4) Usually:		39.5%	15
3) Sometimes:		42.1%	16
2) Rarely:		10.5%	4
1) Never:		0.0%	0
10.k. Improvements to the quality of teaching through e-learning initiatives			

5) Always:		10.5%	4
4) Usually:		60.5%	23
3) Sometimes:		28.9%	11
2) Rarely:		0.0%	0
1) Never:		0.0%	0
10.l. Enhanced communications with existing and potential students			
5) Always:		13.2%	5
4) Usually:		31.6%	12
3) Sometimes:		52.6%	20
2) Rarely:		2.6%	1
1) Never:		0.0%	0

11. Further Comment

View All Responses - There are too many responses to display on this page and so all the responses to this question are available on a separate page.

12. To what extent are benefits, in each of the following areas, successfully realised from your University's IT projects?

12.a. Improving system reliability, measurable by number of issues logged with the service desk			
5) Always:		2.6%	1
4) Usually:		50.0%	19
3) Sometimes:		36.8%	14
2) Rarely:		7.9%	3
1) Never:		2.6%	1
12.b. Improving fix times for logged issues, measurable through service desk statistics			
5) Always:		2.6%	1
4) Usually:		47.4%	18
3) Sometimes:		42.1%	16
2) Rarely:		7.9%	3
1) Never:		0.0%	0

12.c. Improving IT service availability, reducing planned and unplanned downtime			
5) Always:		7.9%	3
4) Usually:		65.8%	25
3) Sometimes:		26.3%	10
2) Rarely:		0.0%	0
1) Never:		0.0%	0
12.d. Reducing Environmental impact / carbon footprint			
5) Always:		10.5%	4
4) Usually:		36.8%	14
3) Sometimes:		39.5%	15
2) Rarely:		13.2%	5
1) Never:		0.0%	0
12.e. Improving data security			
5) Always:		5.3%	2
4) Usually:		60.5%	23
3) Sometimes:		28.9%	11
2) Rarely:		5.3%	2
1) Never:		0.0%	0
12.f. Reducing training needed, simplification and integration of systems			
5) Always:		0.0%	0
4) Usually:		37.8%	14
3) Sometimes:		54.1%	20
2) Rarely:		8.1%	3
1) Never:		0.0%	0
12.g. Improving system performance, faster and more efficient systems			
5) Always:		7.9%	3
4) Usually:		55.3%	21
3) Sometimes:		34.2%	13
2) Rarely:		2.6%	1
1) Never:		0.0%	0
12.h. Improvements to the efficiency and effectiveness of administrative processes			

5) Always:		7.9%	3
4) Usually:		47.4%	18
3) Sometimes:		36.8%	14
2) Rarely:		7.9%	3
1) Never:		0.0%	0
12.i. Enhanced support for and access to research			
5) Always:		0.0%	0
4) Usually:		34.2%	13
3) Sometimes:		34.2%	13
2) Rarely:		26.3%	10
1) Never:		5.3%	2
12.j. Improvements to managerial decision-making			
5) Always:		2.6%	1
4) Usually:		44.7%	17
3) Sometimes:		42.1%	16
2) Rarely:		10.5%	4
1) Never:		0.0%	0
12.k. Improvements to the quality of teaching through e-learning initiatives			
5) Always:		2.6%	1
4) Usually:		71.1%	27
3) Sometimes:		23.7%	9
2) Rarely:		2.6%	1
1) Never:		0.0%	0
12.l. Enhanced communications with existing and potential students			
5) Always:		2.7%	1
4) Usually:		48.6%	18
3) Sometimes:		48.6%	18
2) Rarely:		0.0%	0
1) Never:		0.0%	0

13. Further Comment

View All Responses - There are too many responses to display on this page and so all the responses to this question are available on a separate page.

Section Three: The next five years

14. In terms of the strategy of your Department over the next five years, please indicate the priority given to the following.			
14.a. Adopting innovative technology			
5) Very High Priority:		10.5%	4
4) High Priority:		39.5%	15
3) Medium Priority:		44.7%	17
2) Low Priority:		5.3%	2
1) Very Low Priority:		0.0%	0
14.b. Develop more software and services in house			
5) Very High Priority:		0.0%	0
4) High Priority:		2.6%	1
3) Medium Priority:		26.3%	10
2) Low Priority:		39.5%	15
1) Very Low Priority:		31.6%	12
14.c. Expand existing services			
5) Very High Priority:		5.3%	2
4) High Priority:		50.0%	19
3) Medium Priority:		42.1%	16
2) Low Priority:		2.6%	1
1) Very Low Priority:		0.0%	0
14.d. Improve efficiency			
5) Very High Priority:		52.6%	20
4) High Priority:		47.4%	18
3) Medium Priority:		0.0%	0
2) Low Priority:		0.0%	0
1) Very Low Priority:		0.0%	0

14.e. Improve integration of services			
5) Very High Priority:		47.4%	18
4) High Priority:		44.7%	17
3) Medium Priority:		7.9%	3
2) Low Priority:		0.0%	0
1) Very Low Priority:		0.0%	0
14.f. Improve service quality			
5) Very High Priority:		60.5%	23
4) High Priority:		39.5%	15
3) Medium Priority:		0.0%	0
2) Low Priority:		0.0%	0
1) Very Low Priority:		0.0%	0
14.g. Reducing carbon footprint			
5) Very High Priority:		23.7%	9
4) High Priority:		42.1%	16
3) Medium Priority:		31.6%	12
2) Low Priority:		2.6%	1
1) Very Low Priority:		0.0%	0
14.h. Strategic partnership with private companies			
5) Very High Priority:		7.9%	3
4) High Priority:		26.3%	10
3) Medium Priority:		36.8%	14
2) Low Priority:		23.7%	9
1) Very Low Priority:		5.3%	2
14.i. Strategic partnership with public organisations			
5) Very High Priority:		10.5%	4
4) High Priority:		31.6%	12
3) Medium Priority:		36.8%	14
2) Low Priority:		18.4%	7
1) Very Low Priority:		2.6%	1
14.j. Utilise more external resource			

5) Very High Priority:		21.1%	8
4) High Priority:		34.2%	13
3) Medium Priority:		28.9%	11
2) Low Priority:		13.2%	5
1) Very Low Priority:		2.6%	1
14.k. Widen the service portfolio			
5) Very High Priority:		10.5%	4
4) High Priority:		47.4%	18
3) Medium Priority:		34.2%	13
2) Low Priority:		7.9%	3
1) Very Low Priority:		0.0%	0

15. Further Comment
I would like to differeniate software form services. We focus on adding value to a service. If that means buying off the shelf we will.Our preference would be not to develop software in house. For example HR Finace and Help desk all have bought in software but the processes to exploit it are done in house. Whereas Shareoint (though I would hestiate to call it software) is developed in house to deliver intranet/extranet/VLE etc
See answer to Q7.

16. How do you expect the following IT Services to be delivered in 5 years time?			
16.a. Datacentre physical hardware infrastructure			
5) Wholly insourced:		7.9%	3
4) More insourced than outsourced:		36.8%	14
3) Equally co-sourced:		28.9%	11
2) More outsourced than insourced:		21.1%	8
1) Wholly outsourced:		5.3%	2
Not an IT service provided:		0.0%	0
16.b. Desktop hardware management			
5) Wholly insourced:		5.3%	2
4) More insourced than		55.3%	21

outsourced:			
3) Equally co-sourced:		7.9%	3
2) More outsourced than insourced:		23.7%	9
1) Wholly outsourced:		7.9%	3
Not an IT service provided:		0.0%	0
16.c. Desktop software management			
5) Wholly insourced:		7.9%	3
4) More insourced than outsourced:		55.3%	21
3) Equally co-sourced:		13.2%	5
2) More outsourced than insourced:		23.7%	9
1) Wholly outsourced:		0.0%	0
Not an IT service provided:		0.0%	0
16.d. Finance system			
5) Wholly insourced:		21.1%	8
4) More insourced than outsourced:		36.8%	14
3) Equally co-sourced:		15.8%	6
2) More outsourced than insourced:		13.2%	5
1) Wholly outsourced:		10.5%	4
Not an IT service provided:		2.6%	1
16.e. High performance computing			
5) Wholly insourced:		5.3%	2
4) More insourced than outsourced:		13.2%	5
3) Equally co-sourced:		15.8%	6
2) More outsourced than insourced:		13.2%	5
1) Wholly outsourced:		10.5%	4
Not an IT service provided:		42.1%	16

16.f. Human resources system			
5) Wholly insourced:		13.2%	5
4) More insourced than outsourced:		34.2%	13
3) Equally co-sourced:		15.8%	6
2) More outsourced than insourced:		18.4%	7
1) Wholly outsourced:		15.8%	6
Not an IT service provided:		2.6%	1
16.g. Staff file store			
5) Wholly insourced:		5.4%	2
4) More insourced than outsourced:		35.1%	13
3) Equally co-sourced:		27.0%	10
2) More outsourced than insourced:		21.6%	8
1) Wholly outsourced:		10.8%	4
Not an IT service provided:		0.0%	0
16.h. Student file store			
5) Wholly insourced:		0.0%	0
4) More insourced than outsourced:		13.2%	5
3) Equally co-sourced:		23.7%	9
2) More outsourced than insourced:		23.7%	9
1) Wholly outsourced:		39.5%	15
Not an IT service provided:		0.0%	0
16.i. Staff e-mail and groupware			
5) Wholly insourced:		5.3%	2
4) More insourced than outsourced:		21.1%	8
3) Equally co-sourced:		7.9%	3
2) More outsourced than		18.4%	7

insourced:			
1) Wholly outsourced:		47.4%	18
Not an IT service provided:		0.0%	0
16.j. Student e-mail and groupware			
5) Wholly insourced:		0.0%	0
4) More insourced than outsourced:		2.7%	1
3) Equally co-sourced:		2.7%	1
2) More outsourced than insourced:		10.8%	4
1) Wholly outsourced:		83.8%	31
Not an IT service provided:		0.0%	0
16.k. Departmental/enterprise server hosting			
5) Wholly insourced:		2.6%	1
4) More insourced than outsourced:		34.2%	13
3) Equally co-sourced:		34.2%	13
2) More outsourced than insourced:		21.1%	8
1) Wholly outsourced:		7.9%	3
Not an IT service provided:		0.0%	0
16.l. Networking service			
5) Wholly insourced:		26.3%	10
4) More insourced than outsourced:		36.8%	14
3) Equally co-sourced:		18.4%	7
2) More outsourced than insourced:		15.8%	6
1) Wholly outsourced:		2.6%	1
Not an IT service provided:		0.0%	0
16.m. Service desk			
5) Wholly insourced:		18.4%	7
4) More insourced than		52.6%	20

outsourced:			
3) Equally co-sourced:		26.3%	10
2) More outsourced than insourced:		2.6%	1
1) Wholly outsourced:		0.0%	0
Not an IT service provided:		0.0%	0
16.n. Student labs			
5) Wholly insourced:		39.5%	15
4) More insourced than outsourced:		44.7%	17
3) Equally co-sourced:		7.9%	3
2) More outsourced than insourced:		5.3%	2
1) Wholly outsourced:		0.0%	0
Not an IT service provided:		2.6%	1
16.o. Server backup service			
5) Wholly insourced:		7.9%	3
4) More insourced than outsourced:		42.1%	16
3) Equally co-sourced:		18.4%	7
2) More outsourced than insourced:		18.4%	7
1) Wholly outsourced:		13.2%	5
Not an IT service provided:		0.0%	0
16.p. Desktop backup service			
5) Wholly insourced:		2.6%	1
4) More insourced than outsourced:		31.6%	12
3) Equally co-sourced:		15.8%	6
2) More outsourced than insourced:		23.7%	9
1) Wholly outsourced:		7.9%	3
Not an IT service provided:		18.4%	7

17. Further Comment
Shared services has a part to play so I have assumed this aligns with wider context of outsourced Ditto public and private cloud.
This is a pretty vague as there is no overall, communicated strategy on outsourcing - it is a bit piecemeal at the moment.

Section Four: Change Management

18. How accurate are the following descriptions of your organisation?			
18.a. IT staff are led by a charismatic and well respected management team			
5) Strongly Agree:		13.2%	5
4) Agree:		55.3%	21
3) Neutral:		23.7%	9
2) Disagree:		5.3%	2
1) Strongly Disagree:		2.6%	1
18.b. IT staff roles are clearly defined and relationships are also clearly set out			
5) Strongly Agree:		18.4%	7
4) Agree:		57.9%	22
3) Neutral:		13.2%	5
2) Disagree:		7.9%	3
1) Strongly Disagree:		2.6%	1
18.c. IT staff use informal relationships and roles to get things done quicker and easier than using the formal channels			
5) Strongly Agree:		13.2%	5
4) Agree:		34.2%	13
3) Neutral:		34.2%	13
2) Disagree:		15.8%	6
1) Strongly Disagree:		2.6%	1
18.d. IT staff are assigned tasks in the lowest practical level in a project management style			
5) Strongly Agree:		2.6%	1
4) Agree:		28.9%	11

3) Neutral:		55.3%	21
2) Disagree:		10.5%	4
1) Strongly Disagree:		2.6%	1
18.e. IT staff are consulted on all decisions			
5) Strongly Agree:		5.3%	2
4) Agree:		31.6%	12
3) Neutral:		31.6%	12
2) Disagree:		26.3%	10
1) Strongly Disagree:		5.3%	2

19. Are you currently using any formal methodologies for change management (for example, ITIL or PRINCE2)?			
Yes:		63.2%	24
Partly:		28.9%	11
Not yet but planning to:		5.3%	2
No:		2.6%	1
Don't Know:		0.0%	0
19.a. If so, what are you using?			
View All Responses - There are too many responses to display on this page and so all the responses to this question are available on a separate page.			

20. Business process re-engineering To re-engineer a business process is to completely rethink the way it works from beginning to end, question everything from a customer perspective and from an internal efficiency perspective; it is about being innovative and requires lateral thinking 'outside of the box'. Has this ever been used in your department?			
Yes often:		31.6%	12
Yes sometimes:		31.6%	12
Yes once or twice:		7.9%	3
No:		28.9%	11
20.a. If Yes can you give an example?			
View All Responses - There are too many responses to display on this page and so all the responses to this			

question are available on a separate page.

21. If you have used business process engineering would you use it again?			
Yes:		92.3%	24
No:		0.0%	0
Other *(please specify)*:		7.7%	2
Not in the short trerm because it involves a huge amount of unproductive effort. It also unsettles staff.			
Not yet used.			

D) Results Table

Total benefits realised	Are you currently using any formal methodologies for change management?	Business process re-engineering Has this ever been used in your department?
3.17	1	4
3.00	1	2
3.17	2	2
3.58	4	4
4.83	3	4
3.08	1	2
3.50	1	1
3.33	1	1
3.92	1	1
3.75	2	4
4.00	2	2
4.25	1	1
3.75	2	2
3.42	1	4
3.33	1	1
3.42	1	1
3.75	2	4
3.58	1	2
3.33	1	3
4.00	1	1
3.42	1	2
3.08	2	4
4.00	1	1
2.17	1	4
4.00	2	2
3.33	1	1
4.00	1	1

3.09	2	2
3.92	1	1
2.92	2	4
3.50	3	4
3.36	2	4
3.00	1	1
3.33	1	2
3.58	1	3
3.25	2	2
4.00	1	2
2.75	1	3

Are you currently using any formal methodologies for change management?

1 = Yes

2 = Partly

3 = Not yet but planning to

4 = No

Has Business process re-engineering ever been used in your department?

1 = Yes Often

2 = Yes sometimes

3 = Yes once or twice

4 = No