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Investigation of Factors that Affect the Willingness of Individuals to Share Knowledge in the Virtual Organisation of Taiwanese Non-Governmental Organisations

by

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Doctoral Thesis

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Abstract

With the advent of knowledge-intensive economies, plus the ever-accelerating development of Information and Communication Technologies (ICTs), organisational knowledge has become the key driver of an organisation's value and ultimately, an important source of an organisation's sustainable competitive edge. Thus, numerous organisations have started to invest heavily in establishing knowledge management systems (KMSs). Subsequently, they wish to access knowledge from individuals in order to enhance their acquisition of knowledge and ultimately transform this into organisational knowledge. Even though existing research studies have evidenced extensively the intrinsic and extrinsic motivators of individuals' knowledge-sharing behaviour in organisations from diverse perspectives (e.g. organisational behaviour, sociology and psychology), individuals still seem inclined to hoard their knowledge, rather than share it with others in organisations. To this end, this research aims to investigate and identify essential elements related to individuals' knowledge-sharing behaviour within the complex context of the virtual organisation of Taiwanese Non-governmental Organisations (NGOs), comprising the whole system of Taiwanese Farmers' Associations, by integrating multilevel perspectives of individuals in organisations (the micro-level), workplace networks in organisations (the meso-level) and organisational culture (the macro-level). This research augments the conceptions of social capital theory and organisational culture with two key intrinsic motivators: 1) the sense of well-being, an often overlooked consideration in positive psychology and, 2) the ingrained habits of an individual which are formed by accumulatively satisfactory goal-directed behaviour. Both of these are plausibly believed to affect individuals' knowledge-sharing behaviour. The theoretical model of this research was first proposed to investigate those factors improving or prohibiting a willingness to share knowledge within the context of the virtual organisation. A pragmatist research philosophy, using a concurrent combination of quantitative and qualitative approaches, was chosen for this research in order to obtain an in-depth analysis and provide comprehensive new insights into the key incentives affecting individuals' knowledge-sharing behaviour within the real context of the virtual organisation. A field survey of 201 employees of this virtual organisation was analysed using Structural Equation Modeling (SEM) to examine the outcomes empirically, while data from 19 in-depth semi-structured interviews were analysed utilising thematic analysis to reinforce and obtain additional insights into the findings from the qualitative approach. Taken all together, the evidence suggests that organisational culture and workplace networks are closely intertwined and associated with individuals' sense of

well-being; this, in turn, affects their knowledge-sharing behaviour within the virtual organisation. Employees who immerse themselves in well-being (e.g. higher levels of positive relations with others and satisfaction with the working environment in a friendly organisational culture; better ways of coping with pressure of work; better engagement with the surrounding environment; and positive personality characteristics) will have a greater willingness to contribute their knowledge than their peers with lower levels of well-being. It seems that increasing employees' sense of well-being can successfully form a bridge that can connect social capital tendency, organisational culture and employees' knowledge-sharing behaviour through using ICTs. Moreover, an individual's working habits in terms of knowledge sharing are subconsciously or unconsciously formed by an organisational culture which involves creating a satisfactory working environment within the organisation. Hence, by effectively integrating appropriate characteristics of organisational culture, encouraging close workplace networks, increasing employees' sense of well-being, and improving employees' working habits, their willingness to share knowledge can be improved immensely within the virtual organisation, subsequently leading to improved organisational outcomes. In sum, the research provides support for the notion that employees' sense of well-being and their working habits in terms of sharing knowledge have a crucial impact on the organisational culture, the social capital tendency and the successful sharing of knowledge within such an organisation.

Keywords: Information and Communication Technologies (ICTs), Knowledge-sharing Behaviour, Social Capital Theory, Organisational Culture, Virtual Organisation, Non-governmental Organisations (NGOs), Sense of Well-being, Habits, Structural Equation Modeling (SEM), Thematic Analysis.

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Dedication

This PhD thesis is dedicated to my beloved parents, my dearest sibling, and almighty Bodhisattva and Buddha.

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Chapter 1 Introduction

1.1 Research Background

With the advent of the concept of the Knowledge-Based Economy (KBE) and with economic globalisation, successful knowledge management (KM) has become an increasingly pivotal factor in influencing the effectiveness and performance of organisations (Kefela, 2010; Lindner & Wald, 2011; Rai, 2011; Zheng et al., 2010). As a result, numerous conglomerates have started to pursue enthusiastically the goal of drawing on and preserving new knowledge from organisational knowledge workers in order to enhance the competitive edge of their companies (Liu et al., 2011; Matzler & Mueller, 2011). Furthermore, researchers such as Nonaka and Takeuchi (1995) and Reinhardtet al. (2011) view knowledge workers, not only as specific individuals who can solve problems, retrieve critical information, and share knowledge, but also as the primary source of the creation of new knowledge in organisations (Jarvenpaa & Staples, 2001; Ferdows & Das, 2010). Likewise, due to the continuous demands for advanced knowledge, employees are invariably encouraged to engage in knowledge-sharing behaviour with a view to enhancing the effectiveness and competitiveness of their organisation (Cummings, 2004; Hong et al., 2011; Hung et al., 2011; Yang & Wu, 2008); thus, knowledge sharing has turned into a compulsory component of successful knowledge management (Leidner et al., 2006; Lee & Ahn, 2007).

Furthermore, with the expansion of Information and Communication Technologies (ICTs), e.g. e-mail, video conferencing and mobile internet devices (MIDs), which are now built and used all over the world, traditional enterprises are changing their operating and knowledge management modes, moving from the use of conventional face-to-face teams to virtual ones. This is because a virtual team can operate synchronously, in dispersed areas, via electronic telecommunication (Schmidt et al., 2001). In addition, with rapid changes in the economic environment, together with the ever-accelerating growth of knowledge-intensive industries on account of globalisation and environmental uncertainty, a considerable number of companies are adopting the concept of the virtual organisation. This is because such an organisation consists of companies whose members can work cooperatively, coordinate flexibly and organise themselves dynamically in order to reflect business requirements (Goldman et al., 1995). Squicciarini et al. (2011) and Wi et al. (2011) state that

virtual organisations may share resources, skills and knowledge, and may connect with the complementary core competencies of other companies for the purpose of acquiring better business opportunities. Hence, an increasing number of virtual organisational "colleagues" are currently available to exchange and share knowledge via the web-based information system (Hong & Vai, 2008).

Notwithstanding, prior research (e.g. Birkinshaw, 2001; Endres et al., 2007) suggests that it is difficult to share individual knowledge and transform it into repositories of organisational knowledge. Such researchers further state that knowledge which stems from personal cognition (and, in particular, tacit knowledge such as ideals, skills, values and mental models,) is difficult to express and share with others (Birkinshaw, 2001; Endres et al., 2007; Holste & Fields, 2010). Another equally important factor is that contributors are often unable to obtain obvious and immediate benefits from such knowledge (Wasko & Faraj, 2005; Chang & Chuang, 2011). Several studies have also revealed that organisations' employees are often reluctant to share their knowledge because they fear the possibility that they might lose their jobs or that their status in the organisation might be jeopardised because of such knowledge sharing (Davenport, 1997; Wasko & Faraj, 2000; Wasko & Faraj, 2005; Yang, 2010). In addition, Chen (2011) reveals that colleagues who are involved in tense interpersonal relationships are likely to be less willing to share their individual knowledge. In such cases, employees are more likely to hoard their knowledge instead of sharing it (Bock et al., 2005; Yang, 2008).

Another primary factor that affects the willingness of individuals to share their knowledge online is associated with different characteristics and types of telecommunication technology (Zhang & Watts, 2008). Zhang and Watts (2008) state that the more advanced the technologies built into organisations, the more willing employees are to share the knowledge they have. In addition, they state that organisations should establish knowledge management systems which closely suit their online social structures (Zhang & Watts, 2008). According to Media Richness Theory (MRT), as supported by Daft et al. (1987), people may experience difficulties in relating to others because of using communication technologies instead of interacting with people face-to-face. They may misunderstand the implications or meaning of other people; they may even be unable to interact effectively with others. As a result, the efficiency and willingness of individuals to share their knowledge in virtual organisations may gradually decrease because of the tendency to express information inaccurately and/or to deliver messages asynchronously. In the light of the negative factors mentioned above, it has become imperative for organisations to

improve the knowledge-sharing behaviour of individuals in management disciplines in order to maintain and enhance their competitive edge and effectiveness (Matzler & Mueller, 2011).

During the past few decades, a significant number of research studies have attempted to discover the reasons why individuals have a willingness to share their knowledge through knowledge management systems or virtual communities. Moreover, in order to address the lack of research focusing on individuals' knowledge sharing in virtual organisations, numerous studies have applied the Technology Acceptance Model (TAM), Social Exchange Theory (SET) and Social Capital Theory (SCT) in an attempt to explain how these theories improve or inhibit individuals' knowledge-sharing behaviour as well as organisational performance (Wasko & Faraj, 2005; Chiu et al., 2006; Schenkel & Garrison, 2009; Lin & Huang, 2010; Hung et al., 2011). There is now sufficient evidence to prove that social capital not only influences organisational performance, but also increases the willingness of individuals to share their knowledge (Widén-Wulff & Ginman, 2004; Wasko & Faraj, 2005; Sun et al., 2009).

In addition, previous research studies have discussed at length and have shown how individuals' motivations, such as norm, reciprocity, reputation, reward, respect and commitment, can encourage knowledge-sharing behaviour in a virtual community (Bock et al., 2005; Wasko & Faraj, 2005; Cyr & Choo, 2010; Jo & Joo, 2011). Fewer research studies, however, have indicated that the intrinsic motivation of individuals is driven primarily by pursuing the positive feeling of helping others. Russell's research (2008), however, considers whether a sense of subjective well-being has a positive influence on the work performance of employees and, latterly, Sarracino (2010) shows that social capital is positively associated with individuals' sense of well-being. In addition, another considerable body of research has validated the notion that an individual's subconsciousness, also known as habits, influences the individual's behaviour (Limayem, 2003) while Swartz (2002) reports that an individual's behaviour or habits are profoundly affected by cultural standards; these are embedded through dynamic reenactment, together with past learning. McDermot (1999) and Leidner et al. (2006), however, argue that the most critical issue and obstacle to knowledge management is change in an organisation's culture and in employees' habits.

Due to the accelerating sense of social democracy in Taiwan and its continuous economic development, a considerable number of social organisations, such as

Non-governmental Organisations (NGOs), have proliferated there with a view to providing a range of social welfare services while also making up for deficiencies in the public welfare provided by the Taiwanese government. Taiwanese NGOs, therefore, are progressively playing a pivotal role in assisting socially vulnerable groups to improve the quality of their members' lives, as well as to communicate with their government. According to statistical data from the Department of Statistics, Ministry of the Interior, Republic of China (Taiwan) in 2013, 40,316 NGOs are established in Taiwan. The main purpose of the establishment of these Taiwanese NGOs is based on their tenets and values, rather than their consideration and pursuit of organisational benefits. However, Taiwanese NGOs are similar to private organisations in that they face a variety of challenges in terms of raising funds, maintaining the development of their organisation, and enhancing their operational efficiency in order to achieve organisational goals (Ministry of the Interior, Republic of China, Taiwan, 2013). Drucker (1990) states that, unlike For-profit Organisations, Non-profit Organisations (NPOs) need to be managed more effectively. As a result, Chi et al. (2008) suggest that NGOs often lack knowledge of management and that this can hinder their organisational development. Liu and Fang (2010) further point out that most employees working in Taiwanese NGOs face the challenges of a flat hierarchical structure, lower salaries and unclear promotion opportunities. These are disadvantageous factors and the primary reasons for employees not working for Taiwanese NGOs. Moreover, the average age of most employees of Taiwanese NGOs is between 21 and 30 years; otherwise, most of them are retired people (Liu & Fang, 2010) and this poor quality manpower has influenced to a great extent their development (Liu & Fang, 2010). Considering this lack of development, as mentioned above, improving the knowledge management of organisations, as well as the knowledge-sharing behaviour of employees, has become a very important focus for Taiwanese NGOs in maintaining their sustainable development and improving their organisational performance. However, when compared with private companies in Taiwan, there is still a noticeable lack of research studies which discuss why employees of Taiwanese NGOs share (or fail to share) their knowledge and/or how these employees may differ in terms of their willingness to share their knowledge. This research concentrates on the virtual organisation of Taiwanese NGOs and investigates employees' willingness to involve themselves in knowledge-sharing.

As stated above, this research focuses mainly on investigating the willingness of employees to share their knowledge in the whole system of Farmers' Associations, categorised as NGOs in Taiwan. The primary aim for choosing this target for the research is that the foundation and backbone of Taiwan rest with agriculture. Hence,

the lifestyles of most Taiwanese citizens, with regard to their political, economic, cultural and religious activities, depend heavily on agriculture (Ding, 2011a). By looking back into Taiwanese history, Taiwanese Farmers' Associations have played a most important role in improving the economic development of the whole of Taiwanese agriculture during the past few decades (Ding, 2011a). A considerable number of research studies associated with Taiwanese Farmers' Associations have discussed widely three major themes, namely: 1) the organisational structure of Farmers' Associations; 2) the operational management of the credit department of Farmers' Associations; and 3) the correlation between Farmers' Associations and the Taiwanese government (Liao, 2004). However, after reviewing references in the National Digital Library of Theses and Dissertations in Taiwan (NDLTD), (the functions of the website are similar to the Electronic Theses Online Service (ETHOS) in the UK), it is clear there is a noticeable lack of relevant research which investigates employees' knowledge-sharing behaviour in the whole system of Taiwanese Farmers' Associations. Hence, it is both valuable and necessary for this research to investigate, in depth, why employees are willing to share their knowledge in the Taiwanese Farmers' Associations. A virtual organisation of Taiwanese NGOs, which consists of the National Training Institute for Farmers' Organisations (NTIFO) and the Farmers' Associations, has played a critical role in improving the development of the countryside, modernising agriculture, improving the educational level of farmers, while simultaneously safeguarding the rights and interests of farmers during the whole process of developing Taiwanese agriculture. According to Ding (2011a), the first Taiwanese Farmers' Association, established initially in 1900, appertains to Taiwanese NGOs and nowadays, Taiwanese Farmers' Associations are a cornerstone of rural social stability. They assist farmers in terms of safeguarding their lives, increasing their incomes and improving their agricultural production. At present, there are 302 independent Farmers' Associations all over Taiwan, Penghu, Kinmen and Matsu (Ding, 2010, 2011b, 2012). Meanwhile, in order to integrate and share the resources of different Farmers' Associations, most such associations have devised and used various means to co-operate with each other and to co-ordinate their activities. For instance, they share production equipment, exchange market intelligence, and co-design new products; they have also established a common information centre for the purpose of cutting operating costs and improving their competitive advantage.

Subsequently, the National Training Institute for Farmers' Organisations (NTIFO) was officially established in 1980 with a view to improving the quality of Farmers' and Fishermen's Associations' personnel (Ding, 2010). Ding (2011b) states that the NTIFO, which also belongs to Taiwanese NGOs, is an important but also an

independent corporation aggregate in terms of public welfare; it provides a range of training to Farmers' and Fishermen's Associations in order to improve agricultural knowledge, services, skills and research, as well as to enhance rural infrastructures. The Taiwanese government, Farmers' Associations and Fishermen's Associations also offer NTIFO subsidies and funding to maintain its business operations (Ding, 2010, 2011b). The members of NTIFO consist of 302 Farmers' Associations and 40 Fishermen's Associations all over Taiwan, Penghu, Kinmen and Matsu (Ding, 2011b, 2012). As part of this virtual organisation, members, comprising 302 Farmers' Associations, 40 Fishermen's Associations and NTIFO, share, via web-based systems, not only the most up-to-date agricultural knowledge, but also other professional knowledge in areas such as management, finance and banking, and business and marketing (Ding, 2011b, 2012). Subsequently, this enhances their business competitiveness and their working performance.

However, with the advent of the knowledge economy in agriculture and the accession of Taiwan to the World Trade Organisation (WTO) in 2001, the Taiwanese Farmers' Associations face numerous challenges in terms of decreasing tariffs for foreign agricultural produce, the abolition of limits on importing foreign produce, and decreasing government subsidies which support agriculture (Lin & Liang, 2008; Yan, 2010). Furthermore, with the year on year decrease in both the operating performance and revenue of the Farmers' and Fishermen's Associations, the NTIFO is facing a severe shortage of funding (Chen et al., 2004). As a result, the creation, acquisition and utilisation of new agricultural knowledge, as well as relevant professional knowledge, have become critical factors in terms of the success or failure of Taiwanese Farmers' Associations and the NTIFO's maintenance of sustainable development in Taiwanese agriculture while improving members' competitiveness.

1.2 Research Motivations

In light of the great importance of employees' knowledge sharing in the NTIFO and Farmers' Associations of Taiwanese NGOs, and the concept of virtual organisations as mentioned above, understanding factors that motivate individuals to share their knowledge has become a critical focus for managers and practitioners who are interested in virtual organisations and Taiwanese NGOs. To this end, this research aims to explore and identify essential elements related to individuals' knowledge-sharing behaviour within the context of the virtual organisation of Taiwanese NGOs, composing the whole system of Taiwanese Farmers' Associations. It does this by integrating multilevel perspectives of individuals in organisations (the micro-level), workplace networks in organisations (the meso-level) and organisational

culture (the macro-level).

First, an often overlooked but important consideration in positive psychology, the sense of well-being, has increasingly been explored and discussed in western countries (Seligman & Csikszentmihalyi, 2000). A number of researchers, such as Diener et al. (1999), Diener et al. (2002) and Keyeset al. (2002), have defined subjective well-being as a broad concept that includes personal cognition and sensations regarding an individual's life; this includes positive emotions, negative feelings and satisfaction with life. Diener et al. (2002) also indicate that an individual's sensation of subjective well-being improves when he/she experiences higher levels of positive emotion and life satisfaction, coupled with lower levels of negativity. Recently, an increasing number of scholars have employed the concept of well-being to evaluate personal cognitive emotion because of its influence on individuals' predisposition and even their behaviour; these researchers have focused in particular on older people and adolescents in western countries (Gibbons & Silva, 2011; Blažun et al., 2012; Goswami, 2012; Manolis & Roberts, 2012). For instance, Patricia (2001) states that sustaining the health and well-being of teachers is likely to have a positive influence on students' learning and the quality of the teaching experience. Many research studies have also shown that an individual's predisposition to share knowledge is improved when he/she experiences positive emotions such as enjoyment and delight (Wasko & Faraj, 2000; Kankanhalli et al., 2005; Wasko & Faraj, 2005). Caplan (2002) states that psychological well-being is strongly involved in the utilisation of the Internet while Russell (2008) indicates that, if employees experience a feeling of subjective well-being, it has a positive influence on their work performance. A number of research studies have suggested that individuals who experience greater happiness and satisfaction are relatively more successful in organisations (Boehm & Lyubomirsky, 2008). Meanwhile, individuals' sense of well-being is strongly associated with income (Diener & Biswas-Diener, 2002), helping co-workers (George, 1991) and giving social support to colleagues (Iverson, Olekalns & Erwin, 1998). Moreover, most research studies have speculated that such signals of achievement and success in work tasks cause an individual to be happy (Boehm & Lyubomirsky, 2008). To date, however, no research seems to have explored empirically the relative effects of social capital tendency, employees' sense of well-being, and their different types (namely tacit and explicit) of knowledge-sharing behaviour. Hence, one of the aims of this research is to discover whether knowledge workers or experts would be more willing to share their knowledge in a virtual organisation of NGOs when experiencing a feeling of well-being. The role of well-being and social capital in the knowledge-sharing behaviour of individuals is

discussed in depth in this research.

In addition, in terms of the relationship between organisational cultures and the sense of well-being of an individual, Ryff (1989) and Keyes et al. (2002) define psychological well-being as consisting of six factors: 1) autonomy, 2) environmental mastery, 3) personal growth, 4) positive relations with others, 5) purposes in life and, 6) self-acceptance. For instance, the organisational members involved in an adhocracy culture are more creative, flexible and are more likely to be entrepreneurial (Cameron & Quinn, 2006). This concept is also associated with the personal growth and autonomy of psychological well-being which encourages people, not only to achieve set tasks, but also to develop their potential continually (Ryff & Singer, 2008). As a result, the sense of well-being of individuals will probably be improved if their organisation belongs to an adhocracy culture. Cameron and Quinn (2006), by contrast, state that organisations that lean towards a hierarchy culture may hinder an individual from gaining greater antonomy and self-determination; this may possibly decrease his/her sense of well-being since this type of organisational culture highlights the management styles of control and structure, formal rules and stability (Shih & Huang, 2010). Consequently, based on the above-mentioned references, this research aims to consider what role organisational culture plays in affecting the relationship between the sense of well-being of individuals and the knowledge sharing of the organisation's colleagues within the context of the virtual organisation of Taiwanese NGOs.

According to Ruggles (1998) and McDermot's (1999) research, the most critical issue with regard to knowledge management is to change organisational cultures, employees' behaviour and even their habits. A great many organisations, however, pay more attention to improving their information management systems, such as creating new databases and constructing taxonomies for accessing information, rather than modifying their organisational culture or improving their employees' knowledge sharing; ultimately, such organisations regard cultural issues as of secondary importance (McDermot, 1999). A concept mentioned in Camic's (1986) research indicates that not only individuals, but also collectives oscillate between two poles: namely, consciousness or reflection on one side, and cultural habits on the other. Swartz (2002) concludes that the behaviour of most individuals may be deeply influenced by the cultural habits of their organisation while McDermott and O'Dell (2001), Cabreraet al. (2006), Pillania (2006) and Jolink and Dankbaar (2010) suggest that organisational culture is widely regarded as an inhibitor that affects the effectiveness of individuals' knowledge sharing. On the other hand, an increasing number of research studies have provided evidence to show how individuals' habits

affect their behaviour in different academic domains, such as psychology, customer behaviour, sociology, organisational behaviour, and the use of the information systems (Chiu et al., 2012, Limayem et al., 2007). Prior research has shown that, in particular, satisfaction and stability of context are widely considered as key antecedents of an individual's habits as they increase the tendency to repeat the same course of action (Limayem et al., 2007). As long as an individual has accomplished successfully his/her intentional objective or obtained satisfactory outcomes by performing a specific behaviour, similar behaviour is likely to be repeated under similar conditions (Limayem et al., 2007). Another important antecedent of habits that has been widely recognised is the existence of a stable context, characterised by the presence of similar situational cues and goals across more or less regularly occurring situations (Limayem et al., 2007). The situational cues and relevant goals of an individual who performs similar behaviours across a stable context will lead to consecutive situations becoming habitual ones (Limayem et al., 2007). For instance, Limayem et al. (2007) state: "An example of a stable situation that triggers a user to check her e-mail may just consist of seeing her computer upon entering her quiet office in the morning." Aarts and Dijksterhuis (2000) and Aarts et al. (1998) state that an individual's habits are the repetitive nature of goal-directed behaviour. Hence, an individual's habits may be unconsciously or subconsciously formed by a long-term stable context such as an organisational culture or the goals of an organisation under a series of repeated acts, together with past satisfactory learning experiences. This then triggers an automatic response to a specifically situational context. In sum, based on the above-mentioned literature, this research aims to explore the role of employees' working habits in the relationship between their organisational culture and their knowledge-sharing behaviour within the context of the virtual organisation.

1.3 Scope of the Research

With the fast-moving changes in Information Technology (IT) and the economic environment, an increasing number of organisations are adopting the concept of a virtual organisation in order to increase their competitiveness in the market. A virtual organisation, which comprises a variety of organisations, can reduce personnel costs, decrease operating costs and increase the flexibility of operational management by allowing ideas, facilities, competencies, resources and knowledge to be pooled (Lin & Lu, 2005; Squicciarini, 2011). Meanwhile, it is of the utmost importance to share the knowledge that exists among the members of different organisations because it is through such knowledge-sharing that organisations can increase their profile in gaining market opportunities, enhancing performance and competing in an uncertain environment (Hong et al., 2011). However, it is inevitable, perhaps even instinctive,

that, since individuals possess their own unique and precious knowledge, they may be reluctant to share it, particularly in a virtual organisation (Burn & Ash, 2000). Hence, it is imperative to establish what factors improve or prevent individuals from sharing their knowledge so that this understanding can be used to establish a suitable environment in which they will develop the willingness to share the knowledge they possess within a virtual organisation.

As stated above, this research focuses on investigating those factors that affect employees' knowledge-sharing behaviour in the whole system of Farmers' Associations in Taiwan. This whole system, regarded as a virtual organisation of NGOs in this research, consists of Taiwanese Farmers' Associations and the National Training Institute for Farmers' Organisations (NTIFO). In the meantime, Taiwanese Farmers' Associations play a critical role in improving the development of the countryside, increasing the modernisation of agriculture, enhancing the educational level of farmers, and safeguarding the rights and interests of farmers during the whole process of Taiwan's agricultural development. More importantly, Farmers' Associations are now the longest established and most broadly distributed NGOs in Taiwan. Moreover, the NTIFO, which was based on the principles of self-finance and self-management training, was intended to improve the quality of the personnel of the Farmers' Associations. Hence, owing to this research's selection and investigation of Taiwanese Farmers' Associations and the NTIFO, the findings and results of the research are both meaningful and valuable in understanding the willingness of employees to share their knowledge in the whole system of Taiwanese Farmers' Associations; this, in turn, could sustain the growth of agriculture generally in Taiwan. To achieve an in-depth understanding and to explore employees' knowledge-sharing behaviour in the whole system of Farmers' Associations in Taiwan, this research carried out investigations with personnel at urban, hybrid and rural levels in Farmers' Associations within the same administrative region (namely, Hualien county, Taiwan) and the NTIFO. Three different types of Farmers' Association in the same administrative region were chosen because this research considered that Farmers' Associations within the same administrative region would be more likely to co-operate and co-ordinate their efforts easily, frequently and closely. Likewise, these three main categories of Taiwanese Farmers' Associations (namely, urban, hybrid and rural) are, according to Huang (1992) and Huang and Li (1994), significantly separate. Huang (1992) and Huang and Li (1994) state that Farmers' Associations can be classified as urban Farmers' Associations if the percentage of those working in agriculture is less than 6 percent of the total working population; associations can be categorised as rural Farmers' Associations if those working in agriculture exceed 13

percent of the total working population. Moreover, if the percentage of agricultural workers is between 6 and 13 percent of the total working population, these Farmers' Associations are regarded as hybrids. Figure 1.1 depicts the current state of the whole system of Taiwanese Farmers' Associations.

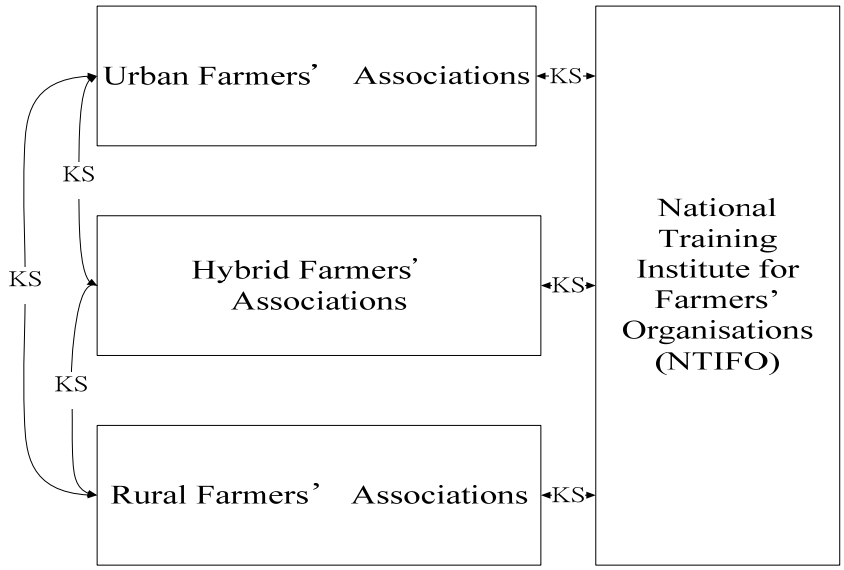

Figure 1.1: Diagram of the Whole System of Taiwanese Farmers' Associations Integrated in this Research (KS = Employees' Knowledge-sharing Behaviour)

So, having considered a number of factors (i.e. the categories of Farmers' Associations (namely, urban, hybrid and rural types); the size of the sample; its homogeneity in terms of each category of Taiwanese Farmers' Associations; the possible co-operative relationships among Farmers' Associations; the narrow nature of the Taiwanese territory and the ultimate aim of this research), stratified purposive sampling was adopted to select the respondents for the quantitative approach of this research. As a result, respondents were selected from one urban Farmers' Association, one hybrid Farmers' Association and one rural Farmers' Association in the same administrative region. Thus, a total of three particular Farmers' Associations were selected. Also, the NTIFO was informed and confirmed it would be willing to distribute the questionnaires (see section 4.3.5). Moreover, because purposive sampling is considered to be an effective method of selecting a sample for a qualitative approach since it retrieves a considerable amount of in-depth information from a small number of cases concerning a specific phenomenon (Teddlie & Yu, 2007), a mixed method of intensity and snowball sampling was adopted for the qualitative approach of this research in order to select interviewees from those working in the NTIFO and the selected Farmer's Associations. This was mainly because the researcher considered

that, first, intensity sampling would help to provide information about interviewees' in-depth thinking, experiences and relevant knowledge. Then, snowball sampling helped the researcher to gain information-rich data from the interviewees recommended through the intensity sampling because these interviewees could offer more relevant and detailed information (Patton, 1990) (see section 4.3.8). Consequently, a total of 201 valid paper questionnaires were gathered during the period of April 2014 to June 2014 (see section 6.2) while a total of 19 semi-structured, in-depth interviews were carried out with participants from the selected cases over the period of April 2014 to July 2014 (see section 5.1).

1.4 Research Questions

The pivotal questions of this research are intended to investigate how individuals' predisposition towards knowledge sharing can be effectively triggered and enhanced in a virtual organisation of Taiwanese NGOs. The research endeavours to answer the following questions:

Q1. What external or internal factors trigger employees' predisposition towards knowledge sharing in the virtual organisation?

Q2. How does Information Technology affect employees' knowledge-sharing behaviour in the virtual organisation?

Q3. How does the effect of social capital on employees' tendencies help to explain employees' knowledge-sharing behaviour in the virtual organisation?

Q4. How does the sense of well-being help to explain why employees contribute their knowledge to the virtual organisation?

Q5. To what extent and in what ways does the effect of social capital on employees' tendencies serve to explain the sense of well-being of virtual organisational employees?

Q6. How does organisational culture help to explain why employees contribute their knowledge to the virtual organisation?

Q7. How does the impact of organisational culture help to explain employees' feelings of well-being in the virtual organisation?

Q8. How does organisational culture help to explain the virtual organisation's employees' ingrained habits in terms of knowledge sharing in the virtual organisation?

Q9. How does the effect of a human being's force of habit help to explain why employees share their knowledge in the virtual organisation?

Q10. How does the effect of employees' tacit knowledge-sharing behaviour help to explain why employees share their explicit knowledge in the virtual organisation?

Q11. What organisational structures and strategies should organisations consider in terms of facilitating the knowledge sharing of employees while developing a virtual organisation?

Based on the study's questions, aims and objectives (see section 1.5) and relevant theoretical analysis (see section 4.3.3 and section 4.3.7.3), and in order to facilitate an examination of the cause and effect relationships among the constructs, this research developed the theoretical model which integrates organisational culture, social capital tendency, employees' sense of well-being, their working habits in terms of knowledge sharing, and their knowledge-sharing behaviour. This is depicted in Figure 1.2.

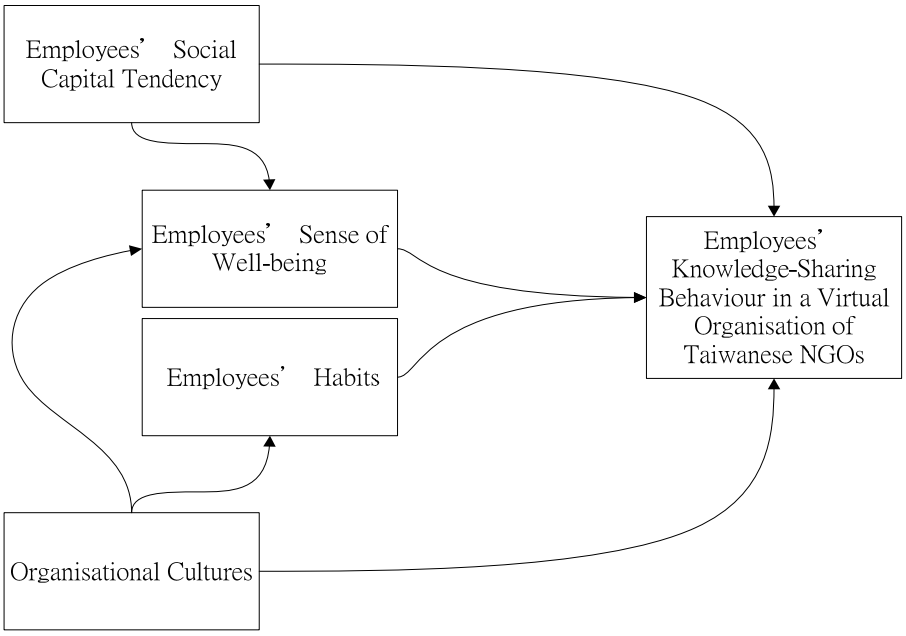

Figure 1.2:The Integrated Framework of the Research

1.5 Research Aims and Objectives

The research focuses mainly on developing a comprehensive understanding of the

knowledge-sharing behaviour of employees in a virtual organisation which comprises Farmers' Associations and the NTIFO of Taiwanese NGOs.

A) The first aim of this research is to justify the implementation of the constructs' measurement instrument in the context of the virtual organisation of Taiwanese NGOs. (i.e., the quantitative instrument used to measure organisational culture, social capital tendency, an individual's sense of well-being, habits of an individual and employees' knowledge-sharing behaviour.), and to investigate perspectives of knowledge sharing using Information and Communication Technology of employees of a virtual organisation of Taiwanese NGOs. Thus, the specific objectives are as follows:

A1) To investigate factors in terms of why employees of a virtual organisation of Taiwanese NGOs share their knowledge.

A2) To analyse in-depth both contexts and factors with regard to why employees, such as knowledge workers and experts, of a virtual organisation of Taiwanese NGOs share their knowledge via a knowledge management system.

A3) To analyse the role of Information and Communication Technology (ICT) associated with employees' knowledge sharing in a virtual organisation of Taiwanese NGOs.

A4) To explore whether a stronger willingness on the part of employees to share their tacit knowledge might affect their willingness to share their explicit knowledge in a virtual organisation of Taiwanese NGOs.

B) Another important aim of this research is to investigate the possible relationships among the sense of well-being of individuals, employees' social capital tendency and knowledge-sharing behaviour in a virtual organisation of Taiwanese NGOs. This is expressed in the particular aims below:

B1) To comprehend the degree to which social capital theory explains employees' willingness to share knowledge in a virtual organisation of Taiwanese NGOs.

B2) To investigate whether a strong social capital tendency might influence employees' sense of well-being in a virtual organisation of Taiwanese NGOs.

B3) To explore whether a greater consciousness of well-being among knowledge workers or experts correlates to a greater willingness for them to share their knowledge in a virtual organisation of Taiwanese NGOs.

B4) To assess the impact of employees' sense of well-being on the relationship between the social capital trend and knowledge-sharing behaviour in the virtual organisation of Taiwanese NGOs.

C) At the same time, an equally central aim of the research is to explore the relationships among organisational cultures, the habits of individuals, and knowledge-sharing behaviour in a virtual organisation of Taiwanese NGOs. This aim is encapsulated in the specific sub-divisions below.

C1) To investigate the impact of organisational cultures on employees' knowledge-sharing behaviour in the virtual organisation of Taiwanese NGOs.

C2) To investigate whether organisational cultures influence employees' sense of well-being in the virtual organisation of Taiwanese NGOs.

C3) To investigate the impact of organisational cultures on employees' habits in terms of their knowledge-sharing behaviour in the virtual organisation of Taiwanese NGOs.

C4) To investigate the role of employees' habits in a virtual organisation of Taiwanese NGOs in terms of their knowledge-sharing behaviour.

C5) To assess the mediating impact of the habits of employees on the relationship between organisational culture and knowledge-sharing behaviour in the virtual organisation of Taiwanese NGOs.

C6) To assess the mediating impact of employees' sense of well-being on the relationship between organisational culture and knowledge-sharing behaviour in the virtual organisation of Taiwanese NGOs.

C7) To provide recommendations to relevant managers or researchers with regard to improving employees' willingness to share their knowledge in a virtual organisation of Taiwanese NGOs.

In order to understand comprehensively how the research questions correspond to the research objectives within the quantitative and qualitative approaches of this research, Table 1.1 was designed to show the correlations among them.

Table 1.1: Correspondance of the Research Questions to the Research Objectives within the Quantitative and Qualitative Approach

Research Questions	Research Objectives	Quantitative Approach (Refer to Section 4.3.3)	Qualitative Approach
Q1	A1 & A2	✓	✓
Q2	A3		✓
Q3	B1		✓
Q4	B3	✓ (H2a, H2b)	✓
Q5	B2	✓ (H1)	✓
Q4 & Q5	B4	✓ (H2c, H2d)	
Q6	C1		✓
Q7	C2	✓ (H3 (H3a, H3b, H3c, H3d))	✓
Q8	C3	✓ (H4 (H4a, H4b, H4c, H4d))	✓
Q9	C4	✓ (H5-1 (H5a, H5b))	✓
Q8 & Q9	C5	✓ (H5-2 (H5c, H5d))	
Q4 & Q7	C6	✓ (H5-3 (H5e, H5f, H5g, H5h, H5i, H5j, H5k, H5l))	
Q10	A4	✓ (H6)	
Q11	C7		✓

Note 1: The third and fourth columns (tick) mean that the research questions are explored in both the quantitative and the qualitative approaches.

Note 2: Q4 & Q5, H2c & H2d = Employees' feeling of well-being mediates the relationship between their social capital tendency and their (tacit and explicit) knowledge-sharing behaviour in the virtual organisation (see section 4.3.3.3).

Note 3: Q8 & Q9, H5c & H5d = Employees' habits mediate the relationship between organisational culture (adhocracy, clan, market and hierarchy) and their (tacit and explicit) knowledge-sharing behaviour in the virtual organisation (see section 4.3.3.7).

Note 4: Q4 & Q7, H5 (e, f, g, h, i, j, k, l) = Employees' sense of well-being mediates the relationship between organisational culture (adhocracy, clan, market and hierarchy types) and their (tacit and explicit) knowledge-sharing behaviour in the virtual organisation (see section 4.3.3.8).

1.6 Contribution of the Research

This research attempts to offer a comprehensive understanding, for the benefit of researchers and practitioners, of what factors affect employees' knowledge-sharing behaviour in the virtual organisation of Taiwanese NGOs, which consists of Farmers' Associations and the National Training Institute for Farmers' Organisations (NTIFO). This has been achieved by reviewing previous relevant work in the literature and by carrying out an in-depth exploration of individuals' intrinsic and extrinsic motivations. The main reason for choosing these cases for this research is that there is no doubt that Farmers' Associations and the National Training Institute for Farmers' Organisations (NTIFO) have played a critical role in improving the development of the countryside, in modernising agriculture, and in improving the educational level of farmers, while simultaneously safeguarding the rights and interests of farmers during the whole development process of Taiwanese agriculture (Ding, 2011a). Although a considerable number of previous research studies have widely discussed the organisational structure of Farmers' Associations, the operational management of the credit department of Farmers' Associations, and the correlation between Farmers' Associations and the Taiwanese government (Liao, 2004), there is a distinct lack of relevant research which investigates employees' knowledge-sharing behaviour in the whole system of Taiwanese Farmers' Associations. Hence, this research is extremely valuable as it offers an in-depth investigation of why employees in the Taiwanese Farmers' Associations are willing to share their knowledge. Furthermore, the research anticipates that it will provide practitioners, such as leaders and managers, with an awareness of what factors are more likely to trigger or inhibit individuals' knowledge-sharing behaviour in a virtual organisation of Taiwanese NGOs. This could enable them to improve employees' willingness to share their valuable knowledge in such organisations when establishing knowledge management systems. Furthermore, the previous existing theoretical knowledge, together with the new insights offered by the findings of this research, might be applicable to the context of other virtual organisations when establishing knowledge management systems.

1.7 Research Outline

In all, this research contains seven chapters. The first highlights the importance of this topic and introduces the background, motivation and scope of this research. This is followed by the research questions, its objectives and aims, and its predicted contribution.

Chapter 2 begins by exploring the relevant literature on knowledge-sharing behaviour; it then discusses the essence and mechanisms of virtual organisations. This is followed by an in-depth exploration and a critical review of the literature in terms of

the possible relationships among social capital theory, employees' sense of well-being, employees' working habits, organisational culture, and employees' knowledge-sharing behaviour.

Chapter 3 further examines and discusses the definition and development of Taiwan NGOs, their characteristics, and the historical evolution of Taiwanese Farmers' Associations and the National Training Institute for Farmers' Organisations (NTIFO); it also offers a comparison of Taiwanese Farmers' Associations with Japanese Agricultural Co-operatives. The current situation of the selected virtual organisation (which is composed of the whole system of Taiwanese Farmers' Associations) is discussed, as well as the current challenges and issues which are facing the whole system of Taiwanese Farmers' Associations.

Chapter 4 starts by exploring various philosophical research perspectives, methodologies and methods; it then discusses in detail the research philosophy and strategies of inquiry chosen for this research. Subsequently, the research develops the theoretical model which depicts the possible cause and effect relationships among social capital tendency, employees' sense of well-being, employees' working habits, organisational culture, and employees' knowledge-sharing behaviour using ICTs within the context of the virtual organisation. Later, considering that this research chose to adopt a pragmatic philosophical perspective, employing a combination of quantitative and qualitative methods, the quantitative and qualitative instruments were developed to explore the relationships among each main construct of the research on employees' knowledge-sharing behaviour within the virtual organisation (refer to Figure 4.4). The data analysis methods of structural equation modeling (quantitative approach) and thematic analysis (qualitative approach) are also introduced at this point; this is followed by a consideration of relevant ethical issues and the role of the researcher in qualitative research.

Chapter 5 provides the background characteristics of the respondents of the selected case who participated in the in-depth, semi-structured interviews. Using thematic analysis, the findings from the selected case study are presented, the essential elements of the main relevant constructs of this research are identified, and their cause and effect relationships among each other are discussed.

Chapter 6 refers to the procedures used in the quantitative data analysis, including the measurement model, together with an evaluation of reliability (i.e., individual item reliability and internal consistency), validity (both convergent and discriminant

validity) and the structural model (the estimation of path coefficients, their significance and the R^2 of the endogenous variables). This is followed by an analysis of the mediating effects of employees' sense of well-being and employees' working habits on the relationships among social capital tendency, organisational culture and employees' knowledge-sharing behaviour through using ICTs. Afterwards, the conclusions drawn from the quantitative approach of this research are discussed in detail.

Chapter 7 concludes this work by presenting an overview of the research; it also includes a discussion with regard to a comparison of the quantitative and qualitative approaches. It justifies the contribution to knowledge made by this work and discusses the achievement of the research's objectives and aims, the implications of its findings, the research's limitations, as well as making recommendations for future research.

Chapter 2 Literature Review

2.1 Introduction

Based on the above-mentioned questions and objectives, this research both reviews and integrates relevant theories and references in order to investigate employees' knowledge-sharing behaviour in the whole system of Taiwanese Farmers' Associations. The Farmers' Associations highlighted in this research are Non-governmental Organisations (NGOs) and can be viewed as a virtual organisation consisting of the Farmers' Associations themselves and the National Training Institute for Farmers' Organisations (NTIFO). Employees of this virtual organisation cooperate with each other and coordinate their efforts to pool their facilities and infrastructures, as well as sharing their skills, knowledge and resources by using relevant Information and Communication Technologies (ICTs). The literature review of this research is divided into six areas and is organised as follows:

In the first section, the research initially offers an examination of a number of types of knowledge and then summarises possible cause and effect relationships from the existing literature with a focus on employees' knowledge-sharing behaviour in this virtual organisation. Next, the concept and development of virtual organisations are discussed, with the research subsequently offering a definition of a virtual organisation. In the third section, the research introduces, not only the notion of subjective, psychological and social well-being, it also examines how this may influence the knowledge-sharing behaviour of employees. In the fourth section, the concept, definition and types of organisational culture (such as the adhocracy, clan, market and hierarchy cultures mentioned by Cameron & Quinn (2006)) are presented. Then the research infers how different types of organisational culture may visibly or invisibly influence employees' knowledge-sharing behaviour, their habits in terms of knowledge sharing, and their sense of well-being in the virtual organisation. The fifth section of the literature review explores how the knowledge-sharing behaviour of employees may be influenced by their habits, which are formed through accumulatively goal-directed automatic behaviour under the condition and acquisition of a satisfactory outcome. This is followed by the final section which examines the concept and context of social capital theory and its influence on an individual's behaviour in terms of knowledge sharing and his/her sense of well-being in the virtual organisation. In order to review the literature of his research comprehensively, Figure

2.1, provided below, presents the conceptual literature map of this research.

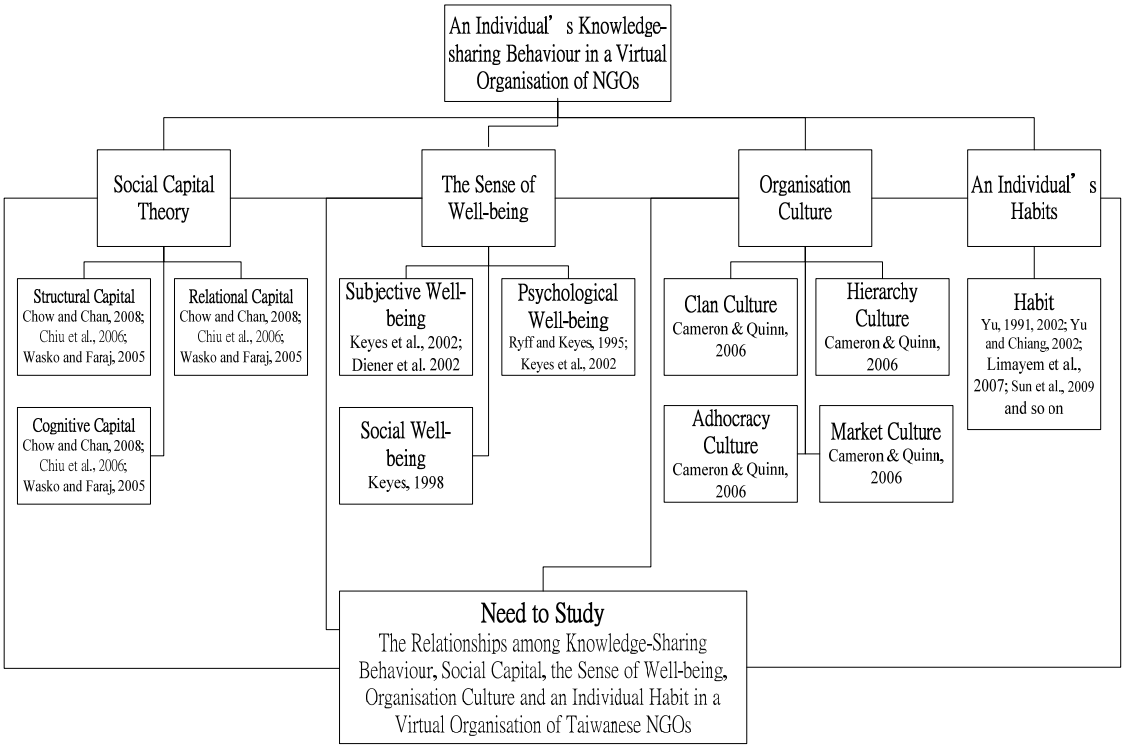

Figure 2.1: The Literature Map of this Research

2.2 Knowledge Sharing

2.2.1 Perspectives and Taxonomies of Knowledge

Drucker (1954) states that knowledge, which has progressively turned into a pivotal factor in terms of business survival, became a substitute for land, devices, capital, resources and labour over the decades preceding his research. Later, an increasing number of research studies further regarded knowledge as an organisation's intellectual capital, as well as an indispensable resource for its growth (Nahapiet & Ghoshal, 1998; Curado, 2008; Longo & Mura, 2011). By degrees, organisations have increased the significance of knowledge in gaining market opportunities when facing uncertainties in the economic environment (Miller & Shamsie, 1996; Hong et al., 2011). Hence, an ever-increasing number of companies nowadays are pursuing ways to retrieve and preserve the new knowledge of their knowledge workers in order to enhance their competitiveness (Liao & Hu, 2007; Liu et al., 2011; Matzler & Mueller, 2011). Likewise, it is equally imperative for colleagues to acquire new knowledge from other members of the organisation because knowledge sharing usually involves the mutual exchange of individuals' knowledge in two directions: namely, by

delivering and receiving it (Foss et al., 2009). Ultimately, achieving improvements in knowledge sharing has become an important focus for organisations in moving towards more successful business operations.

From the domain of knowledge management, comprehending the various perspectives and taxonomies of knowledge is imperative for researchers and scholars, owing to the fact that any initial development of a research study from a theoretical point of view is influenced by different types of knowledge (Alavi & Leidner, 2001). As a result, it is essential for researchers to clarify what types of knowledge are to be adopted in their research. For example, as opposed to data and information, Liebeskind (1996) views knowledge as validated information that has already been demonstrated while another research work, carried out by Bierly (2000), declares that the production of an individual's knowledge stems from comprehending related information. By looking back to previous research, in spite of the existence of the varied nature of the philosophical controversy with regard to exactly what knowledge is, a great many research studies concerning knowledge management (KM) have dismissed the positivistic view of knowledge as knowledge which is truly objective and the absolute truth (Stenmark, 2000). Instead, such researchers have adopted a pluralistic epistemology which acknowledges that there are many forms or types of knowledge existing in human beings (Wasko & Faraj, 2000; Alavi & Leidner, 2001; Joshi et al., 2007). For instance, Nonaka et al. (2000) clarified that the generation, process and creation of new organisational knowledge can be regarded as a spiral model involving the transfer of four modes (namely, socialisation, externalisation, combination and internalisation), moving between tacit knowledge and explicit knowledge. Even though, according to the existential literature, the different types of human knowledge have been classified in several ways, they all more or less build on the influential work of Polanyi (1958, 1966) concerning tacit knowledge. In his book, Polanyi states that "For just as, owing to the ultimately tacit nature of all our knowledge, we remain ever unable to say all that we know, so also, in view of the tacit character of meaning, we can never quite know what is implied in what we say" (Polanyi, 1958, p. 95). Hence, our knowledge may be made up of things that we know but which are elusive and which we are unable to express. This can be seen and fully stated in Polanyi's statement that "I shall reconsider human knowledge by starting from the fact that we can know more than we can tell" (Polanyi, 1966, p. 4). A similar opinion was expressed by Leonard and Sensiper (1998, p. 114) who stated that "we can often know more than we realise". Basically, tacit knowledge appertains to highly personalised knowledge which is difficult to formalise or write down (Nonaka, 1991; Birkinshaw, 2001); it consists of mental models, beliefs, values, insights, emotions and

perspectives. It can further be divided into two categories: technical and cognitive knowledge (Smith, 2001; Alwis & Hartmann, 2008). With regard to technical tacit knowledge, Alwis (2008) and Nonaka and Takeuchi (1995) consider that this type of knowledge exists when individuals are proficient in unique forms of knowledge or skills; this encompasses "know-how". Cognitive tacit knowledge, on the other hand, includes beliefs, values, ideals and mental models which are ingrained in the minds of human-beings (Nonaka & Takeuchi, 1995; Alwis & Hartmann, 2008). Endres et al. (2007) indicate that the nature of tacit knowledge stems from technical processes or cognitions that are more difficult to articulate and share with others. In contrast to tacit knowledge, explicit knowledge can be captured, codified and written in the form of technical or academic data and presented in such forms as journals, manuals, documents and patents (Nonaka & Takeuchi, 1995; Alwis & Hartmann, 2008; Nonaka & Krog, 2009).

Nonaka's (1994) research states that the generation and creation of knowledge can be classified into four modes: socialisation, externalisation, combination and internalisation, moving between tacit and explicit knowledge. Regarding socialisation, an individual's new tacit knowledge may be acquired and generated by converting shared experiences (Nonaka et al., 2000). Externalisation, which involves a transfer from tacit to explicit knowledge, can be crystalised into a new concept; ultimately, this may become the fundamentals of new knowledge. In contrast to socialisation and externalisation, combination is new explicit knowledge. It is formed by retrieving explicit knowledge from internal or external organisations, afterwards combining, editing and processing it. Internalisation, which results from converting explicit knowledge, such as documents and manuals, into an individual's tacit knowledge, can become a precious asset (Nonaka et al., 2000). Figure 2.1 below depicts the four modes of knowledge conversion.

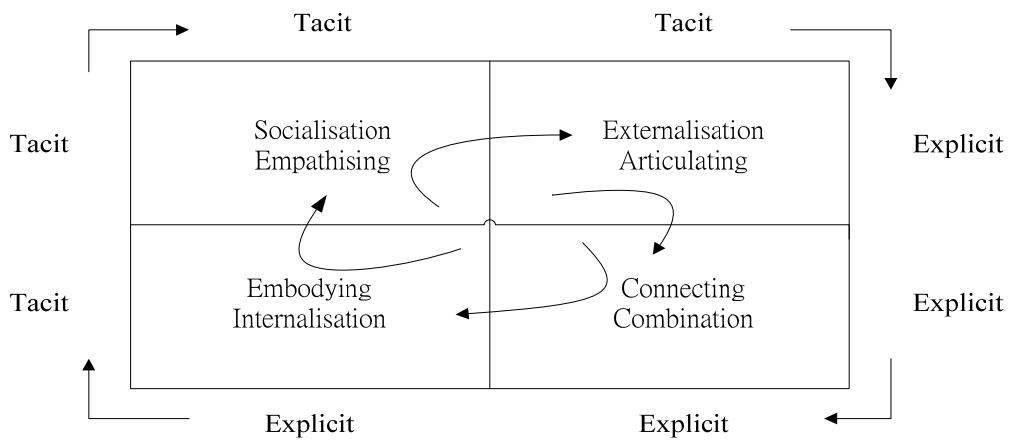

Figure 2.2: The Process of SECI (Nonaka et al., 2000, p. 12)

Although Nonaka and Takeuchi's (1995) SECI model has been used to explore the process involved in the creation and sharing of organisational knowledge, a distinct lack of attention has been paid to the fact that, in their model, they regarded knowledge on an organisational level as a competitive resource, rather than considering it at the level of an individual. They ignored the notion that some individuals may hoard their knowledge instead of sharing it because of certain strong personal motivations (Stenmark, 2000). In addition, the SECI model developed by Nonaka and Takeuchi (1995) focused mainly on Japanese cultural practices in management and is thus not transferable to other cultural environments (Glisby & Holden, 2003). Besides, they also overlooked the fact that diverse characteristics of organisational culture may also affect the willingness of individuals to share their knowledge. This is because there are very few organisational members who have homogeneity because most organisations are composed of people who come from different backgrounds and experience according to their education, occupation and profession. Moreover, Nonaka and Takeuchi (1995) considered that knowledge can basically be viewed as being dualistic and separable (namely tacit and explicit knowledge). However, Polanyi's (1966) point of view, which is supported by Tsoukas (2003), showed that tacit and explicit knowledge are mutually intertwined and should not thus be treated as two separate types of knowledge. Becerra-Fernandez and Sabherwal (2001), for example, showed that each of the SECI modes is dependent on the presence of appropriate task characteristics and these characteristic are actually unknown.

Subsequently, Wasko and Faraj (2000), with regard to definitions of knowledge, concluded that knowledge can be divided into three principle categories, namely: 1) knowledge as objects, which is related to "justified true beliefs" (Nonaka, 1994); 2)

knowledge embedded in individuals, where the emphasis is on knowledge stored in the minds of individuals; 3) knowledge embedded in a community with regard to social practices. Table 2.1 summarises the knowledge strategies and key characteristics proposed by Wasko and Faraj (2000).

Table 2.1: Knowledge Strategies and Key Characteristics (Source: Wasko & Faraj, 2000, p. 158)

	Knowledge as object	Knowledge embedded in people	Knowledge embedded in community
Definition of knowledge	Justified true belief	That which is known	The social practice of knowing
Organisational knowledge	Contents of organisational memory including documents and electronic databases	Sum of individual knowledge	Knowledge existing in the form of routines and shared languages, narratives and codes
Technologies that support exchange	Knowledge repositories and intelligent search agents	E-mail, phone, knowledge maps, and directories	Discussion group, listservs, chat room, white boards
Assumptions and design implications	Knowledge is codified and becomes a structural asset of the firm.	Knowledge exists in the minds of people and is difficult to share.	Knowledge develops in the context of a community.
	Knowledge is decontextualised.	Requires identification of experts and interaction for the transfer of tacit knowledge.	Leverages people's desire to participate in a community.
	Assumes new knowledge creation occurs from increased access to codified knowledge.	Potential information overload for experts.	Knowledge must be considered a public good.
Knowledge ownership	Organisation	Individual	Community
Motivations for exchange	Self-interest	Self-interest	Moral obligation
Promotion of knowledge exchange	Extrinsic and financial rewards	Reputation, status, obligation	Generalised reciprocity, self-actualisation, access to community

Alavi and Leidner (2001) conclude that knowledge can diverge into five variant perspectives: 1) object; 2) state of mind; 3) process; 4) access to information; 5)

capacity. The view regarding knowledge as objects considers that knowledge can be stored and utilised (Chatti et al., 2007). Another perspective defines knowledge as the states of mind of individuals; such knowledge can be acquired and extended by learning and past experiences (Schubert et al., 1998; Zins, 2007). Regarding this perspective, other researchers also claim that this type of knowledge can be used to discover connections between current events and past contexts in order to resolve problems. When knowledge is viewed as a process, this type can be defined as a process of applying expertise to solve problems, and when knowledge is perceived as having access to information, this highlights the point that organisational knowledge should be organised to accelerate and facilitate access (McQueen, 1998). The fifth perspective views knowledge as a capability that influences organisational actions. Watson (1999) and Nosek (2004) state that knowledge can be regarded as a capacity for interpreting information, applying knowledge and ascertaining what information is necessary. Table 2.2 encapsulates the different perspectives of knowledge mentioned by Alavi and Leidner (2001).

Table 2.2: Summary of Different Perspectives of Knowledge (Source: Alavi & Leidner, 2001, p. 111)

Knowledge perspective	Explication
Object (Wasko & Faraj, 2000; Alavi & Leidner, 2001; Chatti et al., 2007; Matzler et al., 2008)	Knowledge is regarded as an object that can be stored and utilised.
Knowledge (as compared to data and information) (McQueen, 1998; Alavi & Leidner, 2001)	Data can take the form of numbers, files and/or raw text stored in databases. Information is the process of utilising the data.
State of mind (Wasko & Faraj, 2000; Alavi & Leidner, 2001; Zins, 2007; Matzler et al., 2008)	Knowledge dwells in the minds of people through continual learning.
Process (McQueen, 1998; Alavi & Leidner, 2001)	Knowledge as a retrievable process of knowledge.
Access to information (McQueen, 1998; Alavi & Leidner, 2001)	Knowledge as access to useful information in repositories, such as documents or databases, where it can be retrieved, in order to maintain successful business operations for organisations.
Capability (Watson 1999;	Knowledge as the capacity to decide what information is

Alavi & Leidner, 2001; Nosek, 2004)	useful.

Later, scholars such as Joshi et al. (2007) and Matzler et al. (2008) further consolidated a variety of knowledge types, categorising them as: 1) tacit knowledge, which refers to an individual's intrinsic experience, competencies, habits and culture; these are difficult to articulate; 2) embodied knowledge, which relates to the acquisition of an individual's knowledge; it stems from physical practices of learning-by-doing; 3) encoded knowledge: this is the knowledge which resides and is conveyed and codified in documents, manuals and codes of practice via signs and symbols;4) embrained knowledge, which places emphasis on conceptual skills and cognitive abilities; it can be primarily subconscious; 5) embedded knowledge, which relates to the knowledge existing in systematic routines; 6) encultured knowledge: this alludes to shared understanding, socialisation and acculturation in organisations. A recent study conducted by Lord and Shondrick (2011) states that embodied and embedded knowledge are represented and created within a complicated and dynamic system relying on an individual's brain, as well as physiological experiences. This research now integrates the taxonomies of knowledge and their explanations in the following table.

Table 2.3: The Taxonomies of Knowledge Integrated in this Research and their Explications

The taxonomies of knowledge	Explication
Tacit knowledge (Nonaka, 1994)	Knowledge that is rooted in an individual's actions, experiences and their specific context; this type of knowledge is difficult to articulate.
Explicit knowledge (Nonaka, 1994; Smith, 2001; Reychav & Weisberg, 2009)	Most explicit knowledge can be captured, codified and written in terms of technical or academic data, as in manuals, documents and patents.
Embodied knowledge (Brown & Duguid, 2001; Joshi et al., 2007; Matzleret al., 2008)	This stems from an individual's actual experiences and from learning by doing; such knowledge can be partly explained.
Encoded knowledge (Joshi et al., 2007; Matzleret al., 2008)	Encoded knowledge can be codified and contained in various forms such as in books, documents, manuals and databases. It can be preserved permanently even when relevant knowledge workers leave the organisation.

Embrained knowledge (Joshi et al., 2007; Matzleret al., 2008)	Embrained knowledge may be viewed as an individual's mental models; it includes conceptual knowledge and cognitive abilities.
Embedded knowledge (Matzleret al., 2008)	Embedded knowledge is incorporated in systematic routines including an individual's cooperation, coordination and social interaction. It can be enhanced by organisational learning.
Encultured knowledge (Matzleret al., 2008; Miettinen, 2008)	Encultured knowledge refers to knowledge that organisational members have in terms of their socialisation and acculturation.
Procedural knowledge (Alavi & Leidner, 2001)	This type of knowledge is an understanding of processes: for example, the knowledgeof how to perform when a particular event occurs.

2.2.2 Issues Relevant to Knowledge Sharing

Due to the emergence of the Knowledge-Based Economy (KBE) and economic globalisation, knowledge is now widely regarded as a crucial factor for companies to achieve a competitive edge in the market, as well as to enhance their business performance. At the same time, based on the resource-based theory of firms, an increasing number of scholars agree that knowledge is a crucially meaningful resource in organisations (Alavi & Leidner, 2001). Wang (2004) indicates that the performance of the whole organisation will improve significantly if more employees are willing to share their knowledge. In this way, knowledge can increase its value if it is shared among members of organisations (Sawhney & Prandelli, 2000). Ultimately, knowledge sharing has become a prime focus for practitioners and researchers in seeking to enhance an organisation's competitive edge. In this regard, a great deal of scholarly reference and evidence has demonstrated a wide range of motivational factors that might influence individuals' willingness to share their knowledge and, as a result, how to improve the willingness of employees to share their knowledge is now seen as an essential process in knowledge management (Yu et al., 2010).

In terms of the impact of individuals' intrinsic and extrinsic motivation on their knowledge-sharing behaviour, an empirical research study recently published by Matzler et al. (2011) examined the motivators of an individual's knowledge sharing from the point of view of affective commitment and the documentation of knowledge, together with their antecedent factors, namely agreeableness and conscientiousness. Their final results revealed that the personality trait of agreeableness positively influenced the affective commitment of the individual while affective commitment

and conscientiousness positively influenced the documentation of knowledge. In addition, affective commitment and the documentation of knowledge positively influenced the knowledge sharing of individuals.

Next, considering the impacts of social networks on individuals' knowledge-sharing behaviour, Chang and Chuang (2011) explored knowledge-sharing behaviour by utilising social capital theory and individual motivation; they also applied the concept of participant involvement as a moderating variable to discover its significance in terms of individual motivation and knowledge sharing. The conclusions revealed that identification, reciprocity, shared language and altruism positively influenced knowledge sharing while the impact of the concept of reputation on knowledge sharing was insignificant. In 2008, Chow and Chan applied social capital theory with the theory of reasoned action to investigate the willingness of individuals to share their knowledge in organisations. Their analytical results indicated that social networks and shared goals positively influenced attitudes towards knowledge sharing and subjective norm; subjective norm also positively influenced attitudes to knowledge sharing while individual attitudes and subjective norm positively influenced the intention to share knowledge. However, they found that the effect of social trust on knowledge sharing was insignificant. Research by Bock et al. (2005) applied extrinsic motivators, social psychology and the organisational climate to evaluate individuals' knowledge-sharing behaviour. Their results clearly demonstrated that an anticipated reciprocal relationship positively influenced the attitudes of individuals towards sharing knowledge; also, a sense of self-worth and an effective organisational climate positively influenced the subjective norm of participants (Bock et al., 2005). In other words, an individual's intention to share his/her knowledge is influenced significantly by the organisational climate, subjective norm and attitudes towards knowledge sharing.

Likewise, several researchers found that the level of use of ICTs plays an important role in influencing individuals' knowledge-sharing behaviour. For some instances, Kwok and Gao (2005) explored the motivators of an individual's knowledge sharing behaviour with regard to information technology (IT) by considering extrinsic motivation, absorptive capacity theory and channel richness. With regard to extrinsic motivation, they found that individual behaviour is driven by incentives such as rewards and punishment in line with performance. Absorptive capacity is associated with the process of knowledge sharing and can be divided into two kinds of role: knowledge contributors and knowledge recipients. The success of the knowledge sharing of contributors is highly dependent on whether recipients have sufficient

capacity to absorb the shared knowledge on the basis of their previous knowledge: e.g. their past experience and educational background. Channel richness refers to the notion that, the more channels that can be established, chosen and utilised, the more knowledge that can be shared among colleagues. The evidence in Kwok and Gao's study (2005) revealed that absorptive capacity and channel richness had a positive influence on individuals' knowledge-sharing behaviour whereas the influence of extrinsic motivation was insignificant.

2.2.3 Summary of Knowledge Sharing

Polanyi (1958, p. 95) stated that "For just as, owing to the ultimately tacit nature of all our knowledge, we remain ever unable to say all that we know, so also, in view of the tacit character of meaning, we can never quite know what is implied in what we say". This implies that the sharing and contributing of an individual's knowledge may not be completely equivalent to it being absorbed by another. Nonaka (1994) pointed out that the process involved in the generation and creation of knowledge can be categorised into four types: socialisation, externalisation, combination and internalisation, transferring between tacit and explicit knowledge. Moreover, Lord and Shondrick (2011) stated that embedded knowledge is represented and created within a complicated and dynamic system relying on an individual's brain, as well as physiological experiences. Though a great many research studies have discussed and found numerous antecedents that affect individuals' knowledge-sharing behaviour, the motives for exchanging and sharing knowledge among employees in a virtual organisation seem more complex and difficult to imagine when compared with those in an independent organisation (Alge, Oh & Jung, 2003). This is because an organisation's employees are often reluctant or unwilling to share their knowledge since they are afraid they might lose their jobs or their status in the organisation as a result of such knowledge-sharing behaviour (Davenport, 1997; Wasko & Faraj, 2000; Wasko & Faraj, 2005; Yang, 2010). With limitations in knowledge sharing occurring across an organisation, knowledge gaps will significantly increase, and the organisation will subsequently be unable to produce desirable work outcomes (Baird & Henderson, 2001). Davenport and Prusak (1998) also state that the tendency to hoard personal knowledge and to look guardedly at knowledge provided by others is inherent in human nature. Ultimately, having considered the number of different perspectives of the scholars noted above, this research views knowledge as embedded in an individual; it can be created, diffused, developed, manipulated, captured and/or shared, as well as stored in a virtual organisation. In the meantime, the knowledge-sharing behaviour of an individual in a virtual organisation should include

not only tacit, but also explicit knowledge. Likewise, this study focuses mainly on how a virtual organisation can reduce the obstacles which stand in the way of knowledge sharing and how it might further improve the willingness of individuals to share their own knowledge.

2.3 Virtual Organisations

2.3.1 Definition of a Virtual Organisation

The term "virtual corporation" was mentioned initially by Davidow and Malone (1992); it was afterwards popularised and extensively examined in publications by Byrne (1993) who defined a virtual corporation as the dynamic and temporary incorporation of a variety of independent companies, coming together in order to pursue market opportunities. A recent study carried out by Squicciarini et al. (2011) points out that companies may gain copious profits and increase new business opportunities by developing virtual organisations. At the same time, a virtual organisation has been defined broadly as a team which consists of a myriad of geographically dispersed members; it operates flexibly and cheaply via the Internet, as well as new established ITs in order to accomplish organisational tasks (Upton & McAfee, 1996; Larsen & McInerney, 2002; Shin, 2005). The virtual organisation requires an integrated reservoir of knowledge management systems in which members can store and retrieve their knowledge (Han et al., 2007). Shin (2004, 2005) further argues that virtual organisations consist primarily, but in different degrees, of four dimensions: 1) temporal dispersion, which places emphasis on the degree to which virtual team members work asynchronously; 2) spatial dispersion, which refers to the extent to which virtual team members operate through different regions; 3) cultural dispersion, which relates to the degree to which the virtual team comprises members from various countries or cultures; 4) organisational dispersion, which involves the extent to which employees in virtual teams function through organisational boundaries. Definitions of the virtual organisation offered by a number of scholars are integrated in the following table:

Table 2.4: Definitions of Virtual Organisations

Researcher	Definitions of virtual organisations
Crossman & Lee-Kelley (2004)	The collectives of organisations or individuals which cooperate with each other by utilising Information and Communication Technology (ICT); strategic perspectives areemphasised more than organisational forms.
Kasper-Fuehrer	A virtual organisation is a temporary network of organisations, formed in

&Ashkanasy (2001)	order to pursue market opportunities, and consisting of a variety of members from independent companies.
DeSanctis & Monge (1999)	Virtual organisations comprise members who come from different independent companies; these join in a dynamic, temporary and cooperative relationship via the use of Information and Communication Technology.
Shin (2004)	A virtual organisation consists of various employees who are from different companies, and who are located remotely but work together to achieve specific targets or requirements.
Byrne (1993)	A virtual organisation is a temporary team comprising a myriad of companies in order to reflect rapidly changing marketing requirements.
Goldman et al. (1995)	A virtual organisation consists of a number of companies which cooperate, share and link together complementary core competencies in order to pursue business opportunities.
Squicciarini et al. (2011)	Virtual organisations are established temporarily and dynamically by numerous companies or individuals; they can share, combine and pool information, services and resources to achieve their targets through web applications.
Kaihara & Fujii (2008)	Virtual organisations are a transient alliance of countless companies which cooperate and share skills, resources and competencies in order to pursue better business opportunities using integrated Information and Communication Technology (ICT).
Lin & Lu (2005)	The virtual organisation is a combination of geographically distributed, functionally and culturally diverse entities developed to achieve a collectivegoal by pooling their core competencies and resources. At the same time, members of a virtual organisation rely on Information Technology to coordinate their activities.

Using the definitions mentioned above by other researchers, this research has further integrated and reformed the definitions and characteristics of a virtual organisation as follows:

1. A virtual organisation's employees, who come separately from various companies, have their own specific competencies and cooperate with each other with a view to achieving the same purpose, project and/or task in terms of a business opportunity or marketing requirement.

2. Members working in a virtual organisation can cooperate and share their skills,

resources and competencies with each other using Information and Communication Technology (ICT).

3. A virtual organisation is formed and organised dynamically, flexibly and temporarily; at the same time, it changes, as appropriate, to comply with the demands of customers.

4. This collective of organisations or individuals pays more attention to strategic perspectives than organisational forms.

2.3.2 Development Trends of a Virtual Organisation

The National Science Foundation (NSF) initially established the Internet backbone in the mid-1980s to connect universities for purposes of research and education; it was subsequently provided with commercial opportunities in 1991 and, since then, the development of the Internet has proliferated rapidly around the world. With the addition of more advanced Information Technology, a new business type, a virtual organisation, has been developed and has flourished over the past decades (Mun et al., 2011). As a result, virtual organisations have slowly become substitutes for strategic alliances and an increasing number of enterprises nowadays cooperate with other companies to form virtual organisations. This decreases the complications and uncertainties of the market while being able to reflect rapidly marketing requirements (Saabeel et al., 2002). In 1995, Goldman et al. defines six primary strategic reasons that stimulate enterprises to develop a virtual organisation. These are:

1) The emphasis on sharing infrastructure, research and development, risk and costs. Companies might consider forming a virtual organisation because they cannot afford production costs, such as manpower, material resources, and research and development. Another persuasive factor is that a virtual organisation can decrease the risk and costs of business failure.

2) Connecting complementary core competencies. Companies can unite and share core competencies with each other when, as individual companies, they could not address customers' demands. Also, combining complementary core competencies from a variety of companies may increase business opportunities and further their goals.

3) Reducing costs and time through sharing. Companies working cooperatively in a virtual organisation can save time and costs while increasing the quality of production and enhancing their competitive edge.

4) Enlarging scope and increasing facilities. Combining and cooperating with other companies in terms of resources, information and facilities, offers small companies the ability to compete with larger enterprises and take on global competition.

5) Entering and sharing new markets and/or gaining the loyalty of new customers. Achieving the targets of gaining a market share and obtaining customer loyalty are crucial for most companies if they are to maintain their competitiveness. For example, a number of companies in a cooperative relationship, such as in a franchise operation or a strategic alliance, can share the benefits of obtaining access to new markets.

6) Moving from selling products to selling solutions. A virtual organisation has an authorised mechanism for value-based pricing and so can offer value to customers. With the ever-faster changes and developments in the economic environment, an increasing number of companies are now willing to form part of a virtual organisation in order to enhance their competitive advantage and compete with multinational corporations (MNCs), thus enlarging their market opportunities.

Currently, many medium- and small-sized enterprises, in particular in the IT industries, are adopting the virtual organisation concept to increase their business opportunities and answer challenges posed by the globalised, diverse and dynamic contemporary economy (Gellary, 2009).

2.3.3 Summary of a Virtual Organisation

As noted above, and using the perspective of a variety of researchers, this research proposes a comprehensive viewpoint and offers the following definition of a virtual organisation. A virtual organisation consists of a variety of dynamic and temporary companies whose employees cooperate and coordinate their efforts to pool their facilities and infrastructures, as well as to share skills, competencies, knowledge and resources by utilising Information and Communication Technologies (ICTs) (such as E-mail, knowledge management systems (KMSs) and video conferencing), in order to pursue a particular goal or market opportunity.

2.4 The Sense of Well-being

2.4.1 Relationship between Positive Psychology and Well-being

Over the past decades, psychologists have paid more attention to investigating negative psychological factors when seeking to comprehend the behaviour and the mental activities of individuals (Simonton & Baumeister, 2005). More recently, however, a significant number of researchers and scholars have begun to explore positive psychological aspects as opposed to more negative ones. Positive psychology was initially proposed by Seligman and Csikszentmihalyi (2000); they focused mainly on how to make the lives of individuals more fulfilling and valuable. They also stated that positive psychology at a subjective level consists of valued subjective experiences, comprising feelings of well-being, contentment, satisfaction, hope, optimism and happiness. Later, Carr (2004) stated that the central concept of positive psychology consists mainly of two elements, happiness and well-being, while Lyubomirsky et al. (2005) pointed out that, for the majority of human beings, it is imperative to pursue sustainable happiness and a long-term sense of well-being.

Recently, an increasing number of research studies have indicated that individuals' predisposition or behaviour may be driven by involving sentiment with well-being (Russell, 2008). "Happiness is the meaning and the purpose of life, the whole aim and end of human existence": so said Aristotle in "Nicomachean Ethics" written in 350 BC (Johnson-Miles, 2007, p.3). Clearly, Aristotle's central thought here is that the ultimate purpose of human existence is to pursue happiness. Another important concept of happiness suggested by Aristotle is that, for an individual, one of the most of important things is to pursue self-realisation and strive to fulfill one's true potential. This is associated with virtue, rather than merely being part of an individual's subjective desire to feel happy (Ryff & Singer, 2008). Caplan (2002) indicates that the well-being of individuals is strongly related to their utilisation of the Internet, while Sarracino (2010) suggests that the social capital tendency correlates very closely with an individual's sense of well-being. A survey conducted by Lau and Li (2011) also showed that a school's social capital had a positive impact on subjective well-being among elementary school students. Furthermore, Russell (2008) notes that employees who possess a feeling of subjective well-being are likely to improve their work performance noticeably. Hence, the performance of a firm will almost certainly be influenced by and strongly related to employees' feelings of well-being.

2.4.2 Relevant Theories of Well-being

Many research studies on the sense of well-being have been discussed by numerous

researchers according to their different motivations, recognitions and viewpoints in recent decades. These include Maslow's hierarchy of needs (1970), DeNeve and Cooper's goal-directed behaviour (1998), and Heady and Wearing's dynamic equilibrium model (1990). The hierarchy of needs proposed by Maslow (1970) suggests that the needs of human beings can be divided, as in the shape of the pyramid, into five levels with the most basic needs of individuals at the bottom and the need for self-actualisation at the peak. The lower four levels of the pyramid include physiological needs, such as the need for safety, love, belonging and esteem, highlighting that individuals may feel anxious and tense if they perceive a deficiency in these areas. In terms of the need for self-actualisation, this refers to the individual realising his/her full potential. Each lower level need should be fulfilled first, followed by needs at the higher levels (Maslow, 1970). The hierarchy of needs (Maslow, 1970), therefore, is closely related to the concept of well-being mentioned by Sheldon and Bettencourt (2002). They state that individuals will feel a sense of well-being when their needs are satisfied (Sheldon & Bettencourt, 2002).

2.4.3 Subjective Well-being, Psychological Well-being and Social Well-being

Positive psychology in terms of well-being has been discussed a great deal in western countries, in particular focusing on senior citizens and adolescents. This growing number of researchers has gradually divided into two camps considering different yet related perspectives or factors: namely, hedonism and eudemonism (Ryan & Deci, 2001). The psychologists who focus on hedonistic perceptions consider that personal well-being consists of subjective happiness, the attainment of pleasure and the avoidance of pain; this focus is often utilised in appraisals of subjective well-being. Eudemonic psychologists, however, view individuals' well-being as a more complex, contextual and meaningful sentiment; this is measured by an assessment of psychological well-being (Ryan & Deci, 2001). In addition, Keyes (1998), who proposed the concept of social well-being, suggests that an individual's sense of well-being should take into account not only the private, but also his/her extrinsic social life. This is because an individual involved in a complex society still needs to confront a variety of social challenges. Furthermore, Keyes (1998) and Keyes et al. (2002) indicate that an individuals' sense of well-being should be involved with subjective and psychological well-being, as well as social well-being, as these three constructs are highly related to each other. As a result, this research defines an individual's state of well-being by considering three primary dimensions; these are as follows:

1. Subjective Well-being

With regard to the concept of subjective well-being, Russell (2008) states that this concerns individuals' perspectives of their life experiences, and includes an affective and cognitive appraisal of their lives. Schimmack et al. (2002) state that an affective appraisal of subjective well-being highlights an individual's hedonistic balance; it consists of both pleasant and unpleasant factors. Veenhoven (1994) indicates that people's sense of well-being is generated by increasing positive emotions while decreasing negative ones. On the other hand, a cognitive appraisal of subjective well-being concerns an individual's satisfaction with life; this is evaluated by the individual's subjective standards (Schimmack et al., 2002). Ryan and Deci (2001) and Keyes et al. (2002) clarify that subjective well-being could be a sensation which combines and is appraised in terms of three dimensions. These are: 1) satisfaction, 2) positive factors, and 3) negative aspects. Thus, individuals might have a greater sense of well-being when they demonstrate higher levels of positive emotions and life satisfaction, together with lower levels of negative aspects (Keyes et al., 2002; Diener et al. 2002). Later, Cohn et al. (2009) further validate that possessing positive emotional characteristics is likely to increase an individual's satisfaction with life. Schwarz and Clore (2007) suggest that individuals depend on their emotional experiences to evaluate their satisfaction with life. In view of this, individuals' satisfaction with their lives is equally and highly associated with the existence of positive emotions and the absence of negative ones. Table 2.5 summarises the relevant literature concerning the sense of well-being proposed by Chumg et al. (2015).

Table 2.5: Relevant Literature concerning the Sense of Well-being (Source: Chumg et al., 2015, p. 72)

Literature	Definition
Diener et al. (1999)	Subjective well-being can be viewed as a broad category of phenomena that consists of individuals' emotional responses and domain satisfactions, as well as global judgments of life satisfaction.
Diener et al. (2002)	Subjective well-being is a broad concept which encompasses greater life satisfaction plus higher levels of pleasant emotions and lower levels of negative ones.
Diener and Seligman (2004)	The sense of well-being is defined as an individual's positive evaluations of his/her live, including positive emotions, engagement, satisfaction and meaning.
Dodge et al. (2012)	The sense of well-being is regarded as a state of equilibrium which is affected by life events or challenges.

Kahneman and Riis (2005)	The sense of well-being is seen as being a hybrid concept encompassing two components: experienced well-being and evaluated well-being. Both are subjective and intertwined and refer to a period of time. Experienced well-being covers the statistics ofthemomentary affective states experienced during the period, while evaluated well-being embodies global subjective evaluations of the individual's life during the same period.
Ryan and Deci (2001)	Well-being is viewed as a complicated construct involving optimal experience and functioning.
Russell (2008)	Subjective well-being should consist of emotional well-being (satisfaction with life and the balance of positive tonegative effects) and positive functioning (psychological well-being plus social well-being).

2. Psychological Well-being

The term “Eudaimonia” was coined and defined by Aristotle in 350 B.C. in “Nicomachean Ethics” and, in essence, was used to describe the highest human good. This term corresponds to the English word “happiness” although the word “happiness” is rather an inadequate translation. Since, numerous researchers, such as Andrews and Withey (1976), Ryff (1982, 1985, 1989) and Ryff and Singer (2008), have utilised the term to challenge the perspective of subjective well-being, highlighting assessments of feeling pleasure, experiencing negative emotions and assessing satisfaction with life. Waterman (1993) indicates that, in achieving a sense of well-being, an individual should not only pursue pleasure or happiness but also perceive his/her life to be meaningful. Ryff and Singer (2008) agree with Aristotle’s perspective that subjective feelings of happiness are definitely not the ultimate goal of human beings, arguing that more complex elements should be incorporated. Subsequently, Ryff (1982, 1985, 1989 and 1995), in cohering with the perspectives of numerous researchers, integrates the six main dimensions of happiness she defines into a concept called psychological well-being (PWB). With regard to psychological well-being, Ryff (1989), Ryff and Keyes (1995), Keyes et al. (2002), and Ryff and Singer (2008) define psychological well-being as an engagement with the existential challenges of life. This consists of six factors which are as follows:

1) Autonomy

Gaining greater autonomy, such as self-determination and independence, is an important component of the psychological well-being mentioned by Ryff and Keyes

(1995) and Ryff and Singer (2008). Jung (1933) notes the term "individuation" as describing one who no longer espouses collective fears and beliefs, as well as the laws of the masses. An individual's later life is also seen to offer a sense of freedom from the dictates and norms of external forms (Ryff & Keyes, 1995). Subsequently, Ryff and Singer (2008) restate that a sense of self-determination is a key part of psychological well-being and this plays a vital role in the most western countries.

2) Environmental mastery

Ryff and Keyes (1995) and Ryff and Singer (2008) state that one of the most important characteristics of an individual's mental health is to manage his/her life, by selecting and establishing a suitable environment within which his/her psychic conditions can fit. Allport (1961) also points out that an individual can be seen to be mature when he/she participates in a considerable sphere of activity outside of him/herself. Likewise, successful aging is highlighted by the extent to which an individual makes use of environmental opportunities. Hence, Ryff and Singer (2008) combine the perspectives mentioned above and suggest that active participation in and the mastery of the environment are vital components of overall psychological well-being.

3) Personal growth

Ryff and Singer (2008) consider that the dimension of personal growth in terms of psychological well-being is the closest to the meaning of Aristotle's eudiamonia. This is because it is clearly associated with self-realisation. Ryff and Singer (2008) also suggest that, for an individual to function optimally in a psychological sense, he/she must not only achieve set tasks but also continue to develop his/her potential. Both self-actualisation and self-realisation are central perspectives for personal growth (Ryff & Keyes, 1995). Hence, owing to the aforementioned perspectives, continued personal growth and self-realisation are the most important aspects of psychological well-being (Ryff and Keyes, 1995; Ryff & Singer, 2008).

4) Positive relations with others

Ryff (1989) emphasises the importance of warm and trusting interpersonal relationships while Jahoda (1958) states that the capacity to love is a central element in the mental health of an individual. Maslow (1968) states that self-actualisers have an intense feeling of empathy and affection for mankind; they tend to have a greater

ability to love, form more profound friendships and identify more completely with others. Moreover, Allport (1961) states that being able to warm to others is an indication of maturity. Therefore, based on the concepts mentioned above, Ryff and Keyes (1995) and Ryff and Singer (2008) consider that individuals who have a willingness to care and put their trust in interpersonal relationships with others have a greater sense of well-being.

5) Purpose in life

Allport (1961) asserts that a mature individual should possess an articulate comprehension of the purpose of life, and a sense of directedness combined with intentionality. Ryff and Keyes (1995) state that life-span developmental theories refer to a variety of continually changing purposes or goals at different life stages, such as being productive and creative in middle age, or achieving emotional integration for those of more mature years. Thus, a sense of purpose, clear intentions and a sense of direction in life, contribute to an individual's feeling that life is meaningful (Ryff & Keyes, 1995; Ryff & Singer, 2008).

6) Self-acceptance

Ryff and Singer (2008) consider that people should know themselves profoundly; they should also strive to understand their actions, motives and emotions in order to attain positive self-regard. This central thought is derived from Maslow's (1968) concept of self-actualisation. Moreover, Jung (1933) further highlighted that an individual also needs to accept his/her weaknesses in the process of individuation. Hence, individuals will have a sense of well-being if they can accept their own personal strengths and weaknesses, including those from their past (Ryff & Singer, 2008).

3. Social Well-being

Despite the fact that the above-mentioned theories take account of an individual's private features of well-being, an individual who is involved in social events still needs to face various social challenges and tasks. As a result, Keyes (1998) concludes that an individual's sense of well-being should include, not only the private, but also the social life. He proposes that the concept of social well-being consists mainly of five dimensions, namely:

1) Social integration

The term “social integration”, as mentioned by Keyes (1998), is the appraisal of an individual’s relationship with society and collectives. Furthermore, integration is the degree to which people feel they have things in common with others who construct their social reality, and the extent to which they recognise that they belong to part of society and communities.

2) Social acceptance

Social acceptance is the understanding of society through the features and qualities of a generalised category of mankind. Keyes (1998) states that an individual who holds a socially acceptant view, has the willingness to trust others, thinks that people have a capacity for kindness, believes that others are industrious, and feels comfortable with them. Ryff (1989) and Keyes (1998) also point out that social acceptance may be the social counterpart to an individual’s self-acceptance. Thus, a socially accepting individual is one who feels good in terms of his/her personality and accepts both the good and bad aspects of life.

3) Social contribution

Social contribution is utilised to evaluate one's social value. This concept includes the belief that one is an important member of society and has something valuable to contribute to the world. Keyes (1998) states that social contribution is similar to the concepts of self-efficacy and responsibility. Self-efficacy is the belief that one can behave in a certain way, while social responsibility reflects the notion that people feel what they do in the world is valuable to society, and that they can contribute to the commonwealth. Hence, this concept emphasises the degree to which an individual feels that he/she is valuable to society (Keyes, 1998).

4) Social actualisation

Social actualisation is commonly used to appraise the potential of a society. An individual who holds this point of view believes that society has the potential to achieve continual growth through its institutions and citizens. Keyes (1998) claims that socially healthy individuals envisage that others are like them and that they are the potential beneficiaries of social growth. The realisation of social potential is similar to the dimension of personal growth in psychological well-being where people think that they can continually grow as individuals (Keyes, 1998; Ryff, 1989).

5) Social coherence

Social coherence is the degree to which people know about what is happening in the world. It applies to individuals who have the ability to understand, feel or even predict what is happening around them. Keyes (1998) states that socially healthy people not only pay attention to the actual society in which they live, but also feel that they can comprehend what is happening in the environment that surrounds them. Furthermore, social coherence is related to the psychological well-being mentioned by Ryff (1989). She states that healthier people consider that their lives are meaningful and coherent.

2.4.4 Oxford Happiness Questionnaire

The sense of well-being or happiness is an important yet complex and elusive construct within positive psychology which has a number of different definitions (Robbins, 2010). Even though there have existed a number of instruments for measuring happiness, there is little agreement on which ones are superior to or more appropriate than others because of the complexity of the theoretical construct of happiness. The Oxford Happiness Questionnaire (OHQ), derived from the Oxford Happiness Inventory (OHI), which was developed by Argyle et al. (1989), is an improved instrument for assessing an individual's sense of well-being (Hill & Argyle, 2002). The OHQ, the improved version of the OHI, actually comprises 29 items, many of which are similar to those in the earlier version; each item is presented as a single statement which can be answered on a six-point Likert scale (Hill & Argyle, 2002). This revised instrument (the OHQ) has been adopted by numerous researchers (e.g., Hill & Argyle, 2002; Lewis et al., 2005; Maltby et al., 2005; Cook & Chater, 2010; Robbins et al., 2010) and has been widely used in countries such as the UK; North Ireland (Cruise et al., 2006); Australia (Thalbourne & Houran, 2005); the USA (Abdel-Khalek & Lester, 2012) and Canada (Holder & Klassen, 2010). This convincingly demonstrates its reliability and validity in investigating personal happiness. Since the OHQ has been widely used by western researchers to evaluate an individual's feeling of well-being in western countries, there is no denying the possibility that the effect of a different culture may lead to the questionnaire being fatally flawed since a comprehensive implantation of Western conceptualisation and measurement is being used here in the specific context of a Chinese cultural organisation. This research therefore considers that employing the OHQ has to be justified to test the reliability and validity of the items used with a view to developing a valid measurement scale in the quantitative approach in the specific context of

Chinese cultural organisations. Because a multitude of categories and instruments exist for measuring an individual's sense of well-being, there is little agreement on which ones are superior to or more appropriate than others since, as mentioned above, the theoretical construct of happiness is so complex. Having reviewed and considered a great many references concerning instruments to measure an individual's feeling of well-being, this research has chosen to adopt the Oxford Happiness Questionnaire (OHQ) developed by Hill and Argyle (2002).

2.4.5 Summary of the Sense of Well-being

Veenhoven (1994) states that an individual's sense of well-being is generated by either increasing positive emotions or decreasing negative ones. Likewise, an individual's sense of well-being is enhanced by participating in social activities that correspond with the individual's values or points of view, or by immersing him/herself in a life that he/she perceives as meaningful. Hence, to achieve a sense of well-being, the individual should not only pursue pleasure or happiness, he/she must also perceive his/her life to be meaningful (Waterman, 1993). Moreover, Keyes (1998) and Keyes et al. (2002) reveal that an individual's sense of well-being should consist of and involve subjective well-being, psychological well-being and social well-being; these three constructs are highly related to each other. Moreover, Saari and Judge (2004) state that the job and life satisfaction of an individual are highly correlated and inter-related. This is because an individual's job plays an important role in his/her life; job satisfaction may spill over into life satisfaction or vice versa (Saari & Judge, 2004). Though past research has shed light on how individuals' sense of well-being is strongly associated with income (Diener & Biswas-Diener, 2002), helping co-workers (George, 1991), and giving social support to colleagues (Iverson, Olekalns & Erwin, 1998), most research studies have speculated that such signals of achievement and success in work tasks causes an individual to be happy (Boehm & Lyubomirsky, 2008). To date, however, no research seems to have explored empirically the relative effects of workplace networks, organisational culture, employees' sense of well-being, and their different types (namely tacit and explicit) of knowledge-sharing behaviour. As noted above, this research proposes an integral point of view and specifies employees' sense of well-being as being a state of mind, which is constructed through a complex, contextual and meaningful sentiment. It comes not merely from private emotions, such as pleasure, displeasure, satisfaction with life and so forth, but also from experiencing various social challenges. Meanwhile, job-related well-being may spill over into life-related well-being or vice versa.

2.5 Organisational Culture

2.5.1 Definition of Organisational Culture

As mentioned in Camic's (1986) research, not only individuals, but also collectives oscillate between two poles: namely, consciousness or reflection on the one hand and cultural habits on the other. Accordingly, the behaviour of most individuals is likely to be deeply influenced by the cultural habits of the organisation. Camic (1986) further states: "From Durkheim's (1893) observations on the empirical role of habit at different points in the evolutionary process, he considered that primitive peoples, in his judgment, live to a large extent by the force of habit and under the yoke of habit." As a result, individuals are keen to reflect their perceptions and behaviour, based on their specific culture, when implementing knowledge management (Ruggles, 1998). Swartz (2002) states that the behaviour of individuals basically and profoundly stems from cultural standards which are driven and embedded through dynamic reenactment according to past learning and experiences.

Over the past few decades, a new academic focus, organisational culture, has been taken into account more and more by researchers and practitioners because of its influence on enhancing organisational performance and maintaining a competitive edge (Khan & Afzal, 2011; Prajogo & McDermott, 2011). However, organisational culture is not only a complex and abstract concept, it is also difficult to standardise and conceptualise. Hence, it is imperative for researchers to classify organisational culture further in order to lessen its indistinctness. Fundamentally, organisational culture is the common awareness of colleagues with shared assumptions, values, beliefs and norms (Schein, 1985; McDermott & O'Dell, 2001). Lai and Lee (2007) state that organisational culture is formed from the shared interpretations and understanding of organisational events; it develops over time. A research study published by Schein (1992) claims that organisational culture can be categorised into three levels: artifacts, espoused values and underlying assumptions. The level of organisational culture that resides in artifacts is a visible and perceivable phenomenon in the form of, for instance, language, myths, stories, ceremonies, rites and products. A similar artifact, however, might have a range of different meanings in different organisations (Schein, 1992). Values represent the organisation's philosophy, strategies and targets; in this regard, organisational members may have varying values at an initial stage but there will emerge a growing consensus of such values as time passes (Schein, 1992). Assumptions can be viewed as the extreme essence of an organisation's culture; they are stable and invariable and can influence members' behaviour, thoughts and perceptions (Schein, 1992). Likewise, respective organisations have unique and particular cultures which have developed over time;

these reflect the characteristics of the organisation in two dimensions: visible and invisible (McDermott & O'Dell, 2001). The visible dimension refers to the artifacts of the organisational culture, which include values, philosophy and missions, whereas the invisible dimension reflects the actions and viewpoints of employees; these are difficult to present or state (McDermott & O'Dell, 2001). De Long and Fahey (2000) point out that organisational culture influences organisational learning in four ways. Firstly, organisational culture shapes employees' assumptions concerning whether knowledge is important or vice versa, and what knowledge is worth managing. Secondly, the organisational culture allows employees' knowledge to become organisational knowledge while, thirdly, an organisational culture can shape the process by which new knowledge is created, legitimised and distributed. Fourthly, organisational culture creates the specific context for social interaction that determines how effective an organisation is at creating, sharing and applying knowledge. Consequently, different types of organisational culture will have different impacts on organisational learning (Lee & Chen, 2005).

2.5.2 Categories of Organisational Culture

Researchers have built various models and instruments to evaluate the organisational culture of an organisation. According to Wallach's research (1983) concerning interactions among an organisation's members, organisational culture can largely be categorised into three cultures: namely, a bureaucratic culture, an innovative culture and a supportive culture. A bureaucratic culture is one in which the organisation is arranged hierarchically and compartmentally based on control and power (Wallach, 1983; Cameron & Quinn, 2006). In such a culture, organisational members have a clear authority in their highly standardised, regular and systematic way of working. On the other hand, an innovative culture demonstrates traits of creativeness, challenge and risk-taking (Wallach, 1983). Organisational members involved in an innovative culture are more creative and are likely to be entrepreneurial. In comparison, a supportive culture focuses on trust, interactions and equitableness among organisational members. It results in a more friendly and pleasant organisation (Wallach, 1983; Cameron & Quinn, 2006). However, Wallach (1983) states that the culture of an organisation should not be specifically divided into three categories (namely, into bureaucratic, supportive and innovative cultures). This is because the combination of these three categories of organisational cultural traits will vary from one organisation to another. Later on, one of the most common models and instruments to assess organisational culture was the Organisational Culture Assessment Instrument (OCAI). Based on the Competing Values Framework (Quinn,

1988), OCAI was developed by Cameron and Quinn (1999). Ideally, the Competing Values Framework (CVF) forms two axes which reflect two different orientations. The horizontal axis shows the degree to which an organisation pays more attention to its internal or external operations and functioning, whilst the vertical axis represents the degree to which an organisational culture has a tendency towards control or flexibility (Denison & Spreitzer; 1991). The Organisational Culture Assessment Instrument (OCAI) has six dimensions: dominant characteristics, leadership style, management of employees, organisational glue, strategic emphasis, and criteria of success. Four types of organisational culture (namely the adhocracy, clan, market and hierarchy cultures) are then produced by analysing these six dimensions.

An adhocracy organisational culture highlights flexibility, change, innovation and external orientation (Cameron & Quinn, 1999; Haffar et al., 2014). Organisations with an adhocracy organisational culture usually operate in dynamic contexts and seek to be leaders in their markets. Creativity, entrepreneurship and risk-taking are the main characteristics of such a culture (Suppiah & Sandhu, 2011). These organisations encourage individual initiatives to create new ideas, models and programmes in order to increase the efficiency of the organisation (Cameron & Quinn, 1999). The glue that holds together a firm with an adhocracy organisational culture is its orientation towards innovation and development.

A clan organisational culture also emphasises flexibility but with an internal orientation. Clan-type firms are characterised by teamwork, consensus, employee involvement and commitment to employees (Cameron & Quinn, 1999). Organisations dominated by the values of the clan type highlight stability and performance together with efficient and smooth operations. Emphasising the long-term benefits of human resources and attaching great importance to morale are major concerns for such organisations (Cameron & Quinn, 1999; Haffar et al., 2014). Firms with a clan organisational culture can be treated as very special places where, like an extended family, people seem to share a lot of themselves (Suppiah & Sandhu, 2011). The glue that holds a clan-type firm together is loyalty and mutual trust. Commitment to the organisation is high.

Firms with a market culture focus on external orientation but combined with control and stability. Organisations dominated by a market type of culture tend to be results-oriented; their primary concern relates to getting the job done and increasing profits (Cameron & Quinn, 1999; Haffar et al., 2014). The leaders in such organisations pay more attention to achieving the biggest market share but have less

willingness to take care of the morale of employees and the development of their human resources (Cameron & Quinn, 1999; Zammuto et al., 2000). As a result, issues concerning morale and sustainable personnel development seem not to be taken into account by leaders who work in an organisation with a market culture (Haffar et al., 2014). The core characteristics of this culture are the achievement of goals, consistency and competitiveness.

Finally, a hierarchy-type of organisational culture is internally focused and espouses control and stability (Suppiah & Sandhu, 2011). The management style in the organisation with this type of culture is characterised by the careful monitoring of performance, longevity in position, and predictability (Cameron & Quinn, 1999). The organisation dominated by hierarchical values does not encourage creativity and innovation (Zammuto et al., 2000). The glue that holds organisations with this culture together consists of formal rules and policies. Maintaining a smooth-running organisation is important.

Figure 2.3 shows the characteristics of organisational cultures as defined by Cameron and Quinn (2006). However, it should be noted that the traits of organisational culture in an organisation are not mutually exclusive and therefore they cannot be clearly divided into four separate categories, namely, into adhocracy, clan, market and hierarchy cultures. This point was argued by Dension and Spreitzer (1991) and by Suppiah and Sandhu (2011) who claimed that an organisation often comprises a mix of all four cultural types rather than consisting of only one isolated culture. In the meantime, the Organisational Culture Assessment Instrument (OCAI) has proved its validity and reliability (Cheng & Liu, 2007; Yu & Wu, 2009).

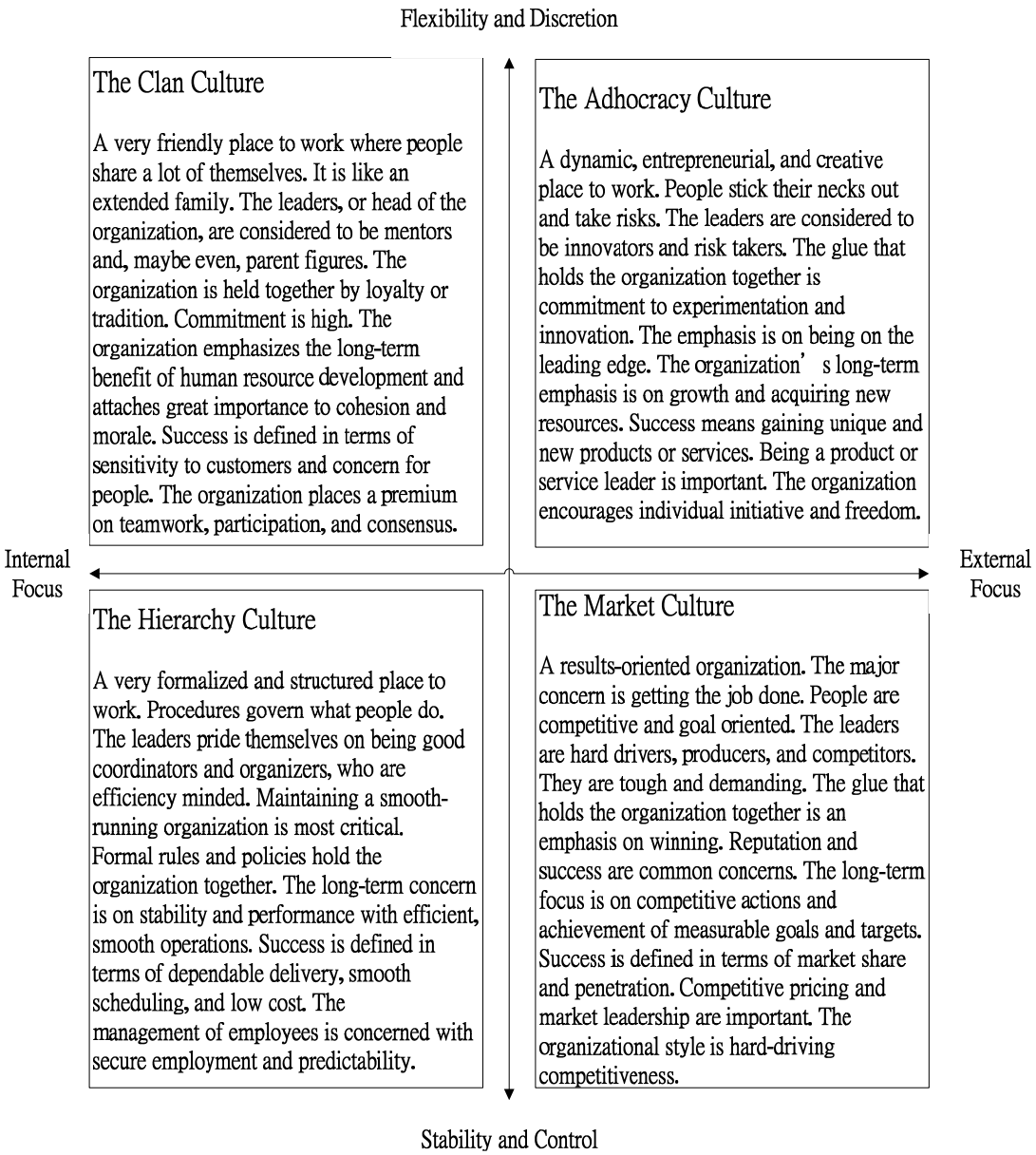

Figure 2.3: The Organisational Culture Profile and Competing Values Framework (Source: Cameron & Quinn, 2006, p. 94)

2.5.3 Relevant Issues Concerning Organisational Cultures

The importance and impact of organisational cultures on an individual's knowledge-sharing behaviour has been widely discussed in the knowledge management domain for the purpose of improving organisational performance and maintaining a competitive advantage. Research associated with organisational cultures often intends to explore the impact of such cultures on the relationships between knowledge-sharing behaviour, the habits of individuals and the sense of well-being. The relationships between each dimension are discussed in detail in what follows.

1. Relationship between Organisational Culture and Knowledge Sharing

A considerable number of researchers have come to regard organisational culture as a critical factor that strongly influences individuals' willingness to share knowledge in organisations (Adel et al., 2007; Lai & Lee, 2007; Islam et al., 2011; Shao et al., 2012; Tong et al., 2013). Liao et al. (2012) state that one of the most important issues for managers in organisations is to determine which organisational culture is more appropriate when attempting to acquire and diffuse new knowledge quickly. However, DeLong and Fahey (2000) claim that an organisational culture may be considered as a critical barrier to the creation, sharing and use of knowledge. Lai and Lee (2007) state that an effective organisational culture within an enterprise, one that makes every process and work task more standardised and systematic, can effectively contribute to the effective knowledge sharing of individuals. A survey conducted by Shao et al. (2012) concerning the mediating effect of organisational culture and knowledge sharing on the success of ERP systems showed that trust-oriented group cultures and achievement-oriented cultures have a significantly positive impact on employees' tacit knowledge sharing, while a control-oriented hierarchical culture positively influences explicit knowledge sharing. Chang and Lee (2007) explored the impact of organisational culture and knowledge management mechanisms on organisational learning. They demonstrated that innovative and supportive cultures positively influenced the acquisition of individuals' knowledge. Liao et al. (2012) demonstrated that a bureaucratic organisational culture negatively influenced employees' knowledge acquisition while innovative and supportive organisational cultures positively influenced their knowledge acquisition. Considering the statements made above, this research suggests that organisational culture plays a critical role in motivating employees to share their knowledge.

2. Relationship between Organisational Culture and the Habits of an Individual

One of the most important issues concerning knowledge management is to alter organisational cultures and employees' habits with a view to improving an organisation's competitive advantage and performance (McDermot, 1999). In the meantime, an individual's everyday working habits in the organisational context may be constructed and established because of the continual impact of organisational culture and its specific goals and strategies (Danner et al., 2008). These researchers further state that individuals have the ability to perform goal-directed behaviour easily and without relying on explicit intention (Aarts & Dijksterhuis, 2000; Danner et al.,

2008). Therefore, most routine jobs are likely to be profoundly influenced by the unique culture of the organisation. As a result, this research considers that organisational culture will play an important role in changing the everyday working habits of employees in terms of knowledge sharing.

3. Relationship between Organisational Culture and Employees' Sense of Well-being

A number of the components of psychological well-being encompass autonomy, environmental mastery, positive relations with others, and personal growth, highlighting the importance of the organisation's ambience in influencing employees' feelings of well-being (Ryff, 1989; Ryff & Keyes, 1995; Keyes et al., 2002; Ryff & Singer, 2008). Wallach (1983) and Cameron and Quinn (2006) state that organisations that belong to a bureaucratic culture are arranged hierarchically and compartmentally. Individuals working in such an organisational culture have a clear authority in their standardised, regular and systematic ways of working (Cameron & Quinn, 2006). Hence, it seems that an individual's feeling of well-being in an organisation may decline if he/she loses autonomy, self-determination and independence. In contrast, a supportive culture consists of trust, interactions and equitableness among its organisational members; this results in a more friendly, trusting and pleasant ambiance (Wallach, 1983; Cameron & Quinn, 2006). Ryff (1989) states that one important element of psychological well-being concerns the importance of warm and trusting interpersonal relationships in the environment; this may be linked to the perspective of social well-being. For instance, individuals who hold a socially acceptant point of view possess a willingness to trust others, tend to think that people are capable of kindness, believe that others are industrious, and feel comfortable with them (Ryff, 1989). Wallach (1983) states that an innovative culture has traits of creativeness, challenge and risk-taking. Organisational members involved in an innovative culture are more creative and are more likely to be entrepreneurial. This concept also corresponds with the personal growth of psychological well-being which encourages people, not only to achieve work tasks, but also continually to develop their potential (Ryff & Singer, 2008). Therefore, this research considers that various organisational cultures may play an important role in influencing employees' sense of well-being.

2.5.4 Summary of Organisational Cultures

In summary, organisational cultures can be classified as having three levels: artifacts, espoused values, and underlying assumptions within the organisation. These form the shared values, beliefs and norms of organisational members (Schein, 1992). Moreover,

the behaviour of employees in organisations is broadly and profoundly influenced by the organisational culture that guides their behaviour towards what is important and appropriate (Tong, 2013). This research accordingly adopts the concept of organisational cultures noted by Cameron and Quinn (1999): the Organisational Culture Assessment Instrument (OCAI) which was based on the Competing Values Framework (CVF). OCAI divides organisational culture into four types. Dension and Spreitzer (1991) further indicated that all four cultures (adhocracy, clan, market and hierarchy cultures) cannot be effectively divided owing to the fact that the traits of an organisation will be a combination of all of these to varying degrees. The main reason why this research chose to adopt Cameron and Quinn's (1999) organisational culture index was because, although a multitude of typologies, categories and instruments exist to measure organisational cultures, there is no significant agreement on which are superior or more appropriate and OCAI has been used in numerous empirical research studies on organisational culture (e.g., Lau & Ngo, 2004; Igo & Skitmore, 2006; Raquel et al., 2011). At the same time, although organisational culture has been used previously to shed light on a huge range of social behaviour, such as individuals' knowledge-sharing behaviour and organisational performance, few studies have, however, considered the relationship between employees' knowledge-sharing behaviour and organisational culture in the complex context of a virtual organisation. As noted above, the concept of organisational culture proposed in this research possesses four interrelated dimensions (namely adhocracy, clan, market and hierarchy cultures). Moreover, it defines organisational culture as members' shared values, norms, beliefs and assumptions that may, visibly or invisibly, influence their working habits in terms of sharing knowledge, their knowledge-sharing behaviour and their sense of well-being in a virtual organisation. Furthermore, this organisational culture has characteristics of cohesiveness, and the forces of constraint and stimulation, while acting as a driving force for organisational members in order to achieve the organisation's particular goals.

2.6 Individuals' Habits

2.6.1 Definition of the Habits of an Individual

Prior research into the habits of individuals has been discussed widely in a variety of disciplines, such as psychology (Ouellette & Wood, 1998), customer behaviour (Chiu et al, 2012), sociology (Camic, 1986), organisational context (Gersick, 1990), and the use of the information systems (Limayem & Hirt, 2003; Limayem et al., 2007; Limayem & Cheung, 2008; Kang & Lee, 2010; Lankton et al., 2010). For instance, habits have been used to predict the repeat purchase behaviour of online customers by

adding three antecedents of habits: familiarity, perceived value and satisfaction (Chiu et al., 2012). As long as a strong habit is present, the expression of customers' intentions is guided by the prominence of previous behaviour rather than by attitudes (Honkanena et al., 2005). With regard to the usage of organisational information systems, Limayem and Hirt (2003) found online users' habits as a factor in explaining their usage behaviour. In fact, individuals' habits have been defined by numerous researchers from various perspectives and one major aspect focuses on the condition that the habits of an individual are usually evaluated by past behavioural frequency (Ronis et al., 1989). However, the generation and formation of an individual's habits are surely more complex than just this. For example, Triandis (1980) defined habit as "situation-behaviour sequences that are or have become automatic, so that they occur without self-instruction" (p. 204) whilst Verplanken and Aarts (1999) described an individual's habits as "learned sequences of acts that have become automatic responses to specific cues, and are functional in obtaining certain goals or end states" (p. 104). Hence, even though the repetitive behaviour of an individual is a compulsory condition in the continual development of new habits, habits should be clearly distinguished from behavioural frequency (Honkanena et al., 2005). Limayem et al. (2007) also stated that habits cannot be viewed as being equivalent to behaviour, and should be clearly distinguished from it (Limayem et al., 2007). According to Louis and Sutton (1991) and Aarts et al. (1997), behaviour is regarded as the resulting actions of an individual, whilst habit is defined as an individual's automatic cognitive processes. Later, Aarts and Dijksterhuis (2000) considered that an individual's habits can be regarded as the repetitive nature of goal-directed behaviour. References to the habits of individuals offered in Yu (1991), Yu and Chiang (2002), Ju et al. (2007), Limayem et al. (2007) and Sun et al. (2009) indicate that individuals display unique behaviour because of their own personal perspectives, thinking, judgments, responses, memories and ways of handling problems. Hence, the process of individuals' decision-making may be profoundly affected by their accumulative past behaviour and experience (Vance et al., 2012). Swartz (2002) also points out that an individual's habits may be deeply influenced by dynamic re-enactment respectively according to past learning experiences while Limayem and Hirt (2003) consider that an individual's habits may reflect automatic behavioural tendencies, which have been developed by his or her past history.

Research into the habits of individuals, conducted by Limayem et al. (2007), states that the formation of habits associated with the utilisation of Information Technology (IT) may be generated by four antecedents. These are as follows: 1) frequency of prior behaviour: The more frequently an individual performs similar actions, the more

likely it is that the individual will perform them automatically; 2) satisfaction: the habits of an individual are generated by successful or satisfactory experiences in terms of achieving particular objectives; 3) stability of context: habits are formed through similar situational cues or targets, performed under regular routines; 4) comprehensiveness of usage: the formation of habit depends on the degree to which an individual is able to apprehend the various applications of the information system.

Another important research study regarding habits, conducted by Yu (1991), states that the Habitual Domain (HD) refers to individual habits: for instance, unique thinking, memory, judgments and decision-making, along with an individual's organisation, integrations, interactions and dynamics. The Habitual Domain consists of four elements: 1) Potential Domain (PD): this alludes to the aggregation of previous ideas and actions which could be potentially activated; 2) Actual Domain (AD): this emphasises a set of existing ideas and actions which could be activated immediately; 3) Activation Probabilities (AP): which refers to the likelihood that ideas and actions in the Potential Domain appertain to the Actual Domain; 4) Reachable Domain (RD): this relates to the combination of ideas and actions that are both new and previous; this could give rise to a given set of ideas and actions in the Habitual Domain.

Having reviewed a number of prior research studies integrated by Limayem et al. (2007), satisfaction and stability of context seem to have been more widely considered as key antecedents of an individual's habits as they increase the tendency to repeat the same course of action again and again. Therefore, as long as an individual has accomplished successfully his/her intentional objective or obtained satisfactory outcomes by performing a specific behaviour, similar behaviour will be repeated under similar conditions (Limayem et al., 2007). Ronis et al. (1989) also indicated that, as an individual attempts repeatedly to carry out an action with at least partial success, he/she tends to obtain a better effect from it. Then, this intensification in the level of satisfaction may become an individual's habit (Verplanken & Aarts 1999). On the other hand, another important antecedent of habit that has been recognised is a stable context. This is characterised by the presence of similar situational cues and goals across more or less regularly occurring situations (Limayem et al., 2007). In fact, a stable context is regarded as the situational cues and relevant goals of the individual who performs similar behaviours across consecutive situations (Limayem et al., 2007). For example, as Limayem et al. (2007) describe: "An example of a stable situation that triggers a user to check her e-mail may just consist of seeing her computer upon entering her quiet office in the morning." Such automatic behaviour may be driven by

a long-term stable context such as an organisational culture or the goals of an organisation. Hence, an individual's habits could be viewed as a series of repeated acts, together with past satisfactory learning experience, reflected subconsciously and triggering an automatic response to a specifically situational context. As a result, habitual tendencies may unconsciously influence people's willingness to share knowledge.

2.6.2 Summary of an Individual's Habits

Louis and Sutton (1991) and Aarts et al. (1997) state that the behaviour of an individual is the result of his/her actions, whilst habit is defined as an individual's automatic cognitive processes. Later, Aarts and Dijksterhuis (2000) considered that an individual's habits might be regarded as the repetitive nature of goal-directed behaviour. This leads to the notion of an individual's behaviour being directly triggered while experiencing a specific context. Considering that there is a significant lack of a comprehensive understanding of the intricate antecedents of employees' working habits, which may be subconsciously or unconsciously formed, this research pays more attention to the impact of a variety of characteristics of organisational culture on employees' knowledge sharing working habits which, in turn, affect employees' knowledge-sharing behaviour within the selected virtual organisation. In this study, this research defines an individual's habits in terms of knowledge sharing in a virtual organisation as an individual's unconscious or sub-conscious behaviour, which is generated by his/her accumulative, goal-directed and automatic behaviour, under the condition and acquisition of a satisfactory outcome. Subsequently, an individual's behavioural responses are activated directly and automatically when his/her behaviour is habitual.

2.7 Social Capital Theory

2.7.1 Definition of Social Capital

The concept of social capital has been progressively taken into consideration in the sociological domain over the past decades and the term "social capital" was used initially in print by Jane Jacobs (1965) with regard to issues concerning school community centres. She defines social capital as the network of interpersonal relationships that are developed over time and provide the principles of trust, consensus and cooperation (Jacobs, 1965). Bourdieu (1986) states that social capital is a term for the collective unit by which collective members obtain actual or potential resources and effectively mobilise their own group; through social capital, a durable

network is formed. Scholars, such as Baker (1990) and Putnam (1995), state that social capital can be regarded as an individual's potential resources or assets, accessed through such social networks. Likewise, Burt (1992) considers social capital as a set of societal resources embedded in interpersonal relationships. A great deal of research has highlighted factors relating to social capital; these include trust, norms, regulations and networks which are based on cooperation and collective actions, resulting in members' profits (Bourdieu, 1980, 1986; Coleman, 1988; Dinda, 2008; Putnam, 2000). Later, Nahapiet and Ghoshal (1998) integrated further factors relevant to social capital theory to explain organisational learning in order to improve organisational advantage.

2.7.2 Dimensions of Social Capital Theory

The comprehensive understanding of the theoretical dimensions of social capital outlined by Nahapiet and Ghoshal (1998) suggests that the theoretical conception consists of structural, cognitive and relational dimensions; these explore members' relationships and organisational phenomena. Fundamentally, the structural dimension of social capital encompasses three principle components: network ties, network configurations and appropriable organisations. Network ties and network configurations are often used to depict structural capital, which is associated with the levels of information sharing and interpersonal relationships connecting network members in an organisation (Leana & Pil, 2006; Kirsch et al., 2010; Yang et al., 2011). Structural capital, which is associated with appropriable organisations and which is established for a specific purpose, provides members with access to information or knowledge.

The dimension of relational capital consists of trust, norms, obligations and identification; it focuses mainly on such resources as the exchange of knowledge embedded in the interpersonal relationships that result from long-term interactions (Nahapiet & Ghoshal, 1998; Sherif et al., 2006). Thus, members who demonstrate higher levels of trust are very likely to be willing to be involved in social exchanges (which may deal with sensitive information) and interpersonal interactions with colleagues (Leana & Pil, 2006). Once norms are established in the social system, members are likely to be significantly influenced to engage in social exchange. Obligations focus mainly on members who have the motive to exchange knowledge because they have a commitment or a duty in the future to do so. Since collectivity forms obligations, members are likely to exchange and share knowledge because of a sense of duty. Identification refers to individuals who have the willingness to share

and exchange knowledge when they regard themselves as one of the collective group.

Cognitive capital refers to the degree to which a collective consensus is recognised on account of the shared codes, language and narratives of the group (Kirsch et al., 2010; Yang et al., 2011). The cognitive dimension of social capital relates to members who have consensus in a social context. When it comes to shared codes and language, the more members utilise the same language, the greater their capacity for gaining access to the information or knowledge of other colleagues. Shared narratives which carry powerful meaning, such as myths, stories and metaphors, can enable individuals to create, exchange and preserve rich sets of meaning (Nahapiet & Ghoshal, 1998).

Besides the structural, relational and cognitive dimensions of social capital theory proposed by Nahapiet and Ghoshal (1998), Wasko and Faraj (2005) added individual motives as the fourth dimension of this concept, thus comprehensively enriching the theory. Individual motive consists of two components: reputation and enjoyment of helping. The analytic results from this study showed that providing or sharing knowledge with other members is a strong motivator for a contributor with a view to promoting his/her reputation. Furthermore, Wasko and Faraj (2005) also suggested that the intrinsic motivation of individuals would be triggered if they viewed helping others to solve problems as a challenge or as creating enjoyment for themselves (Wasko & Faraj, 2000; Wasko & Faraj, 2005). Figure 2.4 depicts the concept of social capital as proposed by Nahapiet and Ghoshal (1998).

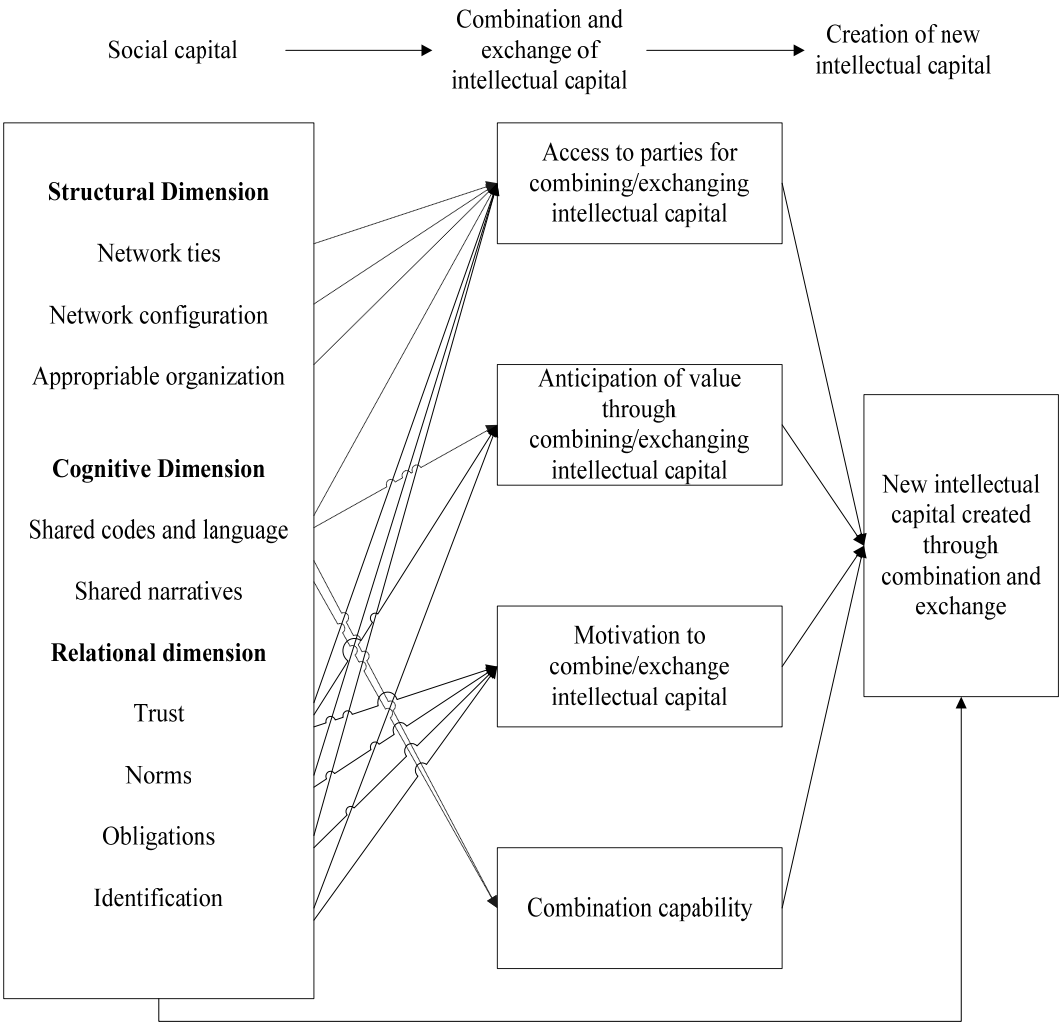

Figure 2.4: Social Capital in the Creation of Intellectual Capital (Source: Nahapiet & Choshal, 1998, p. 251)

With regard to the relationships among structural capital, relational capital and cognitive capital in social capital theory, Granovetter (1985) indicates that structural capital is associated with the strength of social interactions. These are represented in interpersonal trusting and perceived trustworthiness, which manifest themselves in relational capital. Once people interact frequently over time, their interpersonal trusting will become stronger and more trustworthy (Tsai & Ghoshal, 1998). Tsai and Ghoshal (1998) further point out that others will perceive an individual situated in the centre of the interpersonal network as trustworthy. In terms of the relationship between the relational and cognitive dimensions of social capital theory, the shared values, assumptions, goals and visions may encourage collective members to develop positive trusting relationships, rather than persuade independent members to pursue self-interest (Tsai & Ghoshal, 1998). In terms of the correlation between structural and cognitive capital, Krackhardt (1990) investigated an individual's cognitive

accuracy by examining the centrality of informal networks. He demonstrated that the structure of organisational members' interactions forms their shared vision. The willingness of individuals to adopt common organisational languages, codes, values and practices will be elicited or enhanced through the process of frequent social interaction (Tsai & Ghoshal, 1998).

2.7.3 Pertinent Issues Regarding Social Capital Theory

During the past decades, researchers have widely applied social capital theory to explore and comprehend the organisational phenomena and interpersonal relationships associated with knowledge sharing and organisational performance in the domain of Management Information Systems (MIS), particularly knowledge management. The section below illustrates some of the prolific research associated with social capital theory with regard to the knowledge-sharing behaviour of individuals.

1. Relationship between social capital and knowledge sharing

Kankanhalli et al. (2005), based on social exchange theory and social capital theory, proposed a comprehensive model with a view to explaining the motives of individual knowledge contributors to electronic knowledge repositories (EKR). The results of the research confirmed that both intrinsic and extrinsic benefits positively influenced an individual's predisposition to share knowledge via electronic knowledge repositories. Besides social exchange theory, the factor of cost should also be taken into consideration when measuring an individual's willingness to share knowledge via electronic knowledge repositories.

Yang and Fran (2009) employed social capital theory, as well as behaviour control, to explore employees' tacit knowledge sharing within a collective environment. Behaviour control can be divided into two opposite elements: namely, internal and external control. Internal control is commonly used to describe qualities such as self-efficacy, ability and skill, whereas external control focuses on available resources, opportunities and controllability. The analytical results of this study revealed that the affect-based trust of relational social capital positively influenced individuals' intention to share tacit knowledge; the internal control of an individual's behaviour also had a positive impact. Furthermore, external control positively moderated the gap between the intention of an individual to share tacit knowledge and his/her actual behaviour.

Lin (2011) explored the relationships between job effectiveness, knowledge sharing and their antecedents by applying social capital theory and examining individuals' commitment to a team. The evidence showed that structural and cognitive social capital positively influenced individuals' team commitment and that such team commitment was positively related to both knowledge sharing and job effectiveness. Finally, cognitive social capital was not found to have a significant impact on knowledge sharing. In other words, team commitment as a mediator variable positively influenced the relationship between cognitive social capital and knowledge sharing.

2. Relationship between Social Capital and the Sense of Well-being

Ryff (1989) mentioned that warm and trusting interpersonal relationships among members are two important elements in the concept of psychological well-being. Ryff and Keyes (1995) and Ryff and Singer (2008) considered that an individual who possesses the characteristics of trusting, and showing love and care to others, has a greater sense of well-being. Keyes (1998) stated that an individual who holds an acceptant view of social well-being has a greater willingness to trust others, considers that others also have the ability to show kindness, and believes that other people are industrious. Hence, having considered the variety of perspectives above of numerous researchers concerning well-being, it is manifest that the trend of an individual's sense of well-being is highly associated with his/her social capital. This is because social capital theory consists of structural, cognitive and relational dimensions which underline the importance of trust, identification and interpersonal relationships.

2.7.4 Summary of Social Capital Theory

Social capital theory has been widely applied and discussed in terms of a collective phenomenon in which members can acquire actual or potential resources, as well as mobilise their own group (Bourdieu, 1986). Baker (1990) and Putnam (1995) highlighted that social capital can be viewed as an individual's potential resources or assets that can be accessed through such social networks. Nahapiet and Ghoshal (1998) offered an integrated understanding of social capital theory which consists of structural, cognitive and relational dimensions in investigating members' relationships and organisational phenomena. In the meantime, Tsai and Ghoshal (1998) demonstrated that the relational, structural and cognitive dimensions of social capital tendency are highly related and interact with each other. Subsequently, an increasing

number of researches have demonstrated how social capital influences to a large degree the willingness of organisational members to share their knowledge (Kankanhalli et al., 2005; Sun, 2009; Lin, 2011). Moreover, Sarracino (2010) points out that an individual having positive social capital will generate a higher level of well-being. A similar research study by Lau and Li (2011) also demonstrated that social capital had a positive impact on subjective well-being among elementary school students. As noted above, although social capital theory has been used previously to shed light on a huge range of social behaviour, such as individuals' knowledge-sharing behaviour and organisational performance, few studies have, however, considered the relationship between employees' knowledge-sharing behaviour and workplace networks in the complex context of a virtual organisation. In this study, this research views employees' relational, structural and cognitive capital as interrelated dimensions of social capital theory. This proposes that the social capital trend of an individual in a virtual organisation should comprise the structural, cognitive and relational dimensions of social capital theory. This not only influences his/her willingness to share both tacit and explicit knowledge, but also strongly relates to the level of his/her feeling of well-being. Moreover, this research uses the terms "workplace network" or the "social capital tendency" of an individual interchangeably to describe a person who recognises how he/she gets along with others.

2.8 Summary

In this chapter, having reviewed a great deal of literature and the possible mechanisms relating to the various determinants of the knowledge-sharing behaviour of individuals, and having considered that such knowledge-sharing behaviour may involve intricate and diverse cause and effect relationships, this research decided to adopt the concept of organisational behaviour proposed by Langton et al. (2012). The purpose of this was to gain a deeper insight into factors that affected employees' knowledge-sharing behaviour in the selected virtual organisation of Taiwanese NGOs. Organisational behaviour, which involves psychology, sociology and anthropology, can be classified into three main aspects: individuals in organisations (the micro-level), workplace networks in organisations (the meso-level) and organisational systems (the macro-level) (Langton et al., 2012). These three levels of organisational behaviour have been considered as critical factors in improving the effectiveness of organisational knowledge management (Langton et al., 2012). Hence, by integrating multilevel perspectives of the macro-level (organisational culture and knowledge-sharing behaviour using ICT), the meso-level (employees' workplace networks), and the micro-level (employees' sense of well-being, their habits and their personal traits), the essential elements of the knowledge-sharing behaviour of

employees within the selected virtual organisation may be effectively captured and comprehensively understood for this research. In order to offer a deeper understanding of the selected case, the virtual organisation chosen for this research, which was composed of Taiwanese Farmers' Associations and the National Training Institute for Farmers, is investigated and discussed in greater detail in the next chapter.

Chapter 3 Industry Analysis

This chapter reviews a broad spread of literature in terms of the chosen case of this research, namely the virtual organisation comprising the whole system of Taiwanese Farmers' Associations. It starts by presenting the definition, characteristics and historic evolution of Taiwanese Farmers' Associations, of Taiwanese NGOs and of the National Training Institute for the Farmers' Organisation. This is followed by a comparison of Taiwanese Farmers' Associations and Japanese Agricultural Co-operatives. Finally, a range of the current challenges and issues facing the whole system of Taiwanese Farmers' Associations is provided in great detail.

3.1 The Definition, Characteristics and Historic Evolution of Taiwanese Farmers' Associations

3.1.1 The Historic Evolution of Taiwanese Farmers' Associations

Farmers' Associations are the largest, the broadest and the most important rural organisations in Taiwan. At the same time, the whole system of Taiwanese Farmers' Associations, initiated by the Japanese and improved by the Chinese, provide a structural pattern which increases agricultural production, as well as promoting the well-being of rural families (Shen, 1953). Taiwanese Farmers' Associations, in fact, were initially established in 1900 in Taipei city, Taiwan, by local farmers (The View from Taiwan, 2007). Subsequently, during the Japanese colonial period, the government managed and operated these associations as an administrative arm when they formed the core of the colonial government's agricultural extension program and were involved in introducing new farming methods and other activities (Jhang, 2008; The View from Taiwan, 2007); the farmers were controlled with complete disregard for democratic principles (Shen, 1953). Later, after the KMT (Kuomintang, the Nationalist Party of China) fled to Taiwan, other existing agricultural cooperatives and farmers' associations were merged. Now, the chairmen and boards of directors and supervisors of the whole system of Taiwanese Farmers' Associations are directly elected by members without any interference from the Taiwanese government; no serving government official can be on the board of directors or supervisors. The Provincial Department of Agriculture and Forestry (PDAF) established the Farmers' Organisation Division to take over the affairs and activities of the associations. In 1949, due to the controversial nature of combining the existing agricultural cooperatives with Farmers' Associations, which gave rise to a complex composition

of members, Taiwanese Farmers' Associations were re-organised and re-consolidated in order to ensure that control did not slip out of the hands of bona fide farmers (Jhang, 2008). Then, the Joint Commission on Rural Reconstruction (JCRR), which was established through a bilateral agreement between the Taiwanese and American governments, made a comprehensive study of the laws, regulations and organisation of the associations, recommending a number of revisions. The Taiwanese government subsequently set up a committee composed of the JCRR, the PDAF and the Provincial Farmers' Association (PFA) in order to solve the resulting conflicts. The committee completed a draft of a comprehensive law and submitted it to the Taiwanese government in 1951 (Jhang, 2008). The proposed law was scrutinised and discussed carefully for around two years after which certain modifications were made to the initial draft to reconcile conflicting interests. Then, the revised law and supplementary regulations were officially promulgated in 1953. From then on, Taiwanese Farmers' Associations have enjoyed a high degree of autonomy and have diverse functions concerning social, economic, policy and educational aspects of rural communities (Jhang, 2008).

More than 770,000 households in Taiwan are engaged in agriculture, accounting for approximately 12.8% of the entire national population (which totalled 2.96 million in 2010) (Council of Agriculture, Executive Yuan, Republic of China, Taiwan, 2013). Chen (2014) pointed out that agricultural development in Taiwan is similar to that of Japan and South Korea; these are all high cost in terms of agricultural production yet the food self-sufficiency rate is low. Moreover, compared with Europe, America or China, agricultural developments in Japan, South Korea and Taiwan are typical of the pattern of small-scale farming operations. For nearly half a century, Taiwanese Farmers' Associations have played an important role in contributing to the development of Taiwanese rural areas, counselling farmers on how to improve their agricultural production. According to Ding (2012), there are 302 Farmers' Associations, having more than one thousand branches and located over the whole of Taiwan. In fact, the whole system of Taiwanese Farmers' Associations has excellent strongholds and distribution channels. Hence, Farmers' Associations can establish a complete marketing system for agricultural products and can control the circulation of such products according to different seasons, thus improving the benefits to Taiwanese farmers. Because Taiwanese Farmers' Associations distribute products over the whole of Taiwan and since they have reached a sufficient level of economy of scale, this now provides them with a competitive advantage compared to other relevant organisations.

3.1.2 The Definition and Development of Taiwanese Non-Profit Organisations (NPOs)

NPOs have gradually become to play more important roles in improving people's welfare and in maintaining the sustainable development of societies (Eyüp Aygün et al., 2013). In this regard, Taiwanese NPOs, which are known commonly as Non-governmental Organisations (NGOs), are organisations that utilise surplus revenues to achieve their goals, instead of distributing them as profits (Jau, 2014). These have proliferated in Taiwan in order to provide a range of social welfare services and to compensate for the deficiencies of the public welfare system provided by the Taiwanese government. Accordingly, 40,316 NGOs have been established in Taiwan (Department of Statistics, Ministry of the Interior, Republic of China, Taiwan, 2013). Basically, NPOs can be regarded as non-distribution constrained organisations: that is, they are prohibited from distributing their profits to individuals, group members, directors, officers or board members (Hansmann, 1980). Kolter and Andreasen (1975) stated that NPOs can be categorised into two main groups, namely: 1) privately-owned Non-profit Organisations and, 2) government-owned Non-profit Organisations, according to their ownership and the purpose of their operation. In Taiwan, Wu and Hung (2008) further stated that NPOs can be classified into the following three categories according to Taiwanese law: 1) professional organisations, such as labour unions, industrial and commercial organisations for the purpose of coordinating the relationships among similar businesses and promoting the sustainable development of the social economy; 2) social groups, which may comprise individuals or a group founded to promote culture, academic work, medical care, hygiene, religion, sports, unions, social services or for other charitable purposes; 3) political organisations, such as a political party. Wolf (1999) stated that NPOs sit neither in the profit sector nor in the public sector; they rest somewhere between these two. Generally, the five characteristics of NPOs defined by Wolf (1999) are widely recognised all over the world:

1. They must have a public service mission and their main goal must be to serve others, not themselves.

2. They must be organised as a not-for-profit or charitable corporation. They must formally claim to be not for profit.

3. Their governance structure must preclude self-interest and private financial gain. This goes back to the first characteristic in that the organisation's main goal is to serve

people.

4. They must be exempt from paying federal tax.

5. They must possess the special legal status that stipulates gifts made to them are tax-deductible.

However, Drucker (1990) states that, unlike For-Profit Organisations, NPOs need to be managed more effectively because, as Chi et al. (2008) suggests, NGOs often lack management knowledge and this can hinder their organisational development. Liu and Fang (2010) further point out that most employees working in Taiwanese NGOs are facing the challenges of a flat hierarchical structure, lower salaries and unclear promotion opportunities. These are disadvantageous factors and are the primary reasons why Taiwanese employees tend not to work for Taiwanese NGOs (Fang, 2010).

3.1.3 Taiwanese Farmers' Associations as Non-Governmental Organisations (NGOs)

In Taiwan, Jau (2014) states that Non-profit Organisations (NPOs), which are known prevalently as Non-governmental Organisations (NGOs), are organisations that use surplus revenues to achieve their goals, rather than distributing them as profits. Hansmann (1980) also states that NPOs are organisations which are constrained from distributing their profit to individuals, group members, directors, officers or board members. Fundamentally, according to Kolter and Andreasen (1975), NPOs are mainly categorised in terms of two aspects according to their ownership and operational purpose, namely: 1) privately-owned Non-profit Organisations; 2) government-owned Non-profit Organisations. In Taiwan, NGOs or NPOs are divided into three sections by Taiwanese law, namely: 1) professional organisations, such as labour unions, industrial and commercial organisations for the purpose of coordinating relationships among the same businesses, and promoting the sustainable development of the social economy; 2) social groups (i.e. individuals or a group) founded in order to promote culture, academic work, medical care, hygiene, religion, sports, unions, social services or for other charitable purposes; 3) political organisations, such as a political party (Wu & Hung, 2008). The whole system of Taiwanese Farmers' Associations, as defined in this research, is a privately-owned non-profit professional organisation as set down by the Taiwanese Farmers' Association Act (2014) and the Department of Statistics of the Ministry of the Interior,

Republic of China (Taiwan) (2008). Furthermore, according to an explanation of the Taiwanese Farmers' Association Act (2014), Li (2004) and Liao (2004) stated that Taiwanese Farmers' Associations definitely belong to the area of NGOs. This can be seen by reviewing Article 1, Article 2, Article 4 and Article 40 of the Taiwanese Farmers' Association Act (2014) shown below.

Article 1:

"A farmers' association shall operate for such purposes as safeguarding farmers' rights and interests, enhancing farmers' knowledge and skills, boosting the modernization of agriculture, increasing crop yields, improving farmers' livelihoods and developing the rural economy."

Article 2:

"A farmers' association is a judicial person."

Article 4:

"A farmers' association is authorized with the following duties:

1. Safeguarding farmers' rights and interests, disseminating farming-related laws and regulations and mediating farming- related disputes;

2. Rendering assistance in the improvement of land and farm water conservancy, soil and water conservation and forest planting;

3. Promoting superior seeds and fertilizers;

4. Rendering instruction and demonstration of farming production, propagating superior species, and enhancing the management of professional farming zones;

5. Handling affairs regarding awards, aids and subsidies, encouraging agricultural extension, training and farming production;

6. Implementing and boosting affairs regarding farming mechanization and labor efficiency;

7. Rendering guidance and assistance and implementing affairs regarding joint operations, commissioned operations, family farm development and custom farming;

8. Marketing, transporting, warehousing, processing, manufacturing, exporting and importing agricultural and livestock products, and operating and managing related wholesale and retail-sale markets;

9. Importing, exporting, processing, manufacturing, allocating and selling materials for farming production, and supplying and marketing daily necessities to member farmers;

10. Operating farm warehouses and businesses for member farmers' common utilization;

11. Operating financial businesses for member farmers;

12. Accepting commissioned requests to handle farming insurance business;

13. Accepting commissioned requests to assist farmers in insurance affairs and farm house constructions;

14. Boosting rural cooperation and social service businesses;

15. Promoting rural sidelines and industries;

16. Promoting rural culture, medical and health services, welfare and relief aids;

17. Improving farmland utilization;

18. Preventing, control and remedying agricultural disasters;

19. Acting on behalf of the government treasury and accepting commissioned requests from government agencies or public/private groups to handle related affairs;

20. Operating agricultural travel and rural recreation businesses;

21. Handling affairs as specially approved by the competent authorities.

The tax-exemption on the above-mentioned businesses handled by a farmers' association shall be subject to relevant provisions set forth in the Agriculture Development Statute and the Cooperative Law. Tax-exemption coverage in this regard shall be regulated by the Executive Yuan."

Article 40:

"Following the annual final account, a farmers' association shall count the remaining profits made from different businesses as the overall profits of the association after part of the income earned in this regard is appropriated as reserves of those businesses concerned. The overall profits of a farmers' association, except those used to make up previous losses, if any, shall be allocated at the following ratios:

1. Legal reserves: Fifteen percent (15%);
2. Funds for public interests: Five percent (5%);
3. Funds for agricultural extension, training, culture and welfare businesses: No less than sixty-two percent (62%);
4. Funds for inter-organizational extension, mutual aid and training services among farmers' associations at all levels: Eight percent (8%);
5. Remunerations for board directors, supervisors and association staff: No more than ten percent (10%).

The rules and regulations governing the custody and application of the aforementioned legal reserves as per Clause 1, funds for public interests as per Clause 2, and funds as per Clause 4 shall be established by the central-level competent authorities. The ratio of the profits made from different businesses to be appropriated as reserves of those businesses concerned as mentioned in Paragraph 1 under this Article shall be established by the central-level competent authorities together with the central-level target-business competent authorities."

Therefore, as reviewed in the relevant references above, Taiwanese Farmers' Associations, which are regarded as NGOs, have developed a stable and cooperative partnership with the Taiwanese government to improve Taiwanese agricultural development, as well as playing a pivotal role in helping the Taiwanese government improve its capability in the delivery of public services (Liao, 2004). In the light of the Taiwanese Farmers' Associations' special status and their functions in Taiwanese agricultural development, the whole system of Taiwanese Farmers' Associations has become a much-admired example for numerous developing countries and academic

institutions (Liao, 2004).

3.1.4 Characteristics of Taiwanese Farmers' Associations

Farmers' Associations, which are Non-governmental Organisations, have numerous unique characteristics and functions in Taiwan. According to statistics from the annual report published by the Farmers' Associations' official website in 2013, there are 305 Farmers' Associations, which have more than 1.8 million members in Taiwan. Farmers' Associations offer a variety of services including finance, supply and marketing, insurance and agricultural promotion to their members. At the same time, each Taiwanese Farmers' Association has four main areas of concern which can be described as political, economic, social and educational functions. Farmers' Associations have the longest history, the widest distribution and the most members of any Non-governmental Organisation in Taiwan. In terms of the variety of functions undertaken by the Taiwanese Farmers' Associations, this research describes these as follows (Liou, 1996).

1) The political function of Taiwanese Farmers' Associations

Farmers' Associations, which initially began in 1900, were political interest groups in nature. Their membership consisted of tenant farmers and they were established for the purpose of protecting their right to cultivate areas in the Taipei county of Taiwan. After Japan occupied Taiwan, Farmers' Associations became official Japanese organisations with a responsibility for carrying out policies of agricultural development in order to improve agricultural resources in Taiwan. During the period of Japanese domination, therefore, the main function of the Farmers' Associations was to carry out the policies of the Japanese government. After overthrowing the Japanese government, however, even though the Taiwanese government gave back rights to Farmers' Associations, the essence of the relationship between the Taiwanese government and the Farmers' Associations was still similar to that existing during the period of Japanese domination. Since then, Farmers' Associations have maintained a close relationship with the Taiwanese government for the purpose of receiving government subsidies and propagandising government policies.

2) The economic function of Taiwanese Farmers' Associations

Two main businesses are operated by the Taiwanese Farmers' Associations to maintain and ensure the survival of their organisational functioning: namely, supply

and marketing, and credit transactions. With regard to the business of supply and marketing, Farmers' Associations are permitted by the Taiwanese government and other institutes to charge commission in order to increase their sources of income. The Department of Credit Transactions of Farmers' Associations provides farmers with loan services at low interest rates so that they can earn interest from farmers. In the meantime, the Taiwanese government also legislates relevant agricultural laws for the purpose of maintaining monopolies in those areas under the remit of the Farmers' Associations. Farmers' Associations also receive Taiwanese government subsidies to establish granaries and related infrastructures. Hence, even though Taiwanese Farmers' Associations are Non-governmental Organisations (NGOs), they still rely heavily on the support and subsidies of the Taiwanese government. With the trend towards the liberalisation of interest rates, as well as growing financial liberalisation in Taiwan, Farmers' Associations have gradually changed from a monopoly market to a free competitive market. As a result, Farmers' Associations face numerous challenges in the form of competition from other cooperatives and agricultural enterprises. Therefore, how to improve their businesses economically, as well as their operating performance, have become important issues for Farmers' Associations.

3) The social function of Taiwanese Farmers' Associations

Taiwanese Farmers' Associations also provide members with insurance and social welfare facilities. With regard to the aspect of business insurance, Farmers' Associations offer members agricultural insurance associated with natural disasters, crop pests, poultry and livestock, as well as transportation. At the same time, Farmers' Associations provide members with subsidised health insurance to a level of 10 percent in order to protect their members' physical health. These measures are of vital importance for members of the Farmers' Associations in order to protect their agricultural production and stabilise their lives.

4) The educational function of Farmers' Associations

During the period of Japanese domination, the Japanese government taught members of the Taiwanese Farmers' Associations new technologies and skills relating to agricultural production in order to improve production to meet greater levels of demand. Subsequently, the Taiwanese government not only educates members in the latest ways of improving agricultural production, it also offers them relevant knowledge concerning agricultural management and human resources. However, with the changes taking place in Taiwan's economic structures, agriculture in the country is

now facing numerous new challenges. These include decreasing numbers in the labour force and supply and marketing. As a result, considering how to increase members' incomes and improve the technology of agricultural production have become the latest pivotal issues for Taiwanese Farmers' Associations.

3.1.5 The Organisational Structure of Taiwanese Farmers' Associations

According to Taiwanese Agricultural Law, the main aims of Farmers' Associations are to safeguard the rights and interests of farmers, enhance the modernisation of agriculture, and improve the quality of farmers' lives, as well as to develop the economy of agriculture. Hence, there is no doubt that Farmers' Associations have played a vital role in improving the economic development of Taiwanese agriculture during the past decades. Farmers' Associations, meanwhile, have gradually become multi-target and multi-functional Non-governmental Organisations (NGOs) for the purpose of taking care of farmers' lives in Taiwan. At present, there are 302 Farmers' Associations all over Taiwan, Penghu, Kinmen and Matsu. When it comes to the organisational structure of a Farmer's Association, the membership assembly holds the highest authority in the organisation. The board of directors makes major decisions, while the board of supervisors is responsible for the day-to-day supervision of the work of the Association and a secretary general is in charge of the implementation of such work. Farmers' Associations normally have the following nine major departments: the Association's affairs, accounting, extension, marketing, credit, insurance, farmers' services, product market processing plant, and an information office. Taiwanese Farmers' Associations are deeply connected with farmers and, as a result, their operational performance has a strong influence on the development of the agricultural society in Taiwan. The figure below shows the organisational structure of Farmers' Associations.

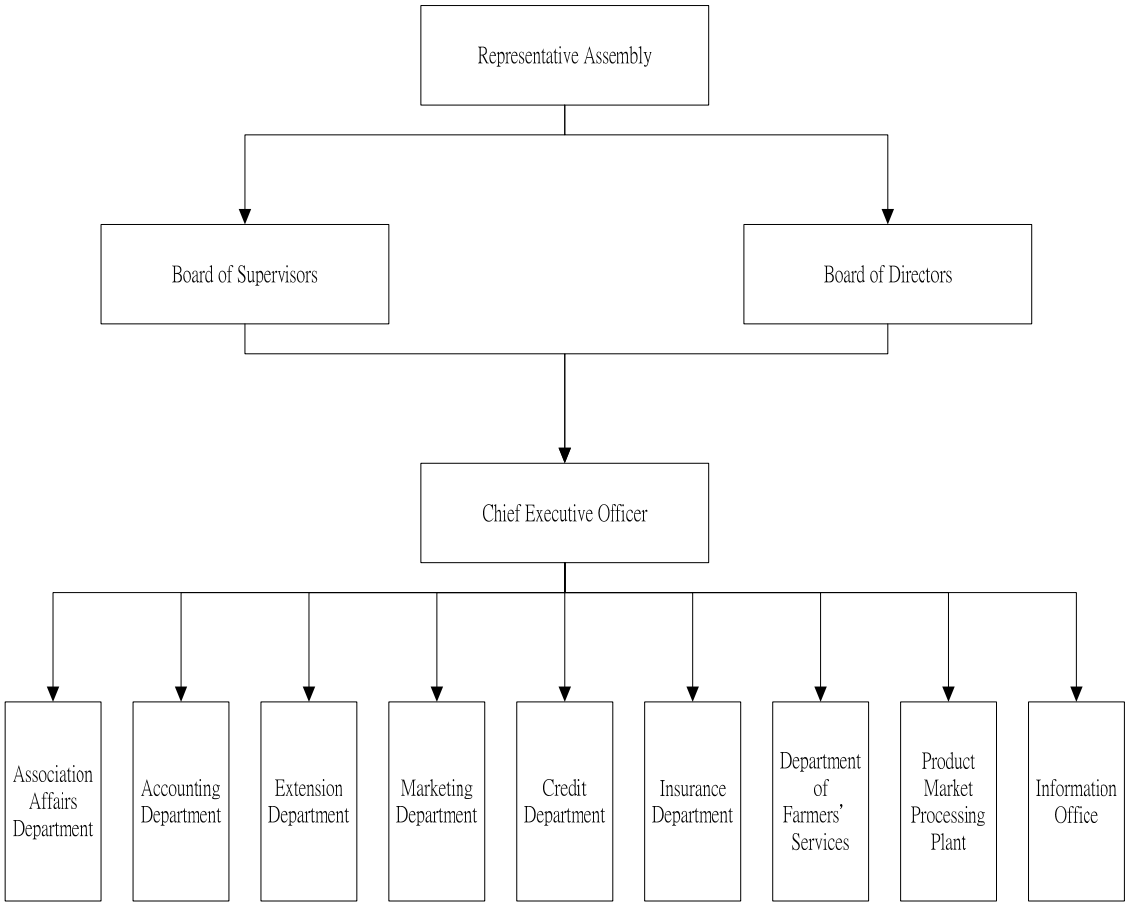

Figure 3.1: The Organisational Structure of Taiwanese Farmers' Associations (Source: Council of Agriculture, Executive Yuan, Republic of China, Taiwan, 2011)

However, with the advent of globalisation and liberalisation, the Taiwanese economic structure has progressively changed from being largely based in agriculture, to manufacturing and commercial industries. In addition, as a result of joining the World Trade Organisation (WTO) in 2001, the operating performance and revenue of Farmers' Associations have progressively declined year by year. This is owing to the fact that Taiwanese Farmers' Associations now face the challenges of decreasing tariffs for foreign agricultural produce, the abolition of import limits for agricultural produce, and reductions in government subsidies for agriculture. As a result, the quality of farmers' lives and the development of the agricultural society have gradually worsened to the extent that improving agriculture and the lives of those bound up in it has become a critical challenge for Farmers' Associations in Taiwan.

3.2 The Historic Evolution of the National Training Institute for the Farmers' Organisation (NTIFO)

3.2.1 An Overview of the National Training Institute for the Farmers'

Organisation (NTIFO)

The Ministry of the Interior and Education, coupled with Farmers' and Fishermen's Associations nationwide, officially established the National Training Institute for Farmers' Organisations (NTIFO) in 1980. This organisation, based on the principles of self-finance and self-management training, was intended to improve the quality of the personnel of the Farmers' and Fishermen's Associations. The NTIFO is an independent, public welfare corporation aggregate which provides a range of training to Farmers' and Fishermen's Associations with the purpose of enhancing the knowledge, services, skills, research and the organisational processes necessary to improve rural infrastructures. The members of NTIFO consist of 302 Farmers' Associations and 40 Fishermen's Associations from all over Taiwan, Penghu, Kinmen and Matsu. Its membership assembly holds the highest authority and, while the board of directors makes decisions, the board of supervisors is responsible for supervision. The Secretary General and Vice-secretary General are separately in charge of the implementation of its work. The NTIFO has four main departments: administration, training, planning and information. These departments are in charge of the business of training, and research and development for the enhancement of employees' business performance in the Farmers' and Fishermen's Associations. Moreover, the NTIFO, which has become an indispensible think-tank, has a pivotal role in providing and conducting training and research; this role has been instrumental in each transition and development in the Farmers' and Fishermen's Associations for the last 30 years. The employees of the NTIFO are encouraged to share their professional knowledge and services in order to benefit the development of the Farmers' and Fishermen's Associations. The figure provided below presents the organisational structure of the NTIFO.

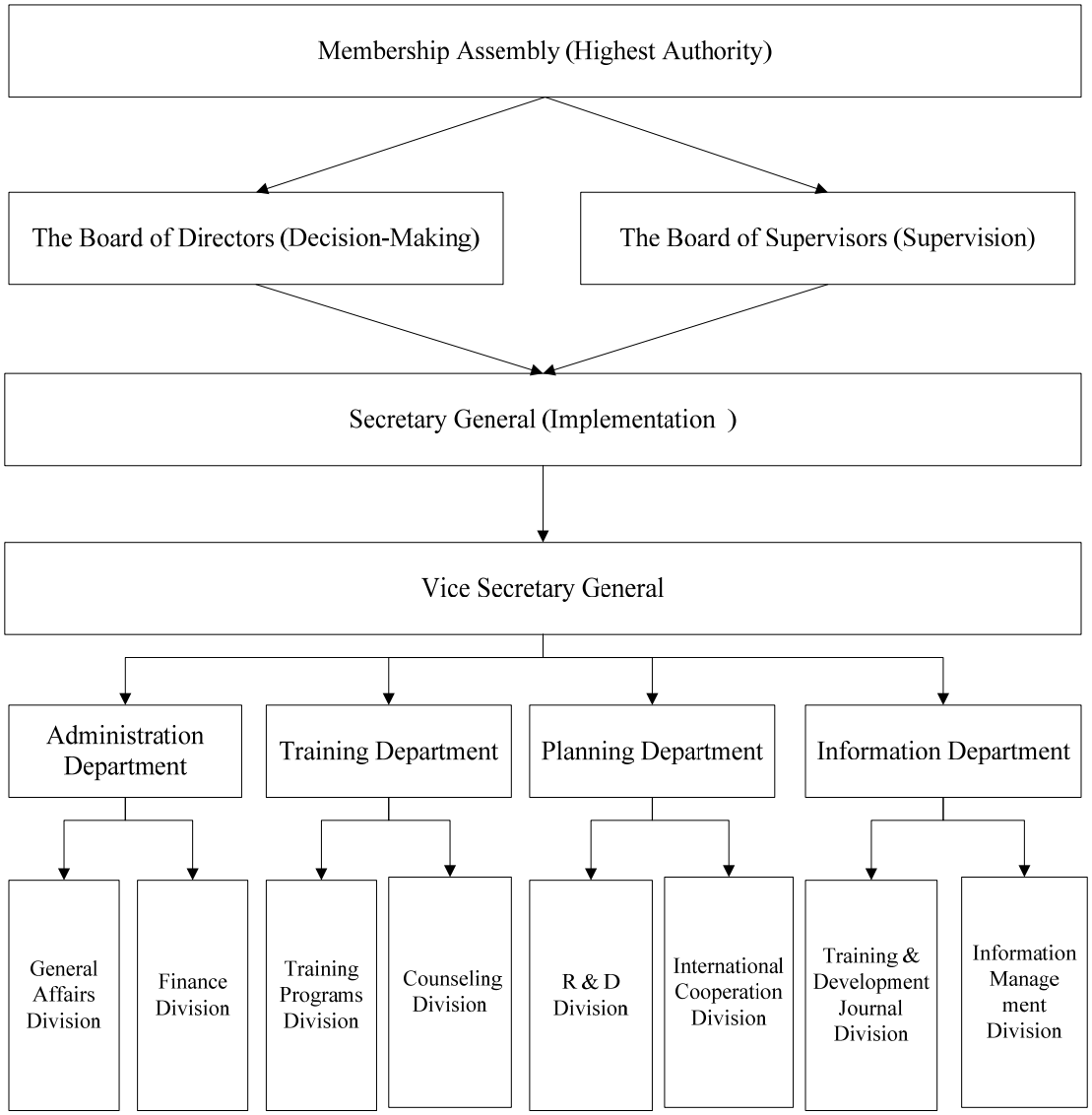

Figure 3.2: The Organisational Structure of the NTIFO (Source: Ding, National training institute for farmer's association 2011 annual report, 2011)

Furthermore, with the era of worldwide information, the NTIFO has planned and designed new training content to enhance the knowledge and skills of members of the Associations. As a result, more than 9700 trainees (the highest number recorded), in 138 classes, were trained by the NTIFO in 2011. In the meantime, related training categories held by the NTIFO, include: 1) agricultural finance certificate program: related to directors of credit department branch offices and current interior auditors who need to attend professional certificate training and pass the final examinations; 2) specialized program: the enhancement of members' professional knowledge of Taiwanese Farmers' and Fishermen's Associations; 3) superintendent program: the course is developed for supervisors and those intending to become high-level managers of Farmers' and Fishermen's Associations to improve their professional and

competitive management competency; 4) new employee program: which emphasizes the training of new employees; and, 5) entrusted training program: these courses are associated with relevant finance and banking organisations and are performed under the commission of the Taiwanese government or other organisations. The NTIFO has also utilised a new and innovative technology, namely Cloud, to re-establish educational training systems (EDUs) in order to provide members with an effective interface. At the same time, another established ICTs system is being used to help the Council of Agriculture set up the Agricultural Information Electrical Signage System. This system provides members of Farmers' and Fishermen's Associations with relevant information concerning public agricultural production and marketing, as well as expanding members' knowledge of agriculture, fishery and the Associations themselves.

The operating status of the NTIFO has remained stable and its development continuous over the past decades. However, with rapid changes in economic structures worldwide, together with the access gained to the World Trade Organisation (WTO) in 2001, the Taiwanese Farmers' and Fishermen's Associations face numerous challenges in terms of the decreasing tariffs of agricultural produce, the abolition of import limits of such produce, and the reduction of government subsidies which support agriculture. As a result, the operating performance and the revenues of the Farmers' and Fishermen's Associations have progressively declined year by year. Thus, since the NTIFO obtains its main funding from these Associations, it is therefore facing the serious challenge of a shortage of revenue to maintain its organisational functioning. Thus, how to improve the operating environment in agriculture and fisheries, and also to provide members of Farmers' and Fishermen's Associations with superior knowledge when funds are declining, has become a pivotal issue for the NTIFO.

At present, there are 42 appointees working in the NTIFO; 46% of these are male and 54% are female. 40% of the appointees are more than 50 years old while only 9% are less than 30 years old. In terms of appointees' educational background, 16 have Master's degrees or doctorates, 17 appointees are university educated, 5 reached college level and 4 have a high school degree. Table 2.6 below presents descriptive statistics regarding the characteristics of the appointees of the NTIFO.

Table 3 1: Characteristics of the Appointees of the NTIFO (Source: Ding, NTIFO Annual Report, 2011)

Description	Frequency	Percentage
Gender		
Male	19	45.2
Female	23	54.8
Total	42	100.0
Age		
21 to 30 Years Old	4	9.5
31 to 40 Years Old	9	21.4
41 to 50 Years Old	12	28.6
More than 51 Years Old	17	40.5
Total	42	100.0
Educational Background		
High School Degree	4	9.5
College Degree	5	11.9
University Degree	17	40.5
Master's or Doctor's Degree	16	38.1
Total	42	100.0

3.2.2 Use of Information and Communication Technology (ICT) in the NTIFO and Farmers' Associations

A considerable variety of Information Technology (IT) systems are utilised in both the NTIFO and by Farmers' and Fishermen's Associations for the purpose of sharing relevant information concerning public agricultural production and marketing, and for the dissemination of knowledge with regard to fishing and agriculture. There are three primary IT systems used by the NTIFO. These are: 1) Network Attached Storage (NAS); 2) Google App; 3) Electronic Document Management System. These systems are used, respectively, for: inquiries regarding official documents, announcements with regard to the International Standardization Organisation (ISO), information related to conferences, training courses, records of project management, sharing of members' knowledge, and displaying relevant videos.

Regarding the use of ICT to facilitate communications between the NTIFO and the Farmers' and Fishermen's Associations, there are four main IT systems connected with each other in order to provide members with relevant information about

educational training, fishing and agriculture. These are as follows:

1) The Official Website of the NTIFO

This interactive website provides members with the latest information on training courses, as well as announcements concerning laws and regulations, and standard operation processes (SOPs). The website also regularly publishes the latest journals for members of Farmers' and Fishermen's Associations, as well as sharing related knowledge and problem-oriented solutions to enhance members' knowledge and skills.

2) The Taiwan Agri-Empowerment Network

This interactive website offers the latest information on training courses, records of attendance at training courses, and relevant books concerning agriculture and fisheries to members of Farmers' and Fishermen's Associations. Members of the Associations can also share information, knowledge and/or their opinions through the website.

3) Taiwan Fresh (app)

This is an interactive application utilised through mobile phones and relevant mobile devices. It is able to provide people and members of Farmers' and Fishermen's Associations with a considerable number of documents and news associated with the latest information on agricultural production, the trading prices of agricultural products, activities relevant to agriculture and fishing, and up-to-date meteorology reports for the agriculture and fishing industries.

4) Digital Communication Network for Farmers' and Fishermen's Associations (IPTV)

The IPTV provides people and members of Farmers' and Fishermen's Associations with numerous TV channels that can be watched via the Internet. For instance, people can choose to access videos of agricultural activities, fishing activities or relevant reports that they wish to watch online.

3.3 A Comparison of Taiwanese Farmers' Associations with Japanese Agricultural Co-operatives

3.3.1 Introduction of Japanese Agricultural Cooperatives

Japanese Agricultural Cooperatives or JAs had a membership of 9.4 million and a net worth of 5557 billion yen in 2007; these can be viewed as probably the largest farmer-based organisation in the world (Esham et al., 2012). In fact, the evolution of the Japanese Agricultural Cooperatives can be traced back to the traditional cooperative movement during the Tokugawa period of 1603 to 1868 (Ishida, 2002). In 1945, when Japan agreed to surrender unconditionally to end World War II, the JAs were restructured to democratise Japanese farmers (Klinedinst & Sato, 1994; Sueyoshi et al., 1998). Actually, the Japanese Agricultural Cooperatives' group, which is similar to Taiwanese Farmers' Associations, is an independent, non-profit organisation, established to maintain and enhance the Japanese government's price support for relevant agricultural products, while inhibiting the import of cheaper agricultural products from abroad (JA-Zenchu, 2014a). According to JA-Zenchu (2014b) and Esham et al. (2012), JAs were organised in each prefecture and municipality all over the country. They were based on the principle of mutual cooperation with the purpose of protecting farming and the livings of members. Towards this end, JAs engaged in a variety of activities, including farm guidance, the marketing of farm products, supplying production inputs, and organising credit and mutual insurance businesses (Esham et al., 2012 & JA-Zenchu, 2014b). The main functions of JAs are organised as follows:

1. The guidance of agriculture

One of the most important activities is to guide agriculture by providing farmer members with guidance to enhance their farm management and production technologies. In order to contribute to the development of more efficient farming, JA managers provide many activities for members, including the joint marketing of their agricultural products and the joint purchasing of production materials, as well as providing technical field guidance services.

2. Providing better quality lives for member farmers

The JAs also provide member farmers and their families with guidance for better living. For instance, advisors of JAs organise women's associations for the wives of farming families. Through these associations, advisors promote such activities as health management for families, household budgeting, reading sessions, recreational activities, trips, and the joint purchase of high quality daily necessities.

3. Credit business

The main purpose of JA's credit business is to provide member farmers and their families with help to farm better and achieve better quality of life by promoting saving and mutual financing among members. Also, the credit business arm of JAs conducts various banking activities such as the collection of savings, offering loans, carrying out domestic and foreign exchange transactions, discounting bills, and facilitating government bond transactions.

4. Mutual insurance business

The main purpose of JAs' mutual insurance business is to offer a system that can protect the present and future well-being of members' families by guaranteeing their personal and financial security, and ensuring stability for both their farming and their lives.

5. Marketing business

JAs' marketing activities play an important role regarding the agricultural products produced by its member farmers in terms of increasing the income from their farms by obtaining optimum prices for their products. JAs also promote numerous joint activities with regard to marketing farm products through joint grading and joint shipment. The associations are in close contact with cooperative farm advisors and promote their farming guidance, particularly in terms of unified standards for agricultural production and livestock feeding. Most JAs are provided with marketing facilities, including joint grading centres for farm produce, temperature-controlled warehouses and grain elevators. Recently, a growing number of JAs have been operating farmers' markets to promote campaigns for local production and local consumption.

6. Supply business

JAs also supply member farmers with goods and facilities such as fertilizers, chemicals and agricultural machinery, as well as high-quality daily necessities at low prices. Such joint purchasing activities are implemented on the basis of advanced order systems. Orders of member farmers are collected and these are used to bargain with companies so that the prices of commodities to be supplied to member farmers

can be reduced. A number of JAs manage supermarket chains and gas stations for their member families and for local people.

7. Other business

Most JAs are also involved in diverse activities such as processing agricultural products and promoting members' house-renting and travel agency businesses. In order to contribute to their respective local communities, they are increasingly implementing new activities such as providing welfare services for the elderly, assisting in the operation of school orchards, supplying foodstuffs for school lunches and protecting the environment.

3.3.2 The Current Challenges Facing JAs

However, Esham et al. (2012) stated that Japanese Agricultural Cooperatives still need to face three interdependent challenges: the changing structure of agriculture, the liberalisation of trade, and political dynamics. These are described in more detail below.

1. The changing structure of agriculture

The Japanese agricultural sector was continually shrinking during the period of 1960 to 2005, declining from 9% to 1% of GDP during this time. Meanwhile, the proportion of labour employed in Japanese agriculture decreased from 26% to 4%, while the population involved in agriculture declined from 11.96 million to 2.52 million. Furthermore, the number of commercial farm households declined by 48% from 3.31 million in 1985 to 1.75 million in 2008 (Esham et al., 2012).

2. Trade liberalisation

The Japanese agricultural sector has now encountered external pressure because of the liberalisation of agricultural trade which provides better access to agricultural markets under the WTO in return for improvements in market access for its manufacturing exporters and foreign investors.

3. Political dynamics

JAs have had a long-standing political affiliation with the Liberal Democratic Party

(LDP) which was in power for more than three decades until 2009. The strong rural membership base of JAs was widely used to obtain the political patronage associated with favourable agricultural policies and preferential treatment. However, JAs have been criticised for their strong relationship with the LDP and for the protective agricultural policies which have resulted in a consequent loss of competitiveness in the market. As changes took place in the political arena, the Democratic Party of Japan (DPJ) came into power and subsequently affected the JAs. For example, farmers are now subsidised directly by the DPJ government.

3.4 Current Challenges Facing the Whole System of Taiwanese Farmers' Associations

1. The nature of the organisational structures of Farmers' Associations

Taiwanese Farmers' Associations are composed mainly of the Board of Governors and the Board of Supervisors, formed through the election of members from each Farmers' Association. The Board of Governors is in charge of the organisation's strategic direction; it has the authority to appoint or dismiss Director-Generals, to convene the general assembly of members, and to plan business implementation. Also, the Director-General of each Farmers' Association takes charge of the employment and dismissal of staff, supervises the implementation of staff business, and organises the formation of the Board of Governors. The Board of Supervisors is responsible for producing the annual accounts and accounting reports, supervising finance and property, and for overseeing the operational business of the Farmers' Association. However, no significant changes have been made to improve the business and organisational structures of the Farmers' Associations although Taiwanese agriculture has undergone a transformation in terms of its orientation to market trends. As a result, the whole system of Taiwanese Farmers' Associations has gradually lost its competitiveness since it has failed to adapt appropriately as a business institution. With the advent of the knowledge economy in agriculture and with the accession of Taiwan to the World Trade Organisation (WTO) in 2001, the Taiwanese Farmers' Associations face numerous challenges in terms of decreasing tariffs for foreign agricultural produce, the abolition of limits on importing foreign produce, and decreasing government subsidies which support agriculture (Lin & Liang, 2008; Yan, 2010). Furthermore, with the year-on-year decrease in operating performance, the whole system of Taiwanese Farmers' Associations may become defunct if it does not change its mode of business, adjust its organisational structures and adopt the concepts of the modern business world.

2. The complex election culture of the whole system of Farmers' Associations that deeply affects its organisational development and business

Local factions sometimes intervene and bribe members of local Farmers' Associations in order to obtain qualification from the Board of Governors and the Board of Supervisors. Even though these boards have no right to hire employees, they are still able to control the operations and strategic directions of the Farmers' Associations if they have more than half the seats on these boards. Besides, the Board of Governors and the Board of Supervisors of the Farmers' Associations normally have political influence and they may utilise this authority to intervene in personnel matters, boycott budgets, and lodge false accusations in order to combat dissidents; this results in organisational stagnation and influences the Associations' business operations.

3. Hiring relatively low-quality employees

According to the 2012 annual report, Jhang (2012) indicates that the whole system of Taiwanese Farmers' Associations included 16,836 employees while the average number of employees in each Farmers' Association was 56. Moreover, the majority of employees were aged between 40 and 50 years old, this statistic accounting for 6,799 employees. In terms of the educational background of the employees of Farmers' Associations, the majority (8,989) had university degrees while employees with high school qualifications amounted to 7,847.

The figure below reveals the trends regarding employees in the Farmers' Associations in terms of those with high school qualifications and university degrees during the period 2002 to 2011. In the first four years, the rate of employees with university degrees increased slowly and steadily but increased considerably in the years that followed. From 2009 onwards, the rate of employees with university degrees exceeded that of employees with high school qualifications while the number of these employees, in contrast, had decreased gradually over the period from 2002 to 2011, having reached its peak (11,300) in 2002. From then on, it declined significantly and reached a record low by 2011. As noted above, the percentage of employees with a university degree has tended to increase year after year while the rates of those with senior high school degrees have declined. In other words, the manpower of the whole system of Taiwanese Farmers' Associations, which once was mainly composed of employees with high school qualifications, has been taken over by employees with university degrees and above since 2009.

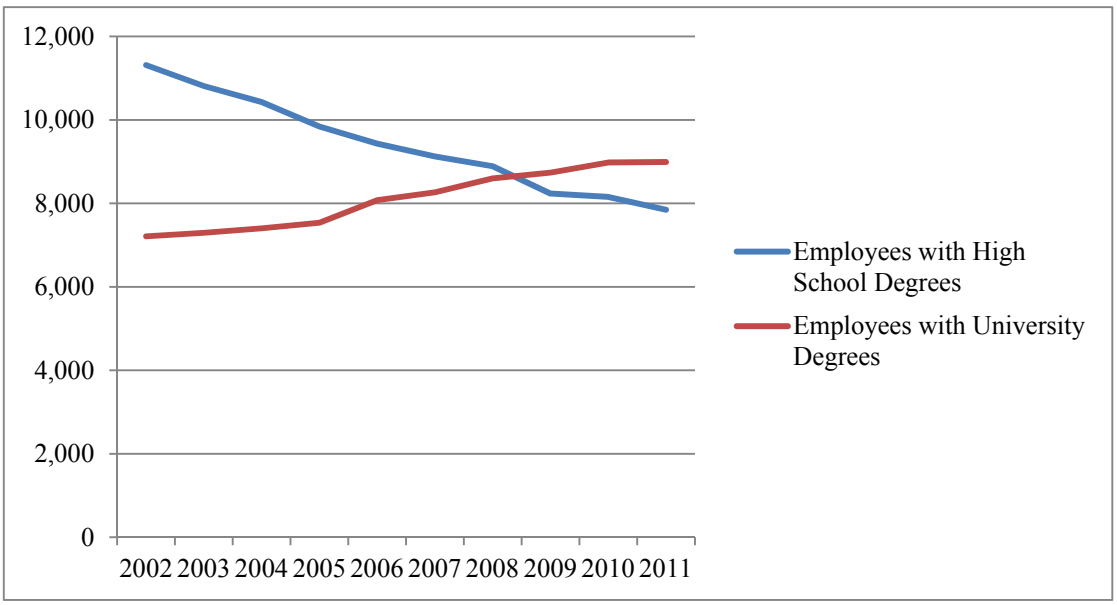

Figure 3 3: Comparison of Employees with Senior High School and University Degrees
(Source: The Annual Report of Farmers' Associations, 2012)

Moreover, the figure below shows the trend for employees of Farmers' Associations with a Master's degree or above during the period 2002 to 2011. By 2002, the number of employees with a Master's degree or above totalled only 75, accounting for 0.4% of the total; this rose slowly over the period from 2002 to 2005. From then on, the rate increased significantly, rising from 132 in 2006 to 297 in 2011. However, these results show that the whole system of Taiwanese Farmers' Associations still needs to improve the quality of its staff in order to enhance its competitiveness in the market (Jhang, 2012).

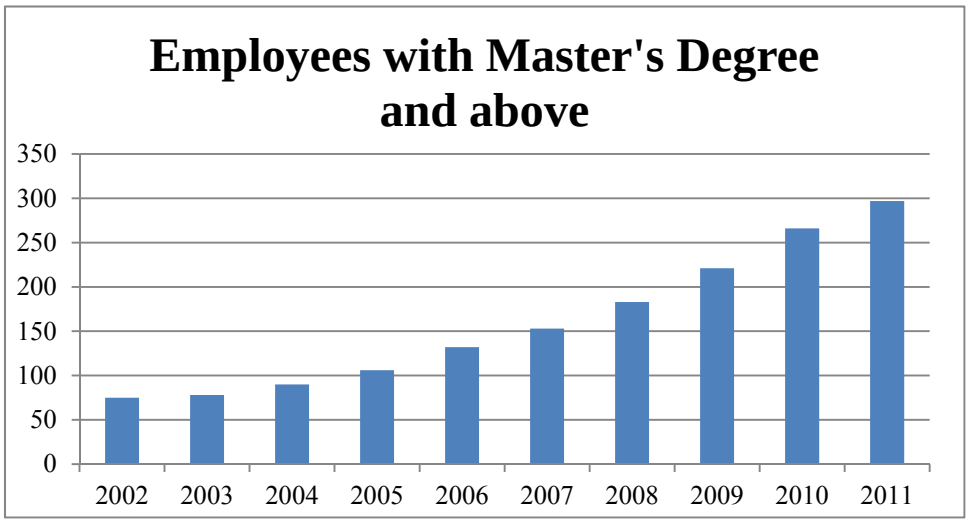

Figure 3.4: Employees with a Master's Degree or above in the Farmers' Associations
(Source: The Annual Report of Farmers' Associations, 2012)

Moreover, according to the Farmers' Associations' annual report (2012) mentioned by Jhang (2012), statistical data show that the largest number of employees (8,762) in the whole system of the Taiwanese Farmers' Associations worked in credit departments; this was followed by those employed in the supply and market departments, the extension departments and the insurance department, which employed 2,588, 1,236 and 598 respectively. The majority of employees (6,799) were aged between 40 and 49.

In the twenty-first century, with the huge developments in agricultural information technology and biotechnology and other emerging smart industries in the global agricultural economy, agriculture is no longer dependent on the conventional resources of land and labour. However, agricultural knowledge to promote production, moving away from the traditional "quantitative economics" towards a "knowledge economy", must be developed in order to enhance overall competitiveness. As observed at all operational levels of the Farmers' Associations, the academic backgrounds of most personnel are agriculture-related and therefore, there are too few personnel from other academic backgrounds to form a backbone for innovative business development, international trade, marketing, management, information management, cost analysis, and legal personnel; this shortcoming reduces competitiveness (Jhang, 2012).

4. Higher operating costs and the small size of organisations

Currently, there are 302 independent Farmers' Associations all over Taiwan, Penghu, Kinmen and Matsu (Ding, 2010, 2011b, 2012). The scope of the administrative area of each Farmers' Association is relatively small as compared with those in Japan. Therefore, it is imperative that Taiwanese Farmers' Associations merge to form a large one. On the other hand, most funds from Farmers' Association are derived from income from the credit department, its supermarkets and the services of the supply and marketing department. It is obvious, therefore, that most Farmers' Associations are still not effectively integrated into one system which loses the resource advantages of having a very large membership, large-scale agricultural production and access to a plethora of agricultural implements. Moreover, the small size leads to limited supply and demand in the market which, in turn, leads to an increasing burden in terms of operating costs; in this way, Taiwanese Farmers' Associations are gradually declining in today's highly competitive business environment.

5. Members of an aging and loose organisational structure

The establishment of Taiwanese Farmers' Associations can be traced back more than one hundred years and therefore, understandably, Taiwanese farmers and members of Taiwanese Farmers' Associations are getting older, most being over 55 years of age (Jhang, 2012). This is because the majority of young adults are choosing to work in the cities with the rapid development of industry and commerce in Taiwan. As a result, the majority of members of the whole system of Taiwanese Farmers' Associations are the same year after year since few new members are being introduced; furthermore, much agricultural production is still utilising traditional methods. By and large, the whole system of Taiwanese Farmers' Associations maintains its past business model and therefore lacks of the ability to develop and innovate in the modern business world.

Moreover, even though the whole system of Taiwanese Farmers' Associations has enormous fixed capital, the organisational structures are becoming loose and unfocused since they are not adjusting appropriately to catch up with the rapid and dynamic changes in the business environment (Jhang, 2012). Due to these loose organisational structures, frequent elections and turnover of personnel, staff mobility, the lack of management knowledge on the part of leaders, together with the fierce competition for the benefit of local factions, most employees of the Taiwanese Farmers' Associations do not concentrate on their work and pay more attention to their personal benefits.

6. Drastic changes in the international economic environment and competitive pressures

Since the changes in the overall economic environment of Taiwan's industrial economy, moving from its miserable business performance in the 1970s to the later economic growth in the 1990s, Taiwan has become the world's thirteenth largest trading power. Even though the national income has continued to increase, resulting in a booming domestic market, this same market has also contributed to the liberalisation of imports. This has lead to a large increase in the number of imports while Taiwan is also facing higher labour costs that have forced enterprises to relocate and to undergo industrial restructuring, as well as to take on competition with foreign enterprises, all significant threats to the survival of traditional industries. Thus, Taiwanese agricultural production is faced with a crisis and must therefore be transformed or otherwise turned around.

Taiwan's agricultural output as a proportion of the total gross domestic product decreased from 7.87% in 1982 to 3.60% in 1992, with a record low of 1.86% in 2002 (Jhang, 2012). With the sharp increase in the import of foreign agricultural products, and with changes in consumer habits, Taiwanese domestic agriculture clearly faces a number of challenges. Moreover, because of liberalisation in the financial markets and more open competition, and increases in the quality and diversity of goods and services, Taiwanese Farmers' Associations are gradually losing their niche and it will be difficult for them in the future to maintain their role in the public welfare services they deliver to member farmers.

3.5 Current Issues Facing Taiwanese Farmers' Associations

Agriculture is the foundation of economic development, social stability and national prosperity in Taiwan; it therefore needs to develop continually in order to ensure long-lasting political stability. At the same time, Taiwanese agricultural development requires relevant finance to maintain its growth. Taiwanese Farmers' Associations now have, therefore, a critically important role in improving agricultural production in Taiwan. However, with the advent of globalisation and Taiwan's entry into the World Trade Organisation (WTO) in 2001, the operating performance and, as a result, the revenues of the Taiwanese Farmers' Associations have progressively declined. This is because the Taiwanese Farmers' Associations face numerous challenges in terms of the decreasing tariffs of foreign agricultural produce, the abolition of limitations on the import of agricultural produce from elsewhere, and reductions in governmental subsidies which support agriculture.

Normally, with regard to credit transactions, Taiwanese Farmers' Associations are at a disadvantage in terms of financing, operational functions and the development of business. This is because these Associations consist of smaller organisations whose business scope is limited, making it difficult for them to compete with other cooperatives and enterprises. Another important disadvantage for Farmers' Associations concerning supply and marketing is that they regard membership services as a priority. As a result, most such Associations neglect aspects regarding the benefits of operational business. Furthermore, in terms of business promotion, they also face a decrease in surplus and government subsidies so that it is difficult for them to promote relevant agricultural businesses. Moreover, the Farmers' Associations still cannot sell life or other relevant insurances because of the regulations and policy of the Taiwanese government. Therefore, they focus only on insurance for domestic animal transportation and farmers' health. As stated above,

because of these factors, Taiwanese Farmers' Associations face a serious struggle to improve their current business performance in order to maintain their business operations and assist their members.

On the other hand, the business operations of Taiwanese Farmers' Associations focus largely on agricultural developments and the social security of farmers in the early stages. Furthermore, the Department of Credit Transactions of these Associations is an institution which deals only with farmers' deposits and withdrawals. Most employees working in this department have graduated from relevant agricultural departments but have insufficient professional knowledge of finance, banking and information technology. Therefore, their related professional knowledge is inadequate when competing against other cooperatives and enterprises. As a result, even though Taiwanese Farmers' Associations have enough land, capital and infrastructure, the lack of high-quality human resources is a pivotal issue when they are trying to maintain their business operations and improve their business performance.

Furthermore, with the economic structure of Taiwan changing from an agricultural society to one focused on industry and commerce, both young people and working adults are tending to take up occupations in modern cities in Taiwan instead of working in rural areas to improve agricultural production and enhance agricultural knowledge. Nowadays, the average age of the rural population is around 53 years of age. Therefore, it has become another important issue for Taiwanese Farmers' Associations to protect the quality of the lives of older farmers (Dai, 2012).

3.6 Summary

Due to the fact that agriculture is the foundation and backbone of Taiwan, the lifestyles of most Taiwanese citizens, with regard to their political, economic, cultural and religious activities, rely heavily on agriculture (Ding, 2011a). To date, Taiwanese Farmers' Associations continue to play a key role in improving the development of the countryside, increasingly modernising agricultural methods, safeguarding the rights and interests of farmers, and enhancing the educational level of farmers over the whole process of Taiwan's agricultural development. Subsequently, the NTIFO, which was based on the principles of self-finance and self-management training, was established in order to improve the quality of the personnel of the Farmers' Associations. However, with the advent of the knowledge economy in agriculture and the accession of Taiwan to the World Trade Organisation (WTO) in 2001, the Taiwanese Farmers' Associations are now facing numerous unprecedented challenges in terms of decreasing tariffs for foreign agricultural produce, the abolition of limits

on importing foreign produce, and decreasing government subsidies which support agriculture (Lin & Liang, 2008; Yan, 2010). Moreover, with continual decreases in both the operating performance and revenue of the Farmers' and Fishermen's Associations, the NTIFO is facing a severe shortage of funding (Chen et al., 2004). Therefore, having considered the above, alongside the importance of maintaining the sustainable development of Taiwanese agriculture, the virtual organisation comprising the whole system of Taiwanese Farmers' Associations was chosen as the research case in this study. It was selected with a view to exploring deeply those factors affecting employees' knowledge-sharing behaviour so that their knowledge could be transformed into organisational knowledge, ultimately allowing them to maintain a sustainable competitive edge. In this chapter, the development, historic evolution, characteristics, and current issues and challenges of the whole system of Taiwanese Farmers' Associations were discussed in turn in greater detail. This included a comparison of Taiwanese Farmers' Associations with Japanese agricultural co-operatives. In the next chapter, the research further expounds the philosophical perspective, strategy, methodology and analytic methods chosen for this study.

Chapter 4 Research Methodology

4.1 Introduction

Understanding the various philosophical research perspectives, strategies and approaches, and subsequently choosing the most appropriate method for a research study, are imperative for scholars and researchers to achieve the aims and objectives of any research. This is because these philosophical perspectives are linked to particular underlying sets of assumptions. These assumptions are important since the nature of how a researcher views the world may influence and underpin his/her research approach (Saunders et al., 2012). The primary purpose of this chapter is to articulate a number of research methodologies and then to justify, in detail, the selection of the methodology that was adopted in this study. This chapter is organised as follows: in the first section, the contexts and definitions of various philosophies, methodologies, strategies and methods are discussed; then, the research explains why the chosen methodology and analytical method were deemed to be most appropriate for this research.

4.2 Definition of the Research Philosophy

As reviewed in the literature, research philosophies or paradigms encompass three principle aspects: ontology, epistemology and methodology (Guba, 1990). The term "paradigm" consists of two dimensions: 1) the philosophical dimension: this refers to an individual's fundamental beliefs and assumptions regarding the world; 2) the technical dimension which emphasises the methods and techniques adopted when conducting research (McGregor & Murnane, 2010). In 1979, Filstead described a paradigm as a "set of interrelated assumptions about the social world which provides a philosophical and conceptual framework for the organized study of that world" (p.34). The choice of paradigms made by the researcher takes into account the philosophical assumptions regarding the selection of instruments, participants and methods in the research (Ponterotto, 2005).

Ontology is a branch of philosophy which concerns the nature and reality of being. Gruber (1993, p. 199) defines ontology as "an explicit specification of a conceptualization"; it describes the conceptions and knowledge in a specific domain in order to present an event and its correlations. Kim et al. (2007) state that a philosophical ontology may be characterised as the externalisation, formalisation and

specification of knowledge which enable individuals to comprehend its conceptual implications. Another philosophical branch, epistemology, reveals "the origins, nature, methods and limits of human knowledge" (Reber, 1995, p. 256). Becker and Niehaves (2007) and Kilduff et al. (2011) state that epistemology involves examining how human beings gain access to and understand knowledge about their perceived existence, and the correlation between knowledge and truth.

Methodology can be viewed as a way in which researchers systematically solve research problems by utilising scientific approaches. McGregor and Murnane (2010) maintain that a methodology, which refers to philosophy, is a branch of knowledge; it tackles the generation of new knowledge, based on natural, social and human science research. In contrast with methodology, methods, according to McGregor and Murnane (2010), are the techniques and procedures used for conducting research; these are determined by the methodology. In terms of the definitions of both methods and methodology, Ponterotto (2005) clarifies that both qualitative and quantitative research can be viewed as methods, while positivism, post-positivism, interpretivism and pragmatism should be treated as paradigms involved with methodologies. Theoretically, comprehending methodology helps researchers to decide exactly what methods they wish to use and why they opt to use them.

4.2.1 Definition of the Positivist Philosophy

The positivist philosophy employs a deductive approach, which is based on general ideas, to obtain ad hoc knowledge; the interpretivist philosophy, on the other hand, emphasises the acquisition of generalised knowledge to explore a specific research topic through an inductive approach (Crowther & Lancaster, 2009). Likewise, positivists generally adopt quantitative research methods to collect data while interpretivists use qualitative research methods for this purpose (Collis & Hussey, 2003).

Positivists utilise the scientific method systematically to observe and describe the phenomena of the research; their research involves contextual theories or models (Ponterotto, 2005; Dana & Dana, 2005). Then, meaningful quantitative data can be analysed via complex inferential statistics, afterwards being interpreted and extrapolated according to the original theories (Cacioppo, 2004). Positivists working from an ontological point of view consider that researchers should dissociate themselves from the reality of their research, and that this reality and that of the researchers are seen from two viewpoints; thus, such research is, in essence, dualistic

(Weber, 2004). From this perspective, reality is treated as objective, neutral and independent; it should be distinguished from researchers' subjective experiences (Masadeh, 2012). From an epistemological viewpoint, positivists consider that knowledge of the reality should be objective; it should subsist above the human mind and gradually become the preliminary for human beings' knowledge. Hence, positivist research highlights evidence in conditions that validate formal propositions; they use quantifiable measures of variables and hypothesis testing in order to lessen, or eliminate as far as possible, the subjective impact of the researcher (Easterby-Smith et al., 1991; Orlikowski & Baroudi, 1991; Masadeh, 2012).

With the extensive use of positivistic research, an increasing number of researchers espoused an alternative perspective and subsequently generated the post-positivistic research paradigm in the mid-1960s. The post-positivistic research paradigm is based on the assumption that research should take, not only a neutral and unbiased perspective, but should also take into account subjective and intersubjective perspectives (McGregor & Murnane, 2010). Post-positivist researchers hold the view that reality is difficult to comprehend perfectly and completely and so multiple perceptions of a single phenomenon should be considered (Bisman, 2010).

4.2.2 Definition of the Interpretivist Philosophy

Interpretivism may be seen as taking completely the opposite perspective to positivism (Collins, 2010). Ponterotto (2005) declares that interpretivists or constructivists view reality as progressively constructed and created in the minds of human beings rather than considering it as an external entity. Interpretivists place emphasis on the notion that the acquisition of knowledge of reality stems from complex social contexts such as language, consciousness, shared meanings and artifacts (Klein & Myers, 1999). Thus, the central focus of interpretivism concentrates largely on the interactions between the researchers and their investigative participants or objects. So, through these interactions profound meaning can be captured (Ponterotto, 2005).

Fundamentally, interpretivist attitudes towards ontology consider that, not only objective reality, but also a researcher's subjective judgments should be taken into consideration because life in the real world has both objective and subjective characteristics (Weber, 2004; Tien, 2009). These subjective traits are represented by the researcher's particular perspective with regard to the reality of being, while the objective traits reflect the meaning that emerges from the discussions of researchers

and by means of intersubjective realities. Walsham (2006) also considers that interpretivism should pay more attention to intersubjectivity, regardless of objectivity. With regard to epistemological aspects, interpretivists recognise that established knowledge is constituted from the past cultural, historical and lived experiences of human beings. In more detail, they perceive that the generation and creation of meaningful knowledge is entwined with the social processes, contexts and actions of individuals (Walsham, 1995; Walsham, 2006). Unlike positivism, which generally uses scientific approaches, such as statistics, to explain objective reality, interpretivism is more likely to apprehend the social world from the point of view of individuals (Tien, 2009; Mustafa, 2011).

As stated above, interpretivism constitutes the main cornerstone of qualitative research (Ponterotto, 2005). However, some research on this perspective, carried out by Klein and Myers (1999), considers that interpretive research could be more valuable to Information Systems (IS) researchers in attempting to comprehend the thinking and actions of individuals in an organisational context when trying to gain a deeper insight into interactions between individuals and information systems.

4.2.3 Definition of the Pragmatist Philosophy

As compared with positivism and interpretivism (as mentioned above), which focus on the perspectives of quantitative or qualitative research respectively, the pragmatic philosophy, regarded as an alternative paradigm, adopts a combination of quantitative and qualitative methods to collect and analyse data, address research questions and discuss research findings (Tashakkori & Tedddlie, 1998; Feilzer, 2010). This is because, throughout the history of science, the methods and methodologies of different schools seem to incorporate assumptions that are sometimes incompatible and sometimes integrated (Yu, 2009).

According to the central thinking of classical pragmatic philosophers such as Peirce (1870), James (1898) and Dewey (1934), there is no fixed and workable definition of social constructions since the cognition, assumptions and truths of an individual are always changeable over time because of his/her accumulative learning and experience. As a result, philosophers who hold a pragmatic perspective consider that an individual's cognitive truths are not invariable and absolute because they change over time.

Feilzer (2010) states that the pragmatic philosophy associated with the view of the

measurable world is more related to an existential reality as it involves views that are objective, subjective and a mixture of both. Thus, pragmatic philosophers emphasise that the nature of reality should be useful for an individual, instead of attempting to be accurate. Hence, research that uses mixed methods is regarded as a means of acquiring knowledge by considering multiple perspectives, standpoints and positions (Johnson et al., 2007). In terms of the epistemology of pragmatism, Mounce (2000) asserts that the practical knowledge of an individual is of greater significance than theoretical terms that are used to explain such knowledge.

Based on the pragmatic philosophy, researchers and methodologists consider that mixed methods research is more useful in comprehending both the overall contours and in-depth aspects of a particular phenomenon because of the mutually complementary nature of using quantitative and qualitative methods. Creswell and Plano (2007) also state that using a mixture of qualitative and quantitative approaches can help a researcher to acquire a deeper understanding of and insight into research questions and results. As a result, they conclude that adopting mixed methods research provides researchers with more informative, balanced and useful research findings and results.

4.3 Research Strategy

With regard to the selection of a research strategy, Saunders and Tosey (2013) state that researchers can utilise one or more strategy within their design according to how they plan to go about answering or addressing the research questions. Furthermore, Yin (2003) indicates that researchers should consider carefully three conditions since the different research questions or objectives require the selection and use of a specific research method to collect, present and analyse data. These conditions are: 1) the types of research question proposed; 2) the degree to which an investigator has control over actual behaviour and events; and 3) the extent to which the research focuses on contemporary or historical events. To address the objectives and questions of this research (see section 1.4 and section 1.5), a case study was chosen as this research's strategy in order to gain a deep insight into the determinants affecting individuals' knowledge-sharing behaviour within the complex context of the virtual organisation of Taiwanese NGOs. Figure 4.1 below (the Research Onion, as mentioned by Saunders and Tosey (2013)) is related to the integrated process of how to carry out research since the final elements (the core of the research onion) need to be considered in relation to other design elements (the outer layers of the research onion). The research strategy, together with the design process and methodology of this research, are discussed in depth in the following sections.

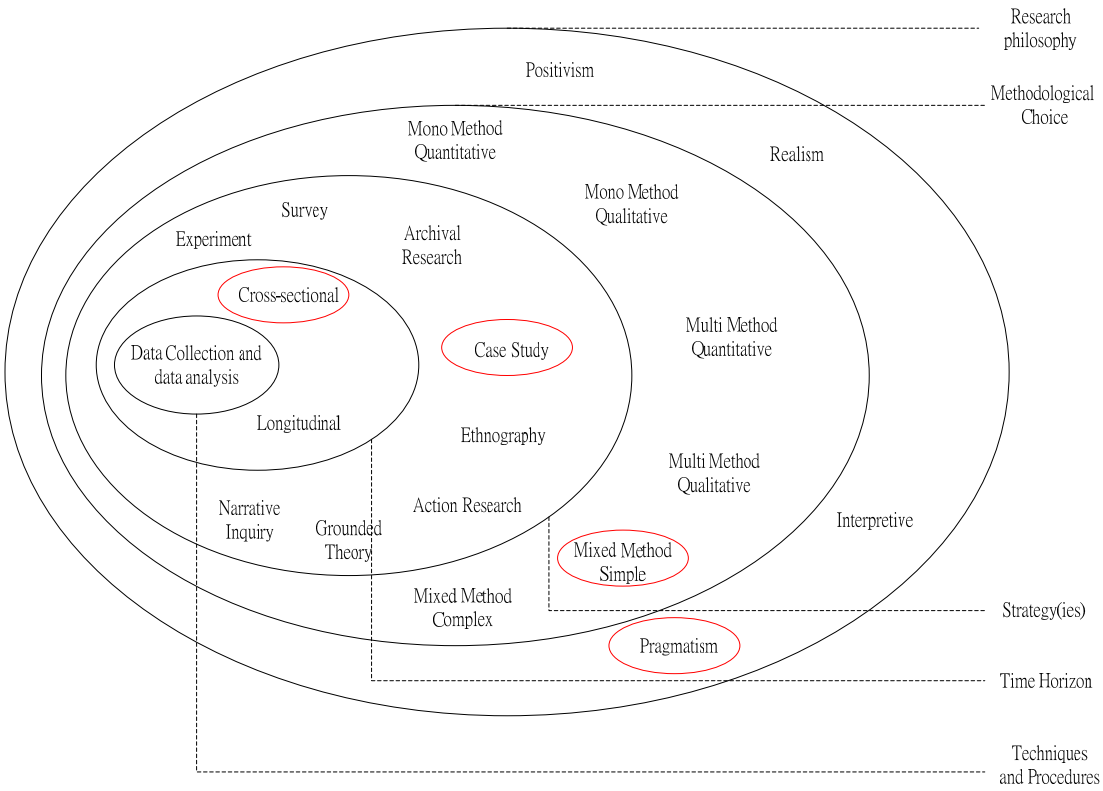

Figure 4.1: The Research Onion (Source: Saunders & Tosey, 2013)

Note: means that this feature was chosen in this research

4.3.1 Case Study Research

Adopting a case study approach in research is prevalent across a wide range of research domains on account of its ability to include multi-faceted observation and comprehension. A case study considers 'how' or 'why' in investigating a contemporary phenomenon within a real-life context, as well as the boundaries between the phenomenon and its context, where investigators have limited control of the events (Yin, 1984, 1994, 2003). This was chosen as the strategy to explore the research questions in this research because the knowledge-sharing behaviour of members of a virtual organisation occurs in a real-life context; this behaviour should not be manipulated or forced. In addition, considering Yin's (2003) description of other research strategies (such as experiment, survey, archival analysis and the study of history) and by looking closely at the research questions, the questions of this research are more appropriate for a case study in order to explore in detail, firstly, why members have or have not a willingness to share their unique knowledge in a virtual organisation and, secondly, how external environmental factors, as well as individuals' internal tendencies predispose them to share their knowledge. Benbasatet al. (1987)

state that case study research is widely used in the domain of information systems for understanding the complexity of the processes that occur. MacNealy (1997) also mentions that case studies are often conducted in companies when operational management procedures are changed: for instance, when a company establishes a new Information and Communication Technology (ICT) system, such as a record-keeping system.

Yin (2003) states that case study research can be divided into four types in terms of the number of cases considered and the units of analysis. These types are: single-case (holistic), single-case (embedded), multiple-cases (holistic), and multiple-cases (embedded), based on a 2 * 2 matrix. The most significant distinction between a holistic and an embedded case study depends on whether the case study investigates the whole nature of an organisation or several units of an organisation. According to Yin's research (2003), single-case research is often regarded as the most appropriate design under the following circumstances: firstly, when the case being studied manifests the characteristics of a critical case in demonstrating a well-grounded theory; secondly, when the case is extreme or unique; thirdly, when the case can be seen as representative; fourthly, when the case is revelatory; and, finally, when the case can be regarded as the longitudinal; that is, the study is conducted at least at two or more different points in time. Generally, when compared with a single-case design, multiple-case studies, based on a general idea, are viewed as being more compelling and more robust (Yin, 2003). Figure 4.2 depicts the different types of case study design.

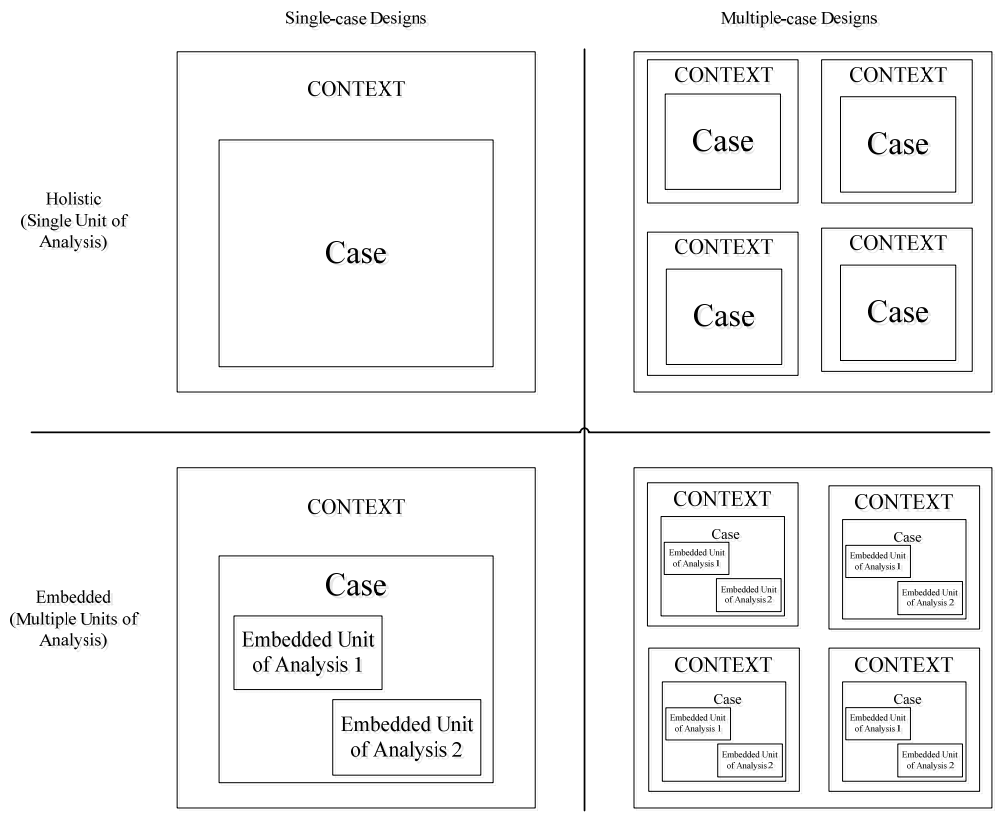

Figure 4.2: Types of Case Study Design (Source: Yin, 2003, p. 40)

In terms of data collection methods in a case study, MacNealy (1997) states that a variety of methods may be considered. These include the use of interviews, logs, protocols and/or questionnaires; examining archival records, artifacts or products; and carrying out tests and/or observations. Interview techniques can range from informal conversations to formal surveys. With regard to informal conversations, the attitude of the interviewer regarding the wording of questions and the sequence of subjects are more flexible; thus, the sequence may be modified according to the surroundings. In contrast to informal conversations, formal surveys are more closely associated with exploring definite objectives because the identical wording and sequence of subjects must be consistent (MacNealy, 1997).

4.3.2 Research Design and Methodology

Having considered the different philosophical perspectives, research strategies, research approaches and the selected case (see section 1.3 and Chapter 3) mentioned above, this research chose to adopt a pragmatic philosophical perspective and undertook a case study employing a combination of quantitative and qualitative methods in order to address the objectives and questions of this research in depth. The

chief reason for employing a mixed method design is that this research considered that using either a quantitative or a qualitative approach alone would be insufficient to understand profoundly and comprehensively the research problems and findings associated with employees' knowledge-sharing behaviour and motivations within a virtual organisation of Taiwanese NGOs. Hence, using a mixed method design, which combines the strengths of both quantitative and qualitative approaches, was felt to offer a deeper understanding (Creswell & Plano, 2007). Moreover, this method offers better opportunities to acquire multiple resources from various data collections, reduces the potential bias that may be present when using a single method, and might discover potential mechanisms through comprehensive measurement (Axinn & Pearce, 2006). In general, a research study using a mixed method approach involving both quantitative and qualitative data collection and analysis needs to consider four criteria mentioned by Creswell (2003, p.211). These include:

(1) Timing: the sequence of the quantitative and qualitative data collection (i.e. concurrently or sequentially);
(2) Weighting: the priorities of quantitative and qualitative data collection and analysis (i.e. equal or with priority);
(3) Mixing: the stage at which to integrate the quantitative and qualitative data and findings;
(4) Theorising: the adoption of an overall theoretical perspective (i.e. explicit or implicit).

In this study, the quantitative and qualitative data collection and analysis were concurrent. The primary reason for adopting this mixed method design was that such an approach can result in findings that are well-validated and substantiated (Creswell, 2009, p. 213). Another reason for using this approach was that it offers the opportunity to employ more meaningful and significant details from the analysis of the qualitative data to help in explaining and interpreting results from the quantitative data. In order to offer a clear outline of the research, Figure 4.3 below presents the processes involved in this study as four stages.

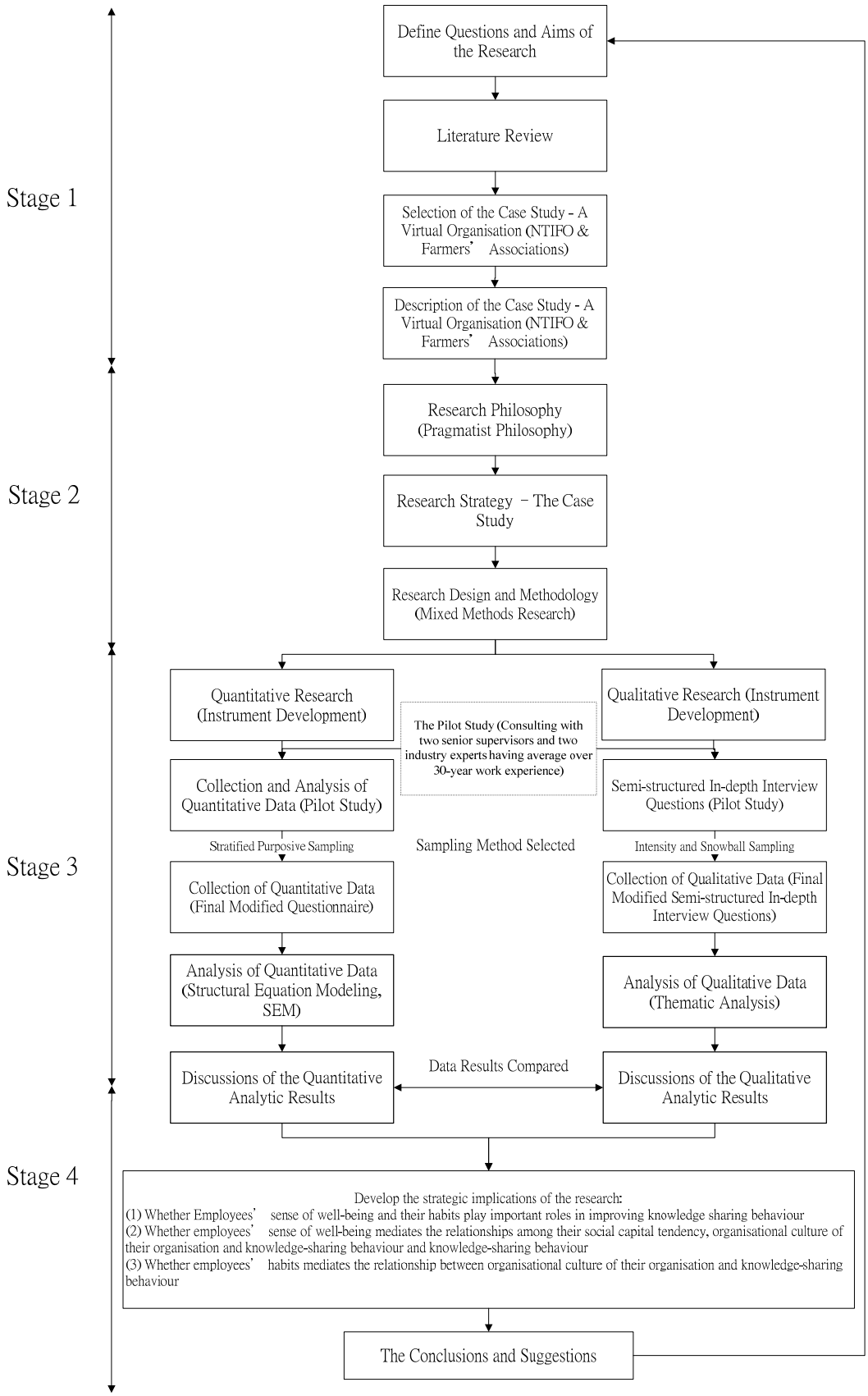
Stage 1
Stage 2
Stage 3
Stage 4
Define Questions and Aims of the Research
Literature Review
Selection of the Case Study - A Virtual Organisation (NTIFO & Farmers' Associations)
Description of the Case Study - A Virtual Organisation (NTIFO & Farmers' Associations)
Research Philosophy (Pragmatist Philosophy)
Research Strategy – The Case Study
Research Design and Methodology (Mixed Methods Research)
Quantitative Research (Instrument Development)
The Pilot Study (Consulting with two senior supervisors and two industry experts having average over 30-year work experience)
Qualitative Research (Instrument Development)
Collection and Analysis of Quantitative Data (Pilot Study)
Semi-structured In-depth Interview Questions (Pilot Study)
Stratified Purposive Sampling
Sampling Method Selected
Intensity and Snowball Sampling
Collection of Quantitative Data (Final Modified Questionnaire)
Collection of Qualitative Data (Final Modified Semi-structured In-depth Interview Questions)
Analysis of Quantitative Data (Structural Equation Modeling, SEM)
Analysis of Qualitative Data (Thematic Analysis)
Data Results Compared
Discussions of the Quantitative Analytic Results
Discussions of the Qualitative Analytic Results
Develop the strategic implications of the research:
(1) Whether Employees' sense of well-being and their habits play important roles in improving knowledge sharing behaviour
(2) Whether employees' sense of well-being mediates the relationships among their social capital tendency, organisational culture of their organisation and knowledge-sharing behaviour and knowledge-sharing behaviour
(3) Whether employees' habits mediates the relationship between organisational culture of their organisation and knowledge-sharing behaviour
The Conclusions and Suggestions

Figure 4.3: Flow Chart of the Research Process

In the first stage, the aims and questions of this research focused on: 1) why individuals' knowledge-sharing behaviour may be prohibited, hindered or improved; and 2) how imperative is the increasing willingness of individuals to share their knowledge in the chosen virtual organisation of Taiwanese NGOs (which was a combination of the National Training Institute for Farmers' Organisations (NTIFO) and the Farmers' Associations) in order to improve the sustainable development of Taiwanese agriculture; these aims and questions were established via a large number of pertinent references from the literature. Next, various research philosophies, approaches, strategies and methods were examined and compared in detail (see section 4.2). This was followed by an explanation of why the research chose a pragmatic philosophy using a mixed method design as its methodology. Creswell (2009, p. 203) indicated that adopting either a quantitative or qualitative approach as the only research method might be inadequate if an attempt is being made to resolve fully a complex social phenomenon. Through combining a quantitative with a qualitative approach, thereby utilising the strengths of both methods, greater insight can be gained (Creswell, 2009, p. 203). Hence, this research considered that using a combination of a quantitative and a qualitative approach could contribute to obtaining a more detailed and expansive understanding of the complexity surrounding those factors which affected individuals' knowledge-sharing behaviour within a real societal context. A mixed approach also offered the opportunity to employ more meaningful and significant details from the analysis of the qualitative data to help in making clear and interpreting results from the quantitative data. According to Creswell (2009, p. 213), research studies which use a mixed method usually merge the data or integrate or compare the results of two databases (i.e. the quantitative and qualitative data) side by side in a discussion. This type of side by side integration has been applied in a great many mixed method research studies in which a discussion section first offers the statistical results of the quantitative approach and then presents quotations from the qualitative data analysis that support or disconfirm the quantitative results (Creswell, 2009, p. 213).

The third section describes how the measurement instruments of the research were designed, how the samples were selected, and how the data gathered from both the quantitative and qualitative approaches were carefully analysed. For the mixed method used in this study, the data collection and the analysis of both the quantitative and qualitative data were concurrent; they both occurred at the same phase of the research thus according equal weight to the two methods. With regard to the

quantitative approach used in the third stage, stratified purposive sampling was adopted in order to choose the respondents. The main purpose of the survey, which was developed from previous studies, was to define each variable of the research in detail: namely, the sense of well-being, individuals' knowledge-sharing habits, organisational culture, social capital and knowledge-sharing behaviour. The conceptual framework was then established within a visual model in order to explore relationships among the variables (see Figure 4.4: The Conceptual Framework of this Research). Meanwhile, because a considerable number of research studies exist which discuss the interrelations between social capital and knowledge-sharing behaviour (Kankanhalli et al., 2005; Yang & Fran; 2009; Lin, 2011) as well as between organisational culture and knowledge-sharing behaviour (Islam et al., 2011; Liao et al., 2012; Tong et al., 2013), the quantitative approach of the research focused on exploring the possible mediating effects of individuals' sense of well-being and their working habits in terms of knowledge sharing on the relationships among social capital tendency, organisational culture and employees' knowledge-sharing behaviour. Thus, using the quantitative approach, the research attempts to answer research questions **Q1, Q4**, **Q5**, **Q7**, **Q8**, **Q9** and **Q10** corresponding to **Objectives A1, A2, B2**, **B3**, **B4**, **C2**, **C3**, **C4**, **C5**, **C6**, and **A4** (see Table 1.1: Correspondence of the Research Questions to the Research Objectives within the Quantitative and Qualitative Approach). Before performing the full-scale questionnaire for the collection of quantitative data, a pilot study was conducted in order to assess the quality of the answers provided by the research questionnaire, to establish the content validity, and to improve the questions and scales of the instrument (see section 4.3.4 and section 6.1). Creswell and Plano (2007) state that a pilot study is important for survey research in order to validate the content of the instrument and to review the questions to ensure that the final instrument of the research is appropriate. In this regard, two senior professors from Loughborough University, one senior professor from Taiwan's National Chung Hsing University, and two directors from NTIFO, all of whom were familiar with the knowledge management domain, were invited to evaluate the questionnaire to check the instrument's validity. Then, the final modified questionnaire was distributed to members of NTIFO and the Farmers' Associations. The quantitative data of the research were divided into two sections for the purpose of discussing sampling, correlations and significances. In the first section, descriptive statistics (including gender, age and work years) were analysed using SPSS software (22.0). This was followed, in the second section, by validation in terms of:

1) reliability: this was achieved using individual item reliability (factor loading), composite reliability and Cronbach's Alpha;

2) validity: using convergent validity (by evaluating Average Variance Extracted (AVE)) and discriminant validity (by evaluating the square root of the Average Variance Extracted (AVE) of each latent construct and the cross-loading matrix), using Smart-PLS software (Version: 2.0.M3).

In terms of the qualitative approach in the same stage (the third stage), a purposive sampling method, which combined intensity sampling and snowball sampling, was used to select participants working in NTIFO and the Farmers' Associations (see section 4.3.8). This research chose to design and employ semi-structured, in-depth interviews to collect qualitative data. This was because the researcher considered that these would be more flexible regarding the wording of questions and the sequence of subjects; interviews would also be more conversational in terms of participants' responses meaning that the sequence of questions could be modified if necessary. The questions for the semi-structured, in-depth interviews were aligned with research questions **Q1**, **Q2**, **Q3**, **Q4**, **Q5**, **Q6**, **Q7**, **Q8**, **Q9** and **Q11** (see Table 1.1: Correspondance of the Research Questions to the Research Objectives within the Quantitative and Qualitative Approach). Having developed the interview questions based on a comprehensive review of prior literature, pilot interviews were initially conducted in order to appraise the content validity and reliability of the interview questions. Meanwhile, two senior supervisors from Loughborough University, both of whom were highly experienced in the knowledge management domain, were also invited to evaluate the interview questions concerning their appropriateness and ease of comprehension to prove the qualitative instrument's content validity (see section 4.3.7.2 and Appendix 5). The primary reason for conducting pilot testing is that such testing can effectively eliminate any problems in terms of the clarity of the research questions and objectives, as well as to avoid any omissions (Bell, 1987, p.65). Through these pilots, some interview questions were rephrased or redesigned since some of the interview questions were insufficiently clear while others were ambiguous (see Appendix 6). Then, the final version of the interview questions (see section 4.3.7.3 and Appendix 7) was completed and prepared for the selected respondents. Finally, the qualitative data were analysed thematically since such analysis has been shown to be flexible, as well as useful, in providing data that are rich, detailed and complex (Braun & Clarke, 2006). Having completed the analysis of both the quantitative and qualitative data, the research offers a comprehensive discussion of the analytical results, draws conclusions from the case study, and ends with suggestions and recommendations.

4.3.3 Research Model and Hypotheses

As noted above, this research has selected its philosophy (pragmatism), methodology (mixed-methods) and design (concurrent triangulation design), as well as the integrated relevant theories mentioned in Chapter 2. The conceptual framework was then designed, followed by the hypotheses which are postulated in order to complete the aims and objectives of this study. Figure 4.4 below presents the predicted interrelationships among the relevant constructs of this research.

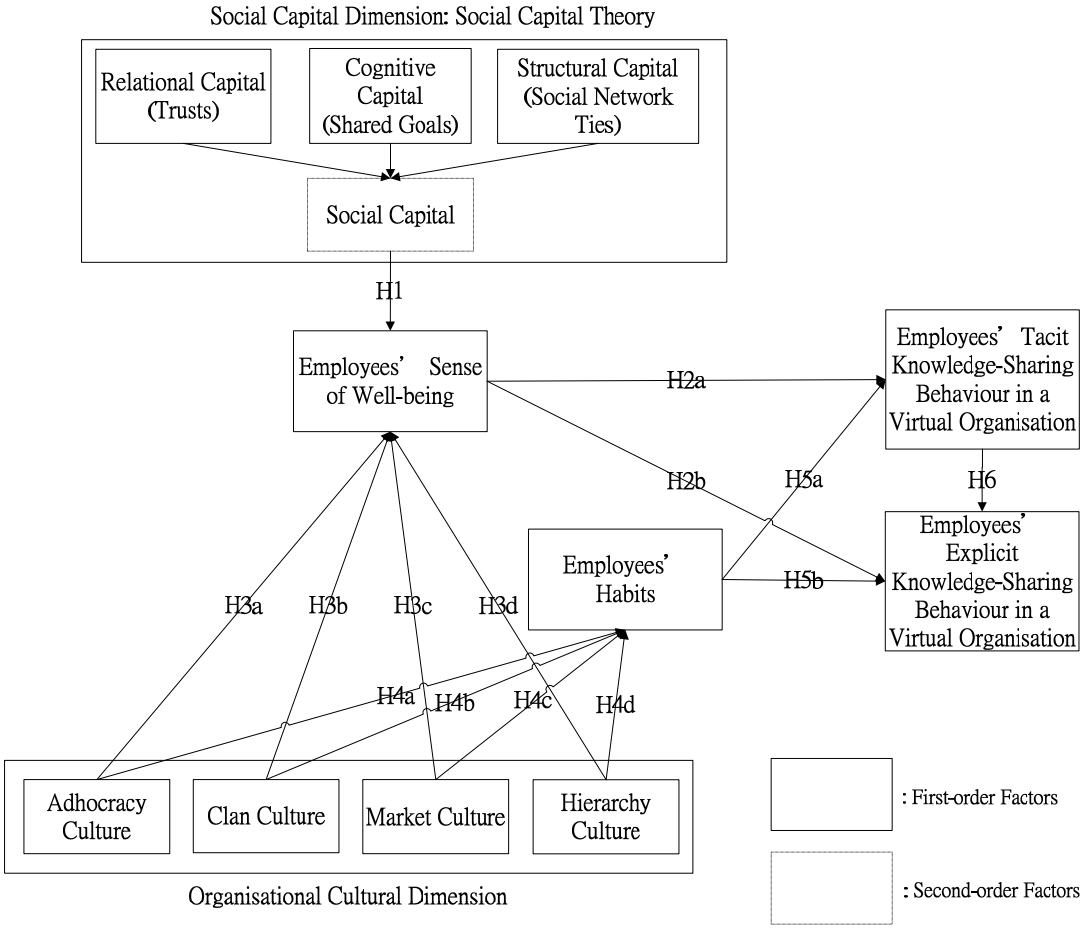

Figure 4.4: The Conceptual Framework of this Research

4.3.3.1 Social Capital Tendency and Employees' Sense of Well-being

Objective B2 of this research is to evaluate the relationship between employees' social capital and their feelings of well-being; an increasing number of researchers have paid attention to investigating this relationship in individuals (Lau & Li, 2011; Sarracino, 2010; Yamaguchi, 2013). Ryff (1989) highlighted how warm and trusting

interpersonal relationships lead to psychological well-being. Later, Ryff and Keyes (1995) and Ryff and Singer (2008) stated that an individual who shows loving care for, and puts his/her trust in interpersonal relationships with others, has a greater sense of well-being. Keyes (1998) indicated, based on a socially acceptant view of social well-being, that an individual who has a greater willingness to trust others, thinks that other people have a capacity for kindness, believes that others are industrious, and feels comfortable with them. Diener and Seligman (2004) verified that positive social relationships are pivotal components of well-being and that a sense of well-being leads to satisfying social relationships. Henry (2004) stated that the positive cognitive capital trend of an individual can be conceptualised as an accumulative asset which stems from those aspects of cognitive functioning associated with developing faculties such as memory, attention, perception, problem solving and mental imagery. This is helpful in sustaining well-being so that environmental challenges and stress can either be adapted or even overcome. Moreover, Henry (2004) and Locke and Lathem (2006) indicated that individuals who often pursue desired goals successfully will experience a greater sense of well-being; Locke and Lathem (2006) also found that higher personal goals that are compatible with the collective goals can effectively enhance collective performance. Hence, this research proposes that there is a plausible cause and effect relationship in which the cognitive capital tendency of an individual is positively associated with his/her sense of well-being.

Moreover, an empirical research study carried out by Yip et al. (2007) demonstrated that the level of participation in formal associations (namely social network ties) and individuals' mutual trust, based on social capital theory, have a positive impact on an individual's psychological health and feeling of well-being. Helliwell and Wang (2011) confirmed that trust is strongly and directly associated with an individual's sense of well-being. Individuals who feel they are situated in a trustworthy environment have greater levels of the sense of wellbeing (Helliwell & Huang, 2011; Helliwell & Wang, 2011). Likewise, Helliwell and Putnam (2004) attested that social capital is strongly linked to subjective well-being through many independent channels such as marital status, the level of network ties to friends and neighbours, the degree of civic engagement, feeling trustworthy, and being able to trust. Hence, based on the above perspectives gleaned from numerous research studies concerning well-being, it is clear that an individual's trend in terms of well-being is strongly associated with his/her social capital. Thus, significant and successful shared goals, trust among individuals, and the social network ties of an organisation's employees are hypothesised to have a positive impact on employees' sense of well-being. This leads to ***Hypothesis H1***.

H1: A predisposition to better social capital positively influences employees' sense of well-being in the virtual organisation.

4.3.3.2 Employees' Sense of Well-being and Knowledge-sharing Behaviour

Objective B3 of this research is to evaluate the relationship between employees' feeling of well-being and their knowledge-sharing behaviour in the virtual organisation of Taiwanese NGOs. Many research studies have shown that an individual's inclination to share knowledge is improved when he/she experiences positive emotions such as enjoyment and delight (Wasko & Faraj, 2000; Kankanhalli et al., 2005; Wasko & Faraj, 2005). Furthermore, Carr (2004) stated that the central concept of positive psychology consists of two main components: namely, happiness and well-being. According to Diener et al. (2002) and Keyes et al. (2002), the concept of subjective well-being includes positive emotions, satisfaction with life, and a lack of negative feelings. An individual's feeling of subjective well-being improves when he/she experiences higher levels of positive emotion and life satisfaction, together with lower levels of negativity (Diener et al., 2002). A growing number of researchers, such as Gibbons and Silva (2011), Blažun et al. (2012) and Goswami (2012), have used the concept of well-being to assess personal cognitive emotion on account of its influence on individuals' predisposition and even their behaviour. Meanwhile, the job and life satisfaction of an individual are highly correlated and inter-related (Saari & Judge, 2004). Since an individual's job plays an important role in his/her life, job satisfaction may spill over into life satisfaction or vice versa (Saari & Judge, 2004). Russell (2008) points out that the higher the level of well-being that employees experience, the better their work performance. Simultaneously, Boehm and Lyubomirsky (2008) indicate that happier employees are more likely to be satisfied with their jobs and to take on extra roles or tasks, such as helping others. The knowledge-sharing behaviour of employees therefore seems to be driven to a considerable extent by a greater sense of their own well-being. Consequently, this research postulates that employees' feeling of well-being is highly and positively associated with their knowledge-sharing behaviour in the virtual organisation of Taiwanese NGOs. This leads to the following hypotheses.

H2a: A sense of well-being positively influences employees' tacit knowledge-sharing behaviour in the virtual organisation.
H2b: A sense of well-being positively influences employees' explicit knowledge-sharing behaviour in the virtual organisation.

4.3.3.3 The Mediating Effect of Employees' Sense of Well-being on their Social Capital Capital Tendency and Knowledge-sharing Behaviour

Objective B4 of this research is primarily concerned with assessing how individuals' consciousness of well-being mediates the relationship between social capital and their knowledge-sharing behaviour within the virtual organisation of Taiwanese NGOs. As noted above in **Hypothesis 1** and **Hypothesis 2** of this research, this study considers that individuals' sense of well-being is likely to play an important mediating role in enhancing the relationship between employees' social capital trend and their knowledge-sharing behaviour. Sun et al. (2009) demonstrated that, having a greater social capital tendency positively influences individuals' knowledge-sharing behaviour in virtual communities. Furthermore, a positive social capital trend in individuals is highly and positively associated for them with a higher level of well-being. As stated previously, Carr (2004) asserts that the central concept of positive psychology consists of two components: happiness and well-being. Thus, an individual's inclination to share knowledge is improved by experiencing positive emotions such as enjoyment and delight (Wasko & Faraj, 2000; Kankanhalli et al., 2005; Wasko & Faraj, 2005). Previous literature has extensively explored the relationship between social capital and employees' knowledge-sharing behaviour in organisations. However, few studies have considered whether employees' feelings of well-being play a mediating role that directly or indirectly influences the relationship between social capital and employees' knowledge-sharing behaviour in the virtual organisation of Taiwanese NGOs. This leads to the following hypotheses.

H2c: Employees' feeling of well-being mediates the relationship between their social capital tendency and their tacit knowledge-sharing behaviour in the virtual organisation.
H2d: Employees' feeling of well-being mediates the relationship between their social capital tendency and their explicit knowledge-sharing behaviour in the virtual organisation.

4.3.3.4 Organisational Culture and the Sense of Well-being of Individuals

Objective C2 of this research is to investigate the influence of organisational culture on the sense of well-being of individuals within a virtual organisation of Taiwanese NGOs. Shao et al. (2012) mentioned the importance of organisational culture in influencing organisational members to share their knowledge while Change and Lee

(2007) revealed that organisational cultures of an innovative and/or supportive type positively influenced the acquisition of employees' knowledge. Liao et al. (2012), on the other hand, point out that a bureaucratic culture negatively influences such knowledge acquisition. Hence, it is evident that organisational culture and its ambience have a considerable influence on the behaviour of individuals. Even though it has been widely demonstrated how organisational culture significantly influences employees' knowledge-sharing behaviour, the specific impact of the organisational culture on employees' sense of well-being is still largely unknown. The possible mediating effect of a sense of well-being on the relationship between organisational culture and employees' knowledge-sharing behaviour is still unclear as well. According to Ryff (1989), Ryff and Keyes (1995), Keyes et al. (2002) and Ryff and Singer (2008), a number of elements of psychological well-being (such as autonomy, environmental mastery, positive relations with others, and personal growth) highlight how important the organisation's ambience is in influencing employees' feeling of well-being. In the light of the above-mentioned statements and the results significantly demonstrated by previous research, this study attempts to understand further how important the mediating effect of well-being is in the relationship between various types of organisational culture and employees' knowledge-sharing behaviour. The various organisational cultures, as defined by Cameron and Quinn (1999) and adopted in this research, are now examined and compared below, starting from a review of the literature analysing the cultural values which foster them.

When it comes to the effect of an adhocracy organisational culture on employees' sense of well-being, this type of organisational culture, having the characteristics of commitment to innovation, entrepreneurship, individual freedom and continual growth (Cameron & Quinn, 1999), may increase employees' sense of well-being. According to the Oxford Happiness Questionnaire (OHQ) developed by Hill and Argyle (2002), an improved instrument for assessing an individual's sense of well-being, two of the most critical elements in measuring individuals' sense of well-being concern continual improvements in their personal growth and learning, and their autonomy in the workplace. This is related to the characteristics of an adhocracy type of culture which emphasises creativity, continual growth and individual freedom (Cameron & Quinn, 2006). The organisational members involved in an adhocracy culture are more creative and energetic and are more likely to be entrepreneurial; individual initiatives are encouraged to create new ideas, models and programmes in order to increase the efficiency of the organisation (Cameron & Quinn, 1999). This concept is also associated with the personal growth of psychological well-being which encourages people, not only to achieve set tasks, but also to develop their potential

continually (Ryff & Singer, 2008). On the other hand, individual freedom, which is regarded as one of the important characteristics of the adhocracy organisational culture, seems to link autonomy with psychological well-being. As stated by Ryff and Keyes (1995), autonomy, in terms of self-determination and independence, is an important component of psychological well-being since an individual's later life seems to offer a sense of freedom from the dictates and norms of external forms. As noted above, this culture can therefore be expected to have a positive effect on an individual's sense of well-being. This leads to ***Hypothesis H3a***.

H3a: An adhocracy organisational culture positively influences employees' feelings of well-being in the virtual organisation.

A clan organisational culture is identified as a friendly environment where employees share a lot of themselves in the workplace (Cameron & Quinn, 2006). Leaders in such organisations may be treated as mentors or perhaps parent figures (Cameron & Quinn, 2006). Cameron and Quinn (2006) stated that this type of organisational culture is like an extended family with best friends at work. Keye (1998) considered that one pivotal element of social well-being, social integration, involves an individual recognising deeply that he/she belongs to a part of a society and/or a community. Hence, once employees regard themselves as part of the organisation, as in the case of an extended family with best friends at work, they may experience an increase in their sense of well-being. Raquel et al. (2011) stated that the characteristics of clan-type organisations are teamwork, employee involvement and commitment to employees; this relates to Hill and Argyle's (2002) assertion that an individual who is always committed and involved feels a greater sense of well-being. Moreover, the glue that holds this type of organisational culture together consists of loyalty and mutual trust. Ryff (1989) highlighted the importance of warm and trusting interpersonal relationships while Jahoda (1968) stated that the ability to love is a central element in the mental health of an individual. One important element of psychological well-being concerns the importance of warm and trusting interpersonal relationships in the environment (Ryff, 1989); this may also be linked to the perspective of social well-being. Keyes (1998) stated, for example, that an individual who holds a socially acceptant point of view possesses a willingness to trust others, thinks that people are capable of kindness, believes that others are industrious, and feels comfortable with them. Therefore, an individual may have a greater sense of well-being in an organisation if it can provide the ambiance of the clan organisational culture, such as a friendly workplace, warmth and trust in each other. This leads to ***Hypothesis H3b***.

H3b: A clan organisational culture positively influences employees' feelings of well-being in the virtual organisation.

However, the relationship between a market organisational culture and an individual's sense of well-being may be negative, as hypothesised in this research. The core values of organisations with this culture are the achievement of goals, consistency and competitiveness (Cameron & Quinn, 2006, Raquel et al., 2011). Taking into account the characteristics of a market organisational culture, this might reduce employees' uneasiness and uncertainty in terms of their firms' future development since they have specific goals or purposes. Ryff (1989) stated that the social coherence associated with psychological well-being suggests that individuals want to comprehend what will be happening in the environment that surrounds them. Hence, individuals may have a greater sense of well-being in the organisation if they can clearly understand the organisation's goals or targets. However, a market organisational culture is a results-oriented workplace where leaders are hard-driving producers or competitors (Cameron & Quinn, 2006, Raquel et al., 2011). Employees working within a market-type culture, as defined in Cameron and Quinn's model, may experience a decreased sense of well-being since this culture is also characterised by its emphasis on control and stability rather than an individual's autonomy. Moreover, the management style of this type of organisation is characterised by hard-driven competitiveness, goal directedness and achievement (Cameron & Quinn, 2006). Employees in a firm with a market-type culture may compete instead of helping and trusting in each other, and this may therefore decrease their sense of well-being. As a consequence, this research suggests that a market culture will have a negative effect on employees' sense of well-being. This leads to ***Hypothesis H3c***.

H3c: A market organisational culture negatively influences employees' feelings of well-being in the virtual organisation.

Regarding a hierarchical type of organisational culture and well-being, the relationship between these is also negative. For instance, Cameron and Quinn (2006), on the one hand, stated that organisations that lean towards a culture which is arranged hierarchically and compartmentally, are based on control and power. Organisational employees in such firms have a clear authority and highly standardised, regular and systematic ways of working. As a result, an individual's feeling of well-being may increase because of social coherence in these organisations. Social coherence, based on the concept of social well-being, is the degree to which an individual understands what is happening in the world (Keyes, 1998). It applies to

individuals who have sufficient ability to understand, feel or even predict what is happening around them (Keyes, 1998). A hierarchical organisational culture, in contrast, may hinder an individual from gaining greater autonomy, self-determination and independence; this may decrease his/her sense of well-being since this type of organisational culture highlights the management styles of control and structure, formal rules and stability (Shih & Huang, 2010). Ryff and Singer (2008) stated that a sense of self-determination is a key part of psychological well-being and this plays a vital role in making individuals feel a greater sense of well-being. Jung (1933) noted the term "individuation" as describing one who no longer espouses collective fears and beliefs, as well as the laws of the masses. An individual's later life is also seen to offer a sense of freedom from the dictates and norms of external forms (Ryff & Keyes, 1995). Moreover, Zammuto et al. (2000) demonstrated that interpersonal relations among employees in an organisation dominated by hierarchical values have lower levels of trust and morale with higher levels of conflict and resistance to change. As mentioned above, the negative effect of a hierarchy organisational culture on an individual's sense of well-being may counteract the positive effects of the well-being. Therefore, it may be expected that a hierarchy culture will have a significantly negative effect on employees' sense of well-being. Hence, as noted above, this research considers that an individual's sense of well-being will be highly associated with organisational culture. This leads to the following hypothesis.

H3d: A hierarchy organisational culture negatively influences employees' feelings of well-being in the virtual organisation.

4.3.3.5 Employees' Habits and Organisational Culture

Objective C3 of this research is to evaluate the relationship between organisational cultures and the habits of individuals in terms of their knowledge sharing in a virtual organisation of Taiwanese NGOs. McDermot (1999) stated that the most critical issue concerning knowledge management is to change organisational cultures and employees' habits in order to improve an organisation's competitive advantage. A concept mentioned in Camic's research (1986) indicates that not only individuals, but also collectives, oscillate between two poles: namely, consciousness or reflection on one side, and cultural habits on the other. Camic (1986, p. 1050) further stated: "From Durkheim's (1893) observations on the empirical role of habit at different points in the evolutionary process, he considered that primitive peoples, in his judgment, live to a large extent by the force of habit and under the yoke of habit." As a result, individuals are keen to reflect their perceptions and behaviour, based on their specific culture,

when implementing knowledge management (Ruggles, 1998). Fundamentally, humans can be viewed as being creatures of habit and their routine, goal-directed behaviour is performed in an habitual form (Danner et al., 2008). Danner et al. (2008) stated that once individuals have the capacity to perform goal-directed behaviour easily, they will rely less on explicit intention (Danner et al., 2008). Dickinson (1985) conceptualised the generation of behaviour as being dominated by two primary models. One is the mechanistic stimulus-response model which regards a particular behaviour as innate or as acquired habits that are easily triggered by a suitable stimulus (Dickinson, 1985). The other is the teleological model which considers that some behaviour, at least, is purposive; it is controlled by the current value of its goal and is achieved through knowledge about the instrumental relationship between actions and the consequences of behaviour (Dickinson, 1985). Therefore, employees' behaviour, and even their habits, may be formed on account of the specific goals and success criteria of organisations, and then these further influence their knowledge-sharing behaviour. As noted in the statements above, this research considers that an individual's everyday working habits concerning knowledge sharing in the organisational context may be constructed and established because of the continual impact of the organisation's culture and its specific goals and strategies. It leads to the following hypotheses:

H4a: An adhocracy organisational culture in the virtual organisation positively influences employees' habits in terms of knowledge sharing.
H4b: A clan organisational culture in the virtual organisation positively influences employees' habits in terms of knowledge sharing.
H4c: A market organisational culture in the virtual organisation positively influences employees' habits in terms of knowledge sharing.
H4d: A hierarchy organisational culture in the virtual organisation positively influences employees' habits in terms of knowledge sharing.

4.3.3.6 Employees' Habits and and Knowledge-sharing Behaviour

Objective C4 of this research is to investigate the influence of employees' habits on their knowledge-sharing behaviour in the virtual organisation of Taiwanese NGOs. The role of habit is an increasingly popular topic for discussion in social psychology research in order to investigate individuals' attitudes and behaviour (Limayem & Hirt, 2003; Limayem et al., 2007; Danner et al., 2008). Dickinson (1985) stated that the generation of behaviour has long been dominated by two primary models. The first is the mechanistic stimulus-response model which regards particular behaviour that is

easily triggered by a suitable stimulus; on the other hand, the second, is the teleological model. This considers that some behaviour which is given purpose is controlled by the current value of its goal; this can be achieved through knowledge of the instrumental relationship between actions and the consequences of behaviour (Dickinson, 1985). According to Louis and Sutton (1991) and Aarts et al. (1997), behaviour is the resulting actions of an individual, whilst habit is defined as an individual's automatic cognitive processes. Subsequently, Venkatesh et al. (2008) stated that, as the behaviour of an individual becomes more routine, this may gradually form into habits which will play a more significant role than either behavioural expectation or behavioural intention. Therefore, once the habits of individuals have become established, their performance requires little conscious attention and minimal mental effort (Wood et al., 2002; Limayem et al., 2003; Limayema & Cheung, 2008). Moreover, Aarts and Dijksterhuis (2000) regarded an individual's habit as the repetitive nature of goal-directed behaviour. This leads to the mental representation of an individual's behaviour as directly triggered while experiencing a specific context. Basically, human beings are creatures of habit and their routine, goal-directed behaviour is performed in an habitual form (Danner et al., 2008). They further stated that individuals have the ability to perform goal-directed behaviour easily and without relying on explicit intention (Danner et al., 2008). This is because such behaviour is mentally and directly accessed in the context in which the behaviour has been frequently and consistently performed in the past. Their research results revealed that an individual's habits are formed when his/her behaviour is frequently performed in a stable context (Danner et al., 2008). Hence, this research postulates that, once an individual's habits are established, his/her behavioural responses are stable and are increasingly activated automatically. This leads to the following hypotheses.

H5a: Employees' habits in terms of knowledge sharing positively influence their tacit knowledge-sharing behaviour in the virtual organisation.
H5b: Employees' habits in terms of knowledge sharing positively influence their explicit knowledge-sharing behaviour in the virtual organisation.

4.3.3.7 The Mediating Effect of Employees' Habits on Organisational Culture and their Knowledge-sharing Behaviour

Objective C5 of this research is to evaluate the mediating impact of the habits of employees on the relationship between organisational culture and knowledge-sharing behaviour in the virtual organisation of Taiwanese NGOs. As noted in previous

references (see section 4.3.3.5 and section 4.3.3.6) and the above-mentioned **Hypothesis 4** (**a**, **b**, **c**, **d**) and **Hypothesis 5** (**a**, **b**), this research speculates that employees' habits may play a critical mediating role in improving the relationship between an organisation's culture and their knowledge-sharing behaviour. Camic (1986) stated that both individuals and collectives oscillate between two poles: namely, individuals' consciousness or reflections on one side, and an organisation's cultural habits on the other. Moreover, Swartz (2002) concluded that the routine behaviour of most individuals may be deeply influenced by the culture of their organisation. McDermott and O'Dell (2001), Cabrera et al. (2006), and Jolink and Dankbaar (2010) suggested that organisational culture is widely regarded as an inhibitor that affects the effectiveness of individuals' knowledge sharing. As noted in the statements above, the research considers that an individual's everyday working habits in an organisational context may be constructed and established because of the continual impact of organisational culture and its specific goals and strategies. This will therefore play an important mediating role between the organisational culture and knowledge-sharing behaviour and leads to the following hypotheses:

H5c: Employees' habits mediate the relationship between organisational culture (adhocracy, clan, market and hierarchy) and their tacit knowledge-sharing behaviour in the virtual organisation.
H5d: Employees' habits mediate the relationship between organisational culture (adhocracy, clan, market and hierarchy) and their explicit knowledge-sharing behaviour in the virtual organisation.

4.3.3.8 The Mediating Effect of Employees'Sense of Well-being on Organisational Culture and their Knowledge-sharing Behaviour

Objective C6 of this research is to evaluate the mediating impact of employees' sense of well-being on the relationship between organisational culture and knowledge-sharing behaviour in the virtual organisation of Taiwanese NGOs. As noted in prior references (see section 4.3.3.2 and section 4.3.3.4) and the above-mentioned **Hypothesis 2** (**a**, **b**) and **Hypothesis 3** (**a**, **b**, **c**, **d)**, this research considers that employees' sense of well-being plays an important mediating role in enhancing the relationship between organisational culture and their knowledge-sharing behaviour. It leads to the following hypotheses.

H5e: Employees' sense of well-being mediates the relationship between an adhocracy organisational culture and their tacit knowledge-sharing behaviour in

the virtual organisation.

H5f: Employees' sense of well-being mediates the relationship between an adhocracy organisational culture and their explicit knowledge-sharing behaviour in the virtual organisation.

H5g: Employees' sense of well-being mediates the relationship between a clan organisational culture and their tacit knowledge-sharing behaviour in the virtual organisation.

H5h: Employees' sense of well-being mediates the relationship between a clan organisational culture and their explicit knowledge-sharing behaviour in the virtual organisation.

H5i: Employees' sense of well-being mediates the relationship between a market organisational culture and their tacit knowledge-sharing behaviour in the virtual organisation.

H5j: Employees' sense of well-being mediates the relationship between a market organisational culture and their explicit knowledge-sharing behaviour in the virtual organisation.

H5k: Employees' sense of well-being mediates the relationship between a hierarchy organisational culture and their tacit knowledge-sharing behaviour in the virtual organisation.

H5l: Employees' sense of well-being mediates the relationship between a hierarchy organisational culture and their explicit knowledge-sharing behaviour in the virtual organisation.

4.3.3.9 Tacit and Explicit Knowledge-sharing Behaviour

Furthermore, in order to explore more deeply the impact of social capital, employees' sense of well-being, an individual's habits, as well as organisational culture, on employees' knowledge-sharing behaviour in this virtual organisation, the research further divides an individual's knowledge into tacit and explicit knowledge in order to gain insight into the barriers affecting the different types of knowledge. Nonaka (1994) indicated that the process of the generation and creation of knowledgecan be categorised into four types: socialisation, externalisation, combination and internalisation, transferring between tacit and explicit knowledge. The process of externalisation helps create new knowledge as the tacit knowledge of individuals emerges from within its boundary and becomes collective knowledge (Reychav & Weisberg, 2009). Through this conversion, the tacit knowledge of an individual, therefore, can be captured, codified and written in terms of technical or academic data, as in manuals, documents and patents (Nonaka, 1994). Dhanaraj et al. (2004) also

state that the tacit knowledge of individuals is the transfer of fine-grained information; it offers a meaningful and in-depth understanding of their explicit knowledge. In the light of the difficulties of turning tacit knowledge into explicit knowledge, employees who intend to share tacit knowledge, such as know-how or know-whom, have no reason to be reluctant then to share explicit knowledge such as written documents or files (Hau et al., 2013). Meanwhile, employees' tacit knowledge, based on the perspective of an organisation, can be perceived as a precious asset that will provide an organisation with a competitive market advantage (Reychav & Weisberg, 2009). Conversely, from the point of view of employees, their tacit knowledge can be viewed as their own competitive advantage within the organisation (Reychav & Weisberg, 2009). Hau et al. (2013) also demonstrated that if the employees' intention to share their tacit knowledge is perceived as a valuable resource, this positively influences their intention to share their explicit knowledge. This leads to **Hypothesis 6**.

H6. The more employees share their tacit knowledge, the more they will share theirexplicit knowledgein the virtual organisation.

4.3.4 Quantitative Instrument Development (the Pilot Study)

This research focuses on investigating those factors that affect employees' knowledge-sharing behaviour in the whole system of Farmers' Associations in Taiwan. This system, regarded as a virtual organisation of NGOs in this research, consists of three different levels of Taiwanese Farmers' Associations and the National Training Institute for Farmers' Organisations (NTIFO). These three main categories of Taiwanese Farmers' Associations (namely, urban, hybrid and rural) are, according to Huang (1992), significantly separate. Meanwhile, a virtual organisation, as defined by this study, consists of a variety of dynamic and temporary organisations whose employees cooperate and coordinate their efforts to pool their facilities and infrastructures, as well as to share skills, competencies, knowledge and resources by utilising Information and Communication Technologies (ICTs), such as E-mail, Knowledge Management Systems (KMSs) and video conferencing, in order to pursue a particular goal or market opportunity (Goldman et al., 1995). Finally, three different types of Farmers' Associations in the same administrative region were chosen because this research considered that Farmers' Associations within the same administrative region would be more likely to co-operate and co-ordinate their efforts more easily, frequently and closely. Stratified purposive sampling was adopted to select the respondents for this research and data collection was executed in three stages: first, E-mails, highlighting the importance of the research aims and its contribution to

organisations and academia, were sent to Chief Executive Officers (CEOs) of the four proposed companies; this was accompanied by the Participant Information Sheet. This stage was imperative in obtaining the support of the CEOs with a view to carrying out the study successfully. Then, the pilot survey instrument established in this research was developed after a comprehensive review of the existing literature. The pilot questionnaire for this research consisted of six sections. Section 1 was designed to collect demographic information from the respondents whilst Sections 2, 3, 4, 5 and 6 were intended to collect research data in terms of the sense of well-being, social capital, the habits of individuals, knowledge-sharing behaviour, and organisational culture. The main reason for distributing the pilot questionnaire was to assess the quality of the answers provided by the research questionnaire, as well as to evaluate and revise the phrasing and content, establish the content validity, and improve the questions and scales of the questionnaire used in this research. Creswell and Plano (2007), as well as Shao et al. (2012), claim that a pilot study is important in survey research in order to ensure the content validity of the instrument and to review the questions to make the final instrument of the research appropriate. Johanson and Brooks (2010) further state that a pilot study is useful for evaluating and comprehending any items that are difficult or discriminatory, for checking internal consistency, for assessing response rates, and for estimating parameters. The pilot survey questionnaire, which was designed using a mixture of positively and negatively worded statements concerning the items and a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree) was conducted as a pilot study to evaluate the validity and reliability of the content of the questionnaire (see section 4.3.2). The final version of the pilot questionnaire contained 68 items. Finally, 43 valid questionnaires were obtained via E-mail from the selected virtual organisation over a period from 10th March 2014 to 1st April 2014. The measurement model was then evaluated using Smart-PLS (Version: 2.0.M3) in order to analyse the survey's reliability (both individual item reliability and internal consistency) and validity (i.e. convergent validity and discriminant validity). A more detailed discussion with regard to the analytic process of the pilot questionnaire is presented in Chapter 6. This apart, the results of the quantitative data showed solid internal consistency. Table 4.1 below presents the items measured by the research constructs.

Table 4.1: Development of the Instrument for Measuring each Variable of this Research

Dimension	Variable	Definition of this Research
Measurement of Organisational Culture	Adhocracy Culture (Cameron & Quinn, 1999; Cameron &	An adhocracy culture, which emphasises flexibility and change, is one in which the organisation is externally oriented; it is based on

	Quinn, 2006; Cameron & Quinn, 2011; Raquel et al., 2011)	creativity, entrepreneurship and risk-taking.
	Clan Culture (Cameron& Quinn, 1999; Cameron& Quinn, 2006; Cameron& Quinn, 2011; Raquel et al., 2011)	A clan culture also emphasises flexibility yet it is internally oriented. This type of organisational culture has characteristics of teamwork, employee involvement and corporate commitment to employees.
	Market Culture (Cameron & Quinn, 1999; Cameron& Quinn, 2006; Cameron & Quinn, 2011; Raquel et al., 2011)	The market culture is externally oriented; it highlights stability and control. The core values of organisations of this type of this culture are hard-driving, competitive and focus on the achievement of goals.
	Hierarchy Culture (Cameron & Quinn, 1999; Cameron & Quinn, 2006; Cameron & Quinn, 2011; Raquel et al., 2011)	A hierarchy culture is internally control oriented. The main characteristics of this organisational culture are efficiency and adherence to norms, rules and regulations.
Measurement of Social Capital	Structural Capital: Social Network Ties (Nahapiet &Ghoshal, 1998; Chiu et al., 2006; Leana & Pil, 2006; Yip et al., 2007; Chow and Chan, 2008; He et al., 2009; Kirsch et al., 2010; Yang et al., 2011; Chumg et al., 2015)	Social networks, based on the structural capital of social capital, promote more opportunities for employees of a virtual organisation to make interpersonal contacts. Meanwhile, employees may feel a greater sense of well-being and have more willingness to share their knowledge with those colleagues with whom they have developed a compact relationship.
	Cognitive Capital :	Cognitive capital refers to the degree to which

	Shared Goals or Visions (Nahapiet & Ghoshal, 1998; Chow & Chan, 2008; Chiu et al., 2006; Chumg et al., 2015)	organisational members share goals and visions. The presences of shared goals or visions can enhance mutual understanding and the exchange of ideas among colleagues, bind a variety and number of them together, and encourage them to contribute their knowledge.
	Relational Capital: Trust (Nahapiet & Ghoshal, 1998; Chiu et al., 2006; Sherif et al., 2006;Yip et al., 2007; Chow & Chan, 2008; He et al., 2009; Chumg et al., 2015)	Trust, which is a key facet of the relational capital of social capital, improves compact interactions between employees in virtual organisations. Meanwhile, colleagues who have the ability to trust each other will experience more positive feelings about sharing knowledge and happiness.
Measurement of Well-being	Oxford Happiness Questionnaire (Hill & Argyle, 2002; Lewis et al., 2005; Houran, 2005; Cruise et al., 2006; Cook & Chater, 2010; Holder & Klassen, 2010; Robbins et al., 2010; Abdel-Khalek & Lester, 2012; Chumg et al., 2015)	An individual's sense of well-being is a state of mind, which is constructed through complex, contextual and meaningful sentiments. Well-being comes not merely from private emotions, such as pleasure, displeasure, satisfaction with life and so forth, but also from experiencing various social challenges. Meanwhile, job-related well-being may spill over into life-related well-being or vice versa.
Measurement of an Individual's Habits	Yu (1991), Aarts et al. (1998), Verplanken et al.(1997), Aarts & Dijksterhuis (2000), Yu & Chiang (2002) , Ju et al. (2007), Limayem et al. (2007), Limayema & Cheung (2008), Sun et al. (2009)	An individual's habits, in terms of knowledge sharing in a virtual organisation, are an individual's subconscious behaviour generated byhis/her accumulative and goal-directed automatic behaviour. This is because the process of an individual's decision-making may be profoundly affected by his/her accumulative past behaviour and learning experiences, and by contact with different environments. Ultimately, the performance of an individual requires a good deal less conscious attention and mental effort when his/her behaviour is habitual.

Virtual Organisation	Virtual Organisation (Goldman et al., 1995; Squicciarini, 2011; Chumg et al., 2015)	A virtual organisation consists of a variety of dynamic and temporary companies whose employees cooperate and coordinate their efforts to pool their facilities and infrastructures, and share skills, competencies, knowledge and resources by utilising Information and Communication Technologies (ICTs), such as E-mail, Knowledge Management Systems (KMSs) and video conferencing, in order to pursue a particular goal or market opportunity.
Knowledge Sharing	Tacit Knowledge Sharing (Endres et al., 2007; Holste & Fields, 2010; Nonaka & Krog, 2009; Chumg et al., 2015)	Tacit knowledge, such as ideals, skills, values and mental models, is usually difficult for employees to express and share with others.
	Explicit Knowledge Sharing (Nonaka & Krog, 2009; Nonaka & Takeuchi, 1995; Chumg et al., 2015)	Employees' explicit knowledge can be effortlessly captured, codified and written in the form of technical or academic data and presented in such forms as journals, manuals, documents and patents.

Because a multitude of categories and instruments exist for measuring an individual's sense of well-being, there is little agreement on which ones are superior to or more appropriate than others on account of the complexity of the theoretical construct of happiness. For example, the quantitative scales of subjective well-being were developed and established in the work of Diener et al. (1985) in relation to the "satisfaction with life scale" (SWLS). Ryff (1989), Ryff & Keyes (1995) and Keyes et al. (2002) developed a psychological well-being scale of six dimensions:

1) Autonomy, which is related to an individual's cognition of self-determination and independence;

2) Environmental mastery, which refers to an individual's sense of mastery and the ability to manage the environment;

3) Personal growth; this is associated with an individual's sense of continued development and growth;

4) Positive interpersonal relations with others;

5) Purpose in life, which is related to an individual's attitude towards the purpose of his/her own life, and;

6) Self-acceptance, which is related to an individual's satisfaction with him/herself.

Social well-being, as developed by Keyes (1998), consists of five dimensions, namely:

1) Social integration; this is associated with an individual's sense of identity and belonging to communities;

2) Social acceptance, which emphasises the degree to which an individual has the willingness to trust others;

3) Social contribution, which relates to an individual's value to society;

4) Social actualization; this relates to an individual's belief in the evaluation of society;

5) Social coherence; this relates to an individual's cognition of society.

Having reviewed and considered a great many references concerning instruments to measure individuals' feelings of well-being, this research chose to adopt the Oxford Happiness Questionnaire (OHQ) developed by Hill and Argyle (2002). The Oxford Happiness Questionnaire (OHQ), which was derived from the Oxford Happiness Inventory (OHI) developed by Argyle et al. (1989), is an improved instrument for assessing an individual's sense of well-being (Hill & Argyle, 2002). The OHQ, which includes similar items to those of the OHI, comprises 29 items, each presented as a single statement which can be answered on a six-point Likert scale (Hill & Argyle, 2002). This revised instrument (the OHQ), which has been adopted by numerous researchers, has convincingly demonstrated its reliability and validity. It has also been widely used in western countries such as the UK (e.g., Hill & Argyle, 2002; Lewis et al., 2005; Maltby et al., 2005; Cook & Chater, 2010; Robbins et al., 2010), North Ireland (Cruise et al., 2006), Australia (Thalbourne & Houran, 2005), the USA (Abdel-Khalek & Lester, 2012) and Canada (Holder & Klassen, 2010) to investigate

personal happiness. Since the OHQ has been widely administered by researchers to evaluate an individual's feeling of well-being in western countries, it is therefore possible that different cultural effects may lead to it being flawed when measuring what is a comprehensive implantation of Western conceptualisation and measurement in the specific context of a Chinese organisation. This research therefore considers that the use of OHQ has to be justified in order to test the reliability and validity of those items with a view to developing a valid measurement scale using a quantitative approach in the specific context of a Chinese organisation. The Oxford Happiness Questionnaire used in this research had 29 items and adopted a 5-point Likert scale, as proposed by Berdie (1994, p.52), with responses rated as 5 = strongly agree, 4 = agree, 3 = somewhat agree, 2 = disagree and 1 = strongly disagree. Table 4.2 reveals the items of the measurement of an individual's sense of well-being.

Table 4.2: Items of the Measurement of an Individual's Sense of Well-being

Oxford Happiness Questionnaire (Hill & Argyle, 2002; Lewis et al., 2005; Maltby et al., 2005; Thalbourne & Houran,2005; Cruise et al., 2006; Cook & Chater, 2010; Holder & Klassen, 2010; Robbins et al., 2010; Abdel-Khalek & Lester, 2012; Chumg et al., 2015)	
Item No.	Measurement items
WB1)	I don't feel particularly pleased with the way I am (-).
WB2)	I am intensely interested in other people.
WB3)	I feel that life is very rewarding.
WB4)	I have very warm feelings towards almost everyone.
WB5)	I rarely wake up feeling rested (-).
WB6)	I am not particularly optimistic about the future (-).
WB7)	I find most things amusing.
WB8)	I am always committed and involved.
WB9)	Life is good.
WB10)	I do not think that the world is a good place (-).
WB11)	I laugh a lot.
WB12)	I am well satisfied about everything in my life.
WB13)	I don't think I look attractive (-).
WB14)	There is a gap between what I would like to do and what I have done (-).
WB15)	I am very happy.
WB16)	I find beauty in some things.
WB17)	I always have a cheerful effect on others.
WB18)	I can fit in everything I want to.
WB19)	I feel that I am not especially in control of my life (-).
WB20)	I feel able to take anything on.

WB21) I feel fully mentally alert.
WB22) I often experience joy and elation.
WB23) I do not find it easy to make decisions (-).
WB24) I do not have a particular sense of meaning and purpose in my life (-).
WB25) I feel I have a great deal of energy.
WB26) I usually have a good influence on events.
WB27) I do not have fun with other people (-).
WB28) I don't feel particularly healthy (-).
WB29) I do not have particularly happy memories of the past (-).

Note. Items (WB1, W5, WB6, WB10, WB13, WB14, WB19, WB23, WB24, WB27, WB28 and WB29) marked (-) should be scored in reverse.

Social capital theory consists of structural capital, cognitive capital and relational capital; these are widely regarded as the key drivers in improving individuals' willingness to share knowledge and cooperate with each other (Nahapiet & Ghoshal, 1998; Wasko & Faraj, 2005; He et al., 2009; Wei et al., 2011; Hau et al., 2013). This is because the conceptual features of social capital (such as trust, norms and network ties) can enhance the efficiency of society by facilitating cooperative and coordinated activities (Putnam, 1995). Hence, based on the concept of social capital, individuals tend to share their knowledge when interacting closely and when they are on friendly terms with each other. The structural dimension of social capital is often used to describe the levels of information sharing and interpersonal relationships connecting network members in an organisation (Leana & Pil, 2006; Kirsch et al., 2010; Yang et al., 2011). An underlying proposition of social capital is that network ties (namely, the strength of individuals' interpersonal relationships) influence individuals to engage in sharing knowledge (He et al., 2009). The dimension of relational capital highlights such resources as the exchange of knowledge embedded in interpersonal relationships that stem from long-term interactions (Nahapiet & Ghoshal, 1998; Sherif et al., 2006). He et al. (2009) states that successful cooperation among organisational employees depends on their mutual trust; this also concerns the relational capital of social capital. If employees in an organisation trust each other, this reduces conflicts and increases their willingness to contribute their knowledge (He et al., 2009). Moreover, Yip et al. (2007) demonstrated that the level of participation in formal associations (namely social network ties) and individuals' mutual trust have significantly positive impacts on an individual's psychological health and their sense of well-being in rural China. Cognitive capital refers to the degree to which a collective consensus is recognised because of the shared codes, language and narratives of the group (Kirsch et al., 2010; Yang et al., 2011). In this research, the quantitative scales of social capital were

constructed using structural capital (social network ties), cognitive capital (shared goals), relational capital (trust), and by referring to the works of Nahapiet and Ghoshal (1998), Wasko and Faraj (2005), Chiu et al. (2006), Chow and Chan (2008), Kirsch et al. (2010); Yang et al. (2011), and Hau et al. (2013). This is because the majority of research studies have posited social network ties, shared goals/visions, and trust as the major constructs corresponding to structural capital, cognitive capital and relational capital respectively in the exploration of individuals' willingness to share knowledge in organisations (Chow & Chan, 2008; Hau et al., 2013; He et al., 2009; Nov et al., 2012; Chumg et al., 2015). Hence, based on the above-mentioned perspectives, this study chose to adopt as the research model, social network ties, shared goals/visions and trust corresponding to structural capital, cognitive capital and relational capital, respectively. Finally, the scale for measuring the social capital tendency of employees included 9 items. These consist of social network ties (3 items for the structural capital dimension), shared goals (3 items for the cognitive capital dimension) and trust (3 items for the relational capital dimension). A 5-point Likert scale, as proposed by Berdie (1994, p.52), was used with the responses rated as 5 = strongly agree, 4 = agree, 3 = somewhat agree, 2 = disagree and 1 = strongly disagree. Table 4.3 illustrates the items involved in measuring social capital theory.

Table 4.3: Items of the Measurement of Social Capital Tendency

Dimension: Structural Capital (Network Ties/Social Network) (Nahapiet & Ghoshal, 1998; Chow & Chan, 2008; Chiu et al.,2006; Hau et al., 2013; Chumg et al., 2015)		
Item No.	Measurement items	Literature
SC1)	I am not very close to my virtual organisational colleagues (-).	*Concerning social network ties (Nahapiet & Ghoshal, 1998; Chiu et al.,2006; Chow & Chan, 2008; Hau et al., 2013; Chumg et al., 2015)*
SC2)	I have a very good relationship with my virtual organisational colleagues.	*Concerning social network ties (Nahapiet & Ghoshal, 1998; Chow & Chan, 2008; Hau et al., 2013; Chumg et al., 2015)*
SC3)	I do not spend a lot of time interacting with employees in the virtual organisation (-).	*Concerning social network ties (Nahapiet & Ghoshal, 1998; Chiu et al.,2006; Chow & Chan, 2008; Hau et al., 2013; Chumg et al., 2015)*
Dimension: Cognitive Capital (Shared Goals) (Nahapiet & Ghoshal, 1998; Chiu et al., 2006;		

Chow & Chan, 2008; Hau et al., 2013; Chumg et al., 2015)		
Item No.	Measurement items	Literature
CC1)	There is considerable consensus among my virtual organisational colleagues about what is important at work.	*Concerning consensus (Chiu et al., 2006; Chow & Chan, 2008; Hau et al., 2013; Chumg et al., 2015)*
CC2)	My virtual organisational colleagues are not enthusiastic about achieving the goals and missions of the organisation (-).	*Concerning shared goals (Chiu et al., 2006; Chow & Chan, 2008; Hau et al., 2013; Chumg et al., 2015)*
CC3)	My virtual organisational colleagues and I always share the same ambitions and goals at work.	*Concerning shared vision (Chiu et al., 2006; Chow & Chan, 2008;Hau et al., 2013; Chumg et al., 2015)*
Dimension: Relational Capital (Trusts) (Chow & Chan, 2008; Chiu et al., 2006; Nahapiet & Ghoshal, 1998; Hau et al., 2013; Chumg et al., 2015)		
Item No.	Measurement items	Literature
RC1)	Ido not trust that my virtual organisational colleagues are worthy to rely on (-).	*Concerning trust (Nahapiet & Ghoshal, 1998; Chiu et al.,2006; Chumg et al., 2015)*
RC2)	I know my virtual organisational members will try to help me when I get into difficulties.	*Concerning trust (Nahapiet & Ghoshal, 1998; Chow & Chan, 2008; Hau et al., 2013; Chumg et al., 2015)*
RC3)	29. I cannot rely on my virtual organisational members to make my job easier (-).	*Concerning trust (Chow & Chan, 2008; Hau et al., 2013; Chumg et al., 2015)*

Note. Items (SC1, SC3, CC2, RC1, and RC3) marked (-) should be scored in reverse.

The quantitative scales with regard to the habits of an individual were established in this research by referring to the work of Yu (1991), Verplanken et al. (1997), Aarts et al. (1998), Aarts and Dijksterhuis (2000), Yu and Chiang (2002), Ju et al. (2007), Limayem et al. (2007), Limayema and Cheung (2008) and Sun et al. (2009). Verplanken et al. (1997) stated that the habits of an individual can be regarded as learned sequences of acts that gradually become automatic responses to particular situations which are functional in certain goals. Later, Aarts and Dijksterhuis (2000) and Danner et al. (2008) regarded an individual's habits as the repetitive nature of goal-directed behaviour; this leads to a mental representation of an individual's

behaviour as directly triggered while experiencing a specific context. Therefore, individuals have the ability to perform goal-directed behaviour easily without relying on explicit intention (Danner et al., 2008). Venkatesh et al. (2008) further states that, as the behaviour of an individual becomes more routine, it may gradually form into habits which will play a more susceptible and stable role, rather than either behavioural expectation or behavioural intention. Hence, once an individual's habits have been established, their performance may no longer require conscious effort (Wood et al., 2002; Limayem & Hirt, 2003; Limayem et al. 2003; Limayema & Cheung, 2008). In support of this, an individual's habits, which are generated and formed from accumulative past behaviour and frequent learning experiences, can attenuate the amount of information acquired and used before he/she makes a decision (Yu, 1991; Aarts et al., 1998; Ju et al., 2007; Sun et al., 2009). Based on the conceptual features of habits as described above, this research conceives an individual's habits as his/her subconscious and mindless behaviour generated by his/her accumulative and goal-directed automatic behaviour. Finally, the quantitative instrument of habits consisted of 6 items and used a 5-point Likert scale, as proposed by Berdie (1994, p.52). The responses rate as 5 = strongly agree, 4 = agree, 3 = somewhat agree, 2 = disagree and 1 = strongly disagree. Table 4.4 presents the items of the measurement of the habits of an individual.

Table 4.4: Items of the Measurement of the Habits of an Individual

Habits of an Individual (Yu, 1991; Verplanken et al., 1997; Aarts et al., 1998; Aarts & Dijksterhuis, 2000; Limayem & Hirt, 2003; Yu & Chiang, 2002; Ju et al., 2007; Limayem et al., 2007, Danner et al., 2008; Limayema & Cheung, 2008; Sun et al., 2009; Kang & Lee, 2010; Chiu et al., 2012)		
Item No.	Measurement items	Literature
HB1)	Sharing knowledge with the virtual organisational employees has become automatic to me.	*Concerning habit (Limayem & Hirt, 2003; Limayem et al., 2007; Limayema & Cheung, 2008; Chiu et al., 2012)*
HB2)	Sharing knowledge with the organisational employees is not natural to me (-).	*Concerning habit (Limayem & Hirt, 2003; Limayem et al., 2007; Limayema & Cheung, 2008)*
HB3)	When faced with a particular task, sharing knowledge with the organisational employees is not an obvious choice for me (-).	*Concerning habit (Limayem & Hirt, 2003; Limayem et al., 2007; Limayema & Cheung, 2008)*

HB4) My habits, performed under regular routines, are formed through similar situational cues or organisational targets.	*Concerning goal-directed automatic behaviour (Aarts & Dijksterhuis, 2000; Danner et al., 2008; Chiu et al., 2012)*
HB5) I share my knowledge more often when I consider that my answers can help members to solve questions.	*Concerning Habitual Domain (Yu, 1991; Yu & Chiang, 2002; Sun et al., 2009)*
HB6) I unconsciously or subconsciously share my knowledge more often when I continually share my knowledge in the virtual organisation.	*Concerning Habitual Domain (Yu, 1991; Yu & Chiang, 2002; Sun et al., 2009; Kang & Lee, 2010; Chiu et al., 2012)*

Note. Items (HB2and HB3) marked (-) should be scored in reverse.

This research considers that knowledge is embedded in an individual; it can be created, diffused, developed, manipulated, captured and/or shared, as well as stored in a virtual organisation. Moreover, knowledge, as defined in this research, comprises both tacit and explicit knowledge; it is referred to largely as meaningful information (Nonaka, 1994). Tacit knowledge is closely related to personalised knowledge which is difficult to formalise or write down (Nonaka, 1991; Birkinshaw, 2001) while explicit knowledge can be captured, codified and written in the form of technical or academic data; this includes such forms as journals, manuals, documents and patents (Nonaka & Takeuchi, 1995; Alwis & Hartmann, 2008; Nonaka & Krog, 2009). Hence, this research conceives that the types of knowledge-sharing behaviour of an individual in a virtual organisation should include, not only tacit, but also explicit knowledge. The quantitative scales for the knowledge-sharing behaviour of an individual used in this research were developed and established by referring to the work of Smith (2001), Chow and Chan (2008), Hsu et al. (2007), Shao et al. (2012), Hau et al. (2013) and Chumg et al. (2015). Finally, the scale of the knowledge-sharing behaviour of an individual established in this research consisted of 8 items and included 4 items for explicit knowledge-sharing behaviour, with another 4 items for tacit knowledge-sharing behaviour. The participants were asked about the extent to which they shared not only tacit knowledge, but also explicit knowledge with other employees in the virtual organisation on a 5-point Likert scale with the responses rated as 5 = strongly agree, 4 = agree, 3 = somewhat agree, 2 = disagree and 1 = strongly disagree. Table 4.5 shows the items of the measurement of knowledge-sharing behaviour of an individual.

Table 4.5: Items of the Measurement of the Knowledge-sharing Behaviour of an Individual

Sub-dimension: Explicit Knowledge Sharing (Smith, 2001; Chow & Chan, 2008; Shao et al., 2012; Hau et al., 2013; Chumg et al., 2015)		
Item No.	Measurement items	Literature
EKS1)	I am glad to share my work reports on the IT systems with other employees in the organisation.	*Concerning employees' explicit knowledge-sharing behaviour (Chow & Chan, 2008; Shao et al., 2012; Hau et al., 2013; Chumg et al., 2015)*
EKS2)	I do not like to provide my personal manuals on the IT systems with other employees in the organisation (-).	*Concerning employees' explicit knowledge-sharing behaviour (Smith, 2001; Chow & Chan, 2008; Shao et al., 2012; Hau et al., 2013; Chumg et al., 2015)*
EKS3)	I am pleased to share related official documents on the IT systems with other employees of the organisation.	*Concerning employees' explicit knowledge-sharing behaviour (Chow & Chan, 2008; Shao et al., 2012; Hau et al., 2013; Chumg et al., 2015)*
EKS4)	I will not share multimedia files such as media, context, picture or video on the IT systems with colleagues of my organisation (-).	*Concerning employees' explicit knowledge-sharing behaviour (Smith, 2001; Chumg et al., 2015)*
Sub-dimension: Tacit Knowledge Sharing (Smith, 2001; Chow & Chan, 2008; Hsu et al., 2007; Shao et al., 2012; Hau et al., 2013; Chumg et al., 2015)		
Item No.	Measurement items	Literature
TKS1)	I always share my experience or know-how from work on the IT systems with my organisational colleagues.	*Concerning employees' tacit knowledge-sharing behaviour (Smith, 2001; Chow & Chan, 2008; Shao et al., 2012; Hau et al., 2013; Chumg et al., 2015)*
TKS2)	I always share my know-where or know-whom on the IT systems at the request of my organisational colleagues.	*Concerning employees' tacit knowledge-sharing*

	behaviour (Shao et al., 2012; Hau et al., 2013; Chumg et al., 2015)
TKS3) I do not like to provide my expertise on the IT systems with other employees of this virtual organisation (-).	*Concerning employees' tacit knowledge-sharing behaviour (Chow & Chan, 2008; Shao et al., 2012; Hau et al., 2013; Chumg et al., 2015)*
TKS4) I am not usually actively involved in discussion on complicated issues on the IT systems in the virtual organisation (-).	*Concerning employees' tacit knowledge-sharing behaviour (Smith, 2001; Hsu et al., 2007; Chumg et al., 2015)*

Note. Items (EKS2, EKS4, TKS3 and TKS4) marked (-) should be scored in reverse.

The quantitative scales of organisational culture used in this research were established with reference to Cameron and Quinn's (2006) Organisational Culture Assessment Instrument (OCAI). This was based on the Competing Values Framework (CVF) which divides organisational culture into four types: adhocracy culture, clan culture, market culture and hierarchy culture. These four types of organisational culture were produced and determined by evaluating six dimensions: namely dominant characteristics, leadership style, management of employees, organisational glue, strategic emphasis, and criteria of success. The primary reason for choosing Cameron and Quinn's (2006) Organisational Culture Assessment Instrument (OCAI) for this research was because, although a multitude of typologies, categories and instruments exist for measuring organisational cultures, there is little agreement on which ones are superior to or more appropriate than others. In the meantime, the Organisational Culture Assessment Instrument (OCAI) has proved its validity and reliability through the work of several researchers such as Cheng and Liu (2007) and Yu and Wu (2009) and has been used in numerous empirical research studies on organisational culture (Lau & Ngo, 2004; Igo & Skitmore, 2006; Raquel et al., 2011). In this research, four of the six key dimensions of OCAI were used: namely, dominant characteristics, management of employees, organisational glue and criteria of success. The other two dimensions, leadership style and strategic emphasis, were not adopted because this research considered leadership style to be strongly associated with the management of employees while strategic focus was similar to the criteria of success. Thus, organisational culture, as measured in the research, can be considered to be valid even

though two dimensions were excluded. Numerous previous research studies have also measured the organisational culture of organisations using fewer dimensions than in the Organisational Culture Assessment Instrument (OCAI) (Lau & Ngo, 2004; Obenchain & Johnson, 2004; Raquel et al., 2011; Shao et al., 2012). Finally, the scale for measuring organisational culture consisted of the adhocracy organisational culture (4 items), the clan organisational culture (4 items), the market organisational culture (4 items) and the hierarchy organisational culture (4 items). These represent different characteristics of organisational culture and participants were asked to rate the extent of their agreement or disagreement with the organisational culture employed by their organisations. For this, a 5-point Likert scale was used, ranging from 5 = strongly agree to 1 = strongly disagree. Table 4.6 below presents the items of the measurement of organisational culture.

Table 4.6: Items of the Measurement of Organisational Culture

Cameron and Quinn (2006); Lau and Ngo (2004); Obenchain and Johnson (2004); Raquel et al. (2011); Shao et al. (2012)		
Item No.	Measurement items	Literature
AOC1) My organisation is a very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks. AOC2) The management style in the organisation is characterised by individual risk-taking, innovation, flexibility and uniqueness. AOC3) The glue that holds my organisation together is orientation toward innovation and development. There is an emphasis on being on the cutting edge. AOC4) My organisation defines success on the basis of having the most unique or the newest products. It is a product leader and innovator.		
COC1) My organisation is a very special place. It is like an extended family. People seem to share a lot of themselves. COC2) The management style in my organisation is characterised by teamwork, consensus and participation. COC3) The glue that holds my organisation together is loyalty and mutual trust. Commitment to my organisation runs high. COC4) My organisation defines success on the basis of development of human resources, teamwork, and concern for people.		
HOC1) My organisation is a very formalised and structured place. Bureaucratic procedures generally govern what people do. HOC2) The management style in the organisation is characterised by careful monitoring of performance, longevity in position, and predictability. HOC3) The glue that holds my organisation together is formal rules and policies.		

Maintaining a smooth running organisation is important. HOC4) My organisation defines success on the basis of efficiency. Dependable delivery, smooth scheduling, and low cost production are critical.
MOC1) My organisation is very production oriented. A major concern is with getting the job done. People are very competitive and achievement oriented. MOC2) The management style in my organisation is characterised by hard-driving competitiveness, goal directedness, and achievement. MOC3) The glue that holds my organisation together is the emphasis on production and goal accomplishment. Marketplace aggressiveness is a common theme. MOC4) My organisation defines success on the basis of winning in the marketplace and outpacing the competition. Competitive market leadership is key.

4.3.5 Selection of Sampling for the Quantitative Approach of the Research

To understand and explore employees' knowledge-sharing behaviour in the whole system of Farmers' Associations in Taiwan, this research carried out investigations with urban, hybrid, rural level personnel in Farmers' Associations and the NTIFO in order to investigate employees' knowledge-sharing behaviour in this virtual organisation. As previously mentioned, Taiwanese Farmers' Associations have been categorised according to the percentage of those working in agriculture as a proportion of the total working population; these were then divided into urban, hybrid and rural Farmers' Associations (Huang, 1992; Huang & Li, 1994). Huang (1992) and Huang and Li (1994) stated that Farmers' Associations could be classified as urban Farmers' Associations if the percentage of those working in agriculture was less than 6 percent of the total working population while associations should be categorised as rural Associations if those working in agriculture exceeded 13 percent of the total working population. Moreover, if the percentage of agricultural workers was found to be between 6 and 13 percent of the total working population, these Farmers' Associations could be regarded as hybrids. As a result, stratified purposive sampling was adopted to choose the respondents for the quantitative sampling of this research. This was selected because the research considered a number of factors. These factors included: covering all three categories of Farmers' Associations (that is, urban, hybrid and rural associations); the size of the sample and its homogeneity in terms of each category of Taiwanese Farmers' Associations; the co-operative relationships that might exist among Farmers' Associations; the narrowness of the Taiwanese; and the ultimate aim of this research. Thus, respondents were selected from one urban Farmers' Association (Hualien City Farmers' Association), one hybrid Farmers' Association (Shou Fong Farmers' Association), and one rural Farmers' Association

(Feng Rong Farmers' Association); these were all from the same administrative region (Hualien county, Taiwan). Respondents were also selected from the NTIFO. Furthermore, the explanatory strategy was employed for this research owing to the fact that this strategy emphasises that more useful answers and results can be acquired by using mixed methods to collect and analyse research data. The reason for using a mixed methods' approach is to employ the more meaningful and significant details from the analysis of the qualitative data to help in explaining and interpreting the results from the quantitative data. Meanwhile, considering the number of samples and their homogeneity, stratified purposive sampling was selected for the quantitative sampling of this research, while a mixed method of intensity and snowball sampling was adopted for the research's qualitative approach in order to select interviewees from those working in the NTIFO and the Farmers' Associations.

4.3.6 Selection of Analytic Methods for the Quantitative Research

To analyse the results of the relevant descriptive statistics and inferential hypotheses for the quantitative approach of this research, this section is divided into two primary parts for discussion. Firstly, using SPSS (13.0 version) software, the research evaluates descriptive statistics including employees' gender, age, experience of knowledge sharing and years of working. Later on, the research model is tested using Smart-PLS software (Version: 2.0.M3) which was established by Ringle, Wende, & Will (2005). This is one of the analytic tools of Structural Equation Modeling (SEM), which is well-designed statistical analytic software used for evaluating complicated predictive models; this was employed to analyse the measurement model and the structural model. Joreskog and Wold (1982), Rai et al. (2006) and Gefen et al. (2011) further indicate that an analytic approach using Partial Least Squares is generally suggested for predictive research models where the emphasis is on the development of theory, while LISREL is recommended for confirmatory analysis since it possesses a more severe adherence to assumptions. Meanwhile, the measurement model evaluates the reliability and validity of each construct of the research, while the structural model appraises path coefficients and their significance levels and R-square (R^2) in terms of the relationships among all the constructs of the research. More details of the analytic method used the quantitative approach in this research are discussed in the following section.

1) Structural Equation Modeling

The research model established for the quantitative approach of this study was tested

by using Partial Least Squares (PLS) which is an analytic tool of Structural Equation Modeling (SEM). Fundamentally, PLS, which is based on regression analysis, stems from path analysis; it has numerous advantages that make it appropriate for this research since it has the ability to conduct formative and reflective constructs and uses small samples without requiring normality of the data (Chin, 1998a; Chin & Newsted, 1999, p.307; Chin et al., 2003; Wixom & Watson, 2001). Chin (1998a) and Wixom and Watson (2001) suggest that the minimum sampling size for PLS might be 10 times the number of items in the most formative construct or the number of independent constructs affecting an independent construct. Newsted (1999) and Fernandes (2012) and Chin (1998a) further indicate that the accepted minimum sample number for PLS is 30. Another significant strength of PLS is that the statistical technique can test both: 1) the measurement model and 2) the structural model. In the meantime, the measurement model is used to evaluate the reliability and validity of each construct of the model in the early stage, while the structural model validates and analyses the strengths and direction of the relationships among the constructs in the later stage (Hulland, 1999, p.195). Hence, as noted above, this research considered that PLS was most suitable for evaluating and analysing the quantitative data of this study.

2) The Measurement Model

The evaluation of the measurement model consists of two main aspects, including tests of the reliability and validity of the instrument items. The test of the reliability of the measurement model includes the reliability of each item of the instrument and the estimation of internal consistency, while the test of the validity of the measurement model evaluates the convergent validity and the discriminant validity of the instrument items (Wixom & Watson, 2001). Basically, composite reliability and Cronbach's Alpha were used to evaluate the internal consistency and reliability of each dimension. In terms of the reliability of each item of the instrument analysed by factor loading, Barclay et al. (1995) and Chin et al (2003) indicate that the reliability of the items is up to standard if the value of the factor loading is virtually at or higher than 0.7. Then, the reliability of internal consistency of each construct is applied to evaluate composite reliability (Fornell & Lacker, 1981, p.39). Chin (1998a) and Chin et al. (2003) indicate that the composite reliability is acceptable if the value is higher than 0.7. Moreover, PLS also includes Cronbach's Alpha test to evaluate the reliability of each construct of the instrument. Robinson and Shaver (1973), Nunnally (1978) and Chin et al. (2003) suggest that each construct of the research has a significant reliability when the value of the Cronbach's Alpha of each construct is virtually at or

higher than 0.7. Concerning the validity of the measurement model, Fornell and Larcker (1981) point out that the value of the Average Variance Extracted (AVE) of each construct of the research is applied to measure convergent validity. Meanwhile, convergent validity is deemed acceptable when the value of constructs is greater than 0.5 (Fornell & Larcker, 1981). Next, with regard to the test of discriminant validity, Fornell and Larcker (1981) indicate that there are two main aspects for the purpose of evaluating each construct of the research: 1) cross-loading matrix and 2) the square root of AVE. One of the evaluations of discriminant validity analysed by the cross-loading matrix is deemed significant and acceptable when each item of the constructs of the research is comparatively higher than other construct items (Chin, 1998; Fornell & Larcker, 1981, p.307). Another important evaluation of discriminant validity is to compare the value of the square root of the AVE of each construct of the research with other constructs. The value of the square root of each construct is acceptable if its value is relatively higher when compared with the value of other constructs (Chin, 1998).

3) The Structural Model

With sufficient validation of the measurement model, all the proposed research hypotheses can be further demonstrated by analysing the structural model. The main evaluation for the structural model is to assess path coefficients and their significance levels, and the R-square (R^2). Path coefficients explain the impact of the correlations among the variables of the research. The significance levels illustrate whether all the research hypotheses have a significant influence so that the theoretical model of the research can be established. When it comes to R^2, the value explains what percentage of the explanation of variance in the exogenous variables could account for the endogenous variables, thus representing the predictive ability of the research model.

4.3.7 Qualitative Instrument Development (development of the scale for the semi-structured, in-depth interview)

Even though the analytic results of the quantitative approach of this research may demonstrate relationships among the primary constructs, the research model is still inadequate in terms of offering a comprehensive and in-depth understanding of members' knowledge-sharing behaviour in the complex contextual virtual organisation of Taiwanese NGOs. Creswell and Plano (2007) state that the main purpose of a qualitative approach is to explore the more complex factors embracing the central phenomenon, and to reveal the various perspectives and meanings held by

the participants. Hence, to understand deeply these complicated and abstruse cause-and-effect relationships among the sense of well-being, social capital, an individual's habits, organisational culture and employees' knowledge-sharing behaviour in the virtual organisation of Taiwanese NGOs, a qualitative approach which is more exploratory, was therefore required for this research in order to comprehend the relationships that trigger employees' knowledge-sharing behaviour. The semi-structured, in-depth interview questions formulated in this research were designed according to the objectives of the qualitative approach of the study, and the definitions of the constructs. The questions of the qualitative approach of this research were therefore as follows:

Q1. What external or internal factors trigger employees' predisposition towards knowledge sharing in the virtual organisation?

Q2. How does Information Technology affect employees' knowledge-sharing behaviour in the virtual organisation?

Q3. How does the effect of social capital on employees' tendencies help to explain employees' knowledge-sharing behaviour in the virtual organisation?

Q4. How does the sense of well-being help to explain why employees contribute their knowledge to the virtual organisation?

Q5. To what extent and in what ways does the effect of social capital on employees' tendencies serve to explain the sense of well-being of virtual organisational employees?

Q6. How does organisational culture help to explain why employees contribute their knowledge to the virtual organisation?

Q7. How does the impact of organisational culture help to explain employees' feelings of well-being in the virtual organisation?

Q8. How does organisational culture help to explain the virtual organisation's employees' ingrained habits in terms of knowledge sharing in the virtual organisation?

Q9. How does the effect of a human being's force of habit help to explain why employees share their knowledge in the virtual organisation?

Q11. What organisational structures and strategies should organisations consider in terms of facilitating the knowledge sharing of employees while developing a virtual organisation?

Based on above the qualitative questions of this research and the definitions of the constructs (namely, social capital, the sense of well-being, employees' habits, organisational culture and knowledge-sharing behaviour), the semi-structured, in-depth interview questions were then formulated; these are described in the following section.

4.3.7.1 Interview Schedule Design

For the interview questions of the qualitative approach in this research, a set of schedules was developed so that the same questions were put to all selected interviewees. This was done in order to remain consistent and rigorous throughout the interviews and so that respondents' various perspectives of the virtual organisation could be compared and contrasted. Moreover, the interview questions were designed with the aim of eliciting information about interviewees' knowledge-sharing behaviour. The interview schedule was divided into two main parts: the characteristics of the interviewees and their attitudes towards knowledge sharing in the virtual organisation. In order to obtain relevant background information about the interviewees, the questions were designed and organised as follows:

1. No.
2. Interviewee's Name:
3. Gender:
4. Age:
5. Occupation:
6. Organisation:
7. Date of Interview:

In the second part of the interview schedules, the majority of the questions were open-ended as opposed to closed questions. The main reason for adopting open questions is to avoid the risk that the interviewer might have predetermined questions and pre-coded answers (Arksey & Knight, 1999). Thus, owing to the exploratory nature of the qualitative approach of the research, open questions were chosen and used with a view to comprehending in some depth informants' predisposition with

regard to knowledge-sharing behaviour. Moreover, in order to capture more in-depth and detailed answers from the interviewees, some follow-up probing questions were designed to elicit elaboration and examples.

4.3.7.2 Development of the Qualitative Instrument for the Pilot Interviews

Having developed the interview questions based on a comprehensive understanding of past literature, pilot interviews were conducted to appraise the content validity and reliability of the interview questions. Furthermore, two senior supervisors from Loughborough University, both of whom were highly experienced in the knowledge management domain, were also invited to assess the interview questions in terms of their appropriateness and ease of comprehension. This was done to prove the qualitative instrument's content validity (see Appendix 5). Bell (1987, p.65) states that pilot testing is carried out in order to eliminate any problems in terms of the clarity of the research questions and objectives, as well as to avoid any omissions. Six pilot interviews were therefore carried out within the selected virtual organisation in April 2014. Through these pilots, some interview questions were rephrased or redesigned. For instance, some questions were not sufficiently clear and some questions were too ambiguous (see Appendix 6). In the meantime, the researcher also identified how long it would take to go through all the interview questions and found that the timings of the pilot interviews varied from 40 minutes to around one hour. The unclear questions were modified to correct the problems which had been identified during the pilot testing while some questions were sequenced to help the interviews flow in a logical order; some questions were also combined to minimise the occurrence of repetitive answers from the interviewees (see Appendix 7).

4.3.7.3 Development of the Qualitative Instrument (Final Version)

According to Arksey and Knight (1999), researchers should design and develop the interview questions using first some 'ice breaker' or 'easy-to-answer' questions in order to encourage interviewees to answer easily.

First of all, Nahapiet & Ghoshal (1998), Curado (2008), and Longo and Mura (2011) consider that knowledge can be regarded as intellectual capital as well as an indispensible resource that helps organisations to maintain competitive advantage. However, according to Birkinshaw (2001), one of the most important but difficult issue in the knowledge management domain is to retrieve, express or write down individuals' tacit knowledge which is held deep within them. Foss et al. (2009) define

knowledge sharing as the process that acquires new knowledge from other members of an organisation. This is because knowledge sharing involves the mutual exchange of individuals' knowledge in two directions: namely, by delivering and receiving it (Foss et al., 2009). The first section of this research explores why employees share their knowledge with each other in the more complex contextual virtual organisation of Taiwanese NGOs. Hence, as noted in the statements above, and in **Q1** and **Q2** of this qualitative study, the interview questions were as follows:

Section 1: An Individual's Attitude towards Knowledge Sharing

1. How would you describe knowledge-sharing behaviour among employees in your organisation?
2. In what circumstances are you most likely to share knowledge in your organisation?
3. Can you describe what kind of knowledge you share in your organisation? How and why might you share your knowledge?
4. What are your thoughts about using Information and Communication Technology to share knowledge?

Next, social capital theory consists of relational social capital, cognitive social capital and structural social capital; this has been extensively validated and explains individuals' knowledge-sharing behaviour in organisations (Nahapiet & Ghoshal, 1998; Wasko & Faraj, 2005; Chiu et al., 2006; Chow & Chan, 2008; Lin, 2011). The point of view held by Nahapiet and Ghoshal (1998) considered that a particular organisational advantage derives from the capacity to create and share knowledge. They further stated that it is of the utmost importance for an organisation to create a high level of coherent social capital in order to facilitate employees to share their knowledge and thus enlarge the intelligence capital of the organisation. Chow and Chan (2008), in their work based on social capital theory, discovered that social networks and shared goals have a positive influence on individuals' predisposition towards knowledge sharing in terms of their attitudes and subjective norms concerning knowledge sharing. Moreover, Hau et al. (2013) showed that individuals tend to share in-depth and broad knowledge when they possess positive social capital tendencies such as interacting closely and in a friendly way, achieving shared goals, and trusting each other. However, individuals' knowledge-sharing behaviour in virtual communities differs considerably from that in physical organisational settings since interactions and communication among individuals occur via the Internet (Chiu et al., 2006). This is because the creation and sharing of individuals' knowledge, particularly

tacit knowledge, are complex processes in organisations. Chiu et al. (2006) demonstrated that relational social capital, such as the norm of reciprocity and identification, has a positive influence on members' knowledge-sharing behaviour in virtual communities. Lin (2011), based on the concept of cognitive social capital, pointed out that individuals with a similar language, narratives and background, have a higher willingness to share knowledge among members of virtual teams. Wasko and Faraj (2005) applied the centrality of structural social capital to validate members' knowledge-sharing behaviour in virtual communities. Although previous literature has extensively explored the relationship between social capital and employees' knowledge-sharing behaviour in organisations, few studies have been conducted in the context of the virtual organisation of Taiwanese NGOs. Moreover, the majority of research studies have strongly posited social network ties, shared goals/visions, and trust as the major constructs corresponding to structural capital, cognitive capital and relational capital respectively in terms of exploring individuals' willingness to share knowledge in organisations (Chow & Chan, 2008; Hau et al., 2013; He et al., 2009; Nov et al., 2012). Hence, based on the many above-mentioned perspectives, this study has chosen to adopt, as the research model, social network ties, shared goals/visions, and trust as corresponding to structural capital, cognitive capital and relational capital respectively.

1. Relational Capital (Trust) and Knowledge-sharing Behaviour

Nonaka (1994) stated that interpersonal trust is an important element in organisations because of its ability to create an ambience which facilitates individuals' knowledge-sharing behaviour. Subsequently, trust has been widely explored and regarded as a critical antecedent of online transactions (Gefen et al., 2003), value creation (Tsai & Ghoshal, 1998), and knowledge sharing (Chiu et al., 2006; Hau et al., 2013; Nov et al, 2012). Nahapiet and Ghoshal (1998) indicated that the more individuals trust each other, the more they participate in cooperative interactions. Likewise, members who demonstrate higher levels of trust are more likely to be willing to be involved in social exchanges (which may deal with sensitive information) and interpersonal interactions with colleagues (Leana & Pil, 2006).

2. Structural Capital (Social Network Ties) and Knowledge-sharing Behaviour

Chow and Chan (2008), in work based on structural capital, showed that social network ties have a positive influence on individuals' predisposition towards knowledge sharing owing to their attitudes to and subjective norms concerning

knowledge sharing. Meanwhile, organisational members with a more extensive social network tend to demonstrate a greater willingness to share their knowledge with colleagues; this is because sustaining greater interpersonal relationships results in higher expectations being placed on them (Chow & Chan, 2008). Moreover, Hau et al. (2013) and Nov et al. (2012) agreed that individuals tend to share their own in-depth and broad knowledge when they have better and more compact interpersonal interactions and relationships. Hence, this research expects that a greater social network will positively influence employees' knowledge-sharing behaviour.

3. Cognitive Capital (Shared Goals/Visions) and Knowledge-sharing Behaviour

According to Tasi and Ghoshal (1998), organisational members who have shared visions or the same perceptions are more likely to become compact colleagues, and further, to share their resources or ideas. This is because organisational members having shared visions or goals can avoid possible misunderstanding among colleagues; it can also offer more opportunities to exchange thoughts and knowledge (Tasi & Ghoshal, 1998). Therefore, a shared vision can be viewed as a bonding mechanism that helps various parts of an organisation to integrate its resources (Tasi & Ghoshal, 1998). Chow and Chan (2008) state that the presence of shared goals improves mutual understanding in organisational members, as well as binding them together for the purpose of sharing knowledge. Cohen and Prusak (2001) further indicate that shared goals or visions enhance the cohesion of members, make possible members' cooperative actions, and ultimately benefit organisations. Hence, as noted in the statements above and in **Q3** of this qualitative study, the interview questions were as follows:

Section 2: Cause-effect relationship between social capital and employees' knowledge-sharing behaviour (Your Workplace Networks)

1. How would you describe interpersonal relationships in your organisation?
2. How would you describe your own behaviour in terms of trust, collaboration and supporting others at work?
3. How does trusting others, having shared goals and collaborating at work influence your own performance? What benefits have you observed for yourself and for others in such practices?

A significant number of researchers have begun to explore positive psychology because of its in-depth influence on individuals' behaviour. Seligman and

Csikszentmihalyi (2000) stated that positive psychology at a subjective level consists of valued subjective experiences, and comprises feelings of well-being, contentment, satisfaction, hope, optimism and happiness, focusing mainly on how to make the lives of mankind more fulfilling and valuable. Carr (2004) further indicated that the central concept of positive psychology consists mainly of two elements: happiness and well-being, whilst Lyubomirsky et al. (2005) indicated that, for the majority of people, it is imperative to pursue sustainable happiness and a long-term sense of well-being. More importantly, Sarracino (2010) pointed out that the social capital tendency is highly associated with an individual's sense of well-being. Russell (2008) noted that employees who have a feeling of well-being are more likely to improve noticeably their work performance. However, few research studies have paid attention to exploring the notion that employees' sense of well-being may be a pivotal antecedent that affects their knowledge-sharing behaviour, or to investigating deeply the relationship between social capital and employees' sense of well-being. On the other hand, Ryff (1989), Ryff and Keyes (1995), Keyes et al. (2002) and Ryff and Singer (2008) stated that the component elements of psychological well-being, such as autonomy, environmental mastery, positive relations with others, and personal growth, highlight how organisational ambience may deeply influence employees' feeling of well-being. For instance, bureaucratic cultural members have a clear sense of authority in their highly standardised, regular and systematic way of working. Hence, in these organisations, individuals' feeling of well-being may decrease because they may lose their sense of autonomy as an individual, and their self-determination and independence. In contrast, a supportive culture encompasses trust, interactions and equitableness among organisational members because of its friendlier and more pleasant organisational culture (Wallach, 1983; Cameron & Quinn, 2006). One significant element of psychological well-being concerns the importance of warm and trusting interpersonal relationships in the environment (Ryff, 1989). Hence, in order to investigate the cause-and-effect relationships among employees' sense of well-being, social capital and individuals' knowledge-sharing behaviour in the more complex contextual virtual organisation of Taiwanese NGOs, the interview questions of this section, which refer to **Q4**, **Q5**, and **Q7** of this qualitative study, were designed as follows:

Section 3: Cause-effect relationships among the sense of well-being, social capital, organisational culture and employees' knowledge-sharing behaviour (Your Sense of Well-being)

1. How far do you feel a sense of well-being when you are working in your

organisation? Why do you think this is?
2. In what ways do you think your colleagues and the culture of your organisation affect your own sense of well-being? (Increased)
3. How important do you think the sense of well-being is in your organisation? (Increased)
4. How does your sense of well-being influence your working performance in your organisation? Can you describe any specific instances?

Shao et al. (2012) indicate that organisational culture is regarded as a pivotal factor that influences individuals' behaviour enormously in terms of knowledge sharing. Camic (1986) indicates that not only individuals, but also collectives oscillate between two poles: namely, consciousness or reflection on one side, and cultural habits on the other. Swartz (2002) concluded that the behaviour of most individuals may be deeply influenced by the cultural habits of their organisation while McDermott and O'Dell (2001), Cabrera et al. (2006), Pillania (2006) and Jolink and Dankbaar (2010) suggest that organisational culture is widely regarded as an inhibitor that affects the effectiveness of individuals' knowledge sharing. Change and Lee (2007) validated that not only an innovative, but also a supportive culture has a positive influence on the acquisition of knowledge from employees when examining the effect of organisational culture and knowledge management mechanisms on organisational learning. Furthermore, Liao et al. (2012) demonstrated that, while both innovative and supportive cultures have a positive influence on knowledge acquisition from employees, a bureaucratic culture has a negative influence. However, DeLong and Fahey (2000) point out that organisational culture is increasingly recognised as a critical barrier to the creation, sharing and use of knowledge. Therefore, one of the most important issues for managers in organisations nowadays is to comprehend and determine which organisational culture is most appropriate for them in order quickly to acquire and diffuse new knowledge from individuals (Liao et al., 2012). Hence, in the light of the importance of an organisation's culture and the sense of well-being on employees' knowledge-sharing behaviour, the interview questions designed in this section, which refer to **Q6** and **Q8** of the qualitative study, were as follows:

Section 4: Cause-effect relationships among organisational culture, employees' working habits and employees' knowledge-sharing behaviour

1. Please could you describe the organisational culture of your organisation?
2. Does the organisational culture of your organisation impact on your knowledge sharing work habits? Please explain how and why you think this is.

3. How does your organisation encourage you to share knowledge?

An individual's habits have gradually come to play an important role in social psychological research with a view to exploring individuals' attitudes and behaviour (Danner et al., 2008). Aarts and Dijksterhuis (2000) state that an individual's habits can be regarded as the repetitive nature of goal-directed behaviour, explaining that the mental representation of a behaviour can be triggered while experiencing a specific context. Fundamentally, people are creatures of habit, and so routine, goal-directed behaviour is often performed in an habitual form (Danner et al., 2008). Their research results indicated that an individual's habits are often formed when behaviour is performed frequently in a stable context (Danner et al., 2008). Swartz (2002) concluded that most routine behaviour of individuals is deeply influenced by their organisational culture and later, Cabrera et al. (2006) and Jolink and Dankbaar (2010) point out that organisational culture can be widely regarded as an inhibitor that affects the effectiveness of individuals' knowledge sharing. Hence, this section of the qualitative study explores the cause-and-effect relationships among organisational culture, the role of habits, and employees' knowledge-sharing behaviour in the more complex context of the virtual organisation of Taiwanese NGOs. As noted in the statements above, and in **Q9** of this qualitative study, the interview questions were as follows:

Section 5: Cause-effect relationship between the role of habits and employees' knowledge-sharing behaviour

1. What habits do you have in terms of knowledge sharing in your organisation?
   A) If you frequently share your knowledge, what encouraged you to adopt these work habits in your organisation?
   B) If you do not, what factors might have prohibited or discouraged your knowledge-sharing work habits in your organisation?
2. How much do these knowledge-sharing work habits affect your performance at work? Please give specific examples.

Thus, using the results from the quantitative approach of this research, which are analysed later, together with the research questions mentioned above, a more detailed discussion with regard to the design of the in-depth interview questions is presented in Chapter 5.

4.3.8 Selection of Sampling for the Qualitative Research Case Study

With regard to the selection of a sampling approach for the case study, this research (which is based on purposive sampling) adopted a mixed method of intensity and snowball sampling in order to select interviewees from those working in the NTIFO and the Farmers' Associations. This was because purposive sampling can be used to retrieve considerable amounts of in-depth information from a small number of cases associated with a specific phenomenon (Teddlie & Yu, 2007). Moreover, intensity sampling was selected for the research because the researcher considered that this type of sample would provide information about interviewees' in-depth thinking, experiences and relevant knowledge. According to Patton (1990), unlike an extreme sample which might distort the representation of the phenomenon under scrutiny, samples chosen by intensity sampling offer information-rich data that are useful in elucidating the focus of interest. Moreover, snowball sampling helps the researcher to discover information-rich data from the interviewees recommended through intensity sampling owing to the fact that they can provide more relevant and detailed information (Patton, 1990).

1) Selection of Sampling for the NTIFO Members

Based on the strategy of intensity sampling, the Secretary General, the Vice Secretary General, the manager of the Administration Department, the manager of the Training Department, the manager of the Planning Department, the manager of the Information Department, the director of the General Affairs Division, the director of the Finance Division, the director of Training Programs, the director of the Counselling Division, the director of the R & D Division, the director of the International Cooperation Division, the director of the Training and Development Journal Division, and the director of the Information Management Division were selected for the interviews. Also, with a view to selecting the most appropriate interviewees, the research used snowball sampling to select one employee recommended by the above-mentioned directors from each of the departments. As a result, a total of 6 members of the NTIFO were selected for the research.

2) Selection of Sampling for the Farmers' Association Members

A total of three specific Farmers' Associations (namely, one urban, one hybrid and one rural Farmers' Association in Hualien county, Taiwan) were selected for the research.

Moreover, a mixed method of intensity and snowball sampling was adopted for the qualitative approach of this research to select interviewees from those working in these Farmers' Associations. To select interviewees from the three selected Farmers' Associations, the researcher decided, by using the strategy of intensity sampling, to interview the Secretary General, the director of the Association Affairs Department, the director of the Accounting Department, the director of the Extension Department, the director of the Marketing Department, the director of the Credit Department, the director of the Insurance Department, the director of the Department of Farmers' Services, the director of the Product Market Processing Plant and the director of the Information Office. Furthermore, based on the strategy of snowball sampling, one employee recommended by the above-mentioned directors from each department was also selected for interview. In the end, the research selected a total of 13 members from the Farmers' Associations for interview.

4.3.9 Selection of Analytic Methods for the Qualitative Research

In the light of the research questions, the philosophical perspectives and strategies discussed above, thematic analysis was adopted to analyse the data from the qualitative approach in this research on account of its usefulness and its flexibility in providing data that are rich, detailed and complex (Braun & Clarke, 2006). Basically, thematic analysis can be regarded as an underlying method for the analysis of qualitative research (Braun & Clarke, 2006; Mojtaba & Zohreh, 2010) as it is useful for identifying, analysing and reporting themes or patterns within the textual data when interpreting a multi-faceted research topic and for looking for solutions involving problems in a real-life context. Another significant advantage of using thematic analysis, which was highlighted by Braun and Clarke (2006), is the fact that it takes both semantic and latent themes into consideration. Braun and Clarke (2006) and Clarke et al. (2008) defined six phases of thematic analysis. These include:

1.) Gaining familiarity with the data: This refers to transcribing the data and re-reading them in order to take notes or generate ideas.

2.) Generating initial codes: This refers to allocating initial codes to meaningful features of the phenomenon within the data.

3.) Searching for themes: This relates to collecting and categorising the previous codes into potential themes.

4.) Reviewing themes: This emphasises the checking and refinement of potential themes, as well as considering whether the chosen themes are suitable or problematic.

5.) Defining and naming themes: This relates to defining and further refining the themes, as well as producing particular identifications for each theme.

6.) Producing the report: This refers to the final analysis of the selected extracts in order to generate the academic report.

In terms of the analytic technique used in the qualitative approach of this research, NVivo 8.0 software was chosen to analyse the qualitative data because this software is useful for coding and analysing texts, sound and images, as well as videos. Likewise, it was considered that NVivo software would be able to systematically integrate and analyse effectively the qualitative data.

4.3.9.1 Gaining Familiarity with the Data

When researchers are engaged in data analysis, they may have collected the data themselves or the data may have been given to them. If data have been collected using interactive methods, the researcher may approach the analysis with some prior knowledge and/or with some initial thoughts or analytic results in mind. It is important that the researcher immerses him/herself in the collected data to the extent that he/she is familiar with the depth and breadth of the content. Braun and Clarke (2006) state that immersion usually means repeatedly reading the data in an active way in order to extract meanings, patterns or themes. Moreover, Braun and Clarke (2006) suggest that the researcher should read through the overall data set at least once before coding, as ideas and the identification of possible patterns will be formed while reading. In this research, the qualitative data were collected through semi-structured, in-depth interviews during a period from April 2014 to June 2014. As mentioned by Braun and Clarke (2006), interview data need to be transcribed into a written form with a view to conducting a thematic analysis using Microsoft Word 2010. This transcription process also helps the researcher to familiarise him/herself with the data (Riessman, 1993) and can be regarded as an early stage of data analysis (Braun & Clarke, 2006). Although the process of transcription can seem time-consuming, frustrating and even boring, it can be an excellent way of the researcher familiarising him/herself with the data (Riessman, 1993). Thus, over a period, the researcher transcribed the interview data carefully and took notes of the

utterances of interviewees.

4.3.9.2 Generating Initial Codes

The following phase (Phase 2) involved producing initial codes from the data. Boyatzis (1998, p. 63) stated that codes identify characteristics of the data that are interesting to the analyst; he referred to such characteristics as the most essential elements of the raw data or information associated with the phenomenon that can be evaluated in a meaningful way. Miles and Huberman (1994) claimed that the procedure of coding can be regarded as part of the analysis as, in this stage, the analyst organises the data into meaningful groups (Tuckett, 2005). Later, Charmaz (2006, p.43) stated that "coding means categorising segments of data with a short name that simultaneously summarises and accounts for each piece of data." Basically, themes within the qualitative data can be further identified using thematic analysis in one of two ways: namely, inductively or bottom up (e.g. Frith & Glesson, 2004), or theoretically, deductively or bottom down (e.g. Boyatzis, 1998). The inductive approach refers to themes which are strongly linked to the data itself (Patton, 1990); these are not significantly driven by the researcher's theoretical interest in the area or topic (Braun & Clarke, 2006). In this sense, this form of thematic analysis can be regarded as data-driven. By contrast, a theoretical thematic analysis tends to be driven rather more by the researcher's theoretical or analytic interest in the area (Braun & Clarke, 2006). As a result, this form of thematic analysis is inclined to offer a less rich description of the data overall but a more detailed analysis of some aspects of the data involved in the specific research interest and questions. In this regard, Braun and Clarke (2006) stated that this form of thematic analysis is theory-driven. Nonetheless, Braun and Clarke (2006) asserted that researchers cannot free themselves of their theoretical and epistemological commitments and pointed out that data are not coded in a unique epistemological vacuum. Hence, coding will, to some extent, depend on whether the themes are more data-driven or theory-driven. In the light of this, in this research, the interview data were coded using a mixture of an inductive thematic analysis (data-driven) and a deductive thematic analysis (theory-driven) in order to understand the selected case study in detail. Initial codes, in terms of certain implications of the data and what was interesting about them, were generated from the data gathered from the fieldwork after they had been read closely (Braun & Clarke, 2006). However, Braun and Clarke (2006) state that the analyst's coded data in this phase differ from the units of analysis and offer the following three key pieces of advice: 1) supply codes for as many potential themes as possible; 2) code extracts of data inclusively; and 3) code individual extracts of data in as many different themes as

they fit into.

4.3.9.3 Searching for Themes

This phase, which starts when all the interview data have been gathered and coded, re-focusing the analysis at the wider level of themes, involves categorising the different codes into potential themes and collating all the relevant coded data extracts within these identified themes (Braun & Clarke, 2006). Braun and Clarke (2006) claim that, in this phase, the researcher is beginning to analyse codes and consider how different codes may combine to form a substantial theme. Likewise, using visual representations may be also helpful in this phase to help categorise the different codes into themes. For instance, the researcher might use tales or mind-maps on pieces of paper in order to organise them into "theme-piles". Braun and Clarke (2006) state that, at the end of this phase, the researcher may have collected candidate themes, sub-themes, and extracts of data that have been coded in relation to them, and then have a sense of the significance of individual themes.

4.3.9.4 Reviewing Themes

Having formulated an initial map of the potential themes, the researcher then reviews and refines these themes during this phase (Braun & Clarke, 2006). The researcher may review the map as a whole and begin to synthesise the potential themes on the map, as well as examining potential themes within the same potential main themes, ensuring that they form a coherent pattern. In this phase, it may become obvious that some candidate themes are not truly themes while some themes may need to merge with others (Braun & Clarke, 2006) and still others may need to be separated into more themes (Braun & Clarke, 2006). Moreover, data within each theme need to be gathered together meaningfully, identifiably and respectively so that the researcher can distinguish between themes. As suggested by Braun and Clarke (2006), this phase can be divided into two levels of reviewing and refining the themes; level one reviews the coded data extracts while level two involves a similar process with regard to the overall data set where the analyst considers the validity of the individual themes in the data set. Level two is undertaken for two purposes: the first is to ascertain whether these themes work in terms of the data set while the second is to code any additional data within themes that had been missed in former coding stages. It is to be expected that this phase will be time-consuming as coding is an ongoing process of organisation.

4.3.9.5 Defining and Naming Themes

As suggested by Braun and Clarke (2006), it is important in this phase not to attempt to make a theme cover too wide an area or be too complex and diverse. According to Braun and Clarke (2006), in this phase, the researcher defines, refines and names themes that he/she will present for analysis; this begins when the researcher has established a satisfactory thematic map of the data (Braun & Clarke, 2006). Through the process of defining and refining themes, the researcher can identify clearly the essence of what each theme is about and determine what aspect of data each theme captures. To do this, the researcher returns to the collected data and ensures that the themes have been organised into a coherent and internally consistent account. It is important that the researcher does not just paraphrase the content of the data extracts but identifies what is of interest about them and why. In this phase, the researcher also needs to conduct and write out a detailed analysis for each respective theme; this analysis should identify a story and explain how it fits into the wide overall story that gives an account of the data in terms of the research questions. This phase also highlights the importance of refinement to ensure there is not too much overlap between themes. As suggested by Braun and Clarke (2006), one main criterion for testing this phase is to see whether the scope and content of an individual theme can be described in detail in a couple of sentences in order to give the themes a concise name.

4.3.9.6 Producing the Report

When the set of fully worked-out themes has been completed, the next task is to write up the thematic analysis to tell the complex story of the data in a way which will convince the reader of the merit and validity of the analysis. This write-up must provide sufficient evidence of the themes within the data, and particularly vivid examples or extracts should be chosen in order to capture the essence of a point the researcher wishes to make without unnecessary complexity. For instance, sufficient data extracts or vivid examples must be chosen to demonstrate the prevalence of the theme. In the final phase, the researcher needs to do more than simply to provide the data; instead, data extracts need to be embedded within an analytic narrative that will expound the story the data are telling in a compelling way. This analytic narrative must go beyond description and instead construct arguments concerning the research questions. The case study findings of this research are presented in Chapter 5.

4.3.10 Validity and Reliability in Qualitative Research

Meyrick (2006) states that qualitative research contributes enormously to the fields of health, medicine and public health, yet readers and reviewers from these fields have little comprehension of how to judge its quality. Patton (2001) states that validity and reliability are two main elements which qualitative researchers should take into account when designing a study, analysing results, and judging the quality of the study. This corresponds to the question mentioned by Lincoln & Guba (1985, p.290): "How can an inquirer persuade his or her audiences that the research findings of an inquiry are worth paying attention to?" To answer this question, Healy and Perry (2000) indicate that the quality of research studies in each paradigm should be judged through the terms of their own paradigms. For instance, Lincoln & Guba (1985) indicate that the terms reliability and validity are critical criteria for quality in the quantitative paradigm while the terms credibility, neutrality or conformability, consistency or dependability, and applicability or transferability are essential for quality in the qualitative paradigm. It is clear that a qualitative study of good quality can help us "understand a situation that would otherwise be enigmatic or confusing" (Eisner, 1991, p. 58). This is related to the concept of good quality research where reliability is a concept which assesses quality in quantitative study with the "purpose of explaining" whilst the purpose of quality in qualitative study is to "generate understanding" (Stenbacka, 2001, p. 551). Golafshani (2003) states that the most critical measure of any qualitative research is its quality. However, Bryman (2008) states that qualitative research has frequently been criticised for being subjective, difficult to replicate and problematic in terms of generalisation, and for its lack of transparency. Hence, it is important for a researcher who conducts qualitative research to reduce these problems in order to enhance its validity and reliability.

Moreover, according to Creswell (2009, p. 213), "Validity does not carry the same connotations in qualitative research as it does in quantitative research, nor is it a companion of reliability (examining consistency of responses) or generisability (external validity of applying results to new settings, people or samples)." Arksey and Knight (1999, p.52) stated that "The concepts of reliability and validity cannot be imported from positivist approaches to qualitative ones." Gibbs (2007) further indicates that qualitative validity means that the researcher examines the accuracy of research findings by using certain procedures while qualitative reliability points out that the researcher's approach is consistent across different researchers or projects. Hence, it is obvious that the meanings and techniques of validity and reliability used

in qualitative research are different from those employed in quantitative research. Consequently, how validity and reliability were viewed and improved in the qualitative approach of this research is discussed in the following section.

4.3.10.1 Reliability

Campell (1996) stated that the consistency of data can be achieved when the steps of the research are verified by examining criteria such as raw data, data reduction products and process notes. Moreover, Robson (2002) states that a measure in a case study is consistent or stable if the study is repeated and the same results are obtained. Yin (2003) suggests that qualitative researchers should document the procedures used in their case studies and document as many of the steps in those procedures as possible in order to make sure that their approaches are consistent or reliable. Later on, Gibbs (2007) proposed four criteria in terms of reliability procedures with a view to ensuring the reliability of a qualitative research. Firstly, the qualitative researcher may need to check transcripts to confirm that they do not contain significant errors made during transcription. Secondly, researchers conducting qualitative studies need to make sure that there is no drift in terms of the definition of codes or a shift in the meaning of codes during the coding process. Thirdly, in team-work research, researchers should coordinate the communications among coders by carrying out regular documented meetings and by sharing the results of analysis. Finally, cross-check codes should be developed by different researchers by comparing results that are independently derived.

Consequently, the reliability of the qualitative approach of this research was enhanced by carefully structuring the interviews, by rigorous coding, and by constantly comparing and analysing the data. More methods used to improve the reliability of the qualitative approach conducted in this research were as follows. Firstly, the reliability of the research's qualitative approach was improved by collecting and reviewing a wide array of related references in terms of various factors, such as the sense of well-being, social capital theory, an individual's habits, and organisational culture that might affect employees' knowledge-sharing behaviour, either consciously or subconsciously, in a virtual organisation. Moreover, the questions of the semi-structured, in-depth interviews were formulated by discussing these carefully with the researcher's supervisors many times in order to avoid any "blind spots" or opinionated views on the part of the researcher. Prior to the interviews, the researcher actively built good interpersonal relationships with participants and stated clearly in advance the importance, the purposes and the methods of this research. Later on, the

researcher focused on the viewpoints of intersubjectivity, open-mindedness and flexibility to capture the diversely contextual information offered by the interviewees when the interviews were taking place. Afterwards, the researcher checked the transcripts carefully in order to ensure that they did not contain significant errors which had been made during transcription. Finally, the researcher enhanced the reliability of the research by sharing the results of the analysis with the interviewees.

4.3.10.2 Validity

Creswell and Miller (2000) stated that validity is one of the strengths of qualitative research; it is based on determining whether the findings of the research are accurate from the perspective of the researcher, the participants or the readers of an account. Creswell (2009, p. 191) recommended that qualitative researchers should adopt the use of multiple strategies in order to enhance their ability to assess the accuracy of their findings and to convince readers of that accuracy. Creswell (2009, p.191) organised eight primary strategies from those most frequently used and easily implemented to those which were occasionally used and which were more difficult to implement:

1. Qualitative researchers can triangulate different data sources of information by examining evidence from these sources and employing it to establish a coherent justification for themes. Once such themes have been established through gathering various sources of data or viewpoints from participants, then this process can be treated as adding to the validity of the qualitative research.

2. Qualitative researchers can also utilise the method of member checking to determine the accuracy of the qualitative findings. This can be done by taking the final report, and/or particular descriptions, themes or parts of published products back to informants in order to determine whether these informants could confirm their accuracy. This procedure might involve conducting a follow-up interview with participants in the study in order to provide them with an opportunity to comment on the findings of the research.

3. Qualitative researchers can employ rich and detailed descriptions to convey the findings of the research. Such descriptions can transport readers to the setting and elicit discussion associated with shared experiences. In other words, when a qualitative researcher can provide more detailed descriptions of the setting or provide various perspectives about the themes, the analytic results become more realistic and

richer. Then, such a procedure can add validity to the findings of the research.

4. Qualitative researchers can deliberate on and clarify any bias that they bring to the research. This self-reflection can create open and honest narratives that will resonate well with readers. Creswell (2009, p.192) stated that reflectivity is regarded as a core characteristic of qualitative research. Therefore, good qualitative research should also contain comments by researchers about how they have interpreted the findings of the qualitative research in terms of how it has been shaped by their background, such as their gender, age, culture, history and socio-economic origin.

5. Qualitative research with good validity may also present negative or discrepant information that runs counter to the themes. This is because real life is composed of various perceptions that do not always coalesce; thus, discussing contrary information adds to the credibility of an account. By presenting this contradictory evidence, the account of the findings of the research becomes more realistic and valid.

6. A qualitative researcher may develop an in-depth understanding of the phenomenon being studied and can convey detail about the site and the people. This lends credibility to the narrative account because of the prolonged time the researcher has spent in the field of the case study. Thus, the more experience researchers have with participants in their realistic setting, the more accurate or valid the findings will be.

7. A qualitative researcher can use peer debriefing to enhance the accuracy of an account. This procedure involves inviting a peer debriefer to review and ask questions so that the account will resonate with people other than the researcher. This can also help add validity to an account.

8. A qualitative researcher can invite an external auditor to review the entire project. As opposed to a peer debriefer, such an auditor is not familiar with the researcher or his/her project and can therefore provide an objective assessment of the project throughout the procedures of the research or at its conclusion. The procedures by which the auditor looks over many aspects of the project (e.g., the accuracy of transcription, the relationship between the research questions and the data, the level of data analysis from the raw data through to interpretation) can enhance the overall validity of a qualitative study.

As well as the above-mentioned suggestions offered by Creswell (2009, p.191), Bryman (2008) highlights the importance of using more than one method of

investigation and utilising multiple sources of data in the contextual research of social behaviour. In the qualitative approach of this research, triangulation was employed to enhance the rigour of the research, which is related to the discussion concerning reliability and validity in qualitative research (Creswell, 2009, p.191; Davies & Dodd, 2002). Adopting multiple methods of investigation and obtaining evidence from various data sources were also therefore employed in the qualitative approach. Concerning the enhancement of the validity of the qualitative research, the researcher utilised three methods: namely detailed description, semi-structured, in-depth interviews as well as the method of member checking in order to establish a coherent justification for themes. The method of member checking was employed in this research to confirm the accuracy of the qualitative findings by taking the final report and particular descriptions, themes or parts of published products back to informants in order to determine if these informants could confirm their accuracy.

4.3.11 Ethical Considerations

Hesse-Bieber and Leavey (2006) state that, in addition to conceptualising the writing process for a proposal, the researcher should take into account any ethical issues that might arise during the research. This is because "researchers need to protect their research participants; develop a trust with them; promote the integrity of research; guard against misconduct and impropriety that might reflect on their organizations or institutions; and cope with new, challenging problems" (Creswell, 2009, p.87, quoting Isreal & Hay, 2006). Therefore, ethical clearance was required before undertaking this research because, as Punch (2005) explained, research involves collecting data from people, about people. Loughborough University's ethical clearance checklist and a full research proposal for sociological investigations were completed before any data were collected for this research. The ethical clearance notification was obtained from the Ethical Advisory Committee of Loughborough University in March 2014. The recommendations of Loughborough University's Ethical Advisory Committee's Code of Practice on Investigations Involving Human Participants were fully adhered to throughout the whole process of this research. More detail is presented in the following statements.

1. The researcher chose surroundings that were familiar to the interviewees (e.g., their offices and a conference room) at a time and place that were convenient to them in order to make them feel comfortable.

2. All interviewees read the Adult Participant Information Sheet (see Appendix 11)

which outlined the nature, aims and duration of the research. The sheet explained that participants could withdraw from the interview at any time and assured them that the researcher would protect the security of their personal information.

3. Before collecting any data for the research, the Informed Consent Forms (see Appendix 9) were sought from interview participants. Amended Informed Consent Forms (see Appendix 10) were also sought from those who were happy to be recognised in this thesis and in future published work.

4. Before signing their name on the Informed Consent Form, interviewees were informed that they had the right to withdraw from the investigation at any time.

5. Participants were assured of the confidentiality of the data gathered during the research. Each participant was assigned a code and all data were stored under that code rather than under the name of the participant.

6. All interview data were encrypted and stored in their original forms on the computer. It was made clear that all the information would be destroyed within six years of the completion of the research.

4.3.12 The Role of the Researcher in Qualitative Research

The essence of qualitative research, which is based on an interpretive paradigm, is exploratory, thus enabling researchers to obtain information about a phenomenon of which little is known (Liamputtong & Ezzy, 2005). Moreover, Malterud (1993) indicated that the overall stages of a qualitative research process are systematically affected by the perspective of the researcher and the theoretical frames of existing reference. Silva and Fraga (2012) indicate that qualitative research can be regarded as an embodied experience of qualitative researchers where they present their knowledge, emotions and feelings. Therefore, in order to deliver knowledge and an understandable conclusion, as well as to give readers sufficient access to the path leading from the data to the analytic results and conclusions, the qualitative researcher must carefully display all the pivotal steps of the transformational and interpretative process (Malterud, 1993). Malterud (1993) states that an acknowledgement or the critical assessment of knowledge in qualitative research is not conceivable without such access. Hence, it is important for qualitative researchers to have a deep understanding of the feelings, experiences and stories of interviewees in order to achieve a mutual understanding with them. In qualitative research, the researcher and

participants are interactively linked in the exploration of the experience of a specific phenomenon (Van Manen, 1997). Munhall (1994) stated that intersubjective experience creates meanings of the social world. Therefore, researchers and participants must try to recognise and overcome their subjective or private and personal feelings, inclinations and expectations of the research (Van Manen, 1997). Intersubjectivity is a term that means having a shared understanding of how knowledge has been constructed (Malterud, 1993). This depends on the researcher's intention and his/her ability to account for paths leading to knowledge. Unger (2005) states that "intersubjectivity is a concept that denotes the act of according meaning between two or more subjects and establishing the objectivity of a claim made in research." Hence, in this study, the researcher tried to put himself in the interviewees' places in order to be considerate when interviewing.

However, there is a growing recognition that conducting qualitative research can pose numerous challenges for researchers (Campbell, 2002; Johnson & Clarke, 2003; Liamputtong & Ezzy, 2005). For instance, Dickson-Swift et al. (2007) indicate that qualitative researchers face many challenges including developing friendships, emotional and physical safety, and conflict over roles while researching sensitive topics. They further identify specific issues with regard to how a qualitative researcher enters the process of participants' lives for research purposes, including developing rapport, self-disclosure and reciprocity (Dickson-Swift et al., 2007). The process of entering participants' lives is important for researchers who conduct qualitative studies as they must attempt to decrease any tension between them and their participants in order to gain more in-depth information from them. Dickson-Swift et al. (2007) state that "It is so much more than just signing a form to say that they are willing to offer you information, they are actually allowing you into their lives, they are telling you personal information that might be quite hard, so you need to demonstrate a certain degree of discretion, of respect, of appreciation for what they are doing cause the reality is that it is more than just words, it's more than just what you are going to analyse, it's their life, their experience and you need to make sure that you are aware of that." In short, the qualitative researcher should create an ambiance with the participants that is harmonious, respectful, equitable, sincere and trusting while interviewing them in order to enter their lives. When it comes to developing rapport, Goodwin et al. (2003) state that a qualitative researcher should establish a rapport-building process initially from the first encounter with an interviewee in order to build a good research relationship that will allow a researcher to access that person's story. Dickson-Swift et al. (2007) further state that part of the role of a qualitative researcher is to facilitate the disclosure of an interviewee's story

in terms of the research questions that the researcher wants to explore. Self-disclosure can be treated as another way to enhance rapport, show respect for interviewees and validate the interviewees' stories (Dickson-Swift et al., 2007). Since the relationship between a researcher and an interviewee is non-hierarchical, a researcher should be involved in a reciprocal sharing of personal stories (Liamputtong & Ezzy, 2005). This is because such sharing can be regarded as a conscious part of the rapport-building process (Dickson-Swift et al., 2007). Concerning reciprocity, Daly (1992) stated that the qualitative researcher and the participants need to engage in a reciprocal sharing process so that they share aspects of their stories with each other; this contributes to the depth and quality of the interview data. This process of reciprocity can lessen the hierarchical nature of the research procedure and can therefore leave a researcher feeling that he/she needs to give something back to the participants. Likewise, the process of reciprocity may enable researchers to acknowledge the value of what the participants have shared with them (Dickson-Swift et al., 2007). This researcher therefore adopted several methods to enter participants' real lives in order to establish trust, make them comfortable, and allow them to express, with ease, their personal thoughts, feelings and experiences in terms of knowledge-sharing in the virtual organisation. For instance, the researcher spent about half an hour having afternoon tea with the interviewees and explaining how important it was for him to understand the context of, for example, their knowledge-sharing behaviour. The researcher also explained other parts of the research questions in order to encourage the participants to open up and perceive him as an approachable person prior to the actual interview. Moreover, the researcher put himself on a level with the interviewees with a view to making them understand that he really comprehended what they were experiencing. This was done by reviewing a wide range of literature concerning the development process of Taiwanese agriculture and pilot interviews. Furthermore, using the principle of reciprocity, the researcher also told the interviewees about his relevant working experience while interviewing them.

4.4 Summary

In sum, this chapter begins with an in-depth discussion of various philosophical research perspectives, as well as research strategies and methodologies, and the selection of methods for data collection. This is followed by a detailed explanation of how this research's philosophical perspective (a pragmatist research philosophy), its strategy (a case study) and methodology (a mixed method of both quantitative and qualitative approaches), as well as the selection of the sampling and analytic methods, were chosen. The theoretical model, which presents the predicted interrelationships among the relevant constructs of this research, is depicted in Figure 4.4. Then, the

final versions of the quantitative (questionnaire) and qualitative (interview questions) measurement instruments of this research, together with their rigorous design, development and establishment are considered. This was achieved, as outlined in this chapter, by reviewing a great many references and testing the pilot studies for both the quantitative and qualitative scales in order to justify their application. The mixed methods of the quantitative approach (structural equation modeling) and the qualitative approach (thematic analysis), which were adopted in the data analysis stage, are also explained. In the following two chapters of this study, the analytic results and findings from the quantitative approach are comprehensively interpreted by employing meaningful and significant details from the analysis of the qualitative data.

Chapter 5 Qualitative Data Analysis and Discussion

Having considered the development, historical context and characteristics of the case selected for this research (see sections 3.1 and 3.2 respectively); offered a comparison of the selected case with Japanese Agricultural Co-operatives (see section 3.3); examined the current status of the case (see sections 3.4 and 3.5); and having presented the development of the qualitative instrument, including the design process of the interview schedule and the pilot interview (see section 4.3.7), the selection of the qualitative approach sampling technique for the selected case (see section 4.3.8), and the selection of the analytic methods for the qualitative approach (see section 4.3.9); this chapter now presents the analytic findings of the qualitative approach of the research.

5.1 Interview Procedure

The selection and adoption of the research sampling is a critical factor that may affect the findings and even the credibility of the research (see section 4.3.8). Then, a date to suit interviewees was arranged. In order to reduce tension, all the interviews were conducted in a natural and comfortable environment of the respondents' choice. Thus, a total of 19 face-to-face, one-to-one, semi-structured interviews were undertaken from the selected case during the period of April 2014 to July 2014. One-to-one interviews were regarded as being most appropriate for this research owing to the fact that the interview questions were designed to elicit the individual interviewee's particular perspectives, attitudes and behaviour with regard to knowledge sharing in the selected virtual organisation; joint interviews might have risked provoking confrontation and/or conflicts of interest (Arksey & Knight 1999, p.76). All interviewees were asked to read the Participant Information Sheet and sign the Informed Consent Form (see section 4.3.11). Then, an audio recording was taken to capture the whole interview process. All interviews were carried out according to the interview schedules. The main, and the added supplementary probing questions, were asked to obtain further information as required. After an interview was completed, the audio recording was transcribed in its entirety by the researcher into Microsoft Word 2010. This was followed by instructions to prepare the textual data for NVivo 8.0. for an interview transcript sample.

Table 5.1: Profiles of the Interviewees in Semi-structured Interviewees

No.	Gender	Age	Personal Position	Working Years	Interview Date	Time

						(Mins)
1	Male	51	Publication Division Director	25 Years	2014/5/12	55 mins
2	Female	49	Manager of General Affairs	24 Years	2014/5/12	57 mins
3	Male	59	Researcher	30 Years	2014/5/12	55 mins
4	Male	62	Vice Executive Secretary	31 Years	2014/5/12	62 mins
5	Female	50	Manager of Publication Division	23 Years	2014/5/12	62 mins
6	Male	50	Training Director	22 Years	2014/5/13	51 mins
7	Female	52	Credit Director	27 Years	2014/4/25	51 mins
8	Female	42	Credit Senior Director	20 Years	2014/4/25	34 mins
9	Female	47	Credit Senior Director	18 Years	2014/4/28	70 mins
10	Female	50	Credit Senior Director	20 Years	2014/4/28	71 mins
11	Male	62	Manager of Extension Division	30 Years	2014/4/23	47 mins
12	Male	56	Extension Division Senior Employee	25 Years	2014/4/23	28 mins
13	Male	53	Supply and Marketing Director	27 Years	2014/4/23	53 mins
14	Female	51	Supply and Marketing Senior Employee	24 Years	2014/4/23	40 mins
15	Male	60	Section Manager	31 Years	2014/4/28	40 mins
16	Female	50	Credit Director	25 Years	2014/5/7	67 mins
17	Female	55	Service Department Director	23 Years	2014/5/7	74 mins
18	Female	55	Secretary	30 Years	2014/5/7	49 mins
19	Male	44	Service Department Senior Employee	8 Years	2014/5/8	79 mins

5.2 Interview Data Analysis

Having considered that the diverse reasons for the knowledge-sharing behaviour of an individual within the complex context of a virtual organisation are abstruse and difficult to understand in depth, the research chose to adopt the concept of organisational behaviour proposed by Langton et al. (2012) in order to deepen the investigation of those facts that affect employees' knowledge-sharing behaviour in the selected virtual organisation. Fundamentally, organisational behaviour, which involves psychology, sociology and anthropology, can be classified into three main levels. These levels involve individuals in organisations (the micro-level), work groups in organisations (the meso-level) and organisational systems (the macro-level) and they affect behaviour within an organisation in terms of applying knowledge with a view to the enhancement of the organisation's effectiveness (Langton et al., 2012). Based on the concept of these three distinct but related levels of organisational behaviour, the researcher explored and analysed the essential elements of employees' knowledge-sharing behaviour in the virtual organisation in terms of the three levels: namely, the macro-level (organisational culture and knowledge-sharing behaviour using ICT), the meso-level (employees' workplace networks), and the micro-level

(employees' sense of well-being, their habits and their personal traits).

5.2.1 Essential Elements of Organisational Culture and their Impact on Employees' Knowledge-sharing Behaviour in the Virtual Organisation

This section articulates how the essential elements of an organisation's culture are formed within the selected virtual organisation since this research aims to gain an insight into the key impacts of organisational culture on employees' knowledge-sharing behaviour. The empirical evidence, elicited from the data from a total of nine respondents, shows that the organisational culture of the virtual organistion is a combination of the hierarchical and the clan types; it is also shown that the organisational culture tends towards an internal orientation. A similar view espoused by Cameron and Quinn (2006) and Wallach (1983) indicates that an organisation, to varying degrees, can combine various types of culture. As indicated in the data gathered from the comments of the nine respondents, the virtual organisation was a mixture of organisaitonal cultures: the hierarchy and clan types.

5.2.1.1 Stress in a Hierarchical Organisational Culture

An organisation with a hierarchical type of culture is defined as being oriented towards internal control; it is a very formal and structured place in which to work (Suppiah & Sandhu, 2011). The long-term focus is on stability and performance with efficient, smooth operations while success is defined in terms of dependable delivery, smooth scheduling and low cost (Cameron & Quinn, 2006). The management of employees involves providing secure employment and predictability while the main characteristics of this organisational culture are efficiency and adherence to formal rules and regulations (Cameron & Quinn, 2006).

5.2.1.1.1 Top-down organisational structure of the Organisational Culture

Cameron and Quinn (2006) and Suppiah and Sandhu (2011) indicated that firms of the hierarchical type of culture are typically characterised by formalised, controlled and hierarchical structures. As shown by the data, one of the most significant elements of the cultural characteristics of the virtual organisation is that of 'hierarchy', together a top-down style of structured management. This particular observation is best illustrated by the reflections of Respondent 2 and Respondent 7 who noted:

> *From my observations, our organisation is very formalised and structured,*

> *clearly realising each different management layer for delegation of responsibility and authority. For instance, when I encounter difficulties at work, I should inform my immediate supervisor without going over my immediate supervisor's head to complain to the general manager. This is because I feel, through this way, that at least my supervisor will know what I think, and feel respected. (Respondent 2, female, Manager of General Affairs, May 2014)*

> *Definitely, the structure of the organisation is very top-down. For example, when the director carries out the task initially assigned by the general manager, then the director will devolve the task to his/her subordinates. I will say that our organisation is more traditional as compared with others…Anyway, we will always need to achieve the task assigned by our supervisor. (Respondent 7, female, Credit Director, April 2014)*

In addition to the awareness of a clearly hierarchical type of organisation on the part of Respondent 2 and Respondent 7, the organisational culture of the organisation also creates an invisible yoke that has an indirect impact on the behaviour of employees. This is reflected in the comments made by Respondent 15, a section manager:

> *In our organisation, there are a lot of so-called rules; we all need to comply with the rules that form an invisible bureaucratic organisational culture. The organisation attaches more importance to employees who complete the mission step-by-step. (Respondent 15, male, Section Manager, April 2014)*

Indeed, it was clear from the analysis of the qualitative data that the organisational culture of the selected virtual organisation seemed to be more hierarchical, structured and formalised since it had certain characteristics such as a clear management layer for the delegation of responsibility and authority, and a quantity of so-called rules that needed to be complied with within the organisation.

5.2.1.1.2 Organisational Formal Norms Enhancing Employees' Knowledge-sharing Behaviour

The more organisations require their employees to share knowledge, the greater the employees' willingness to do so (Cabrera & Cabrera, 2005). Moreover, Lam (1997) indicates that clear rules within an organisation significantly influence the level of knowledge sharing among individuals. A recurrent theme in the comments of the 15 respondents referred to the formal norms of the organisation which played an

important role in influencing the employees' knowledge-sharing behaviour. Fundamentally, norms can be regarded as written/unwritten rules that guide or encourage individuals in organisations to follow them (Gregory & Ricky, 2001). De Long and Fahey (2000) indicate that one of the primary ways in which culture affects knowledge management practice is through the establishment of norms concerning knowledge sharing. Obvious illustrations of this are given in the following statements from Respondents 2, 3 and 15:

> *Actually, we hold a staff meeting every month to discuss the topic in terms of how to improve the development of the organisation. During the period, a specialist may be invited to have the speech such as a reading group, and then we can discuss and share knowledge after the meeting. (Respondent 2, female, Manager of General Affairs, May 2014)*

> *Every month, we hold a staff meeting asking staff who have the willingness to put forward their past learning experience; we then share their knowledge using ICTs after the meeting. For instance, the staff will be asked to share their knowledge after completing the class or attending an important conference. This is a little mandatory in approach. (Respondent 3, male, Researcher, May 2014)*

There were similar responses, but further statements made by Respondent 15 demonstrated the impact of the characteristics of the organisation's culture on his behaviour or even habits in terms of knowledge sharing. When asked what the main factor was in forming his habits concerning knowledge sharing, he responded:

> *We hold a staff meeting regularly per month in order to discuss and share the process of the project. During the meeting, several staff may be requested to present a report, and then we have a group discussion. Ultimately, we make a summary so this is the process of knowledge exchange among us. Likewise, these factors form my working habits concerning knowledge sharing (Respondent 15, male, Section Manager, April 2014).*

In other words, as observed from the comments of the respondents presented above, formal organisational norms plays an indispensable role in improving the willingness of employees to share their knowledge within the virtual organisation. By means of periodic staff meetings, employees' work habits seem to be formed imperceptibly, subconsciously or unconsciously, within the virtual organisation in a Chinese culture.

5.2.1.2 The Clan Organisational Culture as an Extended Family

A clan culture has characteristics of teamwork, employee involvement and corporate commitment to employees (Suppiah & Sandhu, 2011). This type of culture creates a very friendly place in which to work as people share a lot among themselves; it is like an extended family (Masood et al., 2006; Suppiah & Sandhu, 2011). The leaders, or heads of the organisation, are considered to be mentors or perhaps even parent figures (Masood et al., 2006). The organisation is held together by loyalty or tradition and organisational commitment is relatively high. The organisation places a premium on teamwork, participation and consensus (Cameron & Quinn, 2006). As shown in the data, half of the respondents (nine) made comments about the organisation as an extended family whose members are concerned for each other. This was observed by Respondent 14 who stated:

> *In fact, my real feeling is that my organisation is like a big family and colleagues are all like brothers and sisters in this organisation. Yet, I think we still have boundary points between each other when working in the organisation. This is owing to the fact that even though my supervisor treats me in a very friendly way, we still have an owner-member relationship at work. I also have the feeling that our director-general likes us as a parent might because he always cares about our daily life and health. And colleagues are like brothers and sisters because, in private, we can joke and we get well along with each other, like brothers and sisters. The director-general always helps and encourages us. (Respondent 14, female, Supply and Marketing Senior Employee, April 2014)*

As observed from Respondent 19's comment below, this implies that the long-term friendships among employees bond them together and this therefore forms the special mixed organisational culture. As Respondent 19 commented:

> *In a nutshell, our organisation gives priority to a hierarchy but is supplemented by a clan organisational culture. This is owing to the fact that most colleagues were born in the same geographic area so they live, play and work together in the organisation. Hence, I feel that most colleagues are treated as family in the organisation. (Respondent 19, male, Service Department Senior Employee, May 2014)*

As noted above, it is clear that employees have a feeling of being at home and of a sense of belonging when working in the organisation since colleagues are like brothers and sisters and their supervisor is like a parent who treats them in a very friendly way. Yet, Respondent 19 mentioned that "…*our organisation gives priority to a hierarchy but is supplemented by a clan organisational culture…*" Hence, the culture of the organisation seems to be a mixture of the clan and hierarchy types to different degrees.

5.2.1.2.1 Organisational Commitment Improving Employees' Knowledge-sharing Behaviour

One of the most critical elements of the clan type of organisational culture is organisational commitment (Cameron & Quinn, 2006; Suppiah & Sandhu, 2011). Meyer and Allen (1991) indicated that organisational commitment is composed of three components: namely, affective, continuance and normative commitment. Organisational commitment characterises the relationship of employees within an organisation and has implications with regard to making a decision to continue or discontinue membership in the organisaiton. Affective commitment means the extent of employees' attachment to, identification with, and involvement in an organisation whilst continuance commitment refers to the awareness of the costs in relation to leaving an organisation. Normative commitment indicates that employees continue in their employment because they have a feeling of obligation. Wesko and Faraj (2005) confirmed that an individual who has a sense of obligation or commitment to a virtual community is more likely to share his/her own knowledge. Such a sense of responsibility to the group has been linked with assistance behaviour among individuals (Franke & Shah, 2003). This is typified by the response of Respondent 1, a publication division director, when explaining the relationship between his sense of responsibility and knowledge sharing:

> *For me, I am in charge of two main positions. One is as a researcher and the other is as the publication division director. As the publication division director, I think I am responsible to the relevant agricultural readers by publishing magazines which make them obtain new related agricultural knowledge. (Respondent 1, male, Publication Division Director, May 2014)*

Similar responses made by Respondent 2 and Respondent 17 demonstrate that a sense of responsibility to the organisation leads to knowledge-sharing behaviour. When

asked what the main factor was in improving their knowledge-sharing behaviour, they responded:

> *As a member of the organisation, I have the responsibility to preserve, transmit and share my relevant agricultural knowledge with other staff in order to enhance the development of Taiwanese agriculture. (Respondent 2, male, Manager of General Affairs, 2014)*

> *As one of the employees who has a responsible position, I think I have a duty to the organisation to share my own knowledge and past experience with other colleagues, especially new staff. (Respondent 17, female, Service Department Director, May 2014)*

As stated above by Respondent 1, Respondent 2 and Respondent 17, it is manifest that the increasing sense of responsibility and obligation, which was influenced by the organisational culture of the organisation, improves their knowledge-sharing behaviour for the continual development of the virtual organisation.

5.2.1.2.2 Job Stability as Compared with other Taiwanese Organisations

A study conducted by De Cuyper et al. (2009) indicated that workers who were given "fixed-term or temporary contracts" reported higher levels of job insecurity than permanent workers. At the same time, they also showed that job satisfaction and organisational commitment were highly associated with being a permanent worker (De Cuyper et al., 2009). Hence, steady or permanent work/employment provided by an organisation can be significantly associated with organisational commitment. One publication division director who had worked in the organisation for twenty five years, responded thus when asked what characteristics formed the culture of the organisation:

> *Normally, the whole system of Taiwanese Farmers' Associations, which is regarded as an NGO, is not like a private enterprise; we have relatively less pressure of work and don't need to compete with other colleagues for a promotion. Hence, it is not difficult for us to share our knowledge, instead of hoarding it, in such an ambiance. (Respondent 1, male, Publication Division Director, May 2014)*

Respondent 6 and Respondent 9 shared a similar opinion with Respondent 1. They

said that they had a willingness to work within the organisation because the organisation is relatively stable and can provide job security in Taiwan. Respondent 6 and Respondent 9 commented as follows:

> *To cope with shifting events by sticking to a fundamental principle, even though it is difficult for any domestic or overseas contemporary organisation to adopt or preserve the same organisational culture in an organisation, I think my organisation seems more stable as compared with most organisations in Taiwan. In fact, we get a fixed income and a stable job routine in the organisation. (Respondent 6, male, Training Director, May 2014)*

> *Our organisation is very stable and almost stationary. Most employees have relatively steady, routine jobs and less pressure of work. In addition, the staff of the organisation can collect a salary 16 months per year. Hence, most employees tend to work continually in this organisation until they retire. (Respondent 19, male, Service Department Senior Employee, May 2014)*

Based on the analytic results from the qualitative interviews above, the stable development of the organisational context, routine jobs, relative higher incomes and less pressure of work seem to offer respondents' a greater sense of security and stability, as well as enhancing their willingness to share knowledge and continue working for the organisation.

5.2.2 Essential Elements of Employees' Sense of Well-being: their Relationships to Organisational Culture and Employees' Knowledge-sharing Behaviour in the Virtual Organisation

Having analysed and integrated relevant data from 19 respondents, this research now explores the essence of employees' sense of well-being from four main perspectives: attributes of the job, personality, workplace network and organisational culture. It also considers how these affect employees' sense of well-being which might, in turn, influence their knowledge-sharing behaviour. The analytic findings presented in this section are representative of the comments of the 19 respondents regarding different themes. The findings relating to the impact of the job attributes on employees' sense of well-being reveal both pros and cons. On the positive side, employees will have a greater sense of well-being when they are satisfied with the environments surrounding their jobs. By contrast, however, pressure of work leads to a lower sense of well-being. When it comes to the impact of workplace network and organisational culture on

employees' sense of well-being, the findings showed that harmonious interpersonal relationship, a satisfactory working environment and stronger work engagement improve employees' sense of well-being. A positive personality, for example, emotional empathy, enjoyment in helping others and altruism, lead to employees also feeling a greater sense of well-being.

5.2.2.1 Job Satisfaction and Employees' Sense of Well-being

Job satisfaction can be defined in short as how content an employee is with his or her job and whether he/she likes or dislikes the job (Spector, 1997). This research found that the job satisfaction of employees, in terms of having a stable working style, work achievement and satisfactory income, affected their sense of well-being. Meanwhile, having a stable job and related welfare benefits offers employees peace of mind, enabling them to concentrate on their jobs within the organisation since this assures them they can take care of their family. Likewise, work achievement can make employees feel their job is meaningful.

5.2.2.1.1 Stability and Employees' Sense of Well-being in the Organisation

This section, which is associated with section 5.2.1.2.2, explores how job stability affects employees' sense of well-being. According to the European Commission (2001), employment stability can be regarded as being desirable both for workers, who deem it to be one of the most important factors in job satisfaction, and for firms, who thus avoid high staff turnover and enjoy more stable employment relationships. In this way, they retain their investments in human capital and decrease costs associated with personnel screening and selection. As highlighted in the preceding section, the findings are representative of the comments of 19 respondents who mentioned that the work conditions of the organisation are relatively stable as compared with most Taiwanese organisations. As Respondent 18 illustrates below, the statements are reflective of the nature of the working conditions of the organisation:

> *I feel really happy that I can work in the organisation because I can get to work on time and the organisation is closer to my home. Besides that, we do not need to work overtime. I think working on time is very unusual in most Taiwanese organisations so that we always feel happy about that. I think most colleagues will continue working until they retire. (Respondent 18, female, Secretary, May 2014)*

The implications of working conditions in the organisation were exemplified in the comments of Respondent 9 and Respondent 13. When asked what gave them a sense of the well-being in the organisation, they both responded:

> *Comparing ourselves with others, my job is very stable and I feel very happy because of working on time so that I can take my child to school or back from school. (Respondent 9, female, Credit Senior Director, April 2014)*

> *I feel happy since my work content in the organisation is very regular and systematic without being complicated and unpredictable. Here we can achieve and complete the targets of the organisation step by step. (Respondent 13, male, Supply and Market Director, April 2014)*

Reviewing the comments of the respondents, especially that of Respondent 13 who stated "*…I feel happy since my work content in the organisation is very regular and systematic without being complicated and unpredictable…*", this may correspond to the research into social well-being mentioned by Keyes (1998) who stated that social coherence is the extent to which people know about what is happening in the world. Hence, the respondents seem happier if they can predict the development and future of the organisation.

5.2.2.1.2 Helping Colleagues to Solve Problems Leading to a Sense of Achievement

A total of 8 respondents shared similar views concerning helping colleagues to solve problems and seeing them continually grow; this made them feel happy and gave them a sense of well-being. As mentioned by Respondent 1, obtaining the gratitude of a relevant practitioner by helping him/her to solve an agricultural problem gave him a sense of achievement, making him feel happy. He noted:

> *Because of my position in the organisation, I have more opportunities to meet relevant agricultural workers and to help others to solve their problems in terms of agriculture and see their continual growth. Then their gratitude makes me feel a sense of achievement and well-being. (Respondent 1, male, Publication Division Director, May 2014)*

Achieving goals or helping colleagues to complete a project in the organisation can give employees a sense of achievement and make them feel happy. Respondent 4 and

Respondent 8 stated the following below:

> *In my opinion, the real source of the sense of well-being is to complete the organisational targets or projects. For instance, if I can cooperate closely with my colleagues to successfully achieve the goals of the organisation, I think this make me feel a greater the sense of well-being. (Respondent 4, male, Vice Executive Secretary, May 2014)*

> *The greater the sense of achievement I have, the more happy I feel. I will feel happier and more confident when I have the ability to help my colleagues to solve problems in terms of the projects of the organisation. (Respondent 8, female, Credit Senior Director, April 2014)*

Hence, as can be seen above by the comments of the respondents, it is observable that employees' sense of achievement and helping colleagues to solve problems can be regarded as critical elements of well-being that make them happier within the virtual organisation. At the same time, these findings correspond to the concepts of self-actualisation and self-realisation of Ryff and Keyes (1995) and Ryff and Singer (2008) who also suggested that, for an individual to function optimally in a psychological sense, he/she must not only achieve set tasks but also continue to develop his/her potential.

5.2.2.1.3 Relative Income Increases Employees' Sense of Well-being

Ferrer-i-Carbonell (2005) asserted that individuals are happier if they perceive that the income of the reference group is relatively lower. Another empirical research study carried out by Chang (2013) showed that increasing relative income gives rise to a gain in positional identity; this then raises the level of subjective well-being. The comments of a total of 10 respondents revealed that relative income is an important determinant regarding the source of their sense of well-being. A concrete instance expressed the deep feelings of Respondent 11 who felt happy and grateful to continue working in the organisation. He said:

> *As I am a veteran, I have worked in the organisation for thirty years. All my main source of income stems from the organisation. A relatively stable income makes me feel a sense of well-being and therefore helps me raise my children. (Respondent 11, male, Manager of Extension Division, April 2014)*

Diener and Biswas-Diener (2002) indicate that individuals' sense of well-being is strongly associated with income, while Gao and Smyth (2010) found that rising inequality in income is negatively associated with job satisfaction. Based on the comments of Respondent 18 and Respondent 19, there is a sense that income may well be an antecedent to their sense of well-being within the virtual organisation. As they commented:

> *I think our working environment is relatively happy. This is mainly because our salary is higher than in other companies and we all can leave work on time. (Respondent 18, female, Secretary, May 2014)*

> *One of the reasons that makes me feel happy is that our welfare and income is very good when compared with other organisations. Several times I have had a willingness to find another company closer to my place. However, I still choose to continue working here because of the relative income (Respondent 19, male, Service Department Senior Employee, May 2014)*

As noted above, it was also observed that, for the majority of the respondents, obtaining relatively higher incomes and having better welfare benefits are also indispensable elements of well-being. These make them feel a sense of security and therefore offer them a protected livelihood within the organisation.

5.2.2.2 Level of Work Engagement and Employees' Sense of Well-being

Wilmar et al. (2002) defined work engagement as the positive, fulfilling, work-related state of mind of an individual, evaluated by vigour, dedication and absorption. Employees who demonstrate psychological traits which suggest better engagement with their surrounding environment will have a greater sense of well-being than their peers with lower levels of well-being (Diener & Seligman, 2004). Most of the respondents mentioned about that they liked working in the organisation since they had a sense of mission and see working for the organisation as an honour. Likewise, they are happy to be recognised as belonging to the organisation.

5.2.2.2.1 Stronger Identification with the Organisation Improves Employees' Knowledge-sharing Behaviour

Organisational identification is related to the degree to which employees identify with the values, goals, desires and aims of the organisation. Fundamentally, this concept of

organisational identification is deeply rooted in social identity theory whereby an individual comes to view him/herself as a member of a specific social entity (Tajfel, 1978; Tajfel & Turner, 1979; Kumar & Singh, 2012). Employees who identify highly with such aspects of the organisation are more likely to create positive outcomes in terms of their work attitudes, job performance and job satisfaction (Ashforth & Mael, 1989; Ashforth, 2001; Kreiner & Ashforth, 2004; Scott et al., 1998). A total of 7 respondents commented on their attitude towards organisational identification in facilitating knowledge-sharing behaviour. As Respondent 11 commented:

> *I think we do not have difficulty in cooperating or sharing knowledge with each other in the organisation since most colleagues have a higher level of identification with the organisation. (Respondent 11, male, Manager of Extension Division, April 2014)*

The same view was shared by Respondent 14 who had a willingness to share her knowledge with colleagues in order to achieve success for the organisation. As she stated:

> *We all work for the organisation. Hence, I will do my best to share what I know with my colleagues. This is because I think my colleagues all work hard for the organisation. (Respondent 14, female, Supply and Marketing Senior Employee April 2014)*

Meanwhile, several researchers also found that organisational identification is highly associated with the well-being of an organisation's members (O'Reilly & Chatman, 1986; Mael & Ashforth, 1992). Based on comments from Respondent 1 and Respondent 11, the findings show that employees who identify highly with the organisation are likely to feel a greater sense of well-being. These respondents further noted:

> *I feel very happy because this job is my ideal job, consistent with my dream, learning and family background. Moreover, the job can let me achieve my targets and the place makes me feel comfortable. (Respondent 1, male, Publication Division Director, May 2014)*

> *I think I am happy in the organisation because the organisation treats us as part of the extended family. Here all colleagues bond together and get along well with each other in achieving the goals of the organisation. I propose that my*

colleagues will think back to the organisation once they leave or retire from the organisation. (Respondent 11, male, Manager of Extension Division, April 2014)

As noted above, the findings of the qualitative interviews are in line with Keyes' (1998) concept of social well-being. Keyes stated that individuals' sense of well-being also relies on the extent to which they recognise that they belong to part of society and communities. The results from this study show that the interviewees seem to have a greater willingness to share their knowledge and enjoy a greater sense of well-being if they consider that they belong to or are part of the organisation and regard the job the organisation offers as meaningful and valuable in their lives.

5.2.2.2.2 Feeling Valued and Respected by Related Practitioners

Although numerous research studies, such as those of Diener and Biswas-Diener (2002) and Gao and Smyth (2010), suggest that people with high incomes are generally happier, the findings of this research showed that feeling valued may matter more for respondents' sense of well-being. This situation was exemplified by the publication division director who commented about how he feels a sense of well-being in the organisation:

I feel well respected and happy when I represent our organisation at any external conferences. When everyone agrees that our organisation is worthy of respect, and therefore treats you as a person who is respected and who they need to be polite to; I will always be happy about that. All these things make me feel a greater sense of well-being. (Respondent 1, male, Publication Division Director, May 2014)

As expressed by the respondent above, feeling well respected seems to be a more important element with regard to the sense of well-being in the organisation. The same view was shared by Respondent 2 and Respondent 3 who commented:

I think all my colleagues are blessed for working in the organisation and feel respected by relevant practitioners. For instance, when I represent the organisation at conferences, I feel that relevant members of these conferences regard as me as an important person. (Respondent 2, female, Manager of General Affairs, May 2014)

> *The image of this organisation is great. Therefore, you can imagine that our colleagues can feel valued and respected by other relevant practitioners. (Respondent 3, male, Researcher, May 2014)*

As noted in the comments above, the respondents mention that the organisation makes them feel valued and respected when they represent the organisation at an external conference and this leads them to experiencing a sense of well-being within the virtual organisation. Hence, feeling valued and respected can be regarded as important elements of well-being within the virtual organisation in a Chinese culture.

5.2.2.2.3 Continual Personal Growth within the Organisation

Ryff and Singer (2008) indicated that sustaining personal growth is one of the most important dimensions of psychological well-being, a concept which is closest to the meaning of Aristotle's eudiamonia. This is mainly because it is clearly linked to self-realisation (Ryff & Keyes, 1995). For an individual to pursue his/her optimal psychological sense of well-being, he/she must not only try to achieve set tasks but also continue to develop his/her potential (Ryff & Keyes, 1995). There were indications from 6 respondents' comments that self-improvement or continual personal growth is a key element of the sense of well-being that was linked to making them feel happy to work in the organisation. The following comments, from Respondent 1 and Respondent 2, reflected this viewpoint:

> *I feel happy since my job in the organisation can fulfill what I want to do. Here I can continually learn and research in terms of Taiwanese agriculture and improve the development of the whole system of Taiwanese Associations. (Respondent 1, male, Publication Division Director, May 2014)*

> *I think I am very happy to work in the organisation. Even though I need to face some challenges of my job, I feel happy that I can continue learning in the organisation. (Respondent 2, female, Manager of General Affairs, May 2014)*

For Respondent 1 and Respondent 2, having the opportunity to learn continually in terms of acquiring relevant agricultural knowledge seemed to be a critical antecedent that made them feel happy within the virtual organisation. Similarly, when asked about what factors affected their sense of well-being in the organisation, Respondent 18 commented:

> *Our boss always encourages colleagues to continue learning and acquiring new knowledge in terms of agriculture and gives them the support they need. Hence, I can continue learning and gaining new knowledge or skills concerning agriculture. This makes me feel a sense of well-being. (Respondent 18, female, Secretary, May 2014)*

As noted by the above respondents through the findings from the interviews, the results are consistent with those of Ryff and Keyes (1995) and Ryff and Singer (2008) who indicated that continued personal growth and self-realisation may be deemed to be the most important element of psychological well-being. Because of continued personal growth and learning in terms of agricultural knowledge, employees seemed to be more immersed in well-being within the virtual organisation.

5.2.2.3 Pressure of Work Affecting Employees' Sense of Well-being

Numerous research studies have provided evidence that work stressors, such as time pressure (Jackson & Schuler, 1985; Feldt, 1997; Sonnentag, 2001), high levels of perceived stress (Vacek et al., 2010), overwork (Sonnentag, 2001), poor relationships (Feldt,1997), low self-esteem (Mäkikangas & Kinnunen, 2003) and high uncertainty/role ambiguity (Spector, 1986), are highly related to decreasing an individual's sense of well-being. Through the interviews, several respondents also stated that various work pressures, generated by higher standards of self-respect and their managers' leadership styles, led to them feeling a lower sense of well-being in the virtual organisation. This is reviewed in the following section.

5.2.2.3.1 Higher Standards of Self-respect Lead to Invisible Pressure

Despite the fact that continual personal growth, higher satisfaction and stronger engagement within the organisation are positively associated with employees' greater sense of well-being, employees with a high standard of self-respect may suffer from invisible pressure at work. Diener (2000) indicates that variables in dissimilar cultures often correlate differently with life satisfaction. For example, some people are inspired by an individualistic culture which highlights the importance of the individual and his/her thoughts, choices and feelings; in contrast, in collectivist cultures, people seem inclined to sacrifice their desires to the will of the group. Thus, self-respect is more strongly associated with life satisfaction in individualistic societies than in collectivist ones (Diener & Diener, 1995). Yet, in contrast to suggestions made by Diener and Diener (1995), the results seem to imply that

self-respect and time pressure are important sources of stress at work within the virtual organisation in a Chinese cultural context. This is typified by the responses of Respondent 12, Respondent 14 and Respondent 18 when explaining the relationship between pressure of work and their sense of well-being:

> *Sometimes I feel pressure of work and am unhappy because I need to do a lot of projects at the same time or I cannot successfully complete my job on time. (Respondent 12, male, Extension Division Senior Employee, April 2014)*

For Respondent 12, pressure to achieve set tasks in a certain time was probably the greatest source of stress leading to a lower sense of well-being. This echoes the findings of the empirical study carried out by Sonnentag (2001) which showed that higher levels of time pressure at work resulted in individuals having a lower sense of well-being. The same view was shared by Respondent 14 who commented:

> *When I meet a job bottleneck, or I cannot complete my project, or I cannot promote relevant policies of agriculture smoothly and successfully, I feel frustrated and my mood is not very good. (Respondent 14, female, Supply and Marketing Senior Employee, April 2014)*

For Respondent 12 and Respondent 14, it was clear that pressure of work derived from struggling to complete projects on time; these invisible work pressures made them less happy. When a similar question was posed to Respondent 18 regarding the factors that might possibly affect her sense of well-being in the organisation, in addition to the time schedules of projects, she considered that attempting to integrate and coordinate different departments effectively was also a source of pressure at work. Respondent 18 responded:

> *Sometimes I feel unhappy under pressure of work, especially when I need to coordinate the development of the project among different departments of the organisation rapidly or face challenges concerning my job which need to be solved in a short time. (Respondent 18, female, Secretary, May 2014)*

As noted above, although employees' sense of responsibility can effectively improve their knowledge-sharing behaviour, some respondents sometimes feel unhappy when experiencing pressure of work because they have a deep sense of responsibility. Hence, such a sense of responsibility can be regarded as a double-edged sword within the virtual organisation in a Chinese cultural context.

5.2.2.3.2 Leadership Style Leading to Pressure of Work

Another main pressure of work leading to employees' lower sense of well-being concerned the heads of the organisation. Feldt (1997) found that employees who had better relationships with their leaders also had a greater sense of well-being, and vice versa. A total of 10 respondents made specific reference to the leadership style of their bosses and their sense of well-being. When asked about what factors lead to the lower sense of well-being in the organisation, Respondent 7 and Respondent 8 commented:

> *I feel nervous and embarrassed when I have a meeting with my boss. This is owing to the fact that I cannot state what I want to say freely and I think my boss is serious at meeting times. I feel scared about that. (Respondent 7, female, Credit Director, April 2014)*

> *Normally, I feel happy while working in the organisation; however, when I have a meeting with my boss I occasionally feel overwhelmed with the invisible pressure. I think I am happier in the office if the boss is away. (Respondent 8, female, Credit Senior Director, April 2014)*

As noted below, Respondent 13 further stated that comprehending the leadership style or personality of the leader of the organisation is also important in the implementation and outcomes of new projects. He remarked:

> *When my boss assigns a new project to me, this make me feel overwhelmed with the invisible pressure of work. I think it is important to know what my boss is thinking about and to understand her personality. This is because everyone has his/her own unique personality. In terms of the personality of my boss, even if I know the new project will be difficult to perform in the future, I cannot tell my boss directly. I will use leisure time and then discuss the possibility of the new project with my boss. (Respondent 13, male, Supply and Marketing Director, April 2014)*

As noted above, the respondents consider that they feel invisible stress when having meetings with their bosses. Hence, managers' leadership styles and their personality seem to be important elements in affecting employees' sense of well-being within the virtual organisation in a Chinese culture.

5.2.2.4 Positive Personality and Employees' Sense of Well-being

Past research has suggested that the sense of well-being of an individual may be only partly a function of environmental circumstances, as mentioned above. Individuals who think more positively can experience a greater sense of well-being. In some instances, an individual's greater sense of well-being is related to emotional empathy (Mehrabian, 2000; Wei et al., 2011), a higher level of altruistic behaviour (Midlarsky & Kahana, 2007) and enjoyment in helping others, which stems from altruism (Lin, 2007; Meier & Stutzer, 2008).

5.2.2.4.1 Emotional Empathy Making Employees Feel a Sense of Well-being

Mehrabian (2000) and Wei et al. (2011) found that individuals who have higher emotional empathy toward others enhance their own sense of well-being and life success. Likewise, when individuals are able to be empathetic to others, these may feel grateful towards them in response. Moreover, an individual who is empathetic may feel when someone else is kind toward others and is doing something good for others; this may lead these people to experience happiness and positive feelings. Nonaka and Konno (1998) further indicated that feelings of greater empathy are likely to make people feel more free; this leads them to share their feelings and experiences, as well as their mental model. A similar point of view was expressed by Respondent 6 who is a Training Director. He said:

> *I always like to share my knowledge with my subordinates. This is because I propose that I have more opportunities to obtain new knowledge and present in conferences as compared with my subordinates, and therefore, I consider that my subordinates maybe need my knowledge. (Respondent 6, male, Training Director, May 2014)*

For Respondent 6, empathy seemed to be an antecedent of the knowledge-sharing behaviour of an individual. Moreover, commenting on the relationship between empathy and the sense of well-being, Respondent 15 and Respondent 17 noted:

> *From my perspective, happiness depends on your attitude towards others. Basically, I will not like or hate my colleagues for no reason. I always treat my colleague equally and see the situation from his/her point of view. Because of positive thinking, I feel I am a blessed person. (Respondent 15, male, Section*

Manager, May 2014)

I think I am a lucky person as compared with most people. This is mainly because sometimes I read some negative news and compare my situation with them. I think my life is better and blessed. Hence, I always like to help my colleagues in the organisation. (Respondent 17, female, Service Department Director, May 2014)

As illustrated in the statements of the interviewees mentioned above, the findings show that a greater sense of well-being, and more willingness to share their knowledge and help others, stem from them having higher levels of emotional empathy towards others. This result might be said to correspond to the finding of Thomas et al. (2007) who also demonstrated that a greater sense of empathy in individuals positively influenced their sense of well-being.

5.2.2.4.2 Enjoyment of Helping Others Leads to Knowledge-sharing Behaviour

Finding enjoyment in helping others, which is derived from altruism (Lin, 2007), has previously been discussed and is often regarded as a critical factor in improving the knowledge-sharing behaviour of an individual. Employees who practise such positive thinking seem more likely to enjoy helping others to solve problems (Wasko & Faraj, 2000; Wasko & Faraj, 2005) and contribute their knowledge to others (Lin, 2007). This was observed from Respondent 3 and Respondent 10, who mentioned their motivations to share their knowledge:

I am always enthusiastic and happy to share my knowledge with my colleagues. In addition, I really hope I can help them, especially new staff. (Respondent 3, male, Researcher, May 2014)

I enjoy sharing my knowledge with my colleagues. When we have leisure time, such as lunch time, I always join the conversation of my colleagues to share what I know with them; I feel happy about that. (Respondent 10, female, Credit Senior Director, April 2014)

As noted above, the interviewees stated that they are always enthusiastic and have a passion to share their knowledge with colleagues. These findings, elicited from the comments of the interviewees, are in line with those of Wasko and Faraj (2000) and Wasko and Faraj (2005) who showed that employees who practise such positive

thinking are more inclined to enjoy helping others to solve problems and share their knowledge.

5.2.2.4.3 Employees' Altruism as Related to their Sense of Well-being

Organ (1988) clarified that altruism, based on discretionary behaviours, helps particular groups with organisationally relevant tasks. Midlarsky and Kahana (2007) found that the higher the level of altruistic behaviour people display, the happier they are and the lower the likelihood of demonstrating symptoms of depression. A total of 11 respondents expressed a significantly strong indication with regard to how the altruistic behaviour of employees facilitates their knowledge-sharing behaviour in the organisation. This was observed in the remarks made by Respondent 1 and Respondent 8:

> *Absolutely, I will choose to share my knowledge with someone who may feel interested in that. This is owing to the fact that I will think the results of my research may be useful to them. (Respondent 1, male, Publication Division Director, May 2014)*

> *Considering my knowledge may be useful to my colleagues when I have attended some new courses, I will always have the willingness to share knowledge with my colleague. (Respondent 8, female, Credit Senior Director, April 2014)*

For Respondent 1 and Respondent 8, considering that their knowledge might be useful to other colleagues triggered their knowledge-sharing behaviour because of the benefit to the colleagues concerned. Moreover, commenting on motives in terms of knowledge sharing, Respondent 6 and Respondent 15 noted:

> *When I attend new courses and obtain new knowledge in terms of agricultural extensions, I always like to share my knowledge with my subordinates. This is mainly because I think my colleagues will benefit from my knowledge. (Respondent 6, male, Training Director, May 2014)*

> *When I obtain new information about my business, I would like to share it with my colleagues. This is due to the fact that I will consider this new information to be a benefit for my colleagues. (Respondent 15, male, Section Manager, April 2014)*

As noted above, the findings of the interviews are consistent with those of Baumeister (1982), Kankanhalli et al. (2005) and Wu et al. (2009) who showed that altruistic individuals seemed more to enjoy helping others. Hence, altruism can be regarded as one of the key factors that drives employees' knowledge-sharing behaviour within the context of the virtual organisation in a Chinese cultural context.

5.2.3 Essential Workplace Network Elements (Social Capital Tendency): their Impacts on Employees' Sense of Well-being and their Knowledge-sharing Behaviour in the Virtual Organisation

Having analysed and integrated relevant data from 19 respondents, this research now explores aspects of the workplace network (social capital tendency) and their impact on employees' sense of well-being and their knowledge-sharing behaviour. The findings presented in this section are representative of the comments of 19 respondents across different themes. These are presented under five themes to demonstrate how respondents' intentions, with regard to workplace network ties, social support, the sense of comradeship, homophily and mutual trust among colleagues, affect their sense of well-being and knowledge-sharing behaviour.

5.2.3.1 Stronger Network Ties Lead to Knowledge-sharing Behaviour

Evidence from the empirical studies of Hau et al. (2013) and Wasko and Faraj (2005) showed that the existence of compact social networks of employees was positively associated with their knowledge-sharing behaviour. A total of 7 respondents commented on the role played by having or not having a close relationship with others in terms of facilitating knowledge-sharing behaviour. Respondent 9 stated that she might be favourably disposed to share knowledge because of the existence of a close friendship; this was made evident in the comment below:

> *Actually, I will have the willingness to share not only my tacit knowledge but also explicit knowledge with other colleagues if I am very close to them or maintain good interactions with our virtual organisational co-workers, especially the closest ones. (Respondent 9, female, Credit Senior Director, April 2014)*

Similarly, when asked if he had any issues with regard to sharing knowledge with other colleagues, Respondent 12, an extension division senior employee, responded:

> *If I get along well with my colleagues, I will try my best to share my own knowledge with them. Hence, when I interact with my co-workers very well, and we then establish good interpersonal relationships with each other, this will drive my motivation to share my knowledge. (Respondent 12, male, Extension Division Senior Employee, April 2014)*

A cautious attitude may also result from a lack of familiarity and a sense that a new colleague does not "belong" to the organisation. Hence, when a new colleague is regarded as a member of the organisation, there will be fewer obstacles about sharing knowledge. Respondent 14 commented thus:

> *As far as I am concerned, I will share my knowledge with my colleagues who have a better relationship with me, rather than others who I do not know very well. Hence, if I do not have long time to get along with the new colleagues, I will prefer to keep my knowledge, instead of sharing it. (Respondent 14, female, Supply and Marketing Senior Employee, April 2014)*

The findings from the comments made above by the interviewees are consistent with those of Hau et al. (2013) and Wasko and Faraj (2005) who showed that employees tend to share their knowledge more with those with whom they have better relationships. Employees who interacted with me very well then established good interpersonal relationships with the organisation in a Chinese culture.

5.2.3.2 Social Support from Colleagues and Bosses Improves the Sense of Well-being

Social support has been long known to influence an individual's general well-being (Liu et al., 2014). For instance, Farzaee (2012) and Parasuraman et al. (1992) validated that social support plays an important role in improving an individual's sense of well-being. People who have more social contact and get better social support will improve their sense of well-being through maintaining positive emotional feelings and mitigating the stress of negative emotions (Liu et al., 2014).

5.2.3.2.1 Thanking Colleagues for their Support

A total of 9 respondents expressed a strong preference for social support from other colleagues within the organisation. They considered that it is very important for them

to get support from others when needed, and such supportive behaviour on the part of their colleagues made them feel a greater sense of well-being. Several respondents responded thus:

> *My colleagues and I always help and support each other when necessary. Since my department only has 3 employees, I think it is necessary to support each other. (Respondent 7, female, Training Director, April 2014)*

> *When I need some help at work, my colleagues will always help and support me. We support each other instead of fighting alone. I appreciate that so much. (Respondent 14, female, Supply and Marketing Senior Employee, April 2014)*

Likewise, when asked what factors might affect their sense of well-being, Respondent 8 and Respondent 12 stated that support from their colleagues made them feel a greater sense of well-being. These findings are in line with those of Farzaee (2012) and Parasuraman et al. (1992) who demostrated that social support is highly associated with an individual's sense of well-being. Respondent 8 and Respondent 12 stated:

> *I keep in a good mood since our colleagues always help each other and support me when I am busy at work in the organisation. I am really thankful for their help; otherwise, I think I would be very tired without their help. (Respondent 8, female, Credit Senior Director, April 2014)*

> *In my department, I feel a greater the sense of well-being at work when others support me appropriately. (Respondent 12, male, Extension Division Senior Employee, April 2014)*

As noted above, the findings from the qualitative interviews are consistent with those of Farzaee (2012) and Parasuraman et al. (1992) who showed that respondents feel a greater sense of well-being because their colleagues always give them timely help and show appropriate concern for them when working within the organisation. Hence, this kind of social support from colleagues can make them feel warm and comfortable within the virtual organisation.

5.2.3.2.2 Support from Supervisors Improves Working Performance

In addition to obtaining social support from colleagues, based on the comments of 8

interview respondents, there is a sense that, obtaining support from a boss is a very important part of the organisation's activities. Bass (1985) indicated that two styles of leadership, namely transformational and transactional leadership, can effectively improve employees' sense of well-being and work performance. Transformational leadership can promote inspiration, intellectual stimulation, individual consideration, participative activities and decision-making among subordinates (Bass, 1998) while transactional leadership can clarify performance expectations, reduce uncertainty and raise expectations of efficacy (Sims & Lorenzi, 1992). A combination of transactional and transformational skills, if adopted by managers, can therefore enhance employees' performance and well-being (Sparks et al., 2001). As mentioned by Respondent 17, her manager giving her enough support and autonomy is important to her. She noted:

> *I feel very warm in the organisation because of obtaining positive support from the boss. We have worked together for twenty years. He always takes care of me and has no doubt about my performance at work. (Respondent 17, female, Service Department Director, May 2014)*

A similar point of view was expressed by Respondent 3 and Respondent 12. When asked what traits of organisational culture the organisation embraced, they commented:

> *I think the colleagues of my department cooperate and share their opinions with each other. Also, I think most my colleagues are more positive thinking. When we need assistance, my supervisor will give us valuable suggestions or help us. (Respondent 3, male, Researcher, May 2014)*

> *My new supervisor is very nice since he always know what we need and gives us support. Hence, I think I feel very happy in this department and work with him. (Respondent 12, male, Extension Division Senior Employee, April 2014)*

On the other hand, the managers of the virtual organisation also give sufficient support and autonomy to their subordinates. Evidence for this can be found in the comments of Respondent 1 and Respondent 6 who noted:

> *I do not interfere with subordinates with regard to their performance. Normally, I do not interfere with how they conduct their task; I encourage them to try to complete the task themselves. However, if they ask for my help, I also like to help them solve the problems. (Respondent 1, male, Publication Division*

Director, May 2014)

I always authorise my subordinates to conduct their tasks and offer them appropriate support. For instance, when I assign a new task to my subordinates, I will inquire whether they need some help or if they can complete it themselves. (Respondent 6, male, Training Director, May 2014)

As noted above, in addition to respondents feeling a greater sense of well-being because of the support they receive from colleagues, it is clear from their comments that obtaining appropriate support and autonomy from supervisors also makes them feel a greater sense of well-being within the virtual organisation. Such findings may be said to be consistent with those of Ryff and Keyes (1995) and Ryff and Singer (2008) who stated that a sense of self-determination is a key part of psychological well-being; this plays a vital role in most western countries.

5.2.3.3 Comradeship among Colleagues Enhances the Willingness to Cooperate

Inkpen and Pien (2006) indicated that the existence of good friendships among partners makes them discuss and solve problems more easily. Berman et al. (2002) stated that members' friendships in the workplace can improve their openness, mutual communication and task completion. There were indications from 8 respondents' comments that deep friendship among colleagues is a pivotal element in the sense of well-being that is linked to their cooperation with each other. The following comments, made by Respondent 1 and Respondent 9, reflected this point of view:

We have all known each other for a long time. I think that the whole system of Taiwanese Farmers' Associations can be regarded as an extended family, and most colleagues have a profound friendship. (Respondent 1, male, Publication Division Director, May 2014)

I have known most colleagues for more or less 10 years, and comprehend their personalities very well since I have worked in the organisation for more than 20 years. Hence, I always offer my colleagues timely help. (Respondent 9, female, Credit Senior Director, April 2014)

Likewise, when asked what traits of the organisation's workplace network are constructed, Respondent 19, a senior service department employee, commented:

> *I think most colleagues have shared memories in the organisation because most colleagues have known and worked with each other for around twenty years. As we have worked hard together for a long time, we have created profound friendships among each other and deem the organisation as being an extended family. (Respondent 19, male, Service Department Senior Employee, May 2014)*

As noted by Ryff (1989), who emphasised the importance of warm and trusting interpersonal relationships in leading to a sense of well-being, the comments of the respondents presented above show that greater comradeship among employees, which allows them to have heart-to-heart talks with their colleagues, makes them feel a sense of well-being which, in turn, helps them within the virtual organisation in a Chinese culture.

5.2.3.4 Interpersonal Trust Improves Knowledge-sharing Behaviour and Working Performance

Previous research has shown that the willingness of an organisation's workers to share knowledge with others depends on the extent to which they trust others (Adler, 2002; De Long & Fahey, 2000; Lucas, 2005; Nahapiet & Ghoshal, 1998; Hau et al., 2013). Lucas (2005) further indicated that interpersonal trust among colleagues has a significant impact on the exchange of their knowledge within the organisation. A total of four respondents commented on the role played by trusting others in the virtual organisation. Respondent 8 stated that she might be favourably inclined to cooperate with others because of the existence of a long-standing friendship and trust; this was made evident in the comment below:

> *Most of my co-workers and me have built long-term friendships so that we can mutually trust each other as compared with new co-workers. Based on this trust-based relationship, we can always cooperate with each other so as to effectively enhance our work performance. (Respondent 8, female, Credit Senior Director, April 2014)*

Similarly, when asked if he had any issues concerning workplace networks in the virtual organisation, Respondent 12 replied:

> *I think I will share my knowledge with colleagues who I can trust. In other words, the degree of my willingness to share knowledge with others depends mainly on how worthy I trust them to be. Hence, I will share my knowledge more*

> *with my colleagues if we have a long-standing and trusting relationship. (Respondent 12, male, Extension Division Senior Employee, April 2014)*

Furthermore, when asked if she had any issues concerning knowledge sharing in the virtual organisation, Respondent 14, a supply and marketing senior employee, responded:

> *I think I will trust my colleagues and share my knowledge with them because we all work to pursue the success of the organisation. I consider that helping colleagues will enhance the performance of the organisation. (Respondent 14, female, Supply and Marketing Senior Employee, April 2014)*

As noted by Respondent 14, the culture of the organisation might be helpful in establishing trust in interpersonal relationships. This, in turn, may enhance employees' willingness to share knowledge. A similar study conducted by Nooteboom et al. (1997) found that an individual's predisposition to trust is significantly affected by the organisation's culture.

5.2.3.5 Homophily among Colleagues Makes Compact Social Networks

McPherson et al. (2001) described the term "homophily" as the structures of people's personal networks where many common aspects, such as sociodemographic, behavioural and inward characteristics, are shared. These features are constructed and formed through geographic propinquity, families and organisations, and isomorphic positions in societal systems. The findings from the qualitative interview data showed that a total of 4 respondents described a significant level of homophily among colleagues in terms of their workplace networks within the organisation. As Respondent 19 commented:

> *…most colleagues were born in the same geographic area so they live, study, play and work together in the organisation. Hence, I feel that most colleagues are treated as family in the organisation. (Respondent 19, male, Service Department Senior Employee, May 2014)*

As observed from Respondent 19's comment, this implies that geographic propinquity, socio-demographic characteristics and similar backgrounds bonded them together and therefore formed their particular workplace networks within the organisation. Similar responses were made by Respondent 17 and Respondent 18 who stated that their

similar educational backgrounds, lifestyles and geographic propinquity had created a compact workplace network for them within the organisation. When asked what characteristics had constructed and formed this workplace network in the organisation, Respondent 17 and Respondent 18 responded:

> *Many of the organisational colleagues grew up in the same administrative region of Taiwan and studied and graduated in the same school, and then worked together in the organisation. Hence, this makes us establish long-standing friendships and make us care for each other, and love and help each other. (Respondent 17, female, Service Department Director, May 2014)*

> *I have known the service department director (Respondent 17) well for 30 years since we have lived in the same area and studied in the same school from when we were very young. Hence, we are always happy to work together and share a lot of working experience within the organisation. (Respondent 18, female, Secretary, May 2014)*

As Aristotle (1934, p.1371) stated in the Rhetoric Nichomachean Ethics: people "love those who are like themselves". The comments of the two above-mentioned respondents illustrated that similar upbringings, educational backgrounds and geographic propinquity among colleagues create friendly workplace networks, making employees happy to work together and share a lot of themselves. Makela et al. (2007) also indicated that interpersonal similarity is the primary driver behind knowledge sharing within the context of a multinational corporation. Hence, homophilous relations among colleagues seem to strengthen cooperative relationships in their workplace networks and make them happier within the organisation.

5.2.4 Impact of ICTs on Employees' Knowledge-sharing Behaviour in the Virtual Organisation

Kim and Lee (2006) offered evidence that the level of an individual's utilisation of ICT applications and the degree to which information systems are user-friendly are positively associated with their knowledge-sharing behaviour in both the public and private sectors. In other words, the effective use of ICTs could reduce the barriers involved with knowledge sharing created by, for instance, temporal, physical and social distance (Hendriks, 1999). A total of 10 respondents expressed a strong preference for the utilisation of ICTs and acknowledged factors concerning this use that affected their knowledge-sharing behaviour within the organisation.

5.2.4.1 Affect of the Fit of ICTs on Employees' Knowledge-sharing Behaviour

Prior research has widely discussed how ICTs affect an individual's attitudes, intentions or even behaviour in term of knowledge sharing. Zárraga and Bonache (2003) indicated that the use of informal channels of ICTs can effectively assist colleagues in sharing their knowledge effectively with each other. Lin and Huang (2008) further pointed out that the greater the extent to which users perceive there is a fit between technology and the task, the more knowledge will be shared in the workplace. A total of 9 respondents commented on the role of the fit of ICTs in facilitating knowledge-sharing behaviour. Respondent 1 stated:

> *It seems to me that sharing knowledge though using ICTs is not difficult for our colleagues. This is owing to the fact that the establishment and development of ICTs of our organisation is relatively high and we basically deliver the information using the ICTs. Likewise, I think the interface of ICTs is very friendly. (Respondent 1, male, Publication Division Director, May 2014)*

Moreover, concerning the ease of use of ICTs when sharing knowledge, evidence for this can be seen in the comment of Respondent 6, a training director, who stated:

> *Normally, ICTs are easy to use for me. For instance, we can share and communicate any information or knowledge with our colleagues immediately. (Respondent 6, male, Training Director, May 2014)*

Likewise, when asked what issues there were in terms of sharing knowledge with colleagues via ICTs, a comment made by Respondent 3 showed that interaction played an important role in affecting his willingness to share knowledge via ICTs. He responded:

> *I think interaction is an important thing for me to consider in sharing my knowledge through using ICTs. For instance, it will decrease my willingness to share my knowledge via ICTs if I don't get an appropriate response in this regard. (Respondent 3, male, Researcher, May 2014)*

As noted above, the comments of respondents might be said to correspond to the suggestion made by Olphert and Damodaran (2007) who indicated that effective engagement in the information system can draw participants into social processes,

knowledge sharing and the generation of ideas. However, a different viewpoint was offered by Respondent 5 in terms of sharing knowledge through using ICTs since she considered that sharing knowledge in this way within the organisation might lose the meaning of what she wanted to say. As Respondent 5 said:

> *Sometimes I will consider sharing my knowledge through using ICTs but I am not sure whether my colleagues comprehend what I have written or what I want to express through digital files. This is because the digital file lacks emotion so that I am not convinced that my knowledge can be absorbed effortlessly by my colleagues by using ICTs. (Respondent 5, female, Manager of Publication Division, May 2014)*

Respondent 5 noted above that she worries about expressing clearly what she knows when sharing knowledge through using ICTs. According to Media Richness Theory (MRT), and as supported by Daft et al. (1987), people may have experience of unclear or confusing messages or may have misunderstood the implications of others because of using communication technologies as opposed to interacting with people face-to-face.

5.2.4.2 Right of Privacy Affecting Employees' Knowledge-sharing Behaviour when using ICTs

Dishaw and Strong (1999), who extended the concept of the Technology Acceptance Model (TAM) with Task-technology fit (TTF), validated that information technology can improve individuals' performance, only if suitable system functionalities are available to fit their activities. A total of 10 respondents expressed the importance of the right of privacy when sharing knowledge within the organisation since they tended not to let other colleagues know where they were and at what time they shared knowledge when using ICTs. In this regard, Liu (2014) indicated that a successful access-control technology should include a privacy protection facility for users in order to create privacy. Burnett and Illingworth (2008) further suggested that an anonymous environment will probably trigger individuals' predisposition to share knowledge, in particular that associated with past experiences and/or complaints. As several respondents stated:

> *When I share my knowledge through using ICTs, the first thing that I will take into account is whether the ICTs have functions in terms of privacy. Also, I think that protecting personal privacy (e.g. personal profiles, and when and where I*

share my knowledge) is very important. (Respondent 1, male, Publication Division Director, May 2014)

Even though knowledge sharing through using ICTs is very convenient and easy, I will ensure my personal privacy on ICTs. I do not like everyone to know when or where I share my knowledge. (Respondent 11, male, Manager of Extension Division, April 2014)

As noted above by Respondent 1 and Respondent 11, they are recognised by other colleagues when they contribute their experience or knowledge via the ICTs established by the organisation. This is because the organisation's ICTs through which employees share their knowledge will also show their names, give relevant personal information, and show to which department they belong. Such tracking technology seems to have a significantly negative impact on employees' knowledge-sharing behaviour within the virtual organisation. Similarly, when asked if she had any issues with regard to sharing knowledge with other colleagues via ICTs, Respondent 16, a credit director, responded:

Normally, I will choose different or informal ICTs to share my knowledge with my colleagues, rather than using the formal ICTs of the organisation. Chief among the factors for this is that I am worried about all the knowledge I share being shown to everyone and I do not want that. For instance, sometimes I only want to share my specific knowledge with a particular group. (Respondent 16, female, Credit Director, May 2014)

As stated above by Respondent 16, sharing knowledge through the public and formal ICTs provided by the organisation, as compared to informal ICTs, may further stifle her willingness to share knowledge with other colleagues. This point of view was also demonstrated by Zárraga and Bonache (2003) who indicated that individuals are more willing to share their own knowledge via an informal communication network, rather than through a formal one. Hence, designing appropriate ICTs that precisely answer users' needs is one of the most important elements affecting the success of a knowledge management system (King, 1999).

5.2.5 A Satisfactory Working Environment Consolidates Employees' Working Habits Concerning Knowledge Sharing

As Aarts and Dijksterhuis (2000) suggest, an individual's habits are the result of the

repetitive and accumulated nature of goal-directed behaviour. This implies that an individual's habits in terms of knowledge sharing may be subconsciously or unconsciously formed, based on past goal-directed accumulative behaviour because of the targets or criteria of a long-term organisational culture within an organisation. Therefore, employees' habits may be subconsciously or unconsciously formed if goals or targets are highly consistent with those of the organisation; thus, they will then highly identify with the organisation under the norms of the organisation (see section 5.2.1.1.2). Prior research in terms of individuals' habits carried out by Limayem et al. (2007) indicates that the formation of habits related to the utilisation of Information Technology (IT) may be generated by two antecedents: namely, 1) stability of context, which refers to habits that are formed through similar situational cues or context, performed under regular routines; and 2) satisfaction, which alludes to the habits of an individual that are generated by past successful or satisfactory outcomes in terms of achieving particular objectives. Hence, employees' habits in terms of sharing knowledge seem to be subconsciously or unconsciously formed through job stability within the virtual organisation (see section 5.2.1.2.2). Moreover, when it comes to another important antecedent, namely, the previous satisfactory experience of an individual's habits, Aarts et al. (1997), Limayem et al. (2007) and Chiu et al. (2012) found that satisfactory past experience is significantly associated with the formation of an individual's habits. Hence, it is reasonable to assume that employees' working habits can be formed as a result of the satisfactory characteristics of the organisational culture (see section 5.2.2.1). The following comments, made by Respondent 1 and Respondent 3, reflected this perspective:

> *The organisation culture of the organisation is very friendly. I do not need to hoard my knowledge for personal advancement. Therefore, I can share my own knowledge with my colleagues with less consciousness. (Respondent 1, male, Publication Division Director, May 2014)*

> *Most employees working in the organisation will help with each other or share what they know automatically in essence. I think this is a kind of working habit. This is closely related to the culture of the organisation where we do not need to be intent on personal advancement at the expense of others. Helping others or sharing what I know is just like lifting a finger in the organisation. (Respondent 3, male, Researcher, May 2014)*

Based on the comments above from Respondent 1 and Respondent 3, experiencing a friendly culture within the organisation enhances their unconscious or subconscious

willingness to share knowledge. Moreover, the managers of the virtual organisation may need to take on more responsibility to share their own knowledge among colleagues. Significant evidence for this can be found in the comments of Respondent 11 who noted:

> *Helping others or sharing knowledge with each other is not difficult for me, and I think it is my duty in the organisation. My boss gives me sufficient authority and trusts me a lot so I think I have a duty to make the organisation better. (Respondent 11, male, Manager of Extension Division, April 2014)*

As noted above, the respondents stated that helping others or sharing knowledge with each others can be difficult for them within the organisation. This may imply that such an organisational culture provides them with a satisfactory ambiance and working conditions. Hence, their work habits in terms of knowledge sharing may be formed unconsciously and subconsciously through achieving satisfactory outcomes and experiences under such a culture in the organisation.

5.2.6 Chinese Cultural Factor (of Saving Face) and its Effect on Female Employees'Knowledge-sharing Behaviour

Zhang et al. (2014) found that for most Chinese, a high level of concern about "saving face" is the main factor that affects their knowledge-sharing behaviour. Hofstede (2001) states that "in the collectivistic Chinese society, the individual is not inner-directed at all but controlled by a need not to lose face." Even though Taiwan is a developed democratic country, the Confucious culture is still deeply rooted in the thought of most Taiwanese. According to the face-negotiation theory mentioned by Oetzel and Ting-Toomey (2003), concerns about face can be divided into self-face, other-face and mutual-face. Self-face is an individual's concern for his/her own image, other-face refers to concern for the image of another individual, and mutual-face is concern for both the above-mentioned images and/or the image of the relationship (Oetzel & Ting-Toomey, 2003). Concerning the concept of saving face when sharing knowledge, evidence for this can be seen in the comment of Respondent 2, a manager of General Affairs, who stated:

> *I think I will not actively share my knowledge with my co-workers. This is because I am not sure whether the knowledge I share is correct or not, and whether my knowledge is useful to my co-workers. Sometimes, I will also consider their feelings since I don't know whether they need the knowledge I*

> *share or whether we have the same point of view. As a result, I prefer receiving knowledge from my co-workers rather than sharing it myself. (Respondent 2, female, Manager of General Affairs, May 2014)*

As noted above by Respondent 2, saving face may have a significantly negative impact on her knowledge-sharing behaviour in the virtual organisation. Similarly, when asked if she had any issues with regard to sharing knowledge with other co-workers through using ICTs, Respondent 18, a secretary, responded:

> *Sometimes, I will be more conservative about sharing my knowledge with other co-workers through using ICTs since I do not know whether my knowledge is necessary to them. Hence, I will not share my knowledge with my co-workers unless I think my knowledge is extremely useful to other co-workers. (Respondent 18, female, secretary, May 2014)*

As noted above, it is evident that, based on their upbringing in a Chinese cultural context, female employees seem to be more concerned about saving face than their male counterparts. Sometimes, therefore, they tend to hoard their knowledge instead of sharing it because of their desire to save face within a diverse working environment such as a virtual organisation which consists of a number of different organisations.

5.3 Discussion and Findings from the Qualitative Study

The reasons why individuals have a willingness to share their knowledge has been discussed and examined from different perspectives of psychology (e.g., related to agreeableness and conscientiousness (Matzler et al., 2011)), sociology (e.g., such as social norms (Kimmerle et al., 2008)) and cultural anthropology (e.g., comparing relevant issues in different countries (Zhang et al., 2014)). However, to date, no research seems to have considered the idea that two frequently overlooked concerns in psychology, the sense of well-being and employees' habits in terms of knowledge sharing, may play key roles in influencing employees' knowledge-sharing behaviour in the complex context of the virtual organisation. Likewise, little research has gone further by exploring the relative effects of organisational culture, social capital tendency, employees' sense of well-being, employees' habits, and their knowledge-sharing behaviour via the use of ICTs in organisations, especially a virtual organisation. The qualitative data gathered in this research were analysed, using a thematic analysis approach, to explore deeply the essential elements of employees' knowledge-sharing behaviour in the virtual organisation, composed, in this case, of the whole system of Taiwanese Farmers' Associations. The combination of the

quantitative and qualitative approach was therefore deliberately utilised to examine this case study in detail (see Chapters 2, 3 and 4). The key contributions of the qualitative approach of this research are six-fold. This section started by exploring the relationships among organisational culture, employees' sense of well-being and employees' knowledge-sharing behaviour; this was followed by a discussion of the relationships among social capital tendency, employees' sense of well-being and employees' knowledge-sharing behaviour. The third section of this chapter attempts to understand in greater depth the relationships among organisational culture, employees' habits in terms of knowledge sharing and their knowledge-sharing behaviour. Then, how ICTs of the organisation affect employees' knowledge-sharing behaviour is deeply explored. In the final section, a comparison of the four companies of the virtual organisation is also offered in greater detail.

Firstly, based on the findings from the interview data by using thematic analysis to analyse the relationships among organisational culture, employees' sense of well-being and their knowledge-sharing behaviour within the virtual organisation, it was found that the organisational culture of the organisation indicated a preference for a mixture of a hierarchical and a clan culture. Meanwhile, for most employees of the virtual organisation interviewed by the researcher, their jobs offered them a sense of satisfaction with the organisation. A total of 7 respondents expressed strong satisfaction with the stability of their jobs, their working environment, and the characteristics of the organisational culture. This was because the jobs provided by the organisation offered them a protected livelihood. Moreover, most respondents considered that the traits of clan organisational culture that like an extended family which existed among colleagues in the organisation made them feel pleasure at work. Other respondents felt appreciated and respected by certain practitioners who they themselves helped to solve problems; this then led them to feel a sense of achievement. Through experiencing stable and deep friendships with colleagues in the organisation, employees feel a greater sense of well-being within it. Moreover, engaging with the organisation was identified as important by a total of 7 respondents; this drove them to continue working hard. At the same time, a higher level of identification with the organisation led to better performance and improved both employees' sense of well-being and their knowledge-sharing behaviour. Theurer and Wister (2010) also demonstrated that a strong sense of community engagement positively influenced an individual's happiness and life satisfaction. In this study, a total of 4 respondents considered that working in the organisation was very meaningful and made them feel proud. Moreover, a total of 6 respondents mentioned that the organisation provided them with continual opportunities to learn and grow;

they felt very good about this. According to Ryff and Singer (2008), for an individual to function optimally in a psychological sense, continual growth is one of the most important elements that leads to a sense of well-being. Meantime, the findings revealed that, for 6 respondents, the main source of pressure at work stemmed from their sense of responsibility. Such a sense of responsibility can be regarded as a double-edged sword. On the one hand, 4 respondents considered that they had a willingness to share knowledge with other colleagues because of a feeling of conscientiousness. On the other hand, the research found that the feeling of responsibility was still a source of pressure. Some respondents said that they felt unhappy if they could not complete a job on schedule or could not complete successfully a project assigned by a supervisor. Some respondents' source of pressure of work came from their boss. Besides that, employees seem inclined to be concerned about their faces with the virtual organisation in a Chinese cultural context. Hence, managers of the virtual organisation should establish a friendlier organisational culture, especially considering what leadership style is appropriate, in order to improve employees' sense of well-being and even their knowledge-sharing behaviour.

Secondly, when it comes to the impact of positive psychology on employees' sense of well-being, a total of 6 respondents highlighted the importance of positive thinking, especially in terms of having a greater sense of emotional empathy. They considered being more empathetic made them feel a greater sense of well-being and reported feeling blessed as compared with others. Mehrabian (2000) stated that having empathy towards others can improve an individual's sense of well-being and interpersonal relationships, ultimately leading to success in life. Wei et al. (2011) indicated that when individuals have the ability to empathise with others, others may feel grateful to them in response. This may help individuals who are highly empathetic to feel connected with others and experience a sense of well-being with positive results (Wei et al., 2011). An empirical research analysed by Shanafelt et al. (2005) demonstrated that greater feelings of empathy have a positive impact on the sense of well-being. Moreover, a total of 11 respondents expressed a strong indication in terms of how the altruistic behaviour of employees facilitates their knowledge-sharing behaviour within the organisation. Another important positive aspect concerns altruistic behaviour, which is also a critical element linked to a sense of well-being. Altruism is widely regarded as unselfish concern for the welfare of others; this increases personal psychological growth and the capacity to connect with others (Yalom & Leszcz, 1995). Increased altruistic behaviour in an individual is positively associated with increased social interactions (Okun et al., 2007). Moreover, finding enjoyment in helping others was found to be one of the most important factors

for numerous respondents in sharing their knowledge within the virtual organisation. Behaviour such as helping others has been shown to have a positive impact on raising personal life satisfaction (Yuen, 2002). An empirical research conducted by Theurer and Wister (2010) also validated that the altruistic behaviour of an individual is positively associated with his/her sense of well-being. Therefore, managers of the virtual organisation who have the willingness to construct a successful virtual organisation should take employees' positive personalities into consideration as well.

Thirdly, based on the findings from the interview data, the analytic results showed that a total of 9 respondents would choose to share their knowledge with other colleagues, depending on whether they had good interpersonal relationship with them (see section 5.2.3.1). This implies that close-knit relationships among employees could be an important component that would make them have a stronger willingness to share their knowledge in the virtual organisation. Moreover, as noted by Respondent 14, having a cautious attitude, inclining individuals not to share their knowledge, may stem from a lack of familiarity with others and a sense that a new colleague does not "belong" to the organisation. In other words, when a new colleague is regarded as a member of the organisation, interpersonal acceptance among new and old employees may lead to fewer obstacles with regard to sharing knowledge. Moreover, the findings of the research show that obtaining support and concern from colleagues and supervisors was an important spiritual pillar which encouraged respondents to continue working and which made them feel happy in the organisation. Smith et al. (2012) showed that having a strong social support network was positively related to improvements in the sense of well-being over time. Ekas et al. (2010) also indicated that social support positively affects mood. A total of 9 respondents stated that they "let off some steam" by supporting their colleagues and a total of 8 respondents mentioned that obtaining support from supervisors made them feel happier at work in the organisation.

Fourthly, the research found that respondents' working habits in terms of knowledge sharing were unconsciously or subconsciously formed through the tangible or intangible ambience of the organisation's culture. Previous research into the habits of individuals, which was conducted by Limayem et al. (2007), concluded that the formation of habits associated with the utilisation of Information Technology (IT) may be generated by two antecedents: namely, 1) satisfaction, which refers to the habits of an individual which are generated by successful or satisfactory outcomes in terms of achieving particular objectives; and 2) stability of context, which is related to habits that are formed through similar situational cues or targets, performed under regular routines. Aarts et al. (1997) and Chiu et al. (2012) indicated that satisfaction is

the pivotal antecedent of an individual's habits. The findings of this research show that the respondents were not only satisfied with their stable working conditions in the organisation, they also felt happy about having strong and long-standing friendships and interpersonal relationships with colleagues in the organisation (see section 5.2.1.2.2, section 5.2.2.1 and section 5.2.5). This implies that employees' everyday or routine working habits of sharing knowledge in the organisational cultural context may be gradually constructed and then established because of the accumulative impact of the organisation's culture and its specific goals and strategies. Ruggles (1998) indicates that individuals' perspectives and their behaviour may reflect deeply their specific cultural context when implementing knowledge management. Subsequently, as the behaviour of an individual becomes more routine and automatic, such behaviour may gradually form into habits which will play a more significant role than either behavioural expectation or behavioural intention (Venkatesh et al., 2008). Hence, through the formation of employees' work habits in terms of knowledge sharing by introducing appropriate cultural characteristics, their knowledge-sharing behaviour may be significantly enhanced within the virtual organisation. Consequently, through creating a satisfactory organisational culture and better interpersonal relationships with colleagues, employees' working habits in terms of knowledge sharing could be gradually and accumulatively formed and improved in the organisation.

Fifthly, when it comes to the effect of ICTs on employees' knowledge-sharing behaviour, Hendriks (1999) and Kim and Lee (2006) indicated that the utilisation and establishment of ICTs play an important role in affecting individuals' willingness to share their own knowledge. More importantly, King (1999) indicated that the establishment of appropriate ICTs which would precisely address users' needs is one of the most important elements affecting the success of a knowledge management system. With regard to employees' knowledge-sharing behaviour using ICTs in the virtual organisation, a total of 9 respondents complained that sharing knowledge using ICTs might expose their whereabouts since some respondents mentioned that they did not like letting anyone know where they were and at what time they shared knowledge via the ICTs. This is owing to the fact that when employees share their knowledge through the organisation's ICTs, the system will also show their names, relevant personal information and the department to which they belong. Such tracking technology has a significantly negative impact on employees' knowledge-sharing behaviour within the virtual organisation. Hence, it is imperative for managers to pay more attention to establishing more appropriate ICT applications which will closely suit the online social structure of the virtual organisation.

Sixthly, having analysed and compared the similarity and disparity in terms of employees' knowledge-sharing behaviour from the four companies of the virtual organisation, employees of these companies seem to have common motivations and feelings in terms of knowledge sharing within the virtual organisation. The most noticeable difference was that this research found that employees of company 1 (NTIFO) considered that feeling valued mattered most with regard to their sense of well-being. This situation was exemplified by Respondent 1, Respondent 2 and Respondent 3 working in NTIFO (see section 5.2.2.2.2). The research of Baxter et al. (2013) demonstrated that individuals will work hard and share their knowledge with colleagues if they perceive their contribution is useful to and valued by others. As noted above in the finding from the qualitative approach of this research, this may convince managers of the virtual organisation that they should aim to create a working environment where their employees can feel valued and respected; in so doing, this may improve their sense of well-being which, in turn, will affect their knowledge-sharing behaviour. Consequently, having revised the themes four times and subsequently having used the method of member checking with the respondents in order to understand and reconfirm thoroughly the cause and effect of each analysed theme of the qualitative approach, Figure 5.1 (p.190) below depicts the final integrated map of the themes of the qualitative approach of the research.

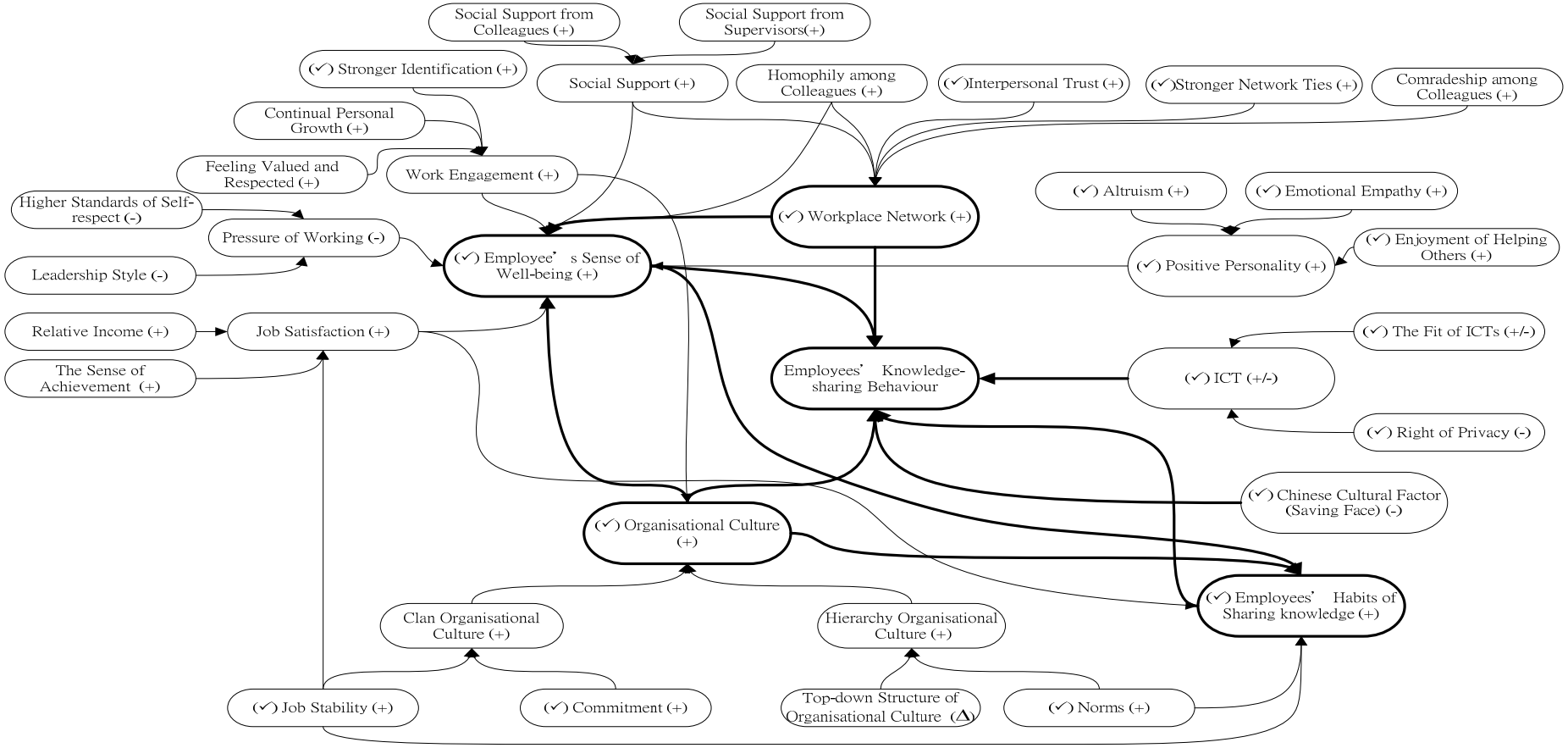

Figure 5.1: The Thematic Map of the Qualitaive Approach

Note 1: (△) symbol means that the relationship between themes has no significant positive or negative impact; (+) symbol means that the theme (factor) positively affects another theme (factor); (-) symbol means that the theme (factor) negatively affects another theme (factor); (✓) symbol means that the theme (factor) affects employees' knowledge-sharing behaviour

5.4 Summary

This research chose to use concurrent mixed methods, thus collecting and analysing both qualitative and quantitative data in the same phase. In the qualitative approach of this research, having revised the themes four times and then used the method of member checking in order to establish a coherent justification for themes, a comprehensive and refined thematic model was created by using thematic analysis (see Figure 5.1, p.190). The results of the qualitative approach of this research not only validated the findings of the quantitative approach but also offered a detailed insight into meaningful and significant details from the qualitative data. Likewise, the findings revealed that the essential elements of each main construct of this research and their relationships with regard to why employees had or had not a willingness to share their knowledge within the context of the virtual organisation in a Chinese cultural context were more complex than had been expected. In the following chapter, the analytic results and findings from the quantitative approach are examined in greater detail. This is followed, in the final chapter, by the research's overarching conclusions, its implications and persuasive recommendations elicited by integrating and comparing the findings of both the qualitative and quantitative approaches.

Chapter 6 Quantitative Data Analysis and Discussion

To gain an in-depth insight into the results obtained from the descriptive statistics and into their connection with the hypotheses of this research, the techniques and processes used here for the analysis of the quantitative approach are largely divided into three sections. In the first section, the research examines the process used to collect the quantitative data. Moreover, having considered the possibility of the occurrence of common method variance (bias) because this research used a single source of data, the researcher adopted a number of methods recommended by Podsakoff et al. (2003) to enhance the quality of the questionnaire. Next, the research analyses the descriptive statistics, using SPSS software (22.0); these statistics include the participants' job roles, gender, age and working years. This is followed by independent-sample t tests and one-way analysis of variance (ANOVA), utilising SPSS, to compare four categories (gender, four different organisations within the virtual organisation, age and working experience) in order to gain a deep insight into the factors affecting the virtual organisation's employees reactions to each research construct (i.e. their sense of well-being, social capital tendency, employees' knowledge-sharing habits, organisational culture and knowledge-sharing behaviour). The third section of the chapter highlights the validation of the results in terms of the following:

1. The measurement model

1) Reliability: This evaluates each individual item's reliability (each item loading) and the internal consistency, including each construct's composite reliability and Cronbach's Alpha;

2) Validity: This assesses convergent validity (Average Variance Extracted, (AVE)) and discriminant validity (the square root of the average variance extracted of each latent construct and cross-loadings);

2. The structural model

This estimates path coefficients and their significance levels, and R-square (R^2);

These were achieved by employing Smart-PLS software (Version: 2.0.M3) which was

established by Ringle, Wende & Will (2005). The results and findings are discussed in more detail later.

6.1 Quantitative Data Collection

Having developed the survey instrument based on a comprehensive review of past literature, the pilot study was initially conducted to evaluate the content validity and reliability of the questionnaire (see section 4.3.4 and Appendix 1). Meanwhile, employees working in the three selected Farmers' Associations and from the NTIFO were invited to participate in the pilot study in order to analyse statistically the construct validity of each variable. The questionnaire for the pilot study was then distributed to collect the quantitative data on paper during the period from 4th March 2014 to 4th April 2014. Finally, 43 valid questionnaires were obtained from the selected Farmers' Associations and the NTIFO (see Appendix 1). The measurement model was then evaluated, using Smart-PLS (Version: 2.0.M3), to analyse reliability (both individual item reliability and internal consistency) and validity (i.e. convergent validity and discriminant validity). Internal consistency values are regarded as acceptable if the scores for composite reliability and Cronbach's Alpha exceed 0.7 for each construct; this illustrates that all measures clarify the same latent construct (Nunnally, 1978; Chin, 1998; Chin et al., 2003). Convergent validity is evaluated using Average Variance Extracted (AVE) while discrimant validity is measured using the square root of AVE and cross loadings (Fornell & Larcker, 1981).

The values of factor loading of most items in the analytic results were virtually or greater than 0.7. Barclay et al. (1995) emphasise that the value of the factor loading of each item should be regarded as having individual item reliability when its value is higher than 0.7. Thus, **WB3, WB6**, **WB8**, **WB16** and **HOC2**, which had lower factor loading values, were deleted. Later, the Cronbach Alpha values of each construct evaluated in this research were found to be higher than 0.7. According to Robinson and Shaver (1973) and Nunnally (1978), the Cronbach Alpha value of each construct has better reliability if its value is higher than 0.7 while the value has inadequate reliability if its value is lower than 0.3. Furthermore, the analytic results revealed that the values of Composite Reliability (CR) for each research construct exceeded 0.886, ranging from 0.886 to 0.978. Chin (1998a) and Chin et al. (2003) indicate that each research construct has internal consistency if the composite reliability value is higher than 0.7. Each construct of the research, therefore, achieved an acceptable level of internal consistency. Subsequently, convergent validity was assessed by checking the Average Variance Extracted (AVE) and these values for each construct were found to be greater than 0.5. According to Fornell and Larcker (1981), the convergent validity

of each construct is deemed acceptable if the average variance value of the research constructs is 0.5 or greater. Consequently, a total of 63 items were included in the final full-scale questionnaire used in the quantitative approach of this research (see Appendix 3). Table 6.1 shows the items, the loading, Cronbach's Alpha, the Composite Reliability and the AVE of each construct in the pilot study of this research.

Table 6.1: The Analytic Results for Internal Consistency Reliability and the Convergent Validity of each Construct of the Research (the Pilot Study)

Constructs	Items	Loadings	Cronbach's Alpha	Composite Reliability	AVE
The Sense of Well-being					
1. Well-being (WB)			0.976	0.978	0.612
	WB1	0.873			
	WB2	0.939			
	WB3	0.697 (Deleted)			
	WB4	0.721			
	WB5	0.827			
	WB6	0.680 (Deleted)			
	WB7	0.714			
	WB8	0.686 (Deleted)			
	WB9	0.794			
	WB10	0.827			
	WB11	0.717			
	WB12	0.721			
	WB13	0.832			
	WB14	0.840			
	WB15	0.939			
	WB16	0.476(Deleted)			
	WB17	0.754			
	WB18	0.769			
	WB19	0.747			
	WB20	0.788			
	WB21	0.840			
	WB22	0.847			
	WB23	0.939			
	WB24	0.744			
	WB25	0.754			

	WB26	0.776			
	WB27	0.754			
	WB28	0.733			
	WB29	0.794			
Social Capital Theory					
1.Relational Capital (RC)			0.909	0.942	0.845
	RC1	0.929			
	RC2	0.903			
	RC3	0.926			
2. Cognitive Capital (CC)			0.841	0.904	0.760
	CC1	0.916			
	CC2	0.864			
	CC3	0.833			
3. Structural Capital (SC)			0.929	0.955	0.877
	SC1	0.968			
	SC2	0.915			
	SC3	0.924			
An Individual's Habits (HB)					
Habits (HB)			0.929	0.944	0.740
	HB1	0.848			
	HB2	0.888			
	HB3	0.920			
	HB4	0.843			
	HB5	0.859			
	HB6	0.797			
Knowledge-sharing Behaviour					
Knowledge-sharing					
1.Explicit Knowledge-sharing (EKS)			0.923	0.946	0.814
	EKS1	0.880			
	EKS2	0.845			
	EKS3	0.856			
	EKS4	0.841			
2.Tacit Knowledge-sharing(TKS)			0.953	0.966	0.877

	TKS1	0.862			
	TKS2	0.855			
	TKS3	0.908			
	TKS4	0.931			
Organisational Culture					
1.Adhocracy Organisational Culture (AOC)			0.916	0.941	0.800
	AOC1	0.936			
	AOC2	0.856			
	AOC3	0.921			
	AOC4	0.861			
2.Clan Organisational Culture (COC)			0.878	0.916	0.760
	COC1	0.876			
	COC2	0.873			
	COC3	0.856			
	COC4	0.816			
3. Hierarchy Organisational Culture (HOC)			0.834	0.886	0.666
	HOC1	0.800			
	HOC2	0.639 (deleted)			
	HOC3	0.916			
	HOC4	0.879			
4.Market Organisational Culture (MOC)			0.880	0.917	0.735
	MOC1	0.874			
	MOC2	0.846			
	MOC3	0.810			
	MOC4	0.896			

Discriminant validity of the measurement model refers to the degree to which the items distinguish among constructs; it is estimated by two criteria, namely: 1) the square root of the Average Variance Extracted, and 2) cross loading. The value of the square root of the Average Variance Extracted of each latent variable can be regarded as acceptable if its value exceeds that construct's correlation with other constructs. The cross loading indicates that the values of the items of each construct should be greater than other constructs. Table 6.2 below shows that the value of the square root

of the Average Variance Extracted of each latent construct is greater than that construct's correlation with other constructs. In addition, as shown in Table 6.3, the values of the items of each construct are higher than the values of the items of other constructs. Therefore, the analytic results reveal that the discriminant validity is great in this research while the analytic results of the measurement model of this research's pilot study shows greater reliability and validity.

Table 6.2: The Value of the Square Root of the Average Variance Extracted (AVE) of Individual Latent Constructs

	AOC	CC	COC	HB	HOC	EKS	MOC	TKS	RC	SC	WB
AOC	**0.894**										
CC	0.247	**0.871**									
COC	0.379	0.470	**0.871**								
HB	0.595	0.400	0.313	**0.860**							
HOC	0.751	0.240	0.401	0.684	**0.816**						
EKS	0.701	0.366	0.395	0.676	0.650	**0.902**					
MOC	0.815	0.180	0.330	0.637	0.804	0.780	**0.857**				
TKS	0.560	0.168	0.263	0.648	0.652	0.803	0.679	**0.936**			
RC	0.490	0.558	0.453	0.394	0.441	0.350	0.404	0.332	**0.919**		
SC	0.213	0.438	0.356	0.370	0.319	0.309	0.251	0.258	0.535	**0.936**	
WB	0.605	0.581	0.720	0.607	0.657	0.689	0.585	0.642	0.736	0.537	**0.782**

Note 1: AOC=Adhocracy Organisational Culture, COC=Clan Organisational Culture, CC=Cognitive Capital, KS=Knowledge Sharing, HB=an Individual's Habits, HOC=Hierarchy Organisational Culture, WB=the Sense of Well-being, RC=Rational Capital, SC=Structural Capital, MOC=Market Organisational Culture.

Note 2: Diagonal bold letters are the square roots of AVE.

Table 6.3: Cross Loadings of Each Construct

	AOC	CC	COC	HB	HOC	EKS	MOC	TKS	RC	SC	WB
AOC1	**0.937**	0.207	0.369	0.522	0.751	0.605	0.786	0.464	0.408	0.121	0.536
AOC2	**0.853**	0.173	0.353	0.529	0.521	0.652	0.620	0.454	0.271	0.205	0.446
AOC3	**0.922**	0.224	0.411	0.513	0.743	0.616	0.794	0.492	0.460	0.196	0.590
AOC4	**0.861**	0.270	0.232	0.562	0.657	0.638	0.704	0.582	0.583	0.236	0.593
CC1	0.260	**0.916**	0.510	0.344	0.310	0.309	0.218	0.184	0.510	0.350	0.488
CC2	0.191	**0.863**	0.371	0.393	0.119	0.266	0.052	0.022	0.459	0.434	0.434
CC3	0.194	**0.833**	0.346	0.309	0.198	0.384	0.200	0.234	0.491	0.361	0.548
COC1	0.430	0.368	**0.880**	0.345	0.469	0.287	0.361	0.255	0.485	0.474	0.605
COC2	0.432	0.349	**0.876**	0.236	0.437	0.318	0.364	0.137	0.437	0.368	0.575

COC3	0.309	0.496	**0.854**	0.180	0.243	0.387	0.317	0.183	0.344	0.244	0.624
COC4	0.138	0.396	**0.812**	0.300	0.228	0.358	0.097	0.312	0.287	0.136	0.642
EKS1	0.735	0.272	0.368	0.683	0.686	**0.935**	0.793	0.736	0.311	0.252	0.666
EKS2	0.701	0.254	0.341	0.515	0.552	**0.891**	0.730	0.708	0.350	0.255	0.596
EKS3	0.541	0.410	0.376	0.623	0.531	**0.916**	0.657	0.713	0.199	0.315	0.602
EKS4	0.549	0.388	0.338	0.605	0.565	**0.864**	0.631	0.740	0.408	0.296	0.638
HB1	0.540	0.346	0.180	**0.846**	0.545	0.512	0.459	0.524	0.421	0.140	0.505
HB2	0.530	0.478	0.277	**0.887**	0.573	0.508	0.492	0.542	0.503	0.323	0.573
HB3	0.485	0.416	0.315	**0.920**	0.558	0.594	0.480	0.535	0.293	0.380	0.552
HB4	0.609	0.321	0.332	**0.841**	0.725	0.628	0.632	0.642	0.266	0.313	0.545
HB5	0.557	0.225	0.278	**0.862**	0.614	0.671	0.666	0.583	0.286	0.328	0.524
HB6	0.305	0.297	0.207	**0.801**	0.470	0.545	0.522	0.493	0.293	0.426	0.490
HOC1	0.505	0.115	0.440	0.413	**0.804**	0.361	0.638	0.441	0.279	0.120	0.506
HOC3	0.703	0.266	0.301	0.717	**0.915**	0.595	0.751	0.515	0.402	0.304	0.559
HOC4	0.732	0.227	0.344	0.623	**0.901**	0.703	0.825	0.730	0.454	0.375	0.661
MOC1	0.713	0.187	0.401	0.669	0.745	0.713	**0.887**	0.575	0.369	0.262	0.608
MOC2	0.655	0.303	0.251	0.460	0.749	0.714	**0.836**	0.620	0.469	0.443	0.533
MOC3	0.702	0.057	0.090	0.350	0.659	0.581	**0.793**	0.507	0.268	0.103	0.325
MOC4	0.736	0.043	0.298	0.615	0.751	0.646	**0.901**	0.617	0.264	0.027	0.478
RC1	0.452	0.622	0.401	0.383	0.361	0.359	0.375	0.297	**0.929**	0.537	0.627
RC2	0.503	0.398	0.481	0.327	0.468	0.290	0.410	0.281	**0.903**	0.460	0.713
RC3	0.400	0.505	0.375	0.375	0.397	0.312	0.332	0.337	**0.926**	0.474	0.688
SC1	0.200	0.351	0.340	0.286	0.283	0.258	0.234	0.232	0.472	**0.968**	0.458
SC2	0.190	0.435	0.401	0.372	0.349	0.227	0.253	0.137	0.506	**0.915**	0.466
SC3	0.207	0.440	0.262	0.378	0.265	0.379	0.219	0.353	0.523	**0.924**	0.551
TKS1	0.486	0.143	0.291	0.627	0.602	0.701	0.643	**0.936**	0.304	0.262	0.616
TKS2	0.387	0.189	0.189	0.615	0.501	0.693	0.537	**0.931**	0.331	0.257	0.566
TKS3	0.638	0.069	0.246	0.539	0.669	0.797	0.689	**0.924**	0.251	0.157	0.590
TKS4	0.577	0.225	0.253	0.646	0.664	0.812	0.668	**0.954**	0.354	0.288	0.669
WB1	0.512	0.566	0.614	0.497	0.512	0.468	0.439	0.442	0.795	0.513	**0.870**
WB10	0.386	0.453	0.548	0.474	0.456	0.577	0.423	0.648	0.599	0.373	**0.835**
WB11	0.485	0.388	0.396	0.507	0.583	0.724	0.491	0.724	0.422	0.331	**0.729**
WB12	0.538	0.324	0.348	0.602	0.632	0.731	0.583	0.738	0.416	0.279	**0.742**
WB13	0.432	0.460	0.541	0.411	0.505	0.377	0.404	0.441	0.821	0.458	**0.827**
WB14	0.577	0.533	0.496	0.491	0.589	0.502	0.527	0.482	0.781	0.512	**0.837**
WB15	0.502	0.585	0.767	0.521	0.564	0.561	0.506	0.485	0.707	0.462	**0.933**
WB17	0.253	0.374	0.772	0.445	0.371	0.393	0.232	0.380	0.455	0.296	**0.761**
WB18	0.611	0.363	0.424	0.594	0.612	0.731	0.575	0.777	0.564	0.369	**0.780**

WB19	0.645	0.488	0.311	0.572	0.616	0.664	0.583	0.627	0.531	0.530	**0.743**
WB2	0.502	0.585	0.767	0.521	0.564	0.561	0.506	0.485	0.707	0.462	**0.933**
WB20	0.603	0.291	0.385	0.453	0.660	0.664	0.655	0.620	0.590	0.370	**0.783**
WB21	0.652	0.528	0.533	0.602	0.632	0.634	0.553	0.583	0.660	0.501	**0.839**
WB22	0.493	0.475	0.484	0.386	0.498	0.467	0.445	0.494	0.724	0.521	**0.845**
WB23	0.502	0.585	0.767	0.521	0.564	0.561	0.506	0.485	0.707	0.462	**0.933**
WB24	0.355	0.513	0.704	0.286	0.301	0.406	0.363	0.301	0.448	0.335	**0.730**
WB25	0.253	0.374	0.702	0.445	0.371	0.393	0.232	0.380	0.455	0.296	**0.761**
WB26	0.352	0.434	0.754	0.324	0.389	0.415	0.390	0.418	0.552	0.376	**0.776**
WB27	0.253	0.374	0.712	0.445	0.371	0.393	0.232	0.380	0.455	0.296	**0.761**
WB28	0.631	0.253	0.438	0.514	0.631	0.701	0.591	0.577	0.497	0.267	**0.743**
WB29	0.586	0.421	0.514	0.598	0.646	0.582	0.593	0.439	0.648	0.487	**0.798**
WB4	0.300	0.477	0.788	0.380	0.330	0.355	0.245	0.314	0.408	0.191	**0.718**
WB5	0.520	0.550	0.566	0.456	0.527	0.538	0.482	0.410	0.685	0.675	**0.820**
WB7	0.408	0.472	0.457	0.605	0.479	0.594	0.388	0.462	0.424	0.698	**0.720**
WB9	0.578	0.408	0.681	0.590	0.590	0.604	0.539	0.458	0.559	0.409	**0.792**

Note 1: AOC=Adhocracy Organisational Culture, COC=Clan Organisational Culture, CC=Cognitive Capital, KS=Knowledge Sharing, HB=an Individual's Habits, HOC=Hierarchy Organisational Culture, WB=the Sense of Well-being, RC=Rational Capital, SC=Structural Capital, MOC=Market Organisational Culture.

Note 2: Diagonal bold letters are the cross loadings of each construct.

6.2 Sampling and Demographic Descriptions

Having completed and analysed the pre-test of the questionnaire, the researcher then contacted, by letter, the three selected Farmers' Associations (namely, one urban, one hybrid and one rural Farmers' Association in Hualien county, Taiwan) and the NTIFO. (The particular items for each construct of both the English and Chinese versions of the full-scale questionnaire are provided in Appendix 3 and Appendix 4.) The primary reason of choosing these three specific Farmers' Associations within the same administrative region (namely, Hualien county, Taiwan) is that it was considered that Farmers' Associations within the same administrative region would be more likely and willing to co-operate and co-ordinate their efforts more easily, frequently and closely. In order to accelerate the overall rate of recovering the questionnaire, the final full-scale version was distributed and gathered on paper during the period of April 2014 to June 2014. Moreover, having considered the above-mentioned factors, stratified purposive sampling was adopted for the quantitative sampling in this research. Subsequently, a total of 201 valid paper questionnaires were gathered. Table 6.4 shows in more detail the cases and samples in the quantitative data of this

research.

Table 6.4: The Case and Samples of the Quantitative Data of the Research

Descriptions	Number/WF	Percentage	Cumulative Percent
Information on the Virtual Organisation (The Number of Respondents)			
Company 1 (NTIFO)	58/62	28.9	28.9
Company 2 (Urban FA)	50/56	24.9	53.7
Company 3 (Hybrid FA)	46/55	22.9	76.6
Company 4 (Rural FA)	47/56	23.4	100.0
Total	201	100.0	

Note 1. FA=Farmers' Association, NTIFO=National Training Institute for Farmers' Organisations, WF=Current Work Force

In order to illustrate a comprehensive understanding of the traits of the respondents, Table 6.5 below offers descriptive statistics, elicited using SPSS (Version 22), concerning the characteristics of the respondents; these include their gender, age and working years. In total, 201 valid questionnaires were collected and the figures show that 42.3 percent of the respondents were male whilst 57.7 percent were female. In terms of age, 35.3 percent of the respondents were less than 40 years old while only 5.2 percent of the respondents were less than 25 years old. 70.6 percent of the total number of respondents had worked for more than ten years within the whole system of Farmers' Associations. More particularly, 44.8 percent of the respondents had worked in the same place for over 20 years. In other words, Table 6.5 shows clearly that the majority of respondents had sufficient experience of working and cooperating with colleagues in the Farmers' Associations and the NTIFO.

Table 6.5: The Relevant Characteristics of the Respondents of this Research

Descriptions	Frequency	Percentage	Cumulative Percent
Gender			
Male	85	42.3	42.3
Female	116	57.7	100.0
Total	201	100.0	
Age			
21~25 Years Old	9	4.5	5.2
26~30 Years Old	18	9.0	13.4

31~35 Years Old	26	12.9	26.4
36~40 Years Old	18	9.0	35.3
41~45 Years Old	39	19.4	54.7
46~50 Years Old	31	15.4	70.1
51 Years Old (or over)	60	29.9	100.0
Total	201	100.0	
Working Years			
1 Year (or under)	14	7.0	7.1
1~3 Years	28	13.9	20.9
4~6 Years	9	4.5	25.4
7~9 Years	8	4.0	29.4
10~15 Years	19	9.5	38.8
16~20 Years	33	16.4	55.2
20 Years (or over)	90	44.8	100.0
Total	201	100.0	

6.3 Procedure for the Analysis of the Quantitative Data

Then, the Partial Least Squares (PLS) approach was chosen as the analytic technique used to estimate the quantitative data in this research. This approach has numerous advantages that make it appropriate for this research since it has the ability to conduct formative and reflective constructs simultaneously, as well as analyse small sample sizes without the requirement to normalize the data (Chin, 1998; Chin & Newsted, 1999, p.307; Chin et al., 2003; Wixom & Watson, 2001). Basically, the Partial Least Squares technique, which was derived from the path analysis underlying regression analysis, is one of the analytic tools used in Structural Equation Modelling (SEM). One significant reason for applying the Partial Least Squares approach in this research is because this statistical analytic tool can test both the measurement model and the structural model. Another equally important factor is that Partial Least Squares has the outstanding ability to measure small samples and analyse complicated research models (Chin & Newsted, 1999; Green & Ryans, 1990; Henseler et al., 2009; Lee, 2001; Nijssen & Douglas, 2008; Pinto et al, 2008). Chin and Newsted (1999) and Fernandes (2012) indicated that the accepted minimum sample number for PLS is 30. Chin (1998a) and Wixom and Watson (2001) suggest that the minimum sampling for PLS might be 10 times the number of items composing the most formative construct or a number of independent constructs affecting an independent construct. Moreover, an analytic approach using Partial Least Squares is generally suggested for predictive research models where the emphasis is on the early development of the theory (Chin, 1998; Chin & Newsted, 1999; Lee, 2000) while LISREL is recommended for

confirmatory analysis and emphasises a more severe adherence to assumptions (Joreskog & Wold, 1982; Lee, 2000). Given that there are insufficient empirical studies and little prior theory in this research context, the research focuses on the early development of theory. As a result, the researcher considered that Partial Least Squares was more suitable for the research than other analytic tools for the structural equation modelling. (See 4.3.6: Selection of Analytic Methods for Quantitative Research.)

6.4 Common Method Variance (bias)

Meanwhile, in order to avoid the possibility of common method variance (bias) on account of this study using a single source of data, the research adopted a number of methods recommended by Podsakoff et al. (2003) to confirm the quality of the questionnaire. The researcher conducted the quantitative research using a mixture of positively and negatively worded statements regarding the items, the respondents' anonymity was preserved, the name of each research variable was hidden, and respondents were required to answer the questionnaire as honestly as possible. In addition, the research used Harman's single-factor test to evaluate the quantitative data for common method variance. The analytic results showed that the first factor accounted for 45.07% of the total variance (Podsakoff & Organ, 1986). This means that no single factor accounted for most of the variance and therefore common method variance was not considered a threat in this research. Besides, the study used the Pearson correlation coefficient to measure the correlated degree of each variable. The results showed that the values of the items of each construct were higher than the values of the items of other constructs. This means that each item is highly associated with its variable and that there is no strong correlation between each variable.

6.5 The Analysis of Measurement Model

As noted above, the measurement model was used to appraise both the reliability (i.e., the individual item reliability and the internal consistency) and the validity (both convergent and discriminant validity) of the research.

6.5.1 Reliability

Meanwhile, individual items in the questionnaire are linked to factor loading and, in order to be acceptable, must show values close to or above 0.7 (Barclay et al., 1995). Internal consistency is considered to be acceptable if the composite reliability and Cronbach's Alpha for each construct exceeds 0.7; in other words, this implies that the

same latent construct is consistently represented (Nunnally, 1978; Chin, 1998; Chin et al., 2003). In terms of the evaluation of the validity of the measurement model, convergent validity is analysed by checking the Average Variance Extracted (AVE). The AVE value of each construct is considered to be acceptable if its value is greater than 0.5 (Fornell & Larcker, 1981; Pavlou & Fygenson, 2006). Discriminant validity is examined by evaluating the square root of the Average Variance Extracted (AVE) of each latent construct and the cross-loading matrix. Fornell and Larcker (1981) and Chin et al. (2003) indicate that discriminant validity can be regarded as significant if: 1) the value of the square root of the Average Variance Extracted (AVE) of an individual construct is greater than the value of the square root of the AVE of that construct's correlation with other constructs; and if 2) the individual item of each construct is high compared with the items of other constructs.

The measurement model was then evaluated, using Smart-PLS (Version: 2.0.M3), in order to analyse the survey's reliability (both individual item reliability and internal consistency) and validity (i.e. convergent validity and discriminant validity). The results of the analysis showed that the factor loading values for most items were greater than 0.7, and were significant, except for items **WB5**, **WB6**, **WB15**, **WB16**, **WB17**, **WB23**, **WB24** and **WB25** of WB with the lower value of factor loading removed. According to Barclay et al. (1995), the factor loading value of each item can be regarded as being acceptable in terms of individual item reliability if its value is higher than 0.7. Meanwhile, items **WB4**, **WB8**, **WB14** and **WB21** were also removed from the instrument with the lower values of cross loading as compared with the items of COC. Fornell and Larcker (1981) and Chin et al. (2003) indicate that discriminate validity can be regarded as significant if the individual item of each construct is high compared with the items of other constructs.

Then, the research retested the measurement model again. The results of the analysis revealed that the factor loading values for all items were greater than 0.7, and were significant. Barclay et al. (1995) indicate that when the factor loading value of each item is greater or virtually than 0.7, it can be deemed to have individual item reliability. With regard to the Cronbach Alpha values of each construct evaluated in this research, the values of all constructs were higher than 0.8, ranging in fact from 0.800 to 0.972. Robinson and Shaver (1973) and Nunnally (1978) point out that each construct can be considered to have sufficient reliability when its Cronbach Alpha value is higher than 0.7. Moreover, the values of Composite Reliability (CR) for the research constructs exceeded 0.882 in this research, thus achieving an acceptable level of internal consistency. According to Chin (1998a) and Chin et al. (2003), each

research construct can be said to have internal consistency when the composite reliability value is greater or virtually than 0.7. Subsequently, when assessing the research's convergent validity, which was achieved by checking the Average Variance Extracted (AVE), each construct was found to have exceeded 0.6, ranging in fact from 0.649 to 0.840. The convergent validity of each construct is deemed acceptable when the AVE value of the research construct is above 0.5 (Fornell & Larcker, 1981). Table 6.6 represents the relevant values of the measurement model as well as offering descriptive statistics of the measures (mean, median, standard deviation, skewness and kurtosis). Moreover, the values of skewness and kurtosis are acceptable if their values are less than 2.0 and 7.0 respectively (Curran et al., 1996).

Table 6.6: The Relevant Analytic Values of the Measurement Model of the Research

Constructs	Items	Mean (SD)	Median	Loadings	t-Value	Skewness	Kurtosis
1. Well-being (WB)	WB1	3.66(0.78)	4.00	0.905	52.11***	-0.346	0.144
(Cronbach's Alpha=0.972,	WB2	3.82(0.82)	4.00	0.890	53.35***	-0.345	-0.372
CR=0.975, AVE=0.751)	WB3	3.85(0.87)	4.00	0.832	36.65***	-0.348	-0.564
	WB7	3.86(0.88)	4.00	0.821	35.69***	-0.398	-0.543
	WB9	3.74(0.75)	4.00	0.849	30.02***	-0.597	0.669
	WB10	3.75(0.75)	4.00	0.852	31.42***	-0.575	0.586
	WB11	3.64(0.79)	4.00	0.917	63.23***	-0.310	0.051
	WB12	3.66(0.78)	4.00	0.906	56.71***	-0.255	0.034
	WB13	3.83(0.83)	4.00	0.862	28.68***	-0.358	-0.389
	WB18	3.65(0.79)	4.00	0.912	61.38***	-0.327	0.072
	WB19	3.81(0.83)	4.00	0.871	29.33***	-0.329	-0.400
	WB20	3.84(0.85)	4.00	0.819	34.13***	-0.361	-0.478
	WB22	3.85(0.85)	4.00	0.820	34.39***	-0.343	-0.503
Social Capital Theory (SCT)							
1.Relational Capital (RC)	RC1	3.67(0.92)	4.00	0.879	58.60***	-0.395	-0.457
(Cronbach's Alpha=0.856,	RC2	3.88(0.82)	4.00	0.895	51.61***	-0.322	-0.476
CR=0.912, AVE=0.777)	RC3	3.77(0.77)	4.00	0.870	40.15***	-0.186	-0.341
2. Cognitive Capital (CC)	CC1	3.51(0.87)	3.00	0.825	34.26***	0.006	-0.477
(Cronbach's Alpha=0.800,	CC2	3.27(0.90)	3.00	0.870	41.16***	-0.083	-0.462
CR=0.882, AVE=0.714)	CC3	3.26(0.86)	3.00	0.838	20.46***	0.247	-0.129
3. Structural Capital (SC)	SC1	3.99(0.72)	4.00	0.927	79.60***	-0.470	0.250
(Cronbach's Alpha=0.848,	SC2	3.96(0.73)	4.00	0.913	53.35***	-0.335	-0.105
CR=0.909, AVE=0.771)	SC3	3.82(0.88)	4.00	0.786	19.42***	-0.479	-0.398
An Individual's Habits (HB)							
Habits (HB) (Cronbach's	HB1	3.67(0.78)	4.00	0.844	33.36***	0.146	-0.643

Alpha=0.914,CR=0.933, AVE=0.699)	HB2	3.53(0.78)	3.00	0.861	43.28***	0.146	-0.416
	HB3	3.67(0.81)	4.00	0.862	37.86***	-0.118	-0.485
	HB4	3.68(0.74)	4.00	0.831	32.64***	0.139	-0.516
	HB5	3.99(0.76)	4.00	0.817	27.73***	-0.398	-0.211
	HB6	3.98(0.74)	4.00	0.799	25.08***	-0.117	-0.777
Knowledge-sharing Behaviour							
1.Explicit Knowledge-sharing (EKS) (Cronbach's Alpha=0.929,CR=0.950, AVE=0.826)	EKS1	3.68(0.88)	4.00	0.921	87.07***	-0.080	-0.753
	EKS2	3.67(0.85)	4.00	0.920	86.81***	-0.005	-0.720
	EKS3	3.69(0.89)	4.00	0.929	85.23***	0.061	-0.934
	EKS4	3.36(0.91)	3.00	0.863	46.30***	0.219	-0.747
2.Tacit Knowledge-sharing(TKS)(Cronbach's Alpha=0.936,CR=0.954, AVE=0.840)	TKS1	3.38(0.95)	3.00	0.901	49.63***	0.287	0.821
	TKS2	3.21(0.91)	3.00	0.926	90.32***	0.111	-0.595
	TKS3	3.54(0.98)	4.00	0.901	69.85***	-0.072	-0.888
	TKS4	3.22(0.91)	3.00	0.902	84.96***	0.281	-0.563
Organisational Culture							
1.Adhocracy Organisational Culture (AOC) (Cronbach's Alpha=0.820, CR=0.880, AVE=0.649)	AOC1	3.34(0.96)	3.00	0.852	31.34***	-0.047	-0.514
	AOC2	4.08(0.87)	4.00	0.721	13.85***	-0.931	0.821
	AOC3	3.55(0.91)	4.00	0.836	36.26***	-0.187	-0.234
	AOC4	3.62(0.87)	4.00	0.807	26.73***	-0.356	-0.107
2.Clan Organisational Culture (COC) (Cronbach's Alpha=0.859, CR=0.904, AVE=0.705)	COC1	3.79(0.73)	4.00	0.854	42.06***	-0.578	0.861
	COC2	3.98(0.73)	4.00	0.904	72.16***	-0.579	0.463
	COC3	4.02(0.78)	4.00	0.850	37.17***	-0.610	0.180
	COC4	3.61(0.84)	4.00	0.741	17.96***	-0.223	-0.511
3. Hierarchy Organisational Culture (HOC) (Cronbach's Alpha=0.822, CR=0.891, AVE=0.733)	HOC1	3.69(0.91)	4.00	0.898	63.74***	-0.340	-0.656
	HOC3	3.72(0.99)	4.00	0.791	21.69***	-0.351	-0.899
	HOC4	3.80(0.88)	4.00	0.874	31.76***	-0.417	-0.488
4. .Market Organisational Culture (MOC) (Cronbach's Alpha=0.932, CR=0.951, AVE=0.831)	MOC1	3.70(1.02)	4.00	0.884	50.76***	-0.151	-1.048
	MOC2	3.35(0.99)	3.00	0.936	114.78***	0.335	-0.805
	MOC3	3.40(0.96)	3.00	0.922	83.70***	0.211	-0.738
	MOC4	3.56(0.96)	3.00	0.904	53.40***	0.040	-0.985

Note 1: AVE=Average Variance Extracted, SD=Standard Deviation, CR=Composite Reliability, AOC=Adhocracy Organisational Culture, COC=Clan Organisational Culture, CC=Cognitive Capital, KS=Knowledge Sharing, HB=an Individual's Habits, HOC=Hierarchy Organisational Culture, WB=the Sense of Well-being, RC=Rational Capital,

SC=Structural Capital, MOC=Market Organisational Culture.
*Note 2: *p<0.05; **p<0.01; ***p<0.001.*

In addition, as shown in Table 6.6, when further evaluating the difference between the mean and median values of the items of each construct, there is no significant difference between the values of these two types in terms of employees' sense of well-being. The results concerning the sense of well-being construct of employees show that the top three items are: **WB7** "I do not think that the world is a good place" (with a mean of 3.86), **WB3** "I have very warm feelings towards everyone" (with a mean of 3.85), and **WB22** "I usually have a good influence on events" (with a mean of 3.85). These were followed by **WB20** "I do not have a particular sense of meaning and purpose in my life" (reversed item with a mean of 3.84). The findings reveal that the majority of employees working within the selected virtual organisation have more positive feelings with regard to organisational activities and consider that their jobs are meaningful in their lives.

When comparing the mean and median values of the items of social capital theory, including relational capital (RC), cognitive capital (CC) and structural capital (SC), there is no significant difference between them, with the exception of **CC1** "There is considerable consensus among my organisational colleagues about what is important at work". This implies that employees of the organisation may sometimes think differently about pursuing organisational targets. Further, **RC2** "I have a very good relationship with my organisational colleagues" (with a mean of 3.88), **CC1** "There is considerable consensus among my organisational colleagues about what is important at work" (with a mean of 3.51) and **SC1** "I do not trust that my organisational members are worthy to rely on" ranked first in each construct of social capital theory (the reversed item with a mean of 3.99). It seems that most employees enjoyed positive interpersonal relationships and tended to trust others more in terms of underlying shared goals; there was considerable consensus about what is important at work within the virtual organisation.

With regard to the construct concerning an individual's habits (HB), the analytic results from the mean and median values of the items showed that there were no significant differences, except for **HB2** "Sharing knowledge with the organisational employees is not natural to me." This implies that such knowledge-sharing habits of employees may be unconsciously or subconsciously formed by accumulative learning and experience. Furthermore, the mean values of **H5** "I share my knowledge more often when I consider that my answers can help members to solve questions" (with a

mean of 3.99) and **H6** "I unconsciously or subconsciously share my knowledge more often when I continually share my knowledge in the organisation" (with a mean of 3.98) and **H4** "My habits, performed under regular routines, are formed through similar situational cues or organisational targets" (with a mean of 3.68) were relatively higher compared with other items of the construct. Hence, it can be seen that employees' working habits in terms of sharing knowledge are unconsciously or subconsciously formed by their prior accumulative experience and positive outcomes stemming from similar situational cues or organisational targets.

When comparing the different types (i.e. tacit and explicit) of knowledge-sharing behaviour in terms of the mean and median values of the items, no significant differences were found. **EKS3** "I am pleased to share related official documents on the IT systems with other employees of the organisation" (with a mean of 3.69) and **TKS3** "I do not like to provide my expertise on the IT systems with other employees of this organisation" (reversed item with a mean of 3.54) ranked first in these two constructs respectively. Furthermore, when the mean and median values of the items of the construct in terms of organisational culture were evaluated, there was no significant difference between the values of the two types, except for **MOC4** "My organisation defines success on the basis of winning in the marketplace and outpacing the competition. Competitive market leadership is key." These results show that employees have different viewpoints from the point of view of defining the success of the organisation. Meanwhile, the highest mean values for dominant characteristics, the management of employees, organisational glue and criteria of success were **COC1** "My organisation is a very special place. It is like an extended family. People seem to share a lot of themselves" (with a mean of 3.79), **AOC2** "The management style in the organisation is characterised by individual risk-taking, innovation, flexibility and uniqueness" (with a mean of 4.08), **COC3** "My organisation defines success on the basis of development of human resources, teamwork and concern for people" (with a mean of 4.02) and **HOC4** "My organisation defines success on the basis of efficiency. Dependable delivery, smooth scheduling, and low cost production are critical" (with a mean of 3.80). These results show that the characteristics of organisational culture of the virtual organisation represent, to a varying degree, a mixture of various types of organisational cultural. Meantime, as Table 6.7 below shows, the quantitative statistical results reveal that the culture of the virtual organisation seems to be a mixture of the clan type (with a mean of 3.854) and the hierarchy type (with a mean of 3.741).

6.5.2 Validity

The discriminant validity of the measurement model refers to the degree to which the items are distinguished among the constructs; it is estimated by two criteria, namely: 1) the square root of the Average Variance Extracted, and 2) the cross-loading matrix. The value of the square root of the Average Variance Extracted of each latent variable can be regarded as acceptable if its value exceeds that construct's correlation with other constructs. Cross loading means that the values of the items of each construct should be greater than for other constructs. Table 6.7 below shows that the value of the square root of the Average Variance Extracted of each latent construct is greater than that construct's correlation with other constructs. In addition, as shown in Table 6.8, the values of the items of each construct are higher than the values of the items of other constructs. Therefore, the analytic results reveal that the discriminant validity is great in this research while the analytic results of the measurement model of this research show greater reliability and validity.

Table 6.7: The Value of the Square Root of the Average Variance Extracted (AVE) of Individual Latent Constructs

	Mean	S.D.	AOC	CC	COC	EKS	HB	HOC	MOC	RC	SC	TKS	WB
AOC	3.644	0.733	**0.805**										
CC	3.353	0.745	0.427	**0.844**									
COC	3.854	0.649	0.380	0.544	**0.839**								
EKS	3.604	0.806	0.586	0.397	0.431	**0.908**							
HB	3.756	0.645	0.553	0.572	0.445	0.724	**0.836**						
HOC	3.741	0.801	0.531	0.575	0.569	0.444	0.458	**0.856**					
MOC	3.504	0.902	0.723	0.413	0.389	0.584	0.540	0.596	**0.911**				
RC	3.779	0.740	0.598	0.672	0.576	0.548	0.634	0.690	0.587	**0.881**			
SC	3.928	0.680	0.374	0.530	0.513	0.524	0.459	0.424	0.388	0.540	**0.878**		
TKS	3.343	0.863	0.491	0.358	0.403	0.582	0.663	0.391	0.574	0.500	0.457	**0.916**	
WB	3.771	0.708	0.412	0.588	0.819	0.512	0.527	0.622	0.443	0.613	0.585	0.453	**0.866**

Note 1: S.D.=Standard Deviation,AOC=Adhocracy Organisational Culture, COC=Clan Organisational Culture, CC=Cognitive Capital, EKS=Explicit Knowledge Sharing, TKS= Tacit Knowledge Sharing, HB=an Individual's Habits, HOC=Hierarchy Organisational Culture, WB=the Sense of Well-being, RC=Rational Capital, SC=Structural Capital, MOC=Market Organisational Culture.

Note 2: Diagonal bold letters are the square roots of AVE.

In addition to the measurement of the validity of the constructs, this research also tests for multi-collinearity because of the relatively high correlations among some variables (e.g., a correlation of 0.819 between COC and WB). The analytic results show that the values of the Variance Inflation Factor (VIF) for all constructs are acceptable, as recommended by Kleinbaum et al. (1998), since they range from 1.806 to 3.486 and values are deemed acceptable when the Variance Inflation Factor (VIF) scores are less

than 10.

Table 6.8: Cross Loadings of Each Construct

	AOC	CC	COC	EKS	HB	HOC	MOC	RC	SC	TKS	WB
AOC1	**0.852**	0.378	0.384	0.530	0.480	0.469	0.669	0.507	0.343	0.439	0.402
AOC2	**0.721**	0.203	0.193	0.445	0.337	0.368	0.531	0.398	0.212	0.352	0.218
AOC3	**0.836**	0.330	0.273	0.438	0.444	0.432	0.594	0.410	0.306	0.365	0.336
AOC4	**0.807**	0.425	0.340	0.474	0.497	0.432	0.531	0.592	0.321	0.419	0.339
CC1	0.483	**0.826**	0.536	0.381	0.540	0.601	0.514	0.647	0.474	0.370	0.549
CC2	0.267	**0.870**	0.372	0.237	0.411	0.445	0.229	0.499	0.420	0.177	0.435
CC3	0.319	**0.838**	0.462	0.380	0.489	0.401	0.287	0.547	0.445	0.350	0.500
COC1	0.262	0.434	**0.854**	0.390	0.428	0.460	0.274	0.470	0.394	0.363	0.791
COC2	0.374	0.505	**0.904**	0.391	0.368	0.580	0.371	0.520	0.464	0.374	0.749
COC3	0.364	0.484	**0.850**	0.326	0.297	0.447	0.396	0.488	0.508	0.308	0.684
COC4	0.283	0.406	**0.741**	0.337	0.405	0.417	0.269	0.462	0.359	0.299	0.487
EKS1	0.572	0.376	0.387	**0.921**	0.694	0.415	0.561	0.530	0.434	0.728	0.487
EKS2	0.545	0.324	0.347	**0.920**	0.645	0.382	0.548	0.505	0.458	0.753	0.421
EKS3	0.522	0.335	0.397	**0.929**	0.661	0.380	0.528	0.475	0.446	0.767	0.465
EKS4	0.492	0.403	0.432	**0.863**	0.630	0.431	0.487	0.481	0.557	0.831	0.485
HB1	0.467	0.499	0.387	0.630	**0.844**	0.392	0.414	0.528	0.396	0.561	0.429
HB2	0 .472	0.571	0.431	0.611	**0.861**	0.407	0.439	0.566	0.424	0.584	0.487
HB3	0.434	0.511	0.362	0.589	**0.862**	0.408	0.486	0.577	0.355	0.581	0.408
HB4	0.616	0.516	0.394	0.612	**0.831**	0.411	0.544	0.518	0.372	0.571	0.472
HB5	0.434	0.384	0.332	0.612	**0.817**	0.340	0.441	0.509	0.402	0.517	0.416
HB6	0.327	0.367	0.319	0.576	**0.799**	0.330	0.374	0.480	0.355	0.505	0.429
HOC1	0.411	0.499	0.646	0.409	0.390	**0.898**	0.457	0.524	0.427	0.339	0.730
HOC2	0.576	0.443	0.298	0.371	0.406	**0.791**	0.623	0.527	0.230	0.349	0.298
HOC3	0.430	0.535	0.438	0.358	0.395	**0.874**	0.507	0.746	0.392	0.328	0.469
MOC1	0.594	0.364	0.366	0.480	0.458	0.536	**0.884**	0.581	0.333	0.463	0.437
MOC2	0.677	0.425	0.411	0.595	0.546	0.548	**0.936**	0.512	0.402	0.579	0.458
MOC3	0.701	0.383	0.356	0.568	0.524	0.563	**0.922**	0.538	0.351	0.565	0.391
MOC4	0.664	0.321	0.264	0.470	0.425	0.523	**0.905**	0.510	0.321	0.471	0.309
RC1	0.576	0.605	0.450	0.501	0.561	0.542	0.492	**0.879**	0.516	0.429	0.518
RC2	0.549	0.643	0.594	0.494	0.588	0.734	0.599	**0.895**	0.489	0.474	0.605
RC3	0.451	0.524	0.475	0.452	0.525	0.541	0.454	**0.870**	0.420	0.418	0.493
SC1	0.362	0.474	0.491	0.470	0.403	0.427	0.350	0.511	**0.927**	0.384	0.558
SC2	0.300	0.477	0.454	0.458	0.387	0.361	0.276	0.479	**0.913**	0.403	0.565
SC3	0.322	0.444	0.403	0.453	0.425	0.324	0.406	0.429	**0.786**	0.421	0.409

TKS1	0.444	0.351	0.390	0.799	0.630	0.362	0.498	0.469	0.471	**0.926**	0.475
TKS2	0.390	0.331	0.394	0.715	0.554	0.307	0.425	0.445	0.410	**0.901**	0.401
TKS3	0.481	0.310	0.337	0.816	0.622	0.393	0.598	0.450	0.409	**0.902**	0.393
TKS4	0.480	0.320	0.358	0.775	0.619	0.367	0.575	0.470	0.383	**0.935**	0.390
WB1	0.320	0.501	0.723	0.453	0.519	0.522	0.347	0.540	0.471	0.418	**0.905**
WB10	0.254	0.401	0.694	0.412	0.415	0.420	0.262	0.432	0.438	0.370	**0.852**
WB11	0.305	0.503	0.714	0.472	0.537	0.496	0.336	0.542	0.491	0.430	**0.917**
WB12	0.311	0.476	0.697	0.449	0.514	0.485	0.306	0.529	0.467	0.398	**0.906**
WB13	0.452	0.564	0.742	0.482	0.491	0.720	0.475	0.576	0.490	0.418	**0.862**
WB18	0.315	0.507	0.719	0.468	0.538	0.519	0.349	0.542	0.489	0.407	**0.912**
WB19	0.441	0.575	0.762	0.476	0.485	0.705	0.464	0.577	0.511	0.417	**0.871**
WB2	0.445	0.568	0.752	0.497	0.489	0.693	0.475	0.585	0.532	0.433	**0.890**
WB20	0.375	0.528	0.691	0.402	0.359	0.491	0.406	0.525	0.569	0.342	**0.819**
WB22	0.376	0.522	0.679	0.398	0.371	0.493	0.407	0.521	0.564	0.349	**0.820**
WB3	0.393	0.540	0.699	0.410	0.377	0.511	0.437	0.539	0.564	0.361	**0.832**
WB7	0.393	0.533	0.669	0.410	0.377	0.497	0.429	0.531	0.555	0.349	**0.821**
WB9	0.229	0.388	0.671	0.425	0.434	0.398	0.272	0.447	0.462	0.397	**0.849**

Note 1: AOC=Adhocracy Organisational Culture, COC=Clan Organisational Culture, CC=Cognitive Capital, MOC=Market Organisational Culture, EKS=Explicit Knowledge Sharing, TKS= Tacit Knowledge Sharing, HB=an Individual's Habits, HOC=Hierarchy Organisational Culture, WB=the Sense of Well-being, RC=Rational Capital, SC=Structural Capital.

Note 2: Diagonal bold letters are the cross loadings of each construct.

Moreover, formative second-order constructs were applied in this research to estimate the constructs of social capital theory. According to Chow and Chan (2008), He et al. (2009) and Nahapiet and Ghoshal (1998), social capital is comprised mainly of relational capital, cognitive capital and structural capital dimensions. He et al. (2009) demonstrated that the social ties, shared goals and social trust of employees have a combined impact on their knowledge-sharing behaviour. Chow and Chan (2008) used these three dimensions of social capital to explain why organisational members have a willingness to share knowledge. Hau et al. (2013) adopted the above-mentioned concept of social capital as a second-order-formative construct comprising social ties, shared goals and social trust to analyse employees' knowledge-sharing intentions. With regard to the decision to select either a formative or reflective construct, Jarvis (2003) and Petter et al. (2007) state that four criteria should be considered when making this decision. First, researchers need to consider the direction of causality. If the direction of causality is from construct to items, the construct should be reflective

as opposed to formative, which is used if the direction of causality is from items to construct. The second criterion to consider is to evaluate the interchangeability of the items. Items having the trait of interchangeability, and having a common and shared theme, are regarded as reflective constructs, while items which are not interchangeable and use different themes are deemed to be formative. Moreover, removing one of the items without affecting the essence of the concept can be viewed as indicating a reflective construct whilst, if dropping one item changes the understanding of the concept, this indicates a formative construct. Thirdly, if the items of the construct are expected to be correlated and to possess internal consistency and reliability, they can be viewed as reflective constructs. In contrast, however, the formative construct does not need to demonstrate strongly correlations. The final criterion is to evaluate whether the items of the construct have the same antecedents and consequences. The construct is regarded as reflective if the items have the same antecedents and consequences while the formative construct may have different ones. Hence, having considered the above-mentioned criteria, and having sought clarification in the literature review of the research, this research adopted formative second-order factor analysis to represent employees' social capital tendency and employees' sense of well-being as this type of analysis is the most appropriate and corresponds to the concepts of these theories.

Subsequently, a second order factor analysis was performed and appraised using Smart-PLS software (Version 2.0.M3); its specific details are presented later. Table 5.8 summarises the constructs, together with their sub-constructs, and the number of items in terms of each sub-construct. In this research model, employees' sense of well-being, employees' working habits; the adhocracy, clan, market and hierarchy organisational cultures; and both tacit and explicit knowledge-sharing behaviour are first-order constructs, while employees' social capital tendency (composed of structural capital, cognitive capital and relational capital) is a second-order construct, as mentioned by Hau et al. (2013). Table 6.9 summarises the constructs, their sub-constructs, and the number of items in each sub-construct.

Table 6.9: The Constructs (second-order) and their Sub-constructs in this Research

Latent Construct	Type	Sub-construct	Type	Number of Items (Final)
Employees' Social Capital Tendency	Formative	Structural Capital (SC)	Reflective	3
		Cognitive Capital (CC)	Reflective	3
		Relational Capital (RC)	Reflective	3

6.6 The Analysis of the Structural Model

The analytic results of the measurement model being confirmed, the proposed hypotheses in this research were appraised using Smart-PLS software (Version 2.0.M3). The primary assessment goal for the structural model of PLS is to estimate path coefficients, their significance, and the R^2 of the endogenous variables. Path coefficients represent the strength of the relationships among the variables of the research. Further analysis can explain whether the hypotheses established in the research have a significant impact; this can enable a better theoretical model of the research to be built. The R^2 value indicates the extent (in percentage terms) to which variance in the endogenous variables could be explained by exogenous variables. Moreover, with a view to estimating the proposed hypotheses and path coefficients, a bootstrapping technique, as recommended by Chin (1998b), was used in this study as a resampling method with 500 resamples being taken. As shown in Figure 6.1, the findings reveal that the path coefficient between an individual's sense of well-being and employees' social capital tendency is 0.24; this is significant at a p level of 0.01 and thus provides support for **Hypothesis 1**. Moreover, the analytic results from the structural model of the research reveal that the path coefficient between an individual's sense of well-being and employees' tacit knowledge-sharing behaviour, and an individual's sense of well-being and employees' explicit knowledge-sharing behaviour are 0.14 and 0.09 respectively; these are significant. Therefore, **Hypothesis 2a** and **Hypothesis 2b** are supported in this research. A clan organisational culture is strongly associated with employees' sense of well-being with the path coefficient being 0.59. This is positively significant at a p level of 0.001 thus supporting **Hypothesis 3b** in this research. However, the path coefficient statistics between an adhocracy organisational culture and employees' sense of well-being is -0.03; this shows no significance and therefore **Hypothesis 3a** is not supported. In terms of the path coefficients between a market organisational culture and employees' sense of well-being, and a hierarchy organisational culture and employees' sense of well-being, the values are 0.03 and 0.12 respectively, both of which are not significant. Thus, **Hypothesis 3c** and **Hypothesis 3d** are not supported. Meanwhile, the results of the path coefficient between adhocracy organisational culture and employees' habits are 0.28, which is positively significant at a p level of 0.001, supporting, therefore, **Hypothesis 4a**. In terms of the relationships between a clan organisational culture and employees' habits, and a market organisational culture and their habits, the path coefficient statistics are 0.22 and 0.22 respectively, both being positively significant at a p level of 0.01 and therefore supporting **Hypothesis 4b** and **Hypothesis 4c**. However, a hierarchy organisational culture is not associated with employees' habits and so **Hypothesis 4d** is not supported. The results of the path coefficient between

employees' habits and employees' tacit knowledge-sharing behaviour, and between employees' habits and employees' explicit knowledge-sharing behaviour are 0.58 and 0.25 respectively, which are positively significant at a p level of 0.001. Thus, **Hypothesis 5a** and **Hypothesis 5b** are supported. Moreover, **Hypothesis 6**, which posited that employees' tacit knowledge-sharing behaviour is strongly associated with their explicit knowledge-sharing behaviour, is also supported, being positively significant at a p level of 0.001. In terms of the social capital second-order formative construct mentioned in Figure 6.1, the research of Hsu et al. (2007) also adopted a similar concept of social capital theory as a second-order factor in order to analyse their quantitative data although their model does not show the R^2 values of the social capital construct (see page 363, Fig. 2.) Moreover, Chapter 28 of the book published by Vinzi et al. (2010) allows a reader to understand more easily why R^2 should equal 1 when a second-order formative factor analysis is used to analyse quantitative data. This is because the second-order factor (in this case, social capital tendency) is directly measured by observed variables, i.e. Relational Capital (trust), Cognitive Capital (shared goals) and Structural Capital (social network ties), for all the first-order factors (see page 665, Fig. 28.4 and Fig. 28.5). For the higher-order constructs, the direction of the formative relationships (as compared with reflective constructs) will need to be reversed (Tenenhaus et al. 2005); this will result in an R^2 value of the higher-order construct of unity (Wetzels et al., 2009). Meanwhile, 73% of the variance in employees' sense of well-being was explained while 39% of the variance in their habits was explained. Moreover, it can be seen that 77% of the variance in employees' explicit knowledge-sharing behaviour was explained while 45% of the variance in their tacit knowledge-sharing behaviour was also explained. All endogenous variables of this research show an acceptable level of R^2 in this study. As suggested by Chin (1998), the explanatory power of endogenous latent variables is regarded as substantial, moderate or weak if the R^2 values are higher than 0.67, 0.33 and 0.19 respectively.

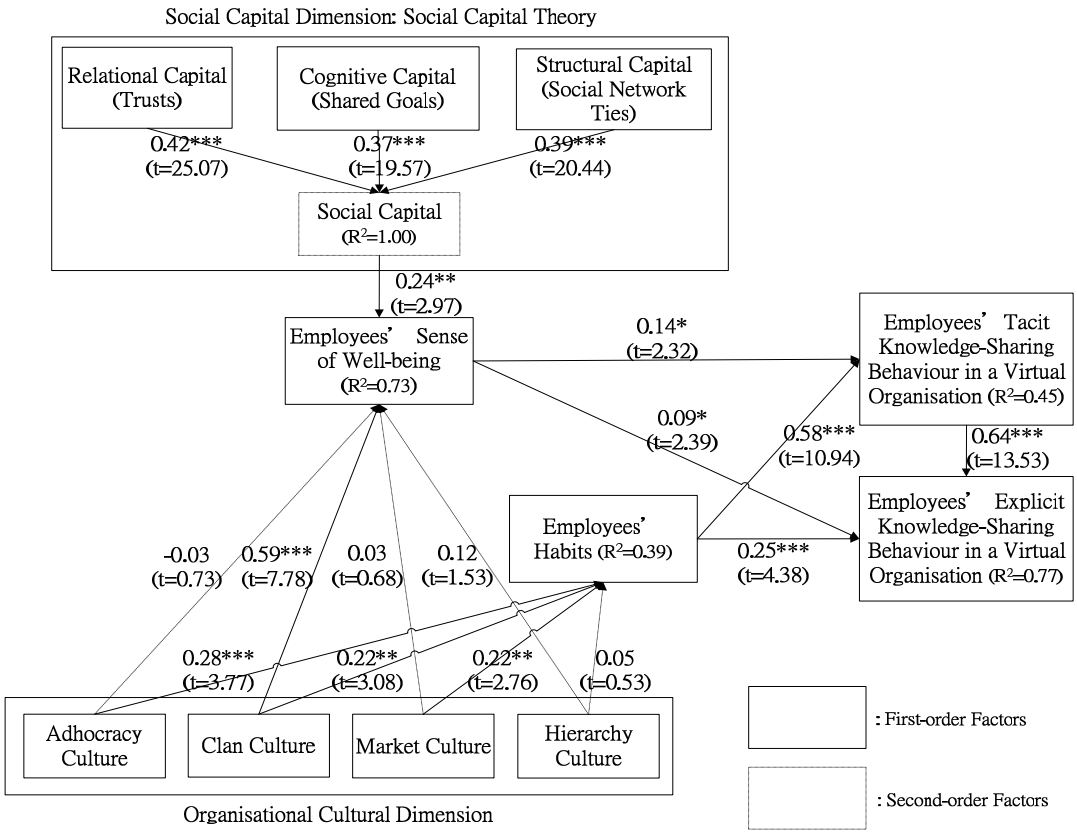

Figure 6.1: PLS Analysis of Direct Effects

Note 1: The two tailed test approachwas used in the data analysis

*Note 2: *p-value<0.05(t>1.96); **p-value<0.01(t>2.58); ***p-value<0.001(t>3.29).*

Note 3: This research adopted formative second-order factor analysis to represent employees' social capital tendency, as this type of analysis is the most appropriate and corresponds to the concepts of these theories. The R2 of the endogenous second-order factor will be 1.0 because of the variance being explained by the formative nature of the construct (Hsu et al., 2007, Vinzi et al., 2010 & Wetzels et al., 2009).

Table 6.10: Path Coefficients and T-Values

Hypotheses	Path Coefficients	T-value
H1. *A predisposition to better social capital positively influences employees' sense of well-being in the virtual organisation.*	0.24	2.97** *(Supported)*
H2a: *A sense of well-being positively influences employees' tacit knowledge-sharing behaviour in the virtual organisation.*	0.14	2.32* *(Supported)*
H2b: *A sense of well-being positively influences employees' explicit knowledge-sharing behaviour in the*	0.09	2.39* *(Supported)*

virtual organisation.		
H3a: *An adhocracy organisational culture positively influences employees' feelings of well-being in the virtual organisation.*	-0.03	0.73 *(Not Supported)*
H3b: *A clan organisational culture positively influences employees' feelings of well-being in the virtual organisation.*	0.59	7.78*** *(Supported)*
H3c. *A market organisational culture negatively influences employees' feelings of well-being in the virtual organisation.*	0.03	0.68 *(Not Supported)*
H3d. *A hierarchy organisational culture negatively influences employees' feelings of well-being in the virtual organisation.*	0.12	1.53 *(Not Supported)*
H4a. *An adhocracy organisational culture in the virtual organisation positively influences employees' habits in terms of knowledge sharing.*	0.28	3.77*** *(Supported)*
H4b: *A clan organisational culture in the virtual organisation positively influences employees' habits in terms of knowledge sharing.*	0.22	3.08** *(Supported)*
H4c: *A market organisational culture in the virtual organisation positively influences employees' habits in terms of knowledge sharing.*	0.22	2.76** *(Supported)*
H4d: *A hierarchy organisational culture in the virtual organisation positively influences employees' habits in terms of knowledge sharing.*	0.05	0.53 *(Not Supported)*
H5a: *Employees' habits in terms of knowledge sharing positively influence their tacit knowledge-sharing behaviour in the virtual organisation.*	0.58	10.94*** *(Supported)*
H5b: *Employees' habits in terms of knowledge sharing positively influence their explicit knowledge-sharing behaviour in the virtual organisation.*	0.25	4.38*** *(Supported)*
H6. *The more employees share their tacit knowledge, the more they will share their explicit knowledgein the virtual organisation.*	0.64	13.53*** *(Supported)*

Note 1: The two tailed test approach was used in the data analysis

*Note 2: *p-value<0.05(t>1.96); **p-value<0.01(t>2.58); ***p-value<0.001(t>3.29).*

6.6.1 The Sense of Well-being as a Mediating Effect

Meanwhile, in order to comprehend in depth the mediating effect of employees' sense of well-being on the relationships between social capital tendency and employees' tacit and explicit knowledge-sharing behaviour in the virtual organisation, and between organisational culture and employees' tacit and explicit knowledge sharing behaviour, this research chose to adopt a three-step method to analyse this, as mentioned by Baron and Kenny (1986). As shown in Table 6.11 below, employees' sense of well-being has a positive partially mediating effect on employees' social capital tendency and both employees' tacit and explicit knowledge-sharing behaviour. Therefore, these findings provide support for **Hypothesis 2c** and **Hypothesis 2d** (see section 4.3.3.3). Moreover, the analysis shows that employees' sense of well-being has a positively full mediating effect on the clan organisational culture and employees' explicit and tacit knowledge-sharing behavior which provides support for **Hypothesis 5h** and **Hyothesis 5g** (see section 4.3.3.8). The results, as noted in Figure 6.1, also show the results do not support **Hypothesis 5e**, **Hypothesis 5f**, **Hypothesis 5i**, **Hypothesis 5j**, **Hypothesis 5k** and **Hypothesis 5l** (see section 4.3.3.8).

Table 6.11: Results of Testing the Mediating Effects

Coefficient in Regressions							
IV	M	DV	IV→DV	IV→M	IV+M→DV		Mediating
					IV→DV	M→DV	
SCT	WB	TKS	0.524***	0.707***	0.402***	0.174*	Partial
SCT	WB	EKS	0.585***	0.707***	0.441***	0.204**	Partial
COC	WB	TKS	0.405***	0.822***	0.102	0.373***	Full
COC	WB	EKS	0.435***	0.822***	0.047	0.476***	Full

*Note 1: *p-value<0.05; **p-value<0.01; ***p-value<0.001.*

Note 2: IV=Independent Variable, M=Mediator, DV=Dependent Variable, COC=Clan Organisational Culture, WB=The Sense of Well-being, SCT=Social Capital Tendency, EKS=Explicit Knowledge Sharing, TKS=Tacit Knowledge Sharing.

Note 3: The three-step method for estimating mediating effects was suggested by Baron and Kenny (1986). The process for testing mediating effects is organised as follows:

Step 1: IV→DV is significant.

Step 2: IV→M is significant.

Step 3: IV+M→ DV

1) When M is significant but IV is not significant, M has a full mediating effect.

2) When both M and IV are significant, M has a partial mediating effect.

6.6.2 Employees' Habits as a Mediating Effect

Meanwhile, in order to develop an understanding of the mediating effect of employees' habits on the various types of organisational culture and employees' tacit and explicit knowledge-sharing behaviour, a three-step method mentioned by Baron and Kenny (1986) was adopted to analyse such an effect. As Table 6.12 below shows, employees' habits partially mediate the relationship between an adhocracy organisational culture and both employees' tacit and explicit knowledge-sharing behaviour. Moreover, with regard to the impact of the mediating effect of employees' habits on the relationship between a clan organisational culture and both employees' tacit and explicit knowledge-sharing behaviour, the results also show a partially mediating effect. Likewise, employees' habits have a positively partial mediating impact on the relationship between organisational culture (market types) and both employees' tacit and explicit knowledge-sharing behaviour. Therefore, the results of the analysis provide support for **Hypothesis 5c** and **Hypothesis 5d** (see section 4.3.3.7), except for the insignificant mediating effect of employees' habits on the relationship between a hierarchy organisation culture and their tacit and explicit knowledge-sharing behaviour (see Figure 6.1: PLS Analysis of Direct Effects for Combined Dataset). Table 6.12 below provides the results of testing the mediating effect of employees' working habits concerning knowledge sharing on the relationship between organisational culture and their knowledge-sharing behaviour.

Table 6.12: Results of Testing the Mediating Effects

Coefficient in Regressions							
IV	M	DV	IV→DV	IV→M	IV+M→DV		Mediating
					IV→DV	M→DV	
AOC	HB	TKS	0.494***	0.566***	0.184**	0.562***	Partial
COC	HB	TKS	0.405***	0.458***	0.134*	0.603***	Partial
MOC	HB	TKS	0.582***	0.545***	0.310***	0.497***	Partial
AOC	HB	EKS	0.589***	0.566***	0.277***	0.574***	Partial
COC	HB	EKS	0.435***	0.458***	0.134*	0.665***	Partial
MOC	HB	EKS	0.586***	0.454***	0.275***	0.577***	Partial

*Note 1: *p-value<0.05; **p-value<0.01; ***p-value<0.001.*

Note 2: IV=Independent Variable, M=Mediator, DV=Dependent Variable,AOC=Adhocracy Organisational Culture, COC=Clan Organisational Culture, KS=Knowledge Sharing, HB=an Individual Habits, HOC=Hierarchy Organisational Culture, MOC=Market Organisational Culture.

Note 3: The three-step method for estimating mediating effects was suggested by Baron and Kenny (1986). The process of testing mediating effects is organised as follows:
Step 1: IV→DV is significant.
Step 2: IV→M is significant.
Step 3: IV+M→ DV

1) When M is significant but IV is not significant, M has a full mediating effect.

2) When both M and IV are significant, M has a partial mediating effect.

6.7 Independent-sample T Test and One-way Analysis of Variance (ANOVA)

In order to gain a comprehensive insight into the factors affecting the attitudes of the virtual organisation's employees towards each research construct (i.e. their sense of well-being, social capital tendency, employees' knowledge-sharing working habits, organisational culture and knowledge-sharing behaviour), independent-sample t tests and one-way ANOVA were conducted to compare four categories (namely, gender, four different organisations within the virtual organisation, age and working experience).

Firstly, to understand the impact of the gender of the virtual organisation's employees on each construct of the research, an independent-sample t test was conducted as part of the quantitative approach of this research. The analytic results show no significant statistical difference with regard to each construct of this research in terms of gender, except in terms of employees' knowledge-sharing behaviour. According to the statistical results, Levene's test for equality of variance was insignificant ($F= 2.03$, $P >0.05$) and so a t test assuming equal variance was conducted. This indicated a significant difference between male and female employees within the virtual organisation. The results show that the willingness of male employees to share their knowledge (with a mean of 3.60) within the virtual organisation was higher than that of female employees (with a mean of 3.37). Prior research on the relationship between gender and knowledge-sharing behaviour has shown that gender is not significantly associated with knowledge-sharing behaviour (Watson & Hewett, 2006). However, Carroll (2002) found that trusting others within same-sex friendships among women was significantly higher than that among men; subsequently, women might be more willing than men to share their knowledge with co-workers. Irmer et al. (2002) indicated that women perceived that they could gain more benefits from their knowledge-sharing behaviour while Lin (2006) indicated that female employees were more willing to share knowledge because they were more sensitive to instrumental ties and needed to overcome traditional occupational challenges. This finding from the quantitative approach corresponds to that of the qualitative approach (see section

5.2.6). A more detailed comparison, together with an integration of the quantitative and qualitative analytic results, are presented in the final section of this chapter and in Chapter 7.

Secondly, in order to deepen the comprehension of employees' perspectives of these four organisations with the virtual organisation in terms of each construct (i.e. sense of well-being, social capital tendency, employees' knowledge-sharing habits, organisational culture and knowledge-sharing behaviour), a one-way ANOVA test was selected to compare the three categories, namely four companies, employees' age and their working years within the virtual organisation. Initially, with regard to the comparison of employees' perceptions from these four organisations, the analytic results revealed that there was no statistical difference among them, except in terms of employees' sense of well-being ($F=3.53$, $P<0.05$) and organisational culture ($F= 4.37$, $P<0.05$). According to the results of the Scheffe post hoc test, the mean of organisational culture for company 3 (Hybrid Farmers' Association) was significantly higher than that of company 2 (Urban Farmers' Association). It seems therefore that employees of company 3 (with a mean of 3.84) are relatively more willing to engage or engage more intensely with their type of organisational culture, than employees of company 2 (with a mean of 3.42). Furthermore, the mean of employees' sense of well-being for company 1 (with a mean of 3.92) (NTIFO) was relatively higher than that of company 2 (with a mean of 3.59) (Urban Farmers' Association). This might imply that, although employees worked together in the virtual organisation, they still had different feelings about well-being because they came from the mixed organisational cultural environment of the virtual organisation. Then, in terms of age, with the exception of employees' knowledge-sharing behaviour ($F=7.52$, $P<0.05$) and their feeling of well-being ($F=3.99$, $P<0.05$), the research found no statistical difference among employees in different age groups. The results showed that, compared with employees aged 26-30 (with a mean of 2.65), employees aged 41-45 (with a mean of 3.41), 46-50 (with a mean of 3.83) and 51+ (with a mean of 3.74) had a greater willingness to share their knowledge in the virtual organisation. Moreover, employees aged 46-50 (with a mean of 4.09) were relatively happier than employees aged 41-45 (with a mean of 3.57). Prior research has also found that, when compared to senior workers, younger workers tend more to be individualistic and less inclined to trust others in organisations (Strauss & Howe, 1993; Tulgan, 1995). This implies that a difference in age might influence workers' willingness to share or use knowledge (Holste & Fields, 2010). Finally, no statistical difference was found for each construct among employees of different working years, except concerning employees' knowledge-sharing behaviour ($F=3.74$, $P<0.05$). When compared with employees

who had worked between 1-3 years (with a mean of 2.97), the number of years of employees' work experience of 20 years and over (with a mean of 3.66) had a significant impact on their willingness to share knowledge. This finding is also noteworthy: employees who had longer working years were more willing to share their knowledge compared to new employees within the context of the selected virtual organisation of Taiwanese NGOs. Finally, an overarching discussion and comparison, based on the findings of the quantitative and qualitative approaches, are articulated in greater detail in the final section of this chapter and in Chapter 7.

6.8 Discussion and Conclusion

6.8.1 Theoretical Implications

The theoretical contributions of the quantitative approach used in this research are primarily seven-fold. Firstly, this research is among the first to investigate the joint effect mechanism of social capital tendency, organisational cultures, employees' sense of well-being, an individual's working habits concerning knowledge sharing, as well as Information and Communication Technology (ICT) on employees' knowledge-sharing behaviour in the virtual organisation which comprises Taiwanese Farmers' Associations and the NTIFO. Previous researches have extensively investigated how organisational cultures and social capital tendency play important roles in improving, hindering or preventing individuals' knowledge sharing in organisations. However, it is still largely unknown what specific traits of organisational cultures need to be shaped or adjusted in order to improve employees' knowledge-sharing behaviour; how employees' sense of well-being influences such knowledge-sharing behaviour; how employees' habits impact on their knowledge-sharing behaviour; or how employees' sense of well-being and their habits may play pivotal mediating roles and further influence their willingness to share knowledge in a virtual organisation. In the quantitative approach of this research, the theoretical model was first proposed to examine the impact of social capital and organisational culture on employees' knowledge-sharing behaviour in a virtual organisation, as mediated by employees' feeling of well-being and their working habits in terms of sharing knowledge. This proposed model adds to the existing body of research concerning employees' knowledge-sharing behaviour in an organisation, especially a virtual organisation.

Secondly, this research investigates in depth the gaps between organisational culture and employees' knowledge-sharing behaviour in a virtual organisation. Organisational culture theory has been used previously to shed light on a huge range of social

behaviour, such as individuals' knowledge-sharing behaviour and organisational performance. However, few studies have considered the relationship between employees' knowledge-sharing behaviour and organisational culture in the complex context of a virtual organisation. Moreover, since the knowledge-sharing behaviour of employees has been widely regarded as a pivotal factor in improving the competitiveness of an organisation, such behaviour may be warmly encouraged or compellingly required by managers in the virtual organisation. Hence, employees share their knowledge little by little without much thought so that their working habits may play a critical part in improving their knowledge-sharing behaviour. Moreover, there is also little previous research on the specific relationship between organisational culture and employees' knowledge-sharing behaviour within the context of a virtual organisation. Since employees are generally used to their previous or traditional manner of working, they may be reluctant to accept the business processes concerned with new methods of co-operating and co-ordinating. The findings of this research show that adhocracy, clan and market organisational cultures are positively correlated with employees' working habits concerning knowledge sharing. Therefore, when employees' behaviour with regard to knowledge sharing is repeatedly executed by their accumulative and goal-directed automatic behaviours, and driven by the acceptable and satisfactory organisational culture of an organisation, their repeat behaviour, such as knowledge sharing, will become habitual; this, in turn, will positively affect their knowledge-sharing behaviour in the virtual organisation. The fundamental issue is whether the targets of an organisation can fulfill or correspond to the shared goals or visions of their employees. Furthermore, although employees' working habits can positively influence both their explicit and tacit knowledge-sharing behaviour, the levels of impact significantly differ between the two types with there being a more positive impact on tacit than on explicit knowledge-sharing behaviour. The positive impact of employees' working habits on their tacit knowledge-sharing behaviour (β=0.58) is stronger than on their explicit knowledge-sharing behaviour (β=0.25). Because the capacity to acquire and manage tacit knowledge can be regarded as a cornerstone of managerial success (Wagner & Sternberg, 1987), a study of employees' working habits is worthy of consideration in adding to the existing body of knowledge.

Thirdly, the findings show that the link between organisational culture and employees' explicit and tacit knowledge-sharing behaviour is rather complicated, although adding employees' working habits as a mediator can be regarded as a first step towards building a better understanding of this correlation (see section 6.6.2). Further explanation is offered with the qualitative approach of this research to investigate the

complex relationship between the specific traits of organisational culture, employees' working habits and their knowledge-sharing behaviour. For instance, what might be the threshold level of acceptable and satisfactory characteristics of an organisational culture at which the impact of such a culture on the behaviour or even the habits of employees' knowledge sharing will increase? It would also be interesting to know what situations within an organisational culture might be nullified by the effect of employees' working habits concerning knowledge sharing within a virtual organisation. All these are discussed further in Chapter 7.

Fourthly, even though theories concerning organisational culture have been widely used to explore the phenomenon of individuals' knowledge-sharing behaviour, no research seems to have been conducted into the specific relationship between organisational cultures and employees' knowledge-sharing behaviour by considering the sense of well-being as a critical mediator in a virtual organisation. Analytic results regarding the hypotheses proposed in this study reveal that a clan organisational culture within the workplace of the virtual organisation can effectively and effortlessly elicit a greater sense of well-being in employees compared to the adhocracy, market and hierarchy types. This is because organisations of a clan type highlight trust, interactions, collaboration, commitment, encouragement and equitableness among their organisational members, resulting in a more friendly and pleasant organisation (Cameron & Quinn, 2006; Raquel et al., 2011). Organisations of clan types also have the characteristic of creating a more stable working environment that can provide employees with more job satisfaction (Gull & Azam, 2012). An individual's satisfaction with his/her surrounding environment is one of the most important elements that will increase an individual's sense of well-being (Keyes et al., 2002; Diener et al., 2002).

Fifthly, the findings of this research validated that a greater sense of well-being was positively associated with the likelihood of employees sharing their tacit and explicit knowledge in the virtual organisation. The knowledge-sharing behaviour of employees therefore seems to be driven to a considerable extent by a greater sense of their own well-being. Moreover, it may be worth noting that there is a stronger effect in terms of employees' sense of well-being on tacit knowledge-sharing behaviour (β=0.14) as opposed to explicit knowledge-sharing behaviour (β=0.09). This may not only deepen our understanding of knowledge-sharing behaviour, depending on the type of knowledge, but may also offer valuable suggestions for practitioners. This is because employees' tacit knowledge-sharing behaviour, by comparison, can provide valuable resources and improve the competitive advantage of an organisation (Hau et

al., 2013). Further analytic results show that increasing employees' sense of well-being can successfully bridge the gap between a clan organisational culture and both employees' tacit and explicit knowledge-sharing behaviour through using ICTs (see section 6.6.1). Considering that the link between organisational culture and knowledge-sharing behaviour is rather complex, this research suggests that adding employees' sense of well-being as a mediator allows this conditional relationship to be explained more simply and with greater insight.

The sixth contribution of this research is to investigate in depth the gaps between social capital tendency and employees' knowledge-sharing behaviour in a virtual organisation. Although social capital theory has been used previously to shed light on a huge range of social behaviours such as knowledge-sharing behaviour, no research seems to have discussed the impacts of social capital tendency, employees' sense of well-being and Information and Communication Technology (ICT) on employees' knowledge-sharing behaviour from the perspectives of both explicit and tacit knowledge within the more complex context of the virtual organisation. One of the most interesting findings of this research is that the relationship between social capital tendency and employees' tacit and explicit knowledge-sharing behaviour is mediated to a significant extent by employees' sense of well-being. This research adds an often overlooked consideration in positive psychology, namely the sense of well-being, as a mediator to explore whether employees who immerse themselves in well-being will exert an influence on the relationship between social capital tendency and knowledge-sharing behaviour. The results reveal that the social capital tendency of employees is positively associated with their sense of well-being; this, in turn, positively affects their knowledge-sharing behaviour. Further analytic results show that adding employees' sense of well-being as a mediating factor can successfully form a bridge that effectively connects social capital tendency and employees' knowledge-sharing behaviour through using ICTs (see section 6.6.1). Hence, based on the above-mentioned finding from the quantitative approach, adding employees' sense of well-being as a mediator can be deemed to be a first step toward establishing better comprehension of the link between social capital tendency and knowledge-sharing behaviour. Moreover, as noted in Figure 6.1, employees' sense of well-being was found to have a more positive effect on tacit knowledge-sharing behaviour (β=0.14) than on explicit knowledge-sharing behaviour (β=0.09). This important finding is worth noting since, as suggested by Alwis and Hartmann (2008), competitive advantage will be significantly improved if an organisation attaches importance to employees' tacit knowledge.

Seventhly, this research highlights the importance of converting employees' tacit knowledge into explicit knowledge in the more complex context of a virtual organisation. Externalising the conversion of knowledge can be seen as part of the process of creating new knowledge; this is triggered through dialogue concerning employees' experiences (Nonaka, 1994). This research finding strengthens the importance of externalising the knowledge conversion process as this holds the key to creating new explicit knowledge from a tacit form in the virtual organisation.

Consequently, this research highlights the critical importance of employees' knowledge-sharing behaviour in the virtual organisation. Also, the findings of the quantitative appraoch provide a comprehensive understanding of the relationships among five types of human behaviour in the virtual organisation: namely, organisational cultures, social capital tendency, employees' sense of well-being, an individual's working habits, and employees' knowledge-sharing behaviour through using ICTs. Finally, the quantitative analytic results and findings can further consolidate those of the qualitative approach and, by comparing them, the qualitative findings are able to provide a more in-depth and comprehensive understanding while complementing the limited findings of the quantitative approach. A more detailed comparison and overarching discussion, based on integrating the findings from both the quantitative and qualitative analytic results, are presented in Chpater 7.

6.8.2 Practical Implications

This research contributes to the literature by integrating multi-level perspectives of psychological (the micro-level), sociological (the meso-level) and organisational cultural (the macro-level) factors. More particularly, the research examines the paramount mediating effects of employees' sense of well-being and employees' working habits in terms of knowledge sharing in the relationships among social capital tendency, organisational culture and both tacit and explicit knowledge-sharing behaviour within the context of the virtual organisation. To the best of our knowledge, this research is the first study to conduct such an empirical examination. The findings from the quantitative approach of this research may convince managers or practitioners of virtual organisations to attach significant importance to employees' knowledge sharing in such an organisation with a view to enhancing the organisation's competitive advantage and ultimate goals. This is because employees' willingness to share knowledge is now a critical factor in improving organisational performance. However, changing employees' ingrained beliefs, behaviour and even habits is still an immense challenge for managers who desire to improve employees'

knowledge-sharing behaviour in their organisation. Based on the findings of the quantitative approach, this research would like to share several key suggestions that are worthy of consideration because of their practical implications.

Firstly, prior research studies have focused on the direct impact of a variety of organisational cultural traits on employees' knowledge-sharing behaviour and have demonstrated them in numerous models (Suppiah & Sandhu, 2010; Shao et al., 2012), thus forgoing the opportunity to explore in depth the processes that affect these factors. This research further indicates that employees' working habits in terms of sharing knowledge exert a partially mediating impact on the relationship between organisational culture (e.g. adhocracy, clan and market types) and both their explicit and tacit knowledge-sharing behaviour. This implies that the organisational culture is still the primary factor in affecting employees' knowledge-sharing behaviour but that employees' working habits will have a partially mediating effect on the relationship between organisational culture and their knowledge-sharing behaviour once organisational culture has reached a significant level. Hence, how to establish the appropriate organisational culture for employees of the virtual organisation is still a high-priority target. In so doing, in order to improve employees' knowledge-sharing behaviour in a virtual organisation, this research considered that managers still need to pay more attention to encouraging appropriate organisational cultural traits and strategies which can improve employees' knowledge-sharing behaviour within the virtual organisation. Furthermore, once an organisational culture is built to a significant level, the managers or practitioners should attempt to develop employees' working in terms of their sharing habits in the virtual organisation. To put this another way, managers or practitioners in the virtual organisation should try continually to encourage their employees by devising appropriate strategies or introducing appropriate organisational cultural traits to change employees' ingrained habits so that they share their knowledge automatically since, at this moment, employees' working habits have a more significant effect than organisational culture on their knowledge-sharing behaviour. In order to gain a deeper insight into these complex relationships within the context of the virtual organisation, this interesting and overarching finding, elicited via the analytic results of the quantitative and qualitative approaches, is discussed thoroughly in the final chapter of this research.

Secondly, numerous research studies have validated that the social capital tendency of individuals is the first step in their knowledge-sharing behaviour (Wasko & Faraj, 2005; Hau et al., 2013; Wei et al., 2011). They have provided robust evidence about how a positive social capital tendency is deemed imperative for the successful

knowledge-sharing behaviour of individuals (Chiu et al., 2006; Hau, et al., 2013). The findings of this research further indicate that employees' sense of well-being exerts a significantly positive mediating impact on the relationship between social capital tendency and knowledge-sharing behaviour. This implies that even though the social capital tendency of employees still plays the primary role in facilitating employees' knowledge-sharing behaviour, their sense of well-being will have a partially mediating impact on this relationship once social capital tendency has reached a significant level. As a result, how to foster better workplace networks is still worthy of managers' or practitioners' consideration as a primary factor in facilitating their employees' knowledge-sharing behaviour within the virtual organisation. For instance, the managers or practitioners of the virtual organisation may consider improving the social values underlying compact mutuality, trust and shared goals among employees in order to gain the benefits of employees' knowledge-sharing behaviour via ICTs. Once the fostering of the social capital tendency of employees reaches a sufficient level, the managers or practitioners of the virtual organisation should go a step further and create, not just a satisfactory, but a trust-based working environment in which their employees are immersed in well-being.

Thirdly, this research has also explored the mediating effect of employees' feeling of well-being on the relationship between organisational culture and both explicit and tacit knowledge-sharing behaviour. As noted in Table 6.11, the analytic results show that the relationship between a clan organisational culture and employees' both explicit and tacit knowledge-sharing behaviour is significantly and fully mediated by their sense of well-being. This implies that the organisational culture is still the main factor in affecting employees' knowledge-sharing behaviour but that employees' sense of well-being will have a mediating effect on this relationship provided that the organisational culture has reached a significant level. Without building an appropriate organisational culture within an organisation, there is no point in improving employees' feeling of well-being. Therefore, as long as the building of an appropriate organisational culture reaches a sufficient level, managers or practitioners of the virtual organisation should pay more attention to considering how to create an appropriate ambiance for employees to feel a sense of well-being while fostering their social capital tendency and inculcating suitable organisational cultural traits. As more attention is given to the concept of the sense of well-being as explored and analysed in this research, the managers of the virtual organisation should enact initiatives to create an ambiance surrounded by a sense of well-being for employees in order to improve their knowledge-sharing behaviour. Moreover, managers in virtual organisations urgently need to enact initiatives to overcome or reduce cultural barriers and bring

about changes in the underlying organisational culture in order to support the integrated, cross-organisational essence of a virtual organisation; this will enhance their employees' knowledge-sharing behaviour and improve their competitive advantage in the market. In order to gain a deeper insight into this interesting finding and these complex relationships in the context of the virtual organisation, this research explores these relationships further by integrating and comparing the findings of both the quantitative and qualitative approaches; this is outlined in Chapter 7.

In sum, this research, which adopted concurrently a mixed method of quantitative and qualitative approaches has explored in depth the factors improving or prohibiting employees' knowledge-sharing behaviour within the context of the virtual organisation of Taiwanese NGOs. The quantitative approach of this research established a comprehensively integrated model to validate the relationships among employees' social capital tendency, organisational cultures, the sense of well-being and an individual's habits on employees' knowledge-sharing behaviour in a virtual organisation while the qualitative approach of the research complemented this and captured the more complex contextual phenomena in terms of the employees' knowledge-sharing behaviour that existed in the virtual organisation. Through a combination of the quantitative and qualitative approaches, the possible cause and effect relationships of why and how employees have a willingness or reluctance to share their knowledge within the complex context of the virtual organisation can be fully comprehended through this research. Finally, a further comparison of the findings of the quantitative and qualitative approaches used in this research is presented in detail in the following section.

6.9 Summary

For the mixed method utilised in this study, the data collection and analysis of both the quantitative and qualitative approaches were carried out concurrently. This type of side by side integration can initially provide findings from the statistical results of the quantitative approach and then present quotations from the qualitative data analysis that may support or conflict with the quantitative results. So, finally, the statistical results, elicited via an independent-sample t test, showed that male employees were more willing than female employees to share their knowledge within the virtual organisation. Futhermore, by way of a one-way ANOVA test, the results showed that employees of company 3 (Hybrid Farmers' Association) were much more willing to engage intensely or actively with their type of organisational culture than the employees of company 2 (Urban Farmers' Association) while employees' sense of well-being for company 1 (NTIFO) was relatively higher than that of employees in

company 2 (Urban Farmers' Association). Meanwhile, older, more senior and employees with longer working experience were more willing to share their knowledge than younger employees within the virtual organisation.

The analytic results of the quantitative approach also showed that the social capital tendency of employees positively affected their sense of well-being ($\beta=0.24$, $p<0.01$) while employees' sense of well-being positively influenced both their tacit ($\beta=0.14$, $p<0.05$) and explicit ($\beta=0.09$, $p<0.05$) knowledge-sharing behaviour through the use of ICTs. Meanwhile, a clan organisational culture had a significantly positive impact on employees' sense of well-being ($\beta=0.59$, $p<0.001$). Moreover, organisational culture (adhocracy, clan and market types) positively affected employees' working habits in terms of knowledge sharing while their working habits concerning knowledge sharing positively influenced their tacit ($\beta=0.58$, $p<0.001$) and explicit ($\beta=0.25$, $p<0.001$) knowledge-sharing behaviour within the virtual organisation. Employees' tacit knowledge-sharing behavior was positively associated with their explicit knowledge-sharing behaviour ($\beta=0.64$, $p<0.001$).

The relationship between employees' social capital tendency and both their tacit and explicit knowledge-sharing behaviour were partially mediated in a positive sense by their sense of well-being while employees' feeling of well-being had a full positively mediating impact on the clan organisational culture and employees' explicit and tacit knowledge-sharing behavior within the virtual organisation. Furthermore, employees' working habits in terms of knowledge sharing had a positive partial mediating effect on organisation culture (adhocracy, clan market types) and their explicit and tacit knowledge-sharing behaviour. Although the analytic results and findings from the quantitative approach validated the complex relationships among all the main constructs, the proposed model of this research still cannot completely capture the complexity and dynamism of the virtual organisation in a Chinese culture. Hence, these relationships might be interpreted and perhaps resolved by employing meaningful and significant details from the analysis of the qualitative data. Consequently, a comparison of the quantitative and qualitative approaches, together with the comprehensive and overarching conclusions of this research are discussed in the final chapter.

Chapter 7 Conclusion and Recommendations

The imperative of knowledge sharing among employees is generally acknowledged by CEOs and managers, in particular by those who are eager to introduce the knowledge management paradigm within their organisations (Bock & Kim, 2002). However, there is a distinct lack of understanding of the determinants of an individual's knowledge-sharing behaviour (Bock & Kim, 2002). The primary aim of this research is to develop a comprehensive understanding of the factors which improve or hinder employees' knowledge-sharing behaviour within the complex context of a virtual organisation, composed in this case of the whole system of Taiwanese Farmers' Associations. This was achieved using quantitative and qualitative approaches concurrently to analyse both quantitative and qualitative data. The theoretical model of this research which was first proposed included various constructs based on organisational culture, workplace networks (social capital tendency), employees' sense of well-being, their working habits in terms of sharing knowledge, and their knowledge-sharing behaviour through the use of ICTs. Research results from a field survey of 201 employees of this virtual organisation were analysed using Structural Equation Modeling (SEM), while data from 19 in-depth semi-structured interviews were analysed utilising the thematic method. The results suggest that organisational culture and workplace networks are closely intertwined and associated with individuals' sense of well-being and their working habits with regard to sharing knowledge; this, in turn, affects their knowledge-sharing behaviour within the virtual organisation. In short, the research found that employees' sense of well-being and their knowledge-sharing habits at work are the major determinants affecting their knowledge-sharing behaviour within the virtual organisation in a Chinese context.

7.1 Implication and Recommendations

Only if employees have the willingness to share their knowledge can organisations effectively manage knowledge resources (Lin, 2007). It can thus be seen that understanding what determinants affect employees' knowledge-sharing behaviour and how to encourage employees to share their knowledge is important for organisational managers (Lin, 2007). Notwithstanding, employees generally seem more inclined to hoard their knowledge instead of sharing it (Bock et al., 2005; Yang, 2008). Likewise, there is still a distinct lack of understanding concerning why some individuals have a greater willingness to share their knowledge (Bock & Kim, 2002). To arrive at a

deeper and more comprehensive understanding of the factors that increase or lessen employees' willingness to share their knowledge, the research set out with the aim of exploring and identifying the essential elements of employees' knowledge-sharing behaviour within the virtual organisation, composed of Taiwanese Farmers' Associations and the NTIFO, of Taiwanese NGOs in the Chinese context. The outcome and findings of the research are therefore expected to provide managers and employees of the selected virtual organisation with a framework for improving their members' knowledge-sharing behaviour in order to maintain organisational performance and sustainable development. In order to achieve this aim, all the objectives of this research have been addressed as follows.

Q1. *What external or internal factors trigger employees' predisposition towards knowledge sharing in the virtual organisation?*

> *A1) To investigate factors in terms of why employees of a virtual organisation of Taiwanese NGOs share their knowledge.*
>
> *A2) To analyse in-depth both contexts and factors with regard to why employees, such as knowledge workers and experts, of a virtual organisation of Taiwanese NGOs share their knowledge via a knowledge management system.*

Objective *A1* and Objective *A2*, corresponding to **Q1** of this research which was addressed by analysing the findings of the qualitative and quantitative approaches, were designed to obtain in-depth knowledge of external and internal factors affecting employees' knowledge-sharing behaviour within the virtual organisation, composed of Taiwanese Farmers' Associations (i.e., Taiwanese NGOs) in a Chinese context. Findings from the quantitative analysis, arrived at through an independent-sample t test, showed that male employees (with a mean of 3.60) were more willing than female employees (with a mean of 3.37) to share their knowledge in the virtual organisation (see section 6.7). These results are completely opposed to those of Irmer et al. (2002) and Lin (2006) who indicated that female employees are more willing to share their knowledge owing to the fact that they are more sensitive to instrumental ties and have a need to overcome traditional occupational challenges. Connelly and Kelloway (2003) stated that female employees have been conditioned to contribute to the organisation; however, given that they frequently hold disadvantaged positions in numerous organisations, they may be reluctant to share their knowledge with co-workers if they perceive that such knowledge-sharing behaviour will take away or

lessen their power. These differing quantitative results can be consolidated by way of the analytic results and findings from the qualitative interviews, and may be explained and supplemented thus: since the virtual organisation exists in the context of the Chinese culture, female employees working in such a diverse work environment may be more concerned about saving face. This might lead them to hoard their knowledge instead of sharing it within a virtual organisation with a long history of Taiwanese NGOs (see section 5.2.6). Subsequently, in order to deepen the understanding of employees' perspectives of these four organisations with the virtual organisation concerning each construct (i.e. sense of well-being, social capital tendency, employees' knowledge-sharing habits, organisational culture and knowledge-sharing behaviour), a one-way ANOVA test was conducted to compare the three categories, namely the four companies, employees' age, and their working years within the virtual organisation (see section 6.7). According to the analytic results of the Scheffe post hoc test, the mean of the organisational culture for company 3 (Hybrid Farmers' Association with a mean of 3.84) was significantly higher than that of company 2 (Urban Farmers' Association with a mean of 3.42). It seems, therefore, that employees working for company 3 are relatively more willing to engage or engage more intensely with their type of organisational culture than employees working for company 2. Furthermore, the analytic results of the quantitative approach, arrived at via a one-way showed that senior employees in the selected virtual organisation were more willing to share their knowledge as compared with new employees (see section 6.7). Those employees with work experience of 20 years or over (with a mean of 3.66) were more willing to share their knowledge in the virtual organisation than those with 1-3 years experience of work (with a mean of 2.97). This might imply that senior employees had established long-term interpersonal relationships with other co-workers and had become well adapted to the culture of the organisation so that they could share their knowledge with colleagues effortlessly. In terms of the impact of the different ages of employees on each construct of the research, the results showed that, compared with employees aged 26-30 (with a mean of 2.65), employees aged 41-45 (with a mean of 3.41), 46-50 (with a mean of 3.83) and 51+ (with a mean of 3.74) had a greater willingness to share their knowledge in the virtual organisation. These are similar to the findings of the research carried out by Strauss and Howe (1993) and Tulgan (1995) which showed that, when compared with older workers, young workers seem more to be individualistic, and to trust others less in their organisation. Moreover, using a one-way ANOVA test, the research found that older employees aged 46-50 (with a mean of 4.09) seemed to be relatively happier than younger employees aged 40-45 (with a mean of 3.57). This showed that the age of employees also played an important role in affecting their sense of well-being within

the virtual organisation. Therefore, managers should not only encourage employees appropriately (especially new, young and female employees) to take part actively in organisational activities, they should also try to help them blend in with the knowledge-sharing culture of the virtual organisation. Furthermore, having considered the fact that senior employees and those employees who had worked for a long time were more willing to share their knowledge, managers should allocate an appropriate rate of senior employees when considering the establishment and development of a virtual organisation.

Q2. *How does Information Technology affect employees' knowledge-sharing behaviour in the virtual organisation?*

> *A3) To analyse the role of Information and Communication Technology (ICT) associated with employees' knowledge sharing in a virtual organisation of Taiwanese NGOs.*

Objective *A3*, linked to **Q2** of the research, was created to investigate the impact of ICTs on employees' knowledge-sharing behaviour within the context of the virtual organisation. Connelly and Kelloway (2003) indicated that most advanced ICTs can improve knowledge-sharing behaviour among employess due to the fact that they are well-suited to shy and/or extremely busy workers who tend more to avoid face-to-face interaction. Davenport (1994, p.120) also stated that "…in most companies, many managers still believe that once the right technology is in place, the appropriate information-sharing behaviour will inevitably follow." They considered that new technology could be the best way to promote employees' knowledge-sharing behaviour (Connelly & Kelloway, 2003). However, based on the findings of the qualitative approach, this research found that the fit of ICTs was one of the most important factors affecting employees' knowledge-sharing behaviour within the context of the virtual organisation, rather than the establishment of ultramodern information technology. Hendriks (1999) and Kim and Lee (2006) indicated that the effective utilisation and appropriate establishment of ICTs plays an important role in terms of individuals' willingness to share their own knowledge. Even though respondents commonly stated that the ease or complexity of using ICTs might not be a factor in them continuing to perform behaviour such as knowledge sharing, they felt that the right of privacy should be considered more seriously. This was because they tended not to let other people know when and where they shared their knowledge via public ICTs within the selected virtual organisation of Taiwanese NGOs in a Chinese context. Hence, designing and establishing more appropriate ICTs which can meet the

demand of employees seems to be a top priority for the managers of the virtual organisation. Consequently, this research suggests that such managers should consider establishing appropriate ICTs which will more closely suit their online social structure in order to address more precisely users' requirements, thus improving their knowledge-sharing behaviour. For instance, the managers of the virtual organisation could increase the anonymity of ICT applications (Burnett & Illingworth, 2008); they could also give users permission to browse and edit the information or knowledge shared among employees so that they could choose the particular colleagues with whom they wanted to share their knowledge.

Q3. *How does the effect of social capital on employees' tendencies help to explain employees' knowledge-sharing behaviour in the virtual organisation?*

> *B1) To comprehend the degree to which social capital theory explains employees' willingness to share knowledge in a virtual organisation of Taiwanese NGOs.*

Objective *B1,* which was related to **Q3,** explored the impact of employees' workplace networks (social capital tendency) on knowledge-sharing behaviour. To this end, and based on the findings of the qualitative approach, it was found that employees tended to share their knowledge more with colleagues who were close, trusted and trustworthy and with whom they had positive, long-term friendships, as well as with those who shared certain similarities in terms of social backgrounds with the context of the virtual organisation. Lucas (2005) indicates that interpersonal trust among colleagues deeply affects the exchange of their knowledge within an organisation while Makela et al. (2007) indicate that interpersonal similarity is the primary driver behind knowledge sharing within the context of a multinational corporation. They focused on similarities in national-cultural backgrounds, shared language and organisational status as factors generating homophily. Their empirical analytic results suggest that the tendency to interact with similar others, referred to as homophily in sociology (McPherson et al., 2001), can lead to a higher tendency for interaction. This increased the sharing of business knowledge among them (Makela et al., 2007; Marschan-Piekkari et al., 1999) and had the collective impact of clustering (Makela et al., 2007). The above-mentioned reference provides relevant support for the findings of this research. Hence, in order to improve employees' knowledge-sharing behaviour, the top managers of the virtual organisation should not only consider the homophily of their employees, but should also build trust-based workplace networks among colleagues. For example, managers within the virtual organisation may hold

face-to-face meetings periodically to introduce participants to one another in order to assist them in establishing compact social networks and in building trust among colleagues.

Q4. *How does the sense of well-being help to explain why employees contribute their knowledge to the virtual organisation?*

> *B3) To explore whether a greater consciousness of well-being among knowledge workers or experts correlates to a greater willingness for them to share their knowledge in a virtual organisation of Taiwanese NGOs.*

Objective *B3,* associated with **Q4** of the research and analysed using both quantitative and qualitative approaches, was intended to deepen knowledge concerning the impact of employees' sense of well-being on their knowledge-sharing behaviour. Based on the findings of the quantitative and qualitative approaches, the results showed that employees' feeling of well-being was strongly associated with their knowledge-sharing behaviour in the virtual organisation. The findings of the quantitative approach showed that the path coefficient between an individual's sense of well-being and employees' tacit knowledge-sharing behaviour, and an individual's sense of well-being and employees' explicit knowledge-sharing behaviour were 0.14 and 0.09 respectively; these are significant (see section 6.6). It seems that a key aspect of employees' willingness to share knowledge through ICTs is their sense of well-being in the virtual organisation. Moreover, the analytic results of the qualitative approach helped the research to consolidate the findings elicited from the quantitative approach, offering a better understanding of how employees' sense of well-being, which involved complex emotions and cognition, exactly affected their knowledge-sharing behaviour. The findings showed that employees who demonstrated certain psychological elements of well-being (e.g. higher levels of positive emotions such as enjoyment in helping others, a sense of empathy and altruism, satisfaction with the working environment, positive relations with others, personal continual growth, better engagement with the surrounding environment (see section 5.2.2) and the ambiance of a friendly organisational culture (see section 5.2.1.2.2 and section 5.2.2.1.1), were more likely to have a greater willingness to share knowledge than their peers with lower levels of well-being. However, it is imperative for this research to recognise that employees' sense of well-being is not the only factor that could lead them to share their knowledge. Likewise, negative emotions or a lower sense of well-being should not be ignored owing to the fact that each type of emotion serves its own purpose and has its own effects. This research

found that a greater sense of well-being played a pivotal role in encouraging employees' knowledge-sharing behaviour within the selected virtual organisation. Hence, managers of the virtual organisation might consider designing and arranging appropriate training courses concerning agriculture, marketing and operational management in order to improve employees' continual personal growth. They could also offer annual pay rises; encourage employees to engage in cooperative tasks; improve their satisfaction with the job environment and safeguard employees' welfare for the purpose of enhancing their knowledge-sharing behavior, thus ultimately increasing the virtual organisation's effectiveness. For example, to improve the virtual organisation's employees' level of work engagement, managers should motivate them to participate actively in the organisation's or community's activities.

Q5. *To what extent and in what ways does the effect of social capital on employees' tendencies serve to explain the sense of well-being of virtual organisational employees?*

> *B2) To investigate whether a strong social capital tendency might influence employees' sense of well-being in a virtual organisation of Taiwanese NGOs.*

Objective *B2* corresponds to **Q5** of this research, which was analysed using both quantitative and qualitative approaches, and offers a meaningful insight into the important role of workplace networks (social capital tendency) in affecting employees' sense of well-being within the virtual organisation. Based on the findings from both the quantitative and qualitative approaches, employees' social capital tendency (workplace networks) was found to be strongly associated with their sense of well-being within this context. In terms of the relationships between social capital tendency and employees' sense of well-being analysed by the quantitative approach, the path coefficient statistic was 0.24, being significant at a p level of 0.01 (see section 6.6). This complex relationship was closely examined and further consolidated by the findings of the qualitative interviews which revealed that the existence of friendships based on trust, close and warm personal relationships, social support from colleagues and supervisors, and shared goals based on social similarities, were likely to be important components that made employees feel a greater sense of well-being and thus enhanced their willingness to share knowledge within the context of the selected virtual organisation. These aspects, which form the antecedents of employees' sense of well-being, are consistent with the traits of well-being in terms of the employees' workplace networks. However, considering that the virtual organisation consists of numerous companies whose employees tend to have cooperative

relationships that are short-term, managers in a virtual organisation should encourage their employees to create and engage in longer-lasting and warm social relationships.

> *B4) To assess the impact of employees' sense of well-being on the relationship between the social capital trend and knowledge-sharing behaviour in the virtual organisation of Taiwanese NGOs.*

Objective *B4*, which was linked to **Q4** and **Q5** of this research analysed using the quantitative approach, was designed to explore the mediating effect of employees' sense of well-being in the gap between workplace networks (social capital tendency) and employees' knowledge-sharing behaviour in the virtual organisation in a Chinese cultural context. Even though theories concerning social capital tendency have been widely used to explore the phenomenon of social behaviour, such as individuals' knowledge-sharing behaviour and organisational performance, no research seems to have been conducted into the specific relationship between workplace networks and employees' knowledge-sharing behaviour by considering the sense of well-being as a critical mediator in a virtual organisation. Based on the three-step method analysis mentioned by Baron and Kenny (1986) and the findings of the quantitative approach, employees' sense of well-being was found successfully to play a positive partially mediating role in affecting the relationship between employees' social capital tendency and both employees' tacit and explicit knowledge-sharing behaviour (see section 6.6.1). This new finding highlights the importance of the mediating role of employees' sense of well-being in successfully forming a bridge that effectively connects social capital tendency and employees' knowledge-sharing behaviour through the use of ICTs.

Q6. How does organisational culture help to explain why employees contribute their knowledge to the virtual organisation?

> *C1) To investigate the impact of organisational cultures on employees' knowledge-sharing behaviour in the virtual organisation of Taiwanese NGOs.*

Objective C1 related to **Q6** of the research, which was analysed using qualitative approach. This objective attempted to gain an insight into how specific characteristics of organisational culture influence employees' willingness to share their knowledge within the virtual organisation. The results, which were arrived at by analysing data from the qualitative interviews, showed that a friendly and appropriate organisational cultural ambience, involving trust, norms, collaborative spirit, encouragement,

organisational commitment and stability of the work environment, resulted in greater levels of knowledge-sharing behaviour among employees within the context of the virtual organisation. Damodaran and Olphert (2000) and Burnett et al. (2013) highlighted the importance of organisaitonal culture in the effective delivery of KM while Burnett et al. (2013) concluded that an organisational culture of a firm with the characteristics of openness, teamwork and trust leads to improvement in employees' knowledge sharing. Damodaran and Olphert (2000) further indicated that an employer's attitude towards sharing knowledge also played a key role in affecting employees' knowledge-sharing behaviour, and that employees may be less disposed to share knowledge if they had not been treated with trust and commitment by their employers. A survey conducted by Shao et al. (2012) regarding the mediating effects of organisational culture and knowledge sharing on the success of ERP systems, showed that trust-oriented group cultures and achievement-oriented cultures have a significantly positive impact on employees' tacit knowledge sharing; in contrast, a control-oriented hierarchical culture positively influences explicit knowledge sharing. Chang and Lee (2007) demonstrated that innovative and supportive cultures positively influence the acquisition of individuals' knowledge. Moreover, this research found that respondents were more willing to share their knowledge when they seemed more engaged in organisational activities and were more satisfied with their jobs within the organisation. This implies that the managers of a virtual organisation within a Chinese cultural context need to create a friendly and appropriate organisational cultural ambience which encourages high levels of trust, norms, collaborative spirit, encouragement, engagement, social support from colleagues and supervisors, and equitableness among supervisors and subordinates.

Q7. *How does the impact of organisational culture help to explain employees' feelings of well-being in the virtual organisation?*

> *C2) To investigate whether organisational cultures influence employees' sense of well-being in the virtual organisation of Taiwanese NGOs.*

Associated with **Q7** of the research which was analysed using quantitative and qualitative approaches, Objective *C2* was created to deepen the understanding of how organisational culture influences employees' sense of well-being within the virtual organisation. Based on the findings of the quantitative and qualitative approaches, the results showed that the culture of the organisation was strongly associated with employees' sense of well-being within the context of the virtual organisation. The results of the quantitative approach revealed that an organisation with a clan type of

culture was strongly associated with employees' sense of well-being since the path coefficient was 0.59, which is positively significant at a p level of 0.001 thus supporting this hypothesis (see section 6.6). This may imply that the organisational culture of the selected virtual organisation, which was based on a clan type within a Chinese cultural context, was like an extended family and therefore could be regarded as a more friendly work environment where employees could communicate and mix widely in the workplace. According to Keye (1998), one critical element of social well-being, social integration, can be fulfilled if an individual recognises deeply that he/she belongs to a part of a society and/or a community. These new findings from the quantitative approach can be more deeply comprehended and supplemented by analysing the qualitative interview data. The findings of the qualitative approach showed that many respondents expressed strong satisfaction with the stability of their jobs within the working environment. Moreover, the strong sense of the organisation's engagement provided them with continual opportunities to learn and grow; these characteristics of the organisational culture mentioned above made employees feel good about this. Hence, the managers of the virtual organisation should attach equal importance to developing appropriate human resource practices which correspond to the needs of their employees and offering a friendly and trusting organisational culture that can improve employees' sense of belonging and give relatively higher incomes based on personal performance in order to enhance their sense of well-being within the virtual organisation.

Q8. *How does organisational culture help to explain the virtual organisation's employees' ingrained habits in terms of knowledge sharing in the virtual organisation?*

> *C3) To investigate the impact of organisational cultures on employees' habits in terms of their knowledge-sharing behaviour in the virtual organisation of Taiwanese NGOs.*

Objective *C3,* corresponding to **Q8** of this research which was analysed using quantitative and qualitative approaches, was created to comprehend the possible impact of organisational cultures on employees' habits in terms of their knowledge-sharing behaviour within the virtual organisation of Taiwanese NGOs. Based on the findings of the quantitative and qualitative approaches, the results showed that the culture of the organisation was strongly related to employees' working habits concerning knowledge-sharing. The analytic results of the quantitative approach showed that organisational culture (e.g. adhocracy, clan and market types)

exerted a significantly positive impact on employees' working habits in terms of sharing knowledge. These findings from the quantitative approach can be consolidated and supplemented by the analytic results elicited from the qualitative approach which revealed that respondents' working habits concerning knowledge sharing were formed, unconsciously or subconsciously, through the tangible or intangible ambience of the organisational culture by way of a stable working environment, formal organisational norms, and greater job satisfaction. As Aarts and Dijksterhuis (2000) suggest, an individual's habits can be regarded as the repetitive accumulative nature of goal-directed behaviour. This implies that an individual's habits in terms of knowledge sharing may be subconsciously or unconsciously formed based on past, goal-directed accumulative behaviour because of the targets, norms or criteria of a long-term organisational culture within an organisation. Moreover, Limayem et al. (2007) indicated that the formation of habits associated with the utilisation of Information Technology (IT) may be generated by two main antecedents: namely, satisfaction and the stability of the past context. Aarts et al. (1997) and Chiu et al. (2012) also found that satisfaction generated by past experience is a pivotal antecedent of an individual's habits. For example, the respondents in this research stated that, not only were they satisfied with their working conditions in the organisation, they also felt happy because they enjoyed solid friendships and interpersonal relationships with colleagues in the organisation. Through satisfactory characteristics of the organisational culture and better interpersonal relationships with colleagues, their working habits in terms of knowledge sharing could be gradually and accumulatively formed in the organisation. Thus, the managers of the virtual organisation should provide, not only an appropriate organisational culture, but also a satisfactory working environment for their employees in order to stimulate automatically employee's knowledge-sharing behaviour.

Q9. *How does the effect of a human being's force of habit help to explain why employees share their knowledge in the virtual organisation?*

> *C4) To investigate the role of employees' habits in a virtual organisation of Taiwanese NGOs in terms of their knowledge-sharing behaviour.*

Objective *C4*, related to **Q9** of this research which was analysed using quantitative and qualitative approaches, was designed to obtain knowledge concerning the link between employees' work habits in terms of sharing knowledge and their actual knowledge-sharing behaviour within the virtual organisation in a Chinese cultural context. Many prior researches have explored the knowledge-sharing behaviour of

employees underlying the level of organisational behaviour. However, an often overlooked and less considered area regarding employees' habits may play a pivotal role in explaining their knowledge-sharing behaviour in the more complex context of the virtual organisation. Based on the quantitative analytic results of this study, the findings indicated that employees' habits had a critical effect on both their tacit and explicit knowledge-sharing behaviour (see section 6.6). This implies that an individual's habits in terms of knowledge sharing may be subconsciously or unconsciously formed based on past goal-directed accumulative behaviour because of the reasonable targets or criteria of the long-term organisational culture within an organisation. How employees' working habits in terms of sharing knowledge affect their actual knowledge-sharing behaviour can be more comprehensively understood by analysing the qualitative interview data. The findings showed that two important elements of the cultural characteristics of the organisation (namely, the contextual stability of the working environment and organisational norms, and better job satisfaction) increased employees' knowledge-sharing behaviour. Such behaviour can then progressively be transformed into unconscious or subconscious working habits with regard to sharing knowledge (see section 5.2.5). Consequently, managers of the virtual organisation could consider increasing the identification of employees by creating a satisfactory working environment and a harmonious organisational culture within the virtual organisation. Thus, their working habits with regard to sharing knowledge could be gradually and accumulatively formed and improved within the organisation.

> *C5) To assess the mediating impact of the habits of employees on the relationship between organisational culture and knowledge-sharing behaviour in the virtual organisation of Taiwanese NGOs.*

Objective *C5*, which was linked to **Q8** and **Q9** of this research, detected the mediating effect of employees' habits on the relationship between organisational culture and their knowledge-sharing behaviour within the virtual organisation. Based on the findings of the quantitative approach, the analytic results of this research confirmed that the theoretical relevance of detecting the mediating effect of employees' working habits on the relationship between organisational culture and their knowledge-sharing behaviour became evident: employees' working habits had an incremental effect on their knowledge-sharing behaviour (see section 6.6.2). This may imply that the level of cognition of the organisation's culture among employees significantly affects their working habits in terms of sharing knowledge; this, in turn, influences their knowledge-sharing behaviour within the virtual organisation. Employees' working

habits in terms of the sharing of knowledge in the underlying organisational cultural context may be gradually constructed and then established on account of the cumulative impact of the organisation's culture and its specific goals and strategies. Subsequently, as the behaviour of an individual becomes more routine and automatic, it may gradually form into habits which will play a more significant role than either behavioural expectation or behavioural intention in terms of knowledge sharing. Therefore, by introducing appropriate cultural characteristics and subsequently reinforcing employees' work habits in terms of knowledge sharing, their knowledge-sharing behaviour may be enhanced within the virtual organisation. Consequently, through the analytic results of the quantitative approach, it is emphasised again how an appropriate organisational culture can play an extremely important role in affecting employees' knowledge-sharing habits; this, in turn, influences their knowledge-sharing behaviour in the virtual organisation.

> *C6) To assess the mediating impact of employees' sense of well-being on the relationship between organisational culture and knowledge-sharing behaviour in the virtual organisation of Taiwanese NGOs.*

Objective *C6,* related to **Q4** and **Q7** of this research, was set to explore the mediating effect of employees' sense of well-being on the relationship between organisational culture and knowledge-sharing behaviour within the virtual organisation. Based on the results of the quantitative approach, increasing employees' sense of well-being can successfully bridge the gap between the organisation's culture (e.g. the clan type) and both employees' tacit and explicit knowledge-sharing behaviour. Moreover, the analytic results from the qualitative approach showed that the respondents had a greater sense of well-being when they identified with and were proud of the organisation they worked for. According to Keyes (1998), individuals feel a greater sense of well-being when they consider that they have things in common with others and recognise that they belong to part of a society or community. Moreover, the findings of this research show that employees who are treated with greater trust, cooperation, encouragement and friendliness by the organisation tend to have a greater sense of well-being; this subsequently triggers their motivation to share their knowledge. Hence, an appropriate organisational culture within the workplace of the virtual organisation could, because of employees' greater sense of well-being, bond employees together and elicit more knowledge-sharing behaviour. This is because they performed such knowledge-sharing behaviour more than their colleagues with a lower sense of well-being and seemed more willing to adopt behaviours which helped others. Hence, the research suggests that top managers should try to create a friendly

ambiance of warmth, support and trust for others in the virtual organisation. They also need to set up an evaluation mechanism to reward employees' achievements in order to make them feel a sense of satisfaction. This is because it is undeniable that relatively higher incomes also make employees feel a greater sense of well-being, as noted in section 5.2.2.1.3.

Q10. *How does the effect of employees' tacit knowledge-sharing behaviour help to explain why employees share their explicit knowledge in the virtual organisation?*

> *A4) To explore whether a stronger willingness on the part of employees to share their tacit knowledge might affect their willingness to share their explicit knowledge in a virtual organisation of Taiwanese NGOs.*

Objective *A4,* associated with **Q10** of this research, explored the process and importance of transforming employees' tacit knowledge into explicit knowledge in the complex context of the virtual organisation. The analytic results of the quantitative approach showed that the positive impacts of employees' sense of well-being and their everyday working habits had a stronger effect on their tacit knowledge-sharing behaviour than on their explicit knowledge-sharing behaviour (see Figure 6.1: PLS Analysis of Direct Effects). This is mainly because employees' tacit knowledge-sharing behaviour has been commonly regarded as providing valuable resources and improving the competitive advantage of an organisation (Hau et al., 2013). Moreover, the externalisation of knowledge, by converting tacit into explicit knowledge, can effectively create formal knowledge which then becomes part of the knowledge assets of an organisation. The findings from the quantitative approach underline the importance of the process of knowledge conversion and its externalisation; this holds the key to the creation of organisational knowledge from tacit knowledge. Hence, it is worth managers of the virtual organisation noting that an organisation will not be able to generate formal knowledge assets in various electronic repositories without explicit knowledge sharing among employees.

7.2 Contribution to Knowledge

In the light of the importance, and also the difficulties, of knowledge sharing among employees within organisations, particularly a virtual organisation (Burn & Ash, 2000), this research proposes a pioneering theoretical model and an integrated knowledge management mechanism for effectively improving the willingness of employees to share their knowledge within the complex context of a virtual organisation. This has been achieved by carrying out an in-depth investigation into

multilevel perspectives of individuals in organisations (the micro-level), workplace networks in organisations (the meso-level) and organisational culture (the macro-level). The key original contributions of this research to knowledge are as follows:

The first contribution of this research is that it is among the first to explore the joint effect of the multilevel perspectives of the micro-level (employees' sense of well-being, their working habits in terms of sharing knowledge, and their personal traits), the meso-level (employees' workplace networks) and the macro-level (organisational culture) on employees' knowledge-sharing behaviour through the use of ICTs within the context of a virtual organisation. A great deal of previous research has investigated in detail how the willingness of organisations' employees to share their knowledge may be influenced through the context of organisations' cultural development (e.g. Adel et al. (2007); Lai and Lee, (2007); Islam et al. (2011); Shao et al. (2012); Tong et al. (2013)) and workplace networks (e.g. Kankanhalli et al. (2005); Wasko and Faraj (2005); Yang and Fran (2009); Lin (2011)). However, there is a distinct lack of understanding concerning what particular traits of organisational cultures need to be shaped, changed or adjusted with a view to improving employees' knowledge-sharing behaviour; how workplace networks influence employees' willingness to share knowledge; and what are the roles of employees' sense of well-being and their working habits in terms of sharing knowledge with regard to employees' knowledge-sharing behaviour within the complex context of the virtual organisation. Drawing on the concepts of social capital theory and organisational culture, this research augments them with two key intrinsic motivators: employees' sense of well-being and their working habits in terms of knowledge sharing. This proposed model adds to the existing body of knowledge in the management domain concerning employees' knowledge-sharing behaviour in an organisation, particularly a virtual organisation.

The second contribution of this research is to investigate in greater depth the gap between employees' social capital tendency and their knowledge-sharing behaviour within a virtual organisation. The findings of the qualitative approach show that the positive social capital tendency of employees of the virtual organisation (e.g. social support from colleagues and supervisors, mutual trust, established comradeship and compact interpersonal relationships among colleagues) can bring about a greater willingness to share knowledge within a virtual organisation. In addition, the findings of the research reveal that higher levels of homophily among employees with regard to their age, social context, geographic propinquity, background and lifestyle, seem to

be determinants that facilitate their knowledge-sharing behaviour within the context of the virtual organisation in a Chinese culture. As Aristotle explained in the Rhetoric Nichomachean Ethics: people "love those who are like themselves" (Aristotle, 1934, p.1371). McPherson et al. (2001) indicate that homophily restricts people's social networks to some extent and that this has powerful implications for the information they receive, the attitudes they form, and the interactions they experience. Moreover, Makela et al. (2007) point out that interpersonal similarity is the key element that improves the willingness of colleagues to share knowledge within the context of a multinational corporation. Hence, a higher level of homophily among employees can be deemed to be a key element in the construction of compact, friendly, co-operative and trust-based workplace networks, thus helping to improve employees' knowledge-sharing behaviour within the virtual organisation of Taiwanese NGOs in a Chinese context.

The third contribution of the research, which was evident from the interview data, is that the organisational cultural traits of the virtual organisation seem to be a mixture of hierarchy-conscious and clan-oriented leadership. These organisational traits may correspond to traditional Chinese cultural features and Confucian thought. In fact, there is no gainsaying that the construct of the social fabric of Chinese culture relies mainly on the Confucian (about 551-499 BC) value system (Tong & Mitra, 2009). Park and Luo (2001, p.456) state that "Confucianism attempts to establish harmony in a complex society of contentious human beings through a strong and orderly hierarchy." This may imply there is a sensitivity to hierarchy and the maintenance of social order through micro-units, such as forms of extended-families, within organisations. On the other hand, the findings show that employees, based on a Chinese cultural upbringing, seem to be much more reluctant to share their knowledge because of a desire to save face and because of an innate sense of modesty. Ardichvili et al. (2006), Chow et al. (2000) and Tong and Mitra (2009) indicate that Chinese nationals seem more unwilling to share their knowledge because of growing up with traditional Chinese values, such as modesty, competitiveness and a fear of losing face. Hence, the present research can help relevant researchers and practitioners to sharpen their views on the current situation of employees' knowledge-sharing behaviour within the virtual organisation of Taiwanese NGOs in a Chinese cultural context, and to understand in greater detail the implications of Chinese cultural values on knowledge management practices.

The fourth contribution of this research is that it explores deeply the importance of employees' sense of well-being within the virtual organisation of Taiwanese NGOs in

a Chinese cultural context. Aristotle, in "Nicomachean Ethics" written in 350 BC (Johnson-Miles, 2007, p.3), states that "Happiness is the meaning and the purpose of life, the whole aim and end of human existence." George (1991) indicates that compared with unhappier people, happier people are more likely to help fellow-workers and customers. Thus, happiness is likely to play a key role in how an employee reacts to and treats others within the workplace. Evidence from the findings of both the qualitative and quantitative approaches supports the hypothesis that the sense of well-being can be deemed to be a key determinant of employees' knowledge-sharing behaviour, which is, in turn, closely intertwined and affected by their workplace networks and organisational culture. The analytic results of this research show that employees who immerse themselves in well-being are increasingly willing to share knowledge within the virtual organisation. Even though many research studies have provided support for the connection between well-being and workplace success (Boehm & Lyubomirsky, 2008), the existing evidence is still unable to prove whether employees' sense of well-being will lead them to share their knowledge, or to offer an understanding of what traits make employees feel a sense of well-being within the virtual organisation in a Chinese cultural context. This research discovered that adding relevant elements of employees' sense of well-being as a mediator can be deemed to be the first and key step in comprehending the links among workplace networks, organisational culture and employees' knowledge-sharing behaviour within the virtual organisation. Hence, the augmentation of employees' sense of well-being is worthy of consideration in terms of adding to the existing body of knowledge.

The final contribution of this research lies in its attempt to provide greater insight into how employees' knowledge-sharing working habits may affect their knowledge-sharing behaviour within the virtual organisation. A great many prior research studies have explored employees' knowledge-sharing behaviour underlying the level of organisational behaviour (Adel et al., 2007; Lai & Lee, 2007; Islam et al., 2011; Shao et al., 2012; Tong et al., 2013). However, an often overlooked and less considered area is that of employees' habits that may play a pivotal role in explaining their knowledge-sharing behaviour in organisations, especially in the more complex context of the virtual organisation. The analytic results of both the qualitative and quantitative approaches showed the theoretical relevance of detecting the mediating effect of employees' habits on the relationship between organisational culture and their knowledge-sharing behaviour. Employees' working habits in terms of knowledge sharing make them share their knowledge unconsciously or subconsciously. Such knowledge-sharing habits can be progressively generated or shaped by the

accumulative influence of the organisational culture of the virtual organisation (e.g. formal norms and job stability), under the condition of a satisfactory working environment. This research therefore hopes that this new critical finding will contribute to the conceptual development of employees' knowledge-sharing behaviour within an organisation, especially a virtual organisation.

7.3 Limitations of this Research and Future Work

The theoretical model of this research was first put forward to explore the possible casual relationships among social capital tendency (workplace networks), organisational culture, employees' feeling of well-being, employees' working habits in terms of knowledge sharing, and employees' knowledge-sharing behaviour through using ICTs within the complex context of a virtual organisation, composed, in this case, of the whole system of Taiwanese Farmers' Associations. The findings of both the quantitative and qualitative approaches of this research are extremely useful in deepening an understanding of the elusive motivations for employees' knowledge-sharing behaviour through using ICTs in the virtual organisation. In spite of its novel findings, this research still has the following limitations which may be answered or overcome by future research.

The research case conducted was constrained by the small number of cases in the same administrative region of Taiwanese Farmers' Associations. Future research may take into consideration whether the theoretical model of this research might be usefully applied to explain employees' knowledge-sharing behaviour in other Taiwanese Farmers' Associations from different administrative regions. It might also consider whether the same essential elements of the relationships among the constructs examined in this research might also play a critical role in other Taiwanese Farmers' Associations. Moreover, even though this research concentrates on exploring in detail the possibility of intricate antecedents that might affect employees' knowledge-sharing behaviour through using ICTs in the virtual organisation of Taiwanese NGOs, many other factors might also be involved. For instance, this research did not analyse the potential moderating effects of, for example, different industrial sectors (e.g., the government sector versus the private sector).

With regard to the selection of the sampling for the qualitative approach, this research, which was based on purposive sampling, adopted a mixed method of intensity and snowball sampling in order to select interviewees from the virtual organisation. This was mainly because this research considered that purposive sampling could be used to retrieve considerable amounts of in-depth information from a small number of

research respondents associated with a specific phenomenon. Moreover, intensity sampling was selected for the research because it would provide in-depth information about interviewees' thinking, experiences and relevant knowledge whilst snowball sampling contributed more to the researcher's understanding of information-rich data from the research respondents recommended by intensity sampling. Nonetheless, from the findings of the quantitative analytic results, employees who have worked within the virtual organisation for longer than 20 years are more willing to share their knowledge compared with new employees within 1-3 working years (see section 6.7). Because the respondents of the qualitative approach were relatively older, future research might think of interviewing younger respondents to draw a solid comparison between new and older employees.

This research explored deeply intrinsic and extrinsic motivations which improved or hindered employees' knowledge-sharing behaviour from the basis of five main perspectives: organisational culture, social capital tendency, employees' sense of well-being, employees' working habits in terms of knowledge sharing, and ICTs. However, this may have unintentionally ignored other important factors for successful knowledge management that might affect employees' knowledge-sharing behaviour. Since the employees' knowledge-sharing behaviour involved a complex context and factors of psychology, social psychology and cultural anthropology, future research might consider a more comprehensive investigation of what factors might influence employees' knowledge-sharing behaviour in a virtual organisation. Thus, further research might be conducted by adding different constructs to the research findings.

In addition, because the time needed to carry out participant observation could not be matched with the case under study, and because non-participant observation may lead to distortion of the real contextual phenomenon, this research suggests that, in the future, participant observation and ethnographic heterogeneity might be taken into account in order to observe participants' knowledge-sharing behaviour directly within real-life contexts over a prolonged period of time by participating in employees' working activities.

As time was limited, although this research identified the pivotal elements of employees' knowledge-sharing behaviour in the virtual organisation by adopting a cross-sectional mixture of quantitative and qualitative methods for data collection, it may not have comprehensively captured the dynamism of the formation of employees' knowledge-sharing behaviour within the virtual organisation. Consequently, to gain greater insight into more in-depth factors concerning employees' knowledge-sharing

behaviour within a virtual context, future research might consider using a longitudinal data collection method. This would enable the effects of antecedents of employees' tacit and explicit knowledge-sharing behaviour in a virtual organisation to be explored from a dynamic perspective.

7.4 Epilogue

This PhD research has taken the greater part of four years of constantly exploring existing and new literature in order to produce a doctoral thesis which considers a whole new vista of KM research, especially in terms of exploring employees' knowledge-sharing behaviour within the virtual organisation of Taiwanese NGOs in a Chinese culture. This researcher has encountered countless frustrations, trials and tribulations, accompanied by many sleepless nights spent thinking and writing. Of course, while writing the doctoral thesis has proved to be a means to an end, it is not yet the end in itself. During the process of this research, the researcher spent around sixteen months reviewing comprehensively a great deal of relevant literature in subsequently designing research methodology in order to identify and articulate the gaps in the existing body of literature which clarified the need for this research. At the same time, the whole learning process was further cultivated particularly by frequent attendance at workshops, departmental seminars and conferences. This was followed in the following months by the selection of methods for data collection, the actual collection of the data, and the analysis of both the quantitative and qualitative approaches. All of these activities have made the outcome of this doctoral research more than just a contribution to knowledge. The rigorous preparation and process of the research has also been a life-changing process that has equipped the researcher for a future academic career.

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Appendices

Appendix 1. Research Survey Instrument (The Pilot Study, English Version)

Investigation of Factors that Affect the Willingness of Individuals to Share Knowledge in Virtual Organisations of Taiwanese Non-Governmental Organisations (NGOs)

Dear Sir or Madam :

My name is Hao-Fan Chumg. I am a Ph.D. student in the department of Information Science at Loughborough University. I am writing to you to ask to distribute the questionnaire to your organisation in order to investigate knowledge-sharing behaviour of employees. The main aim of this research is to explore and gain insights into how factors such as the sense of well-being, an individual's habit, social capital as well as organisational culture may contribute to knowledge-sharing behaviour of members in the context of the virtual organisation of Taiwanese NGOs.

I believe that your organisation is appropriate for this research; hence, I hope the organisation can afford me the opportunity to investigate employees' knowledge-sharing behavior between National Training Institute for Farmers' Association (NTIFO) and Farmers' Associations. The outcome and finding of the research is expected to provide managers and employees of the virtual organisation with a framework for improving members' knowledge-sharing behaviour in order to maintain organisational performance and sustainable development. Your virtual organisation will benefit from a report of this research's findings and results.

I sincerely appreciate your completing or distributing this questionnaire.Its content divides into two main aspects, including 1) demographic information and 2) the dimensions of the research which are discussed about employees' day to day experiences in terms of knowledge sharing in the organisation. It will take around 25 minutes to complete the questionnaire. The questionnaire will be conducted with anonymity in the UK. All personal information will be kept strictly confidential and will be available only to members of the research team. In no circumstances will your name or any identifying characteristic be included in the report. Please answer the following questions based on your own past personal experience. Your participation

will assist the student enormously in accomplishing the research.

Thanks for your helping again.

Best wishes,

Ph.D. student: Hao-Fan Chumg (Josh)

Supervisors: Dr. Louise Cooke & Dr. Jenny Fry

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Section 1: Demographic Information

1. Name of Organisation

   _____

2. Job Role

   _____

3. Gender

・ Male・ Female

4. Age

   ・ 21~25・ 26~30・ 31~35・ 36~40・ 41~45・ 46~50・ 51 (over)

5. How long have you worked in the organisation?

   ・ Less than 1 Year・ 1~3 Years・ 4~6 Years・ 7~9 Years・ 10~15 Years・

   16~20 Years・ 20 Years (over)

Section 2: Your Sense of Well-being

Please circle the number on each line to indicate how you feel the sense of well-being in the virtual organisation.

	1.	2.	3.	4.	5.

	Strongly Disagree	Disagree	Somewhat Agree	Agree	Strongly Agree
1. I don't feel particularly pleased with the way I am.	1	2	3	4	5
2. I am intensely interested in other people.	1	2	3	4	5
3. I feel that life is very rewarding.	1	2	3	4	5
4. I have very warm feelings towards almost everyone.	1	2	3	4	5
5. I rarely wake up feeling rested.	1	2	3	4	5
6. I am not particularly optimistic about the future.	1	2	3	4	5
7. I find most things amusing.	1	2	3	4	5
8. I am always committed and involved.	1	2	3	4	5
9. Life is good.	1	2	3	4	5
10. I do not think that the world is a good place.	1	2	3	4	5
11. I laugh a lot.	1	2	3	4	5
12. I am well satisfied about everything in my life.	1	2	3	4	5
13. I don't think I look attractive.	1	2	3	4	5
14. There is a gap between what I would like to do and what I have done.	1	2	3	4	5
15. I am very happy.	1	2	3	4	5
16. I find beauty in some things.	1	2	3	4	5
17. I always have a cheerful effect on others.	1	2	3	4	5
18. I can fit in everything I want to.	1	2	3	4	5
19. I feel that I am not especially in control of my life.	1	2	3	4	5
20. I feel able to take anything on.	1	2	3	4	5
21. I feel fully mentally alert.	1	2	3	4	5
22. I often experience joy and elation.	1	2	3	4	5
23. I do not find it easy to make decisions.	1	2	3	4	5
24. I do not have a particular sense of meaning and purpose in my life.	1	2	3	4	5
25. I feel I have a great deal of energy.	1	2	3	4	5
26. I usually have a good influence on events.	1	2	3	4	5
27. I do not have fun with other people.	1	2	3	4	5
28. I don't feel particularly healthy.	1	2	3	4	5
29. I do not have particularly happy memories of the past.	1	2	3	4	5

Section 3: My Workplace Networks

To what extent do you agree or disagree with interpersonal relationships in the virtual organisation?

	1. Strongly	2. Disagree	3. Somewhat Agree	4. Agree	5. Strongly Agree
30. I am not very close to my organisational colleagues.	1	2	3	4	5
31. I have a very good relationship with my organisational colleagues.	1	2	3	4	5
32. I don't spend a lot of time interacting with employees in my organisation.	1	2	3	4	5
33. There is considerable consensus among my organisational colleagues about what is important at work.	1	2	3	4	5
34. My organisational colleagues are not enthusiastic about achieving goals and missions of the organisation.	1	2	3	4	5
35. My organisational colleagues and I always share the same ambitions and goals at work.	1	2	3	4	5
36. I do not trust that my organisational colleagues are worthy to rely on.	1	2	3	4	5
37. I know my organisational members will try to help me when I get into difficulties.	1	2	3	4	5
38. I cannot rely on my organisational members to make my job easier.	1	2	3	4	5

Section 4: My Working Practices

Please circle the number to indicate your habits in terms of sharing knowledge in the virtual organisation.

	1. Strongly	2. Disagree	3. Somewhat Agree	4. Agree	5. Strongly Agree
39. Sharing knowledge with the organisational employees has become automatic to me.	1	2	3	4	5
40. Sharing knowledge with the organisational employees is	1	2	3	4	5

not natural to me.					
41. When faced with a particular task, sharing knowledge with the organisational employees is not an obvious choice for me.	1	2	3	4	5
42. My habits, performed under regular routines, areformed through similar situational cues or organisational targets.	1	2	3	4	5
43. I share my knowledge more often, when I consider that my answers can help members to solve questions.	1	2	3	4	5
44. I unconsciously or subconsciously share my knowledge more often, when I continually share my knowledge in the organisation.	1	2	3	4	5

Section 5: Knowledge Sharing Behaviour

Please circle the number to indicate your knowledge-sharing behaviour in the virtualorganisation.

	1. Strongly	2. Disagree	3. Somewhat Agree	4. Agree	5. Strongly Agree
45. I am glad to share my work reports on the IT systems with other employees in the organisation.	1	2	3	4	5
46. I do notlike to provide my personal manuals on the IT systems with other employees in the organisation.	1	2	3	4	5
47. I am pleased to share related official documents on the IT systems with other employees of the organisation.	1	2	3	4	5
48. I will not share multimedia files such as media, context, picture or video on the IT systems with colleagues of my organization.	1	2	3	4	5
49. I always share my experience or know-how from work on the IT systems with my organizational colleagues.	1	2	3	4	5
50. I always share my know-where or know-whom on the IT systems at the request of my organizational colleagues.	1	2	3	4	5
51. I do not like to provide my expertise on the IT systems with other employees of this organisation.	1	2	3	4	5
52. I am not usually actively involved in discussion on complicated issues on the IT systems in the organisation.	1	2	3	4	5

Section 6: Organisational Culture

Please circle the number to indicate organisational culture of your company.

	1. Strongly Disagree	2. Disagree	3. Somewhat Agree	4. Agree	5. Strongly Agree
53. My organisation is a very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks.	1	2	3	4	5
54. The management style in the organization is characterized by individual risk-taking, innovation, flexibility, and uniqueness.	1	2	3	4	5
55. The glue that holds my organisation together is orientation toward innovation and development. There is an emphasis on being on the cutting edge.	1	2	3	4	5
56. My organization defines success on the basis of having the most unique or the newest products. It is a product leader and innovator.	1	2	3	4	5
57. My organisation is a very special place. It is like an extended family. People seem to share a lot of themselves.	1	2	3	4	5
58. The management style in my organization is characterized by teamwork, consensus and participation.	1	2	3	4	5
59. The glue that holds my organisation together is loyalty and mutual trust. Commitment to my organization runs high.	1	2	3	4	5
60. My organization defines success on the basis of development of human resources, teamwork, and concern for people.	1	2	3	4	5
61. My organisation is a very formalized and structured place. Bureaucratic procedures generally govern what people do.	1	2	3	4	5
62. The management style in the organization is characterized by careful monitoring of performance, longevity in position, and predictability.	1	2	3	4	5
63. The glue that holds my organization together is formal rules and policies. Maintaining a smooth running organization is important.	1	2	3	4	5

64. My organisation defines success on the basis of efficiency. Dependable delivery, smooth scheduling, and low cost production are critical.	1	2	3	4	5
65. My organisation is very production oriented. A major concern is with getting the job done. People are very competitive and achievement oriented.	1	2	3	4	5
66. The management style in my organization is characterized by hard-driving competitiveness, goal directedness, and achievement.	1	2	3	4	5
67. The glue that holds my organisation together is the emphasis on production and goal accomplishment. Marketplace aggressiveness is a common theme.	1	2	3	4	5
68. My organization defines success on the basis of winning in the marketplace and outpacing the competition. Competitive market leadership is key.	1	2	3	4	5

If you have any question or comment in terms of the questionnaire of the research, please feel free to write your comments below. Your feedback is important in helping the research improving the quality of the content of the questionnaire.

Thank you for completing the questionnaire.

Appendix 2. Research Survey Instrument (The Pilot Study, Chinese Version)

Investigation of Factors that Affect the Willingness of Individuals to Share Knowledge in Virtual Organisations of Taiwanese Non-Governmental Organisations (NGOs)

親愛的先生/小姐，您好:

我的名字是鄭皓帆，目前我係正在英國羅浮堡大學就讀資訊科學系的博士生，此份問卷之主要內容，在於探討員工在非政府組織(NGO)之虛擬組織裡知識分享之行為研究，其目的在於了解員工的幸福感、個人習慣、社會資本與組織文化對於其在組織裡知識分享意願之影響。皓帆相信貴組織是非常適合為此次之研究對象，因此希望貴組織可以提供予此次研究機會，進而調查研究有關中華民國農民團體幹部聯合訓練協會與農會員工知識分享之行為。同時，此次研究的結果與發現，也將提供給予貴組織在了解有關於促進員工知識分享，以促進與提升組織績效與永續發展。並在完成此研究之後，也將提供一份本研究的發現與結果之副本與貴公司參考與保存。

本研究非常期待您完成此份問卷。此份問卷可以分為兩個主要部分，第一個部分係有關您的個人基本資訊，第二個部分則為有關員工在組織的知識分享行為。此份問卷評估約需要 40 分鐘予以完成。同時，此份問卷也將以匿名的方式在英國進行統計與分析，所有問卷之受訪者的個人資料將予以嚴格的保密，並且只有此一研究團隊成員可以參與討論。不論在何種環境情況之下，您的個人相關資訊或名字都絕不會出現在此一研究報告裡。因此，請您可以放心的依據您個人經驗填寫此份問卷。非常感謝您仁慈的參與，此份研究才能予以完成。

(最後，為感謝您的熱情參與，待填寫完成，本問卷隨即贈與一枚英國徽章，並在 9 月份另抽出三位贈與英國愛丁堡生產蘇格蘭羊毛圍巾予以感謝。)

敬祝 研安!

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第一部分: 個人相關資訊

6. 所屬農會單位

_____

7. 工作角色（個人在公司裡所扮演的角色）

_____

8. 性別

· 男性 · 女性

9. 年齡

· 21~25 歲 · 26~30 歲 · 31~35 歲 · 36~40 歲 · 41~45 歲 · 46~50 歲· 51 歲以上

10. 已經在公司裡的工作時間

· 1 年 · 1~3 年 · 4~6 年 · 7~9 年 · 10~15 年 · 16~20 年 · 20 年以上

第二部分: 員工幸福感

	一、非常不同意	二、有些不同意	三、基本同意	四、大部分同意	五、非常同意
1. 我不會特別喜歡我自己。	1	2	3	4	5
2. 我對他人非常感興趣。	1	2	3	4	5
3. 我感覺生活是非常值得的。	1	2	3	4	5
4. 我幾乎對每個人都非常熱情。	1	2	3	4	5
5. 我睡醒後很少感覺得到充分的休息。	1	2	3	4	5
6. 我對未來並不怎麼樂觀。	1	2	3	4	5
7. 我覺得大多數的事情都很有趣。	1	2	3	4	5
8. 我總是願意給予承諾與投入。	1	2	3	4	5
9. 人生是美好的。	1	2	3	4	5
10. 我不認為這個世界是美好的。	1	2	3	4	5
11. 我經常大笑。	1	2	3	4	5
12. 我對生活中的所有事物感到滿意。	1	2	3	4	5
13. 我不認為我看起來具有吸引力	1	2	3	4	5
14. 我想做的與我所完成的事情之間有些差距。	1	2	3	4	5
15. 我感覺非常快樂。	1	2	3	4	5
16. 我能發現事物中所蘊含的美好。	1	2	3	4	5
17. 我總是能帶給他人歡樂。	1	2	3	4	5

18. 我與我想要的事物都能配合得很好。	1	2	3	4	5
19. 我覺得我不太能控制我的生活。	1	2	3	4	5
20. 我覺得我能夠承擔任何事情。	1	2	3	4	5
21. 我覺得我心智非常敏銳。	1	2	3	4	5
22. 我常常體驗到快樂與歡欣。	1	2	3	4	5
23. 作決策對我來說不是件容易的事。	1	2	3	4	5
24. 我覺得我的人生沒有特殊的意義或目標。	1	2	3	4	5
25. 我覺得我有很多活力。	1	2	3	4	5
26. 我通常能對周遭的事件有好的影響。	1	2	3	4	5
27. 在與其他人相處時，我覺得沒有什麼樂趣。	1	2	3	4	5
28. 我不覺得我很健康。	1	2	3	4	5
29. 對於過去，我沒有什麼特別美好的回憶。	1	2	3	4	5

第三部分：我的工作環境之人際網絡

	一、非常不同意	二、有些不同意	三、基本同意	四、大部分同意	五、非常同意
30. 我並沒有和組織裡同事保持親密的關係。	1	2	3	4	5
31. 我和組織裡同事保持著非常良好的人際關係。	1	2	3	4	5
32. 我不會花費較多時間和組織裡的同事保持互動。	1	2	3	4	5
33. 組織裡的同事對於工作的重點，都有高度的共識。	1	2	3	4	5
34. 組織裡的同事們，對於達成組織的目標和任務，並沒有太大的熱忱。	1	2	3	4	5
35. 我和組織裡同事總是可以在工作上，分享著相同的抱負與目標。	1	2	3	4	5
36. 我並不相信組織裡的同事是非常值得依靠。	1	2	3	4	5
37. 當我遇到困難時，我相信組織裡的同事會毫不猶豫地幫助我。	1	2	3	4	5
38. 我無法仰賴我的同事，來讓我的工作變得比較輕鬆。	1	2	3	4	5

第四部份：我的工作實踐

	一、非常不同意	二、有些不同意	三、基本同意	四、大部分同意	五、非常同意
39. 將我的知識分享給其他同事已經變成自動自發。	1	2	3	4	5
40. 將我的知識分享給其他同事並不是我的本性。	1	2	3	4	5
41. 當面對組織交派的任務時，將我的知識分享給其他同事並不是我的首要選擇。	1	2	3	4	5
42. 我的例行工作下的習慣，會依據相似的情境線索或組織的目標而形成。	1	2	3	4	5
43. 當我認為我的知識分享可以幫助我組織裡的同事解決問題時，我會越常分享我的知識。	1	2	3	4	5
44. 當我持續地在組織裡分享我的知識時，我會潛意識或下意識的分享我更多的知識。	1	2	3	4	5

第五部分：知識分享行為

	一、非常不同意	二、有些不同意	三、基本同意	四、大部分同意	五、非常同意
45. 我很高興藉由組織裡的資訊系統，分享我的工作報告與其他同事。	1	2	3	4	5
46. 我並不願意藉由組織裡的資訊系統，提供我的個人工作手冊與其他同事。	1	2	3	4	5
47. 我很高興藉由組織裡的資訊系統，分享相關官方文件與其他的同事。	1	2	3	4	5
48. 我不會藉由組織裡的資訊系統，分享多媒體檔案如語音、教科書、圖片或視訊給予組織裡的同事。	1	2	3	4	5
49. 我經常藉由組織裡的資訊系統，分享我工作上的經驗或知識給予其他同事。	1	2	3	4	5
50. 我經常藉由組織裡的資訊系統，分享我的知道(know-where)或知道誰(know-whom)給予其他同事。	1	2	3	4	5
51. 我並不樂意藉由組織裡的資訊系統，提供我的專業知識給予其他同事。	1	2	3	4	5
52. 我並不常藉由組織裡的資訊系統，積極參與討論組織	1	2	3	4	5

裡複雜的議題。

第六部分:組織文化

	一、非常不同意	二、有些不同意	三、基本同意	四、大部分同意	五、非常同意
53. 我的組織據有很高的活性和創業精神，人們勇於冒險和承擔責任。	1	2	3	4	5
54. 我的組織管理風格之特徵為著重個人之冒險犯難，強調創新、自由及獨特性之展現	1	2	3	4	5
55. 創新和發展把組織裡的同事結合在一起，走在時代的尖端是重點。	1	2	3	4	5
56. 我的組織對於成功的定義，是依據組織是否具有最特別和最新的產品，組織是否是產品的領導者和創新者。	1	2	3	4	5
57. 我的組織是一個人性化的地方，就像是家庭的延伸，人們不分彼此。	1	2	3	4	5
58. 我的組織管理風格是團隊合作、凝聚共識及成員之參與性強。	1	2	3	4	5
59. 我的組織靠忠誠與互信聯合在一起，承諾感在組織是是非常重要的。	1	2	3	4	5
60. 我的組織在界定成功定義，是依據人力資源發展、團隊合作、成員的承諾及對成員的關懷來認定。	1	2	3	4	5
61. 我的組織是相當正式和結構化，成員按照正式程序行事。	1	2	3	4	5
62. 我的組織管理風格主要是確保穩定的績效，員工長期在同一職位上，對可預見的未來加以掌控。	1	2	3	4	5
63. 組織同事靠正規的制度和政策在一起工作，維持一個順暢運作的組織是非長重要的。	1	2	3	4	5
64. 我的組織是以效率為成功基礎，相互傳遞、平穩的工作安排和低成本是至關重要的。	1	2	3	4	5
65. 我的組織是屬於生產導向型態，人們主要的想法是完成工作，員工的能力很高並且期望成功。	1	2	3	4	5
66. 我的組織管理風格之特徵為注重競爭、高度要求及目標之達成。	1	2	3	4	5
67. 組織裡的同事靠產品與目標的完成在一起共事，在市場上極具侵略性。	1	2	3	4	5

68. 我的組織對於成功的定義，是依據組織是否具有市場領導者的地位，競爭市場領導是主要的關鍵。 1 2 3 4 5

如果你對於此份問卷內容有任何問題或評論,請寫下您的建議。因為你的反饋，將有助於對於提升本研究問卷內容的質與量。

_____

請留下您的 E-mail 帳號，以便通知並送達此問卷之贈品。

_____

非常感謝與感恩您熱情參與本次問卷的填寫。

Appendix 3. Research Final Survey Instrument (English Version)

Investigation of Factors that Affect the Willingness of Individuals to Share Knowledge in Virtual Organisations of Taiwanese Non-Governmental Organisations (NGOs)

Dear Sir or Madam :

My name is Hao-Fan Chumg. I am a Ph.D. student in the department of Information Science at Loughborough University. I am writing to you to ask to distribute the questionnaire to your organisation in order to investigate knowledge-sharing behaviour of employees. The main aim of this research is to explore and gain insights into how factors such as the sense of well-being, an individual's habit, social capital as well as organisational culture may contribute to knowledge-sharing behaviour of members in the context of the virtual organisation of Taiwanese NGOs.

I believe that your organisation is appropriate for this research; hence, I hope the organisation can afford me the opportunity to investigate employees' knowledge-sharing behavior between National Training Institute for Farmers' Association (NTIFO) and Farmers' Associations. The outcome and finding of the research is expected to provide managers and employees of the virtual organisation with a framework for improving members' knowledge-sharing behaviour in order to maintain organisational performance and sustainable development. Your virtual organisation will benefit from a report of this research's findings and results.

I sincerely appreciate your completing or distributing this questionnaire. Its content divides into two main aspects, including 1) demographic information and 2) the dimensions of the research which are discussed about employees' day to day experiences in terms of knowledge sharing in the organisation. It will take around 25 minutes to complete the questionnaire. The questionnaire will be conducted with anonymity in the UK. All personal information will be kept strictly confidential and will be available only to members of the research team. In no circumstances will your name or any identifying characteristic be included in the report. Please answer the following questions based on your own past personal experience. Your participation will assist the student enormously in accomplishing the research.

Thanks for your helping again.

Best wishes,

Ph.D. student: Hao-Fan Chumg (Josh)

Supervisors: Dr. Louise Cooke & Dr. Jenny Fry

Phone: 07411398286
E-mail: h.chumg@lboro.ac.uk

Section 1: Demographic Information

11. Name of Organisation

_____

12. Job Role

_____

13. Gender

・ Male・ Female

14. Age

・ 21~25・ 26~30・ 31~35・ 36~40・ 41~45・ 46~50・ 51 (over)

15. How long have you worked in the organisation?

・ Less than 1 Year・ 1~3 Years・ 4~6 Years・ 7~9 Years・ 10~15 Years・

16~20 Years・ 20 Years (over)

Section 2: Your Sense of Well-being

Please circle the number on each line to indicate how you feel the sense of well-being in the virtual organisation.

	1. Strongly Disagree	2. Disagree	3. Somewhat Agree	4. Agree	5. Strongly Agree
1. I don't feel particularly pleased with the way I am.	1	2	3	4	5
2. I am intensely interested in other people.	1	2	3	4	5
3. I have very warm feelings towards almost everyone.	1	2	3	4	5
4. I rarely wake up feeling rested.	1	2	3	4	5
5. I find most things amusing.	1	2	3	4	5

6. Life is good.	1	2	3	4	5
7. I do not think that the world is a good place.	1	2	3	4	5
8. I laugh a lot.	1	2	3	4	5
9. I am well satisfied about everything in my life.	1	2	3	4	5
10. I don't think I look attractive.	1	2	3	4	5
11. There is a gap between what I would like to do and what I have done.	1	2	3	4	5
12. I am very happy.	1	2	3	4	5
13. I always have a cheerful effect on others.	1	2	3	4	5
14. I can fit in everything I want to.	1	2	3	4	5
15. I feel that I am not especially in control of my life.	1	2	3	4	5
16. I feel able to take anything on.	1	2	3	4	5
17. I feel fully mentally alert.	1	2	3	4	5
18. I often experience joy and elation.	1	2	3	4	5
19. I do not find it easy to make decisions.	1	2	3	4	5
20. I do not have a particular sense of meaning and purpose in my life.	1	2	3	4	5
21. I feel I have a great deal of energy.	1	2	3	4	5
22. I usually have a good influence on events.	1	2	3	4	5
23. I do not have fun with other people.	1	2	3	4	5
24. I don't feel particularly healthy.	1	2	3	4	5
25. I do not have particularly happy memories of the past.	1	2	3	4	5

Section 3: My Workplace Networks

To what extent do you agree or disagree with interpersonal relationships in the virtual organisation?

	1. Strongly	2. Disagree	3. Somewhat Agree	4. Agree	5. Strongly Agree
26. I am not very close to my organisational colleagues.	1	2	3	4	5
27. I have a very good relationship with my organisational colleagues.	1	2	3	4	5
28. I don't spend a lot of time interacting with employees in my organisation.	1	2	3	4	5
29. There is considerable consensus among my organisational	1	2	3	4	5

colleagues about what is important at work.					
30. My organisational colleagues are not enthusiastic about achieving goals and missions of the organisation.	1	2	3	4	5
31. My organisational colleagues and I always share the same ambitions and goals at work.	1	2	3	4	5
32. I do not trust that my organisational colleagues are worthy to rely on.	1	2	3	4	5
33. I know my organisational members will try to help me when I get into difficulties.	1	2	3	4	5
34. I cannot rely on my organisational members to make my job easier.	1	2	3	4	5

Section 4: My Working Practices

Please circle the number to indicate your habits in terms of sharing knowledge in the virtual organisation.

	1. Strongly	2. Disagree	3. Somewhat Agree	4. Agree	5. Strongly Agree
35. Sharing knowledge with the organisational employees has become automatic to me.	1	2	3	4	5
36. Sharing knowledge with the organisational employees is not natural to me.	1	2	3	4	5
37. When faced with a particular task, sharing knowledge with the organisational employees is not an obvious choice for me.	1	2	3	4	5
38. My habits, performed under regular routines, areformed through similar situational cues or organisational targets.	1	2	3	4	5
39. I share my knowledge more often, when I consider that my answers can help members to solve questions.	1	2	3	4	5
40. I unconsciously or subconsciously share my knowledge more often, when I continually share my knowledge in the organisation.	1	2	3	4	5

Section 5: Knowledge Sharing Behaviour

Please circle the number to indicate your knowledge-sharing behaviour in the

virtualorganisation.

	1. Strongly	2. Disagree	3. Somewhat Agree	4. Agree	5. Strongly Agree
41. I am glad to share my work reports on the IT systems with other employees in the organisation.	1	2	3	4	5
42. I do notlike to provide my personal manuals on the IT systems with other employees in the organisation.	1	2	3	4	5
43. I am pleased to share related official documents on the IT systems with other employees of the organisation.	1	2	3	4	5
44. I will not share multimedia files such as media, context, picture or video on the IT systems with colleagues of my organization.	1	2	3	4	5
45. I always share my experience or know-how from work on the IT systems with my organizational colleagues.	1	2	3	4	5
46. I always share my know-where or know-whom on the IT systems at the request of my organizational colleagues.	1	2	3	4	5
47. I do not like to provide my expertise on the IT systems with other employees of this organisation.	1	2	3	4	5
48. I am not usually actively involved in discussion on complicated issues on the IT systems in the organisation.	1	2	3	4	5

Section 6: Organisational Culture

Please circle the number to indicate organisational culture of your company.

	1. Strongly Disagree	2. Disagree	3. Somewhat Agree	4. Agree	5. Strongly Agree
49. My organisation is a very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks.	1	2	3	4	5
50. The management style in the organization is characterized by individual risk-taking, innovation, flexibility, and	1	2	3	4	5

uniqueness.					
51. The glue that holds my organisation together is orientation toward innovation and development. There is an emphasis on being on the cutting edge.	1	2	3	4	5
52. My organization defines success on the basis of having the most unique or the newest products. It is a product leader and innovator.	1	2	3	4	5
53. My organisation is a very special place. It is like an extended family. People seem to share a lot of themselves.	1	2	3	4	5
54. The management style in my organization is characterized by teamwork, consensus and participation.	1	2	3	4	5
55. The glue that holds my organisation together is loyalty and mutual trust. Commitment to my organization runs high.	1	2	3	4	5
56. My organization defines success on the basis of development of human resources, teamwork, and concern for people.	1	2	3	4	5
57. My organisation is a very formalized and structured place. Bureaucratic procedures generally govern what people do.	1	2	3	4	5
58. The glue that holds my organization together is formal rules and policies. Maintaining a smooth running organization is important.	1	2	3	4	5
59. My organisation defines success on the basis of efficiency. Dependable delivery, smooth scheduling, and low cost production are critical.	1	2	3	4	5
60. My organisation is very production oriented. A major concern is with getting the job done. People are very competitive and achievement oriented.	1	2	3	4	5
61. The management style in my organization is characterized by hard-driving competitiveness, goal directedness, and achievement.	1	2	3	4	5
62. The glue that holds my organisation together is the emphasis on production and goal accomplishment. Marketplace aggressiveness is a common theme.	1	2	3	4	5
63. My organization defines success on the basis of winning in the marketplace and outpacing the competition. Competitive market leadership is key.	1	2	3	4	5

If you have any question or comment in terms of the questionnaire of the research,

please feel free to write your comments below. Your feedback is important in helping the research improving the quality of the content of the questionnaire.

Thank you for completing the questionnaire.

Appendix 4. Research Final Survey Instrument (Chinese Version)

虛擬組織員工知識分享意願之研究

親愛的先生/小姐，您好:

我的名字是鄭皓帆，目前我係正在英國羅浮堡大學就讀資訊科學系的博士生，此份問卷之主要內容，在於探討員工在非政府組織(NGO)之虛擬組織裡知識分享之行為研究，其目的在於了解員工的幸福感、個人習慣、社會資本與組織文化對於其在組織裡知識分享意願之影響。皓帆相信貴組織是非常適合為此次之研究對象，因此希望貴組織可以提供予此次研究機會，進而調查研究有關中華民國農民團體幹部聯合訓練協會與農會員工知識分享之行為。同時，此次研究的結果與發現，也將提供給予貴組織在了解有關於促進員工知識分享，以促進與提升組織績效與永續發展。並在完成此研究之後，也將提供一份本研究的發現與結果之副本與貴公司參考與保存。

本研究非常期待您完成此份問卷。此份問卷可以分為兩個主要部分，第一個部分係有關您的個人基本資訊，第二個部分則為有關員工在組織的知識分享行為。此份問卷評估約需要 20 分鐘予以完成。同時，此份問卷也將以匿名的方式在英國進行統計與分析，所有問卷之受訪者的個人資料將予以嚴格的保密，並且只有此一研究團隊成員可以參與討論。不論在何種環境情況之下，您的個人相關資訊或名字都絕不會出現在此一研究報告裡。因此，請您可以放心的依據您個人經驗填寫此份問卷。非常感謝您仁慈的參與，此份研究才能予以完成。

(最後，為感謝您的熱情參與，待填寫完成，本問卷隨即贈與一枚英國徽章，並在 9 月份另抽出三位贈與英國愛丁堡生產蘇格蘭羊毛圍巾予以感謝。)

敬祝 研安!

博士生: 鄭皓帆 指導教授: Dr. Louise Cooke 與 Dr. Jenny Fry
電話: 0926547816 (TW), 07411398286 (UK)
電子信箱: h.chumg@lboro.ac.uk

第一部分: 個人相關資訊

16. 所屬農會單位

_____

17. 工作角色（個人在公司裡所扮演的角色）

_____

18. 性別

· 男性 · 女性

19. 年齡

· 21~25 歲 · 26~30 歲 · 31~35 歲 · 36~40 歲 · 41~45 歲 · 46~50 歲· 51 歲以上

20. 已經在公司裡的工作時間

· 1 年 · 1~3 年 · 4~6 年 · 7~9 年 · 10~15 年 · 16~20 年 · 20 年以上

第二部分: 員工幸福感

	一、非常不同意	二、有些不同意	三、基本同意	四、大部分同意	五、非常同意
1. 我不會特別喜歡我自己。	1	2	3	4	5
2. 我對他人非常感興趣。	1	2	3	4	5
3. 我幾乎對每個人都非常熱情。	1	2	3	4	5
4. 我睡醒後很少感覺得到充分的休息。	1	2	3	4	5
5. 我覺得大多數的事情都很有趣。	1	2	3	4	5
6. 人生是美好的。	1	2	3	4	5
7. 我不認為這個世界是美好的。	1	2	3	4	5
8. 我常大笑。	1	2	3	4	5
9. 我很滿意目前生活中的一切。	1	2	3	4	5
10. 我不認為我看起來具有吸引力	1	2	3	4	5
11. 我想做的與我所完成的事情之間有些差距。	1	2	3	4	5
12. 我感覺非常快樂。	1	2	3	4	5
13. 我總是能帶給他人歡樂。	1	2	3	4	5
14. 我與我想要的事物都能配合得很好。	1	2	3	4	5
15. 我覺得我不太能控制我的生活。	1	2	3	4	5
16. 我覺得我能夠承擔任何事情。	1	2	3	4	5
17. 我覺得我心智非常敏銳。	1	2	3	4	5
18. 我常常體驗到快樂與歡欣。	1	2	3	4	5
19. 作決策對我來說不是件容易的事。	1	2	3	4	5
20. 我覺得我的人生沒有特殊的意義或目標。	1	2	3	4	5

21. 我覺得我有很多活力。	1	2	3	4	5
22. 我通常能對周遭的事件有好的影響。	1	2	3	4	5
23. 在與其他人相處時，我覺得沒有什麼樂趣。	1	2	3	4	5
24. 我不覺得我很健康。	1	2	3	4	5
25. 對於過去，我沒有什麼特別美好的回憶。	1	2	3	4	5

第三部分：我的工作環境之人際網絡

	一、非常不同意	二、有些不同意	三、基本同意	四、大部分同意	五、非常同意
26. 我並沒有和組織裡同事保持親密的關係。	1	2	3	4	5
27. 我和組織裡同事保持著非常良好的人際關係。	1	2	3	4	5
28. 我不會花費較多時間和組織裡的同事保持互動。	1	2	3	4	5
29. 組織裡的同事對於工作的重點，都有高度的共識。	1	2	3	4	5
30. 組織裡的同事們，對於達成組織的目標和任務，並沒有太大的熱忱。	1	2	3	4	5
31. 我和組織裡同事總是可以在工作上，分享著相同的抱負與目標。	1	2	3	4	5
32. 我並不相信組織裡的同事是非常值得依靠。	1	2	3	4	5
33. 當我遇到困難時，我相信組織裡的同事會毫不猶豫地幫助我。	1	2	3	4	5
34. 我無法仰賴我的同事，來讓我的工作變得比較輕鬆。	1	2	3	4	5

第四部份：我的工作實踐

	一、非常不同意	二、有些不同意	三、基本同意	四、大部分同意	五、非常同意
35. 將我的知識分享給其他同事已經變成自動自發。	1	2	3	4	5
36. 將我的知識分享給其他同事並不是我的本性。	1	2	3	4	5
37. 當面對組織交派的任務時，將我的知識分享給其他同事並不是我的首要選擇。	1	2	3	4	5
38. 我的例行工作下的習慣，會依據相似的情境線索或組織的目標而形成。	1	2	3	4	5

39. 當我認為我的知識分享可以幫助我組織裡的同事解決問題時，我會越常分享我的知識。	1	2	3	4	5
40. 當我持續地在組織裡分享我的知識時，我會潛意識或下意識的分享我更多的知識。	1	2	3	4	5

第五部分: 知識分享行為

	一、非常不同意	二、有些不同意	三、基本同意	四、大部分同意	五、非常同意
41. 我很高興藉由組織裡的資訊系統，分享我的工作報告與其他同事。	1	2	3	4	5
42. 我並不願意藉由組織裡的資訊系統，提供我的個人工作手冊與其他同事。	1	2	3	4	5
43. 我很高興藉由組織裡的資訊系統，分享相關官方文件與其他的同事。	1	2	3	4	5
44. 我不會藉由組織裡的資訊系統，分享多媒體檔案如語音、教科書、圖片或視訊給予組織裡的同事。	1	2	3	4	5
45. 我經常藉由組織裡的資訊系統，分享我工作上的經驗或知識給予其他同事。	1	2	3	4	5
46. 我經常藉由組織裡的資訊系統，分享我的知道(know-where)或知道誰(know-whom)給予其他同事。	1	2	3	4	5
47. 我並不樂意藉由組織裡的資訊系統，提供我的專業知識給予其他同事。	1	2	3	4	5
48. 我並不常藉由組織裡的資訊系統，積極參與討論組織裡複雜的議題。	1	2	3	4	5

第六部分:組織文化

	一、非常不同意	二、有些不同意	三、基本同意	四、大部分同意	五、非常同意
49. 我的組織據有很高的活性和創業精神，人們勇於冒險和承擔責任。	1	2	3	4	5
50. 我的組織管理風格之特徵為著重個人之冒險犯難，強	1	2	3	4	5

調創新、自由及獨特性之展現

51. 創新和發展把組織裡的同事結合在一起，走在時代的尖端是重點。	1	2	3	4	5
52. 我的組織對於成功的定義，是依據組織是否具有最特別和最新的產品，組織是否是產品的領導者和創新者。	1	2	3	4	5
53. 我的組織是一個人性化的地方，就像是家庭的延伸，人們不分彼此。	1	2	3	4	5
54. 我的組織管理風格是團隊合作、凝聚共識及成員之參與性強。	1	2	3	4	5
55. 我的組織靠忠誠與互信聯合在一起，承諾感在組織是是非常重要的。	1	2	3	4	5
56. 我的組織在界定成功定義，是依據人力資源發展、團隊合作、成員的承諾及對成員的關懷來認定。	1	2	3	4	5
57. 我的組織是相當正式和結構化，成員按照正式程序行事。	1	2	3	4	5
58. 組織同事靠正規的制度和政策在一起工作，維持一個順暢運作的組織是非長重要的。	1	2	3	4	5
59. 我的組織是以效率為成功基礎，相互傳遞、平穩的工作安排和低成本是至關重要的。	1	2	3	4	5
60. 我的組織是屬於生產導向型態，人們主要的想法是完成工作，員工的能力很高並且期望成功。	1	2	3	4	5
61. 我的組織管理風格是高度競爭、目標導向和達成目標。					
62. 組織裡的同事靠產品與目標的完成在一起共事，在市場上極具侵略性。	1	2	3	4	5
63. 我的組織對於成功的定義，是依據組織是否具有市場領導者的地位，競爭市場領導是主要的關鍵。	1	2	3	4	5

如果你對於此份問卷內容有任何問題或評論,請寫下您的建議。因為你的反饋，將有助於對於提升本研究問卷內容的質與量。

請留下您的 E-mail 帳號，以便通知並送達此問卷之贈品。

非常感謝與感恩您熱情參與本次問卷的填寫。

Appendix 5. Interview Scales (Expert/Content Validity)

Item	Modified Interview Questions	Original interview questions	Statement
1.		How would you describe knowledge-sharing behaviour among employees in your organisation?	
2.	In what circumstances are you most likely to share knowledge in your organization?'	When do you have the willingness to share knowledge in your organisation?	Louise Cooke: This is very vague.
3.		Can you describe what kind of knowledge you share in your organisation? How? Why?	
4.	What are your thoughts about using Information and Communication Technology to share knowledge?	How do you feel when using Information and Communication Technology to share knowledge?	Louise Cooke: This is very vague.
5.		How would you describe interpersonal relationships in your organisation?	
6.	How would you describe your own behavior in terms of trust, collaboration and supporting others when at work?'	How do you feel when performing certain behaviours such as trusting, cooperating and helping others in your organisation?	Louise Cooke: This is very vague.
7.	How does trusting others and having shared goals and collaboration influence your performance at work?	What do you do when you trust others, have shared goals, and cooperate with each other?	Louise Cooke: Again, too vague.
8.		How far do you feel a sense of well-being when you are working in your	

		organisation? Why do you think this is?	
9.		In what ways do you think your colleagues and the culture of your organisation affect your own sense of well-being?	Increased
10.		How important do you think the sense of well-being is in your organisation?	Increased
11.		How does your sense of well-being influence your working performance in your organisation? Can you describe any specific instances?	
12.		What habits do you have in terms of knowledge sharing in your organisation? A) If you frequently share your knowledge, what encouraged you to adopt these work habits in your organisation? B) If you do not, what factors might have prohibited or discouraged your knowledge-sharing work habits in your organisation?	
13.		How much do these knowledge-sharing work habits affect your performance at work? Please give specific examples.	Increased
14.	Please could you describe the organisational culture of your	How do you feel about the organisational culture in	Jenny Fry: Rephrase the

	organisation?	your organisation?	statement.
15.		Does the organisational culture of your organisation impact on your knowledge sharing work habits? Please explain how and why you think this is.	
16.		How does your organisation encourage you to share knowledge?	

Appendix 6. Interview Scales (the Pilot Study)

Investigation of Factors that Affect the Willingness of Individuals to Share Knowledge in Virtual Organisations of Taiwanese Non-Governmental Organisations (NGOs)

I am a Ph.D. student in the Department of Information Science at Loughborough University. My research involves investigating the effects of interpersonal relationships, the sense of well-being, an individual's habits, and organisational culture, as well as Information and Communication Technology (ICT) on employees' knowledge-sharing behaviour in the virtual organisation. I believe that your experience and knowledge will contribute immensely to this research. Your participation in the interview is voluntary, and you may withdraw your co-operation in the research at any point. The interview will last approximately one hour. All personal information and comments you provide in the interview will be kept strictly anonymous and all data will be kept securely and destroyed at the end of the project. Thank you for agreeing to participate in the research.

No.
Interviewee's Name:
Gender:
Age:
Occupation:
Organisation:
Date of Interview:

Definition of Each Variable

Knowledge Sharing*:*
This research views knowledge sharing as an individual's behaviour in terms of having the willingness to share skills, expertise, experience and knowledge. Meanwhile, the types of the knowledge-sharing behaviour of an individual should include not only tacit, but also explicit knowledge.

Virtual Organisation: *A virtual organisation consists of a variety of dynamic and temporary companies whose employees cooperate and coordinate their efforts to pooltheir facilities and infrastructures, and share skills, competencies, knowledge and resources by utilising Information and Communication Technologies (ICTs), such as E-mail, knowledge management systems (KMSs) and video conferencing, in order to pursue a particular goal or market opportunity.*

Organisational Culture: *This research defines organisational culture as the shared*

values, norms, beliefs and assumptions of members that may visibly or invisibly influence their behaviour in an organisation. In the meantime, this organisational culture has the characteristics of cohesiveness, force of constraint, stimulation and driving force to organisational members in order to achieve theorganisation's particular goals.

An Individual's Work Habits: *This research defines an individual's work habits, in terms of knowledge sharing in a virtual organisation, as an individual's subconscious behaviour generated byhis/her accumulative and goal-directed automatic behaviour.*

(1) An Individual's Attitude towards Knowledge Sharing

1. How would you describe knowledge-sharing behaviour among employees in your organisation?
2. In what circumstances are you most likely to share knowledge in your organisation? (The original question "When do you have the willingness to share knowledge in your organisation?" was very vague and a bit abstract.To make the question more understandable, the question was modified: "In what circumstances are you most likely to share knowledge in your organisation?")
3. Can you describe what kind of knowledge you share in your organisation? How and why might you share your knowledge?
4. What are your thoughts about using Information and Communication Technology to share knowledge?

(2) Your Workplace Networks

5. How would you describe interpersonal relationships in your organisation?
6. How would you describe your own behaviour in terms of trust, collaboration and supporting others at work?
7. How does trusting others, having shared goals and collaborating at work influence your own performance? What benefits have you observed for yourself and for others in such practices? (Theoriginal question "What do you do when you trust others, have shared goals, and cooperate with each other?" was vague, anddid not generate a large amount of feedback from pilot interviewees. To make the question clear and understandable, the question therefore was rephrased: "How does trusting others, having shared goals and collaborating at work influence your own performance?", and thengave a supplementary question: "What benefits have you observed for yourself and for others in such practices?"Afterwards, pilot interviewees could further answer the question

better.)

(3) Your Sense of Well-being

8. How far do you feel a sense of well-being when you are working in your organisation? Why do you think this is?
9. In what ways do you think your colleagues and the culture of your organisation affect your own sense of well-being? (Increased)
10. How important do you think the sense of well-being is in your organisation? (Increased)
11. How does your sense of well-being influence your working performance in your organisation? Can you describe any specific instances? (The original question is "What impact does it make when your sense of well-being increases?". Pilot interviewees found that this question was difficult to answer. When the original question was substituted with one which asked: "How does your sense of well-being influence your working performance in your organisation?" The pilot interviewees started to talk about their feeling ….)

(4) An Individual's Habits

12. What habits do you have in terms of knowledge sharing in your organisation?
    A) If you frequently share your knowledge, what encouraged you to adopt these work habits in your organisation?
    B) If you do not, what factors might have prohibited or discouraged your knowledge-sharing work habits in your organisation?
    (The original question was "What may let you get into the work habit of knowledge sharing in your organisation?". Two Pilot interviewees thought the question was a little bit abstract. When the question was substituted with a more specific one, (A) and (B), pilot interviewees could therefore give more valuable feedback.)
13. How much do these knowledge-sharing work habits affect your performance at work? Please give specific examples. (Increased)

(5) Organisational Culture

14. Please could you describe the organisational culture of your organisation?
15. Does the organisational culture of your organisation impact on your sense of well-being at work? Please explain how and why you think this is. (The original

question "What happens when you engage in the organisational culture of your organisation?" did not make sense, and it was not clear. Instead of asking a general question about organisation culture, the question was therefore modified: "Does the organisational culture of your organisation impact on your sense of well-being at work?")

16. How does your organisation encourage you to share knowledge?

Is there anything else you would like to add? Thank you very much for taking the time to be interviewed. I deeply appreciate your help.

Appendix 7. Interview Scales (English Version)

Investigation of Factors that Affect the Willingness of Individuals to Share Knowledge in Virtual Organisations of Taiwanese Non-Governmental Organisations (NGOs)

I am a Ph.D. student in the Department of Information Science at Loughborough University. My research involves investigating the effects of interpersonal relationships, the sense of well-being, an individual's habits, and organisational culture, as well as Information and Communication Technology (ICT) on employees' knowledge-sharing behaviour in the virtual organisation. I believe that your experience and knowledge will contribute immensely to this research. Your participation in the interview is voluntary, and you may withdraw your co-operation in the research at any point. The interview will last approximately one hour. All personal information and comments you provide in the interview will be kept strictly anonymous and all data will be kept securely and destroyed at the end of the project. Thank you for agreeing to participate in the research.

No.
Interviewee's Name:
Gender:
Age:
Occupation:
Organisation:
Date of Interview:

Definition of Each Variable

Knowledge Sharing*:*
This research views knowledge sharing as an individual's behaviour in terms of having the willingness to share skills, expertise, experience and knowledge. Meanwhile, the types of the knowledge-sharing behaviour of an individual should include not only tacit, but also explicit knowledge.

Virtual Organisation: *A virtual organisation consists of a variety of dynamic and temporary companies whose employees cooperate and coordinate their efforts to pooltheir facilities and infrastructures, and share skills, competencies, knowledge andresources by utilising Information and Communication Technologies (ICTs), such as E-mail, knowledge management systems (KMSs) and video conferencing, in order to pursue a particular goal or market opportunity.*

Organisational Culture: *This research defines organisational culture as the shared*

values, norms, beliefs and assumptions of members that may visibly or invisibly influence their behaviour in an organisation. In the meantime, this organisational culture has the characteristics of cohesiveness, force of constraint, stimulation and driving force to organisational members in order to achieve theorganisation's particular goals.

An Individual's Work Habits: *This research defines an individual's work habits, in terms of knowledge sharing in a virtual organisation, as an individual's subconscious behaviour generated byhis/her accumulative and goal-directed automatic behaviour.*

(1) An Individual's Attitude towards Knowledge Sharing

1. How would you describe knowledge-sharing behaviour among employees in your organisation?
2. In what circumstances are you most likely to share knowledge in your organisation?
3. Can you describe what kind of knowledge you share in your organisation? How and why might you share your knowledge?
4. What are your thoughts about using Information and Communication Technology to share knowledge?

(2) Your Workplace Networks

5. How would you describe interpersonal relationships in your organisation?
6. How would you describe your own behaviour in terms of trust, collaboration and supporting others at work?
7. How does trusting others, having shared goals and collaborating at work influence your own performance? What benefits have you observed for yourself and for others in such practices?

(3) Your Sense of Well-being

8. How far do you feel a sense of well-being when you are working in your organisation? Why do you think this is?
9. In what ways do you think your colleagues and the culture of your organisation affect your own sense of well-being? (Increased)
10. How important do you think the sense of well-being is in your organisation? (Increased)
11. How does your sense of well-being influence your working performance in your

organisation? Can you describe any specific instances?

(4) An Individual's Habits

12. What habits do you have in terms of knowledge sharing in your organisation?
    A) If you frequently share your knowledge, what encouraged you to adopt these work habits in your organisation?
    B) If you do not, what factors might have prohibited or discouraged your knowledge-sharing work habits in your organisation?
13. How much do these knowledge-sharing work habits affect your performance at work? Please give specific examples. (Increased)

(5) Organisational Culture

14. Please could you describe the organisational culture of your organisation?
15. Does the organisational culture of your organisation impact on your knowledge sharing work habits? Please explain how and why you think this is.
16. How does your organisation encourage you to share knowledge?

Is there anything else you would like to add? Thank you very much for taking the time to be interviewed. I deeply appreciate your help.

Appendix 8. Interview Scales (Chinese Version)

農會體系之員工知識分享

親愛的先生/小姐，您好:

我的名字是鄭皓帆，目前我係正在英國羅浮堡大學就讀資訊科學系的博士生，此份問卷之主要內容，在於探討員工在非政府組織(NGO)之虛擬組織裡知識分享之行為研究，其目的在於了解員工的幸福感、個人習慣、社會資本與組織文化對於其在組織裡知識分享意願之影響。皓帆相信貴組織是非常適合為此次之研究對象，因此希望貴組織可以提供予此次研究機會，進而調查研究有關中華民國農民團體幹部聯合訓練協會與農會員工知識分享之行為。同時，此次研究的結果與發現，也將提供給予貴組織在了解有關於促進員工知識分享，以促進與提升組織績效與永續發展。並在完成此研究之後，也將提供一份本研究的發現與結果之副本與貴公司參考與保存。

同時，訪談的內容和受訪者的個人資料將予以嚴格的保密，並且只有此一研究團隊成員可以參與討論。不論在何種環境情況之下，您的個人相關資訊或名字都絕不會出現在此一研究報告裡。因此，請您可以放心的依據您個人經驗填寫此份問卷。非常感謝您仁慈的參與，此份研究才能予以完成。

敬祝 研安!

博士生: 鄭皓帆 指導教授: Dr. Louise Cooke 與 Dr. Jenny Fry
電話: 0926547816 (TW), 07411398286 (UK)
電子信箱: h.chumg@lboro.ac.uk

編號:
受訪者姓名:
性別:
年齡:
職位:
組織:
訪談日期:

(1) 您對於知識分享的態度

1. 可以請您描述目前在組織裡員工知識分享的現況嗎?

2. 在甚麼樣的情況(境)下，會進而促使您在組織裡去分享您的知識?
3. 可以請您描述,您大致在組織裡分享知識的種類 (例如:隱性或顯性知識)?您如何與為什麼去分享這些知識?
4. 請問您對於使用資訊科技(例如:電子郵件、Facebook、Line 或組織內外資訊系統等)去分享您的知識的看法為何?

(2) 您的工作網絡

1. 可以請您描述目前組織裡員工相處情況(組織裡的人際關係現況為何)?
2. 在什麼情況下,會使您覺得您的幸福感被組織裡的同僚或組織文化所影響(有可能會更加愉快或不愉快)?
3. 請問您覺得幸福感在組織裡扮演如何重要的角色?
4. 請問您的幸福感如何影響到您在組織裡的工作績效?(可以請您描述任何實例嗎?)

(3) 幸福感

1. 請問您描述在此一組織工作時的幸福感受?為什麼您會這麼想?
2. 請問在何種狀態下，您的同僚或組織文化會影響您的幸福感嗎?
3. 請問幸福感在你的工作中扮演者何種重要程度?
4. 請問幸福感如何影響到您的工作績效?可以請您描述出具體實例嗎?

(4) 您的工作習慣

1. 請問您在組織有甚麼樣的知識分享的習慣?
   (A)如果您在組織裡會很常分享您的知識,請問是甚麼因素鼓勵或促使您分享知識?
   (B)如果您在組織裡不常分享知識，是什麼因素限制了您去分享知識?
2. 可以請您描述您的知識分享的工作習慣是如何影響您的工作績效?(可以請您舉出相關實例嗎?)

(5) 貴組織的組織文化

1. 可以請您描述貴組織裡的組織文化嗎?
2. 請問貴組織裡的組織文化會影響您知識分享的工作習慣嗎?可以請舉出實例，它(組織文化)是如何影響您的知識分享的工作習慣?
3. 請問貴組織是如何鼓勵同僚去分享知識?

Appendix 9. Informed Consent Form

Investigation of Factors that Affect the Willingness of Individuals to Share Knowledge in the Virtual Organisation of Taiwanese Non-Governmental Organisations

INFORMED CONSENT FORM

The purpose and details of this study have been explained to me. I understand that this study is designed to further scientific knowledge and that all procedures have been approved by the Loughborough University Ethics Approvals (Human Participants) Sub-Committee.

I have read and understood the information sheet and this consent form.

I have had an opportunity to ask questions about my participation.

I understand that I am under no obligation to take part in the study.

I understand that I have the right to withdraw from this study at any stage for any reason, and that I will not be required to explain my reasons for withdrawing.

I understand that all the information I provide will be treated in strict confidence and will be kept anonymous and confidential to the researchers unless (under the statutory obligations of the agencies which the researchers are working with), it is judged that confidentiality will have to be breached for the safety of the participant or others.

I agree to participate in this study.

Your name _____

Your signature _____

Signature of investigator _____

Date _____

Appendix 10. Amended Informed Consent Form

Loughborough University

Investigation of Factors that Affect the Willingness of Individuals to Share Knowledge in the Virtual Organisation of Taiwanese Non-Governmental Organisations

AMENDED INFORMED CONSENT FORM

The purpose and details of this study have been explained to me. I understand that this study is designed to further scientific knowledge and that all procedures have been approved by the Loughborough University Ethics Approvals (Human Participants) Sub-Committee.

I have read and understood the information sheet and this consent form.

I have had an opportunity to ask questions about my participation.

I understand that I am under no obligation to take part in the study.

I understand that I have the right to withdraw from this study at any stage for any reason, and that I will not be required to explain my reasons for withdrawing.

I am happy for my name to be recognised in the PhD thesis and in future published work.

I agree to participate in this study.

Your name _____

Your signature _____

Signature of investigator _____

Date _____

Appendix 11. Participant Information Sheet

Investigation of Factors that Affect the Willingness of Individuals to Share Knowledge in the Virtual Organisation of Taiwanese Non-Governmental Organisations

Participant Information Sheet

Hao-Fan Chumg, LE11 3TU, h.chumg@lboro.ac.uk (Main Investigator)
Louise Cooke, LE11 3TU, L.Cooke@lboro.ac.uk
Jonathan Seaton, LE11 3TU, J.S.Seaton@lboro.ac.uk

What is the purpose of the study?

This research aims to investigate and identify essential elements related to individuals' knowledge-sharing behaviour within the complex context of the virtual organisation of Taiwanese Non-profit Organisations (NPOs), comprising the whole system of Taiwanese Farmers' Associations, by integrating multilevel perspectives of individuals in organisations (the micro-level), workplace networks in organisations (the meso-level) and organisational culture (the macro-level). This research augments the conceptions of social capital theory and organisational culture with the two key intrinsic motivators: 1) the sense of well-being and, 2) the ingrained habits of an individual. Both of these are plausibly believed to affect individuals' knowledge-sharing behaviour.

Who is doing this research and why?

In completing this doctoral thesis, Hao-Fan Chumg is the primary investigator, supervised by Dr. Louise Cooke and Dr. Jonathan Seaton of the Centre for Information Management, School of Business and Economics, Loughborough University.

Once I take part, can I change my mind?

Yes! After you have read this information and asked any questions you may have, we will ask you to complete an Informed Consent Form, however if at any time, before, during or after the sessions you wish to withdraw from the study please just contact the main investigator. You can withdraw at any time, for any reason and you will not be asked to explain your reasons for withdrawing.

Will I be required to attend any sessions and where will these be?

As part of the research, questionnaires and interviews will be conducted and so you may be invited to participate in the interview and/or the questionnaire. In terms of the semi-structured interviews for the qualitative approach of this research, respondents will be scheduled to attend at a suitable time and in a comfortable place that is convenient to them.

How long will it take?

The questionnaire for the quantitative approach takes around 40 minutes to complete while each interview is expected to last in the region of one hour.

Is there anything I need to do before the sessions?

No, you do not need to do anything before the interview.

Is there anything I need to bring with me?

No, you do not need to bring anything with you.

Who should I send the questionnaire back to?

The questionnaire is expected to be distributed to respondents who are working in the selected virtual organisation of Taiwanese NGOs.

What will I be asked to do?

For this research, which is based on a mixture of quantitative and qualitative approaches, the questionnaire and interview will be carried out in order to gain a comprehensive understanding of the factors affecting employees' knowledge-sharing behaviour in the virtual organisation of Taiwanese NGOs which comprises the whole

system of Taiwanese Farmers' Associations.

What personal information will be required from me?

Respondents' personal profiles, including details such asgender, age, background and contact details, will be requested before the questionnaires and interviews are undertaken. Participants will not have to answer any question ifthey do not wish to do so.

Are there any risks in participating?

No, there are not any risks in participating.

Will my taking part in this study be kept confidential?

All information, including any personal data provided, will be treated in strict confidence and be kept anonymous and confidential. All the questionnaires and audio-recordings will be kept in a secure place and will not be released for use by third parties; these will all be destroyed within six years of the completion of the investigation.

What will happen to the results of the study?

The results of this research will be included the doctoral thesis and any other publications resulting from it.

I have some more questions. Who should I contact?

The main investigator: Hao-Fan Chumg
Email: h.chumg@lboro.ac.uk

What if I am not happy with how the research was conducted?

The University has a policy relating to Research Misconduct and Whistle Blowing which is available online at http://www.lboro.ac.uk/admin/committees/ethical/Whistleblowing(2).htm. Please ensure that this link is included on the Participant Information Sheet.

Appendix 12. NVivo Certificate

TRISTAR

Certificate for the Course of NVivo 10

Mr. Chumg, Hao-Fan had participated in the course of NVivo 10 for qualitative research held by Tri-Star Statistic Service Company and National Taipei College of Business. The course, a total of 16 hours, was held during the period from 27th July 2013 to 28th July 2013.

Training Procedure:

1. Introduction of NVivo
2. Introduction of Qualitative Research
3. Introduction of the Function of Source
4. Coding of Different Texts
5. Retrieve Data through the Internet and Social Website
6. Establish Nodes and Tree Structures
7. Review Literature through NVivo
8. Development of Models
9. Configure Sets
10. Establish Source Classifications
11. Establish Node Classifications
12. Analysis of In-depth interview and Focus Groups through NVivo

The certificate was demonstrated that Mr. Chumg, Hao-Fan has completed and comprehended the course over the period.

Tri-Star Statistic Service Company
Chief Executive Officer

Well How Chang

三星統計服務有限公司
SEMSOEASY

Appendix 13. Author Publications & Refereeing Service

I. Refereeing Services

1. Reviewer for *Computers in Human Behavior (2014-now).*

II. Publications

1. ***Chumg, H.F.****, Cooke, L., Fry, J. & Hung, I.H. (2015). Factors affecting knowledge sharing in the virtual organisation: Employees' sense of well-being as a mediating effect. *Computers in Human Behavior* (44), 70-80. (SSCI, Impact Factor: 2.694, and ranked 3* on the Association of Business School (ABS) list 2015, ISSN: 0747-5632) (*Corresponding Author)

2. ***Chumg, H.F.***, Cooke, L. & Seaton, J. (2015). Factors affecting employees' knowledge-sharing behaviour in the virtual organisation. *16th European Conference on Knowledge Management* (Ph.D. Research Paper)

3. Sun, S.Y., Wu, C.Y., Teresa L. Ju, ***Chumg, H.F.*** & Kuo, W.T. (2012). Developing the innovative research model of internet banking customers' loyalty. *International Journal of Innovation and Learning*, 11(3), 308-324. (ISSN: 1471-8197)

4. Sun, S.Y., Wu, C.Y. & ***Chumg, H.F.*** (2010). A Study on Trust Dynamics Influencing Knowledge Sharing in Organization. *International Conference on Information Management, ICIM*.

5. Teresa L. Ju & ***Chumg, H.F.*** (2010). Validating a knowledge management model of organizational competitiveness. *Technology Innovation and Industrial Management, TIIM*. (ISSN: 1906-7631)

6. Sun, S.Y., Teresa L. Ju, ***Chumg, H.F.*** & Wu, C.Y. (2009). Influence on Willingness of Virtual Community's Knowledge Sharing: Based on Social Capital Theory and Habitual Domain. *International Journal of Business, Economics, Finance and Management Sciences*, 3, 136-143. (ISSN: 2326-9561)

7. ***Chumg, H.F.*** (2008). *Access2007 Database Theory and Practice*. Taiwan: Blue Ocean Publisher. (ISBN: 9789868417892)

8. Teresa L.J., ***Chumg, H.F.*** & Chu, Y.H. (2007). Factors that affect user intention

toward E-learning system - Integrating information quality, system quality and habitual domain with TAM, *International Association for Development of the Information Society, IADIS.* (ISBN: 978-972-8924-34-8)

III. Under Review

1. ***Chumg, H.F.****, Seaton, J. & Cooke, L. Factors Affecting employees' knowledge-sharing behaviour in the virtual organisation from the perspectives of well-being and organisational behaviour (submitted to *Information and Organisation*, SSCI, ranked 3* on the Association of Business School (ABS) list 2015)