

**Using ICT for knowledge transfer in small businesses: A
Vietnam Case Study**

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Abstract

This research investigates the roles of Information Communication Technology (ICT) in the knowledge transfer process in small businesses in Vietnam. In doing this, it examines how knowledge is transferred in small businesses and what benefits the knowledge transfer process provides small businesses. The study also explores factors affecting knowledge transfer including small business characteristics and ICT related factors. An ICT oriented knowledge transfer framework is proposed to assist small business owner/managers in formulating and implementing an ICT strategy for knowledge transfer.

Using a qualitative research approach, this research employed a case study approach with multiple cases strategy. Three small IT retailers in Vietnam with different sizes were used as cases. The study used multiple forms of data collection including semi-structured interviews (as the main data collection tool), company document analysis and reviewing of ICT artifacts. Some 15 semi-structured interviews were conducted with small businesses owners/managers, middle managers and staff in the case businesses. The interview results were analysed across the cases and the findings were used to test and refine the proposed framework. The revised framework could provide small business owners/managers and practitioners an understanding of the use of ICT in transferring knowledge and assist in them forming an ICT strategy for knowledge transfer.

Student Declaration

I, Nguyen Duy Toan, declare that the Master by Research thesis entitled Using ICT for knowledge transfer in small businesses: A Vietnam Case Study is no more than 60,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

Signed

Date: Monday, 28 March 2013

Nguyen Duy Toan

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Chapter 1: Introduction

1.1 Introduction

Depending on the definition of what is considered a small business, in most OECD countries, over 95% of the total businesses are small businesses (OECD 2002), dropping to approximately 90 % in the APEC region. In Vietnam, more than 97% of total businesses are Small or Medium sized Enterprises (SMEs) (Vietnam General Statistical Office, 2009) which employ 77 % of the workforce, account for 80 % of the retail market and over 40% of GDP.

There is evidence that small businesses have a higher risk of failure than their larger counterparts (Storey 2000). In Vietnam, according to Pham (2005), there are only 75% of small businesses remaining in operation three years after registration. The resource based view of the firm suggests that the aim of business sustainability can be achieved from the resources which are available and controllable within firms (Barney, Wright & Ketchen Jr 2001). However, research in small businesses reveals that one of the unique features is their resource scarcity (Burgess, Sellitto & Karanasios 2009) which consists of limited financial resources, system resources, business resources, and personnel resources.

One major issue facing SMEs in achieving business success is the management of their knowledge (Chen et al. 2006). Recent research points out that one of the issues of small businesses is the high staff turnover ratio (Durst & Wilhelm 2011) due to the low level of remuneration and limited chances for career path. This can lead to the loss of knowledge associated with those who leave the business (if their knowledge is yet to be captured, stored and/or shared) (Wong, WLP & Radcliffe 2000). Moreover, the difficulty of recruiting skilled people by small businesses also furthers the importance of the effective management of knowledge in general. There is no guarantee that skilled employees in businesses are willing to share their knowledge, or even whether they know how to transfer knowledge effectively with their peers, within their group and amongst different groups in their organization (Whyte & Classen 2012). Problems may also arise from the 'receivers' of knowledge in regards to their ability to absorb any

shared knowledge (Lichtenstein & Hunter 2008). Furthermore, the knowledge transfer process is also affected by organization related factors such as organisational structures, business processes and culture which enable, encourage, motivate and maintain the knowledge transfer related activities (Alavi & Leidner 2001). It is thus a central issue for small businesses to manage the process of transferring knowledge within their organisations.

Among many issues associated with knowledge management, knowledge transfer is seen as an increasingly important process due to its ability to influence the organisation to absorb and profit from individual knowledge (Cantú, Criado & Criado 2009; Chen et al. 2006; Szulanski 2000). From this context, knowledge transfer represents the most important process of knowledge management (Kumar & Ganesh 2009). Although interest in knowledge transfer research has increased in recent years, several issues exist which need to be further examined (Durst & Edvardsson 2012). There are only a few studies of knowledge management, particularly knowledge transfer, in the small business environment (Wong, KY & Aspinwall 2004). Moreover, as previously discussed, small businesses are different from large organizations. Hence, there is a need to further develop a proper understanding of knowledge transfer in the small business context (McAdam & Reid 2001). Previous researchers focused on one or a few elements that matter for knowledge transfer (Becker & Knudsen 2006). Rarely have all factors influencing knowledge transfer been taken into account in an integrated approach. Furthermore, Desouza and Paquette (2011) point out that for effectively transferring knowledge, not only people and processes but also ICT can play a role. Among these factors, Antonova et al (2011) argued that ICT can be seen as a crucial enabler for knowledge transfer. In summary, although there are few studies of knowledge management in small businesses, limited attempts have been made to study the role of ICT in facilitating the knowledge transfer process in small businesses, especially in Asian countries.

To fill in the above gaps, the overall aim of this study is to develop an understanding of the roles of Information Communication and Technology (ICT) in the knowledge transfer process, in this instance in small businesses in Vietnam. The study also endeavours to understand the perceptions and attitudes of the owner-managers as well

as employees towards knowledge transfer. It also develops and tests an ICT oriented knowledge transfer framework for small businesses.

1.2 Statement of Significance

Small businesses contribute an important share of economic output. In addition, small businesses play a major role in contributing to overall employment as well as job creation (Dobbs & Hamilton 2007). Small businesses are also seen as a key to economic growth, innovations, and market competition and provide a seedbed for large businesses and new industries (Bannock 2005). Small businesses, therefore, continue to “be crucial for strengthening economic performance” (OECD 2002, p. 7).

This research contributes to knowledge through interpretive/qualitative research in examining factors affecting the intra-knowledge transfer process in small businesses. It particularly looks at the roles of ICT in the knowledge transfer process in small businesses. The unique empirical contribution of this study also lies in the development of an ICT oriented knowledge transfer framework for small businesses to help build a robust enterprise. There is a lack of such research in developing countries and small businesses.

Small business research is expected to be specific to small businesses and based upon practical outcomes for their interested parties (Burgess & Schauder 2002). This study attempts to provide small businesses’ owners/managers, employees and consultancy partners a practical understanding of the knowledge transfer process and factors affecting this process. In addition, the framework developed in this study could be used as a practical guide in developing ICT strategy for the purpose of maximizing small businesses’ benefits via transferring/retaining knowledge.

1.3 Research Question

The overall aim of this study is to develop an understanding of the roles of Information Communication and Technology (ICT) in the knowledge transfer process in small businesses. The key research question is “How and to what extent is ICT used as a component of the knowledge transfer process in small businesses?” This involves the

examination of both enablers and inhibitors of ICT in small businesses. In order to answer this question, this research addresses the following six sub questions:

Sub question 1: What is the current practice regarding intra-organisational knowledge transfer process in small businesses?

Sub question 2: What forms do the ICT artefacts take (such as email/discussion forum, social networking, etc.)?

Sub question 3: What benefits does the intra-organisational knowledge transfer process provide small businesses?

Sub question 4: What are the difficulties with intra-organisational knowledge transfer processes in small businesses?

Sub question 5: To what extent can ICT be used to address these difficulties?

Sub question 6: How can small businesses formulate and implement an ICT strategy for knowledge transfer?

1.4 Research Design

In business research, there are many research approaches such as positivism, post-positivism, critical research and interpretivism (Burgess & Schauder 2002). The overall aim of this study is to develop an understanding of the roles of Information Communication and Technology (ICT) in the knowledge transfer process in small businesses. Small businesses are different from their larger counterparts and also unique. In researching small businesses, it is argued that research needs to be practical and useful to interested parties, particularly small businesses themselves (Burgess & Schauder 2002).

This study follows the interpretive research approach which provides more insight, accuracy and depth on specific issues that are useful in this research project. The interpretivist approach places an importance on 'people', providing an explanation on their own situation or events (Veal 2005). This is to create an understanding of the phenomenon within contextual situations (Trauth 2001).

In terms of research methods, this study employs the case study method in which it examined small businesses in Vietnam to gain in-depth understanding relating to the central research question. Three small IT retailers with different size were chosen as different cases. To collect data, the study used predominantly qualitative data collection techniques, including semi-structured interviews with open ended questions and document review. Interviews are an essential source of case study evidence, because most case studies are about human affairs (Yin 2003). In total, 15 semi-structured interviews were conducted with the small businesses' owners/managers, middle managers and staff. In addition to semi-structured interviews, the researcher also reviewed company documents such as company websites, employee handbooks, company announcements, ISO documents, working procedures, ICT artifacts and so forth for gaining insights into the knowledge transfer practice at the investigated companies.

The results are analysed across the cases and the findings are used to revise the proposed framework. This revised framework is expected to provide small business owners/managers and practitioners with an understanding of the use of ICT in transferring knowledge and assist in forming an ICT strategy for knowledge transfer.

1.5 Structure of Thesis

This thesis is divided into six chapters. This chapter establishes the research to be undertaken and the rationale. It also introduces the chosen methodology to give the reader a sense of being able to navigate their way through the thesis. Chapter 2 reviews the relevant literature in relation to the key concepts of small business' unique characteristics, Information and Communication Technologies usage and knowledge transfer process. The research conceptual framework is also developed at the end of Chapter 2. Chapter 3 outlines the methodology employed in the study. Chapter 4 presents the results. Chapter 5 discusses the findings across the cases. Chapter 6 is the Conclusion chapter. Appendix 1 provides the brief explanations on knowledge transfer tools/ methods. Appendix 2 contains the interview questions used in the study.

Chapter 2: Literature review

This chapter starts with definitions of small business and then discusses the characteristics which make small businesses unique, that is different from larger organisations. The chapter then examines the use of ICT in small businesses by exploring ICT applications, and enablers and inhibitors to adoption. The next section of the chapter reviews the key concepts of knowledge, knowledge management and particularly the knowledge transfer process through the lens of small businesses. Finally, the discussions relating to small businesses, knowledge transfer and ICT are merged. The chapter ends with the presentation of the research conceptual framework, which is developed from the review of literature in this chapter.

Chapter 3: Research design and approach

This chapter presents the design and approach of the research. The chapter starts with the discussion of research methodology where research approach, research method and data collection technique are outlined. Details about the research procedures are then discussed and followed by research limitations.

Chapter 4: Results

This chapter presents the details of the three case companies and the study results. This is to provide an overview of the practice of knowledge transfer in these companies. For each company, the base findings are presented, including business background, the practice of knowledge transfer, knowledge transfer policies, common types of knowledge, common knowledge transfer mechanisms, and benefits and difficulties associated with their knowledge transfer practices.

Chapter 5: Discussion

This chapter analyses the collected data by examining the data related to the key research question via the analysis of the six sub research questions across the three case companies. This provides the base for revising the conceptual framework which was developed at the early stage of this study.

Chapter 6: Conclusion

This chapter revisits the key research question. In addition, the chapter also provides the recommendations on the use of ICT in supporting the knowledge transfer process via the revised conceptual framework. Research limitations and future research are discussed at the end of the chapter.

Chapter 2: Literature review

2.1 Introduction

This chapter starts with definitions of small business and then discusses the characteristics which make small businesses unique, that is, different from larger organisations. The chapter then examines the use of ICT in small businesses by exploring the applications they use, and enablers and inhibitors of ICT adoption. The following sections of the chapter review the key concepts of knowledge, knowledge management and particularly knowledge transfer processes through the lens of small businesses. The chapter concludes with the presentation of the research conceptual framework, which is developed from the literature review.

2.2 Small businesses

2.2.1 Small business definitions

In researching small businesses, at least in investigating the use of Information Communication Technologies (ICT) in small businesses, there are many issues faced by researchers (Burgess 2002b). One of these is “What is small?” (Bannock 2005; Hooper 1972; Peterson, Albaum & Kozmetsky 1986). It is difficult to define ‘small business’ (Street & Meister 2004) as there is no generally accepted definition. It has been suggested that small business researchers need to define the term early in their research (Hunter, Burgess & Wenn 2005).

Generally, there are two approaches to defining small businesses, namely quantitative and qualitative. Quantitatively, small businesses can be defined by various measurements such as number of employees, working capital or annual turnover or a combination of two or more factors. For example, Dandridge (1979, p. 53) suggested that “organizations with total employment of no more than 50 persons will be categorized as small”. In Australia, businesses having 1-19 employees are defined as

small (Burgess 2002b). In Vietnam, the definition is 1-49 employees (Government Decree 90/2001/ND-CP). In some countries such as China, Thailand, Singapore, this varies among different industries. For instance, in Thailand, to be considered as a small business, the number of employees for that business is not more than 50 (Production and Service), not more than 25 (Wholesale), and not more than 15 (for Retail) and Annual revenue is not more than 50 million bath (approx. \$AU 1.6 million).

As noted by Burgess, Sellitto & Karanasios (2009) and Hunter, Burgess & Wenn (2005), there also exists issues in only using the number of employees as the only measurement. These include issues with how to count part-time staff, multiple business ownership (one owner with many different small businesses), or the need to take into account that different industries have different needs (for example, construction businesses need more staff than retail businesses). Other common measures are the use of turnover and operating capital, but as it may be sensitive to ask for this information it is suggested to use number of employees in designing research for easier data collection (Burgess 2002b).

Small businesses can also be defined qualitatively based on the combination of three factors: (1) having a small market share (in its own market), (2) being personally managed by their owners and (3) being independent (not being part of a larger business, with the owner-managers being independent in making decisions) (Curran & Blackburn 2001).

Other categories that relate to 'small business' are 'micro' businesses (very small businesses) and 'medium' businesses (usually larger than small businesses but not as big as large businesses).

For the purposes of this study, the Vietnam definition of small businesses will be used with a minor modification adapted from (Burgess, Sellitto & Karanasios 2009) as follows:

A small business is any business with one to 49 regular employees – a regular employee being someone who works more than 15 hours per week on a regular basis with the business.

2.2.2 Small business characteristics

Small businesses have been recognized as being different from large businesses (Yesseleva 2012). Researchers have identified many unique characteristics of small businesses which suggest that “a small business is not a little big business” (Welsh & White 1981).

Differences exist in many forms. Size, which also varies among small businesses (Churchill 1983), is not the only factor differentiating small businesses from larger ones. In addition to size, d'Amboise & Muldowney (1988) suggest that there are three perspectives which can be used to differentiate small businesses from larger ones, including the task environment, organizational configuration, and managerial characteristics. The task environment consists of customers, suppliers, competitors, and regulatory bodies. Organizational environment is about the formal and informal structure of the organization. Managerial characteristics refer to the motivations, goals, objectives, and actions of the owner-manager (d'Amboise & Muldowney 1988).

One difference between small and large businesses, which come from the business itself, is the owner/manager. In small businesses, the owners/managers, who contribute most or all of the operating capital, have strong influence due to the role they play in the direction of the business (DeLone 1988; Poon & Huang 2004; Thong & Yap 1995). Thus, their goals, operational abilities, management abilities and strategic abilities (Greiner 1972) directly affect not only the operation of their businesses but also the culture and atmosphere of the organizations. Furthermore, other characteristics of owners/managers such as biographical characteristics (personality, emotions, values, attitudes, ability, perception and individual learning style) also play an important role as they all affect the owners/managers in making decision (Robins 1996). Besides, in small businesses, the owners/managers make most of the critical decisions (Mintzberg 1979).

In other words, in small businesses, decision making is generally centralized and the power of control lies with the owner/manager. As a consequence, small businesses are operated and managed in a personalized way (Kuwayama 2001). However, as there are fewer management layers and decision makers in small businesses, the decision making process is often quicker (Wong & Aspinwall 2004). Hence, this might become an

advantage for small businesses in adopting/implementing technologies in the organization.

Small businesses also face more difficulties than larger businesses in planning, attracting, recruiting, training, retaining, and developing human resources, especially qualified staff (Chin Wei, Siong Choy & Geok Chew 2011; Kuwayama 2001; Thong 1999). This is mostly due to financial constraint, short-range management perspectives, and limited career path (Thong, Yap & Raman 1996). They also tend to employ generalists rather than specialists (Burgess, Sellitto & Karanasios 2009; Thong, Yap & Raman 1996) and often rely on family labour (Bannock 2005). This is often followed by low productivity, high level of absenteeism, high rate of staff turnover, low level of job satisfaction (Bracci & Vagnoni 2011; Wong & Aspinwall 2004).

In addition to the scarcity of human resource, many researchers also have also identified that small businesses normally lack financial resources (Blackburn & Kovalainen 2009; Molnar et al. 2011; Welsh & White 1981). Thus, they do not have enough funds for necessary investing in human resources, marketing and information systems (Colombo, Croce & Grilli 2013; Thong 1999). This is further compounded by difficulties in obtaining external financing, either for growth or other reasons (Carpenter & Petersen 2002).

Small businesses tend to have simpler management structures - 'flat organizational structure' (Vinten 1999), or 'one unit management' (Churchill 1983), or 'highly centralized structure' (Mintzberg 1979) is another feature associated with small businesses (Mohd Sam, Hoshino & Hayati Tahir 2012). A simple structure leads to effective communication practices, informal, face-to-face channels of communication, and direct supervision. Moreover, a flat organizational hierarchy allows owners/managers to easily keep up to date with daily business activities; and hence, quicker decisions are made (Wong & Aspinwall 2005). In addition, most small businesses have simple planning and control systems (Cataldo, Sepúlveda & McQueen 2012; Ghobadian & Gallear 1997). Activities and operations in small businesses are less governed by formal rules and procedures with low degrees of standardization and formalization. Therefore, small businesses are more adaptable than the larger ones, especially in implementing new technologies (Cataldo, Sepúlveda & McQueen 2012).

Due to their small size, small businesses normally have a unified culture with few interest groups (Wong & Aspinwall 2004). In general, their culture is more organic and fluid than that of larger ones (Ghobadian & Gallear 1997). The employees are more likely to link to a commonly shared value and belief which influences their actions and behaviour. In addition, the small business culture is affected and shaped by the personality and outlook of the owner/manager (Varintorn, Nazrul & Uday 2009). This can create either advantages or disadvantages for small businesses in adapting to changes (Yusof & Aspinwall 2000).

The above unique characteristics require small businesses owners/managers, researchers and consultants to ‘take off the “big-organization glasses” and look at small organizations separately, not in the relational view currently used’ (Dandridge 1979, p. 53). Table 2. 1 summarizes the above discussion relating to the characteristics of small businesses.

Table 2. 1 Small business characteristics

Small business characteristics
<p><i>Ownership (Poon & Huang 2004)</i></p> <ul style="list-style-type: none"> • Owner is the manager • Centrality of decision making – few decision makers <p><i>Human resource (Burgess, Sellitto & Karanasios 2009; Kuwayama 2001)</i></p> <ul style="list-style-type: none"> • Staffing constraint, unstable • More generalists rather than specialists • Lack of skilled staff <p><i>Structure, systems (Wong & Aspinwall 2004)</i></p> <ul style="list-style-type: none"> • Simple and less complex structure • Flat structure with few layers of management • Low degree of standardization and formalization • Division of activities limited and unclear • Multi-tasked owner/manager • Simple planning and control system • Information evaluation and reporting system <p><i>Culture (Wong & Aspinwall 2004)</i></p> <ul style="list-style-type: none"> • Unified culture • Organic and fluid culture • Very few interest groups • Operations and behaviour of employees influenced by owner/managers personality and outlook

This section has summarised the unique features of small businesses which differentiate them from the larger organisations. These characteristics are expected to create both advantages and disadvantages for small business owners/managers. The next section will discuss the issues faced by small businesses in using of ICT for achieving their business objectives.

2.3 Small businesses and Information Communication Technologies (ICT)

2.3.1 Defining ICT

Depending on individuals and their levels of knowledge, purposes, and subjective points, there are different ways of defining ICT. ICT can be defined as “as a collective term for a wide range of software, hardware, telecommunications and information management techniques, applications and devices, and are used to create, produce, analyse, process, package, distribute, receive, retrieve, store and transform information” (Barba-Sánchez, Martínez-Ruiz & Jiménez-Zarco 2007, p. 3), within and external to an organisation (Modimogale & Kroeze 2011).

In other words, ICT covers not only computers and the Internet but varies from simple technologies such as telephone or fax for exchanging information to emerging technologies such as cloud computing for utilising computing resources (hardware and software) in delivering services over a network (Pham, QT 2010). ICT can be used for simple purposes such as texting or searching for information. In addition, ICT can also be used with complicated systems, for example Document Management Systems – a set of computer systems used to track and store company electronic documents, in supporting the management of knowledge (Dalkir 2011). The following section discusses the benefits viewed from different perspectives which ICT provides.

2.3.3 Benefits of ICT

ICT plays an important role in transforming a regular economy into a digital economy (Premkumar 2003). According to Kharuddin (2010), organizations are heavily dependent on ICT for their daily business activities. ICT is used across different

functions of the business such as finance and accounting, sales and marketing, manufacturing, human resource management, legal information systems, across different industries (Mohd Sam, Hoshino & Hayati Tahir 2012).

According to Dewett and Jones (2001), with the use of technologies (for example, electronic mail or teleconferencing and so forth), the overall amount of communication in the organisations is increased. Hence, it provides the convenient link among employees within and between divisions. In addition, also from the work of Dewett and Jones (2001), advances in ICT enable the organisation to codify the knowledge base. The codified knowledge can then be stored, communicated and retrieved in more convenient ways (McCall 2008). Furthermore, ICT also allows employees to search for and apply new knowledge required for their daily tasks from outside of their organisations. This can be done easily with the support of Internet and search engines such as Google. This benefit increases the boundary spanning capabilities of employees in searching for knowledge (Dewett & Jones 2001).

In addition, with the ability to store and retrieve large amount of information, Huber (1990) argues that ICT can support employees in making better decisions. Huber (1990) and Colombo, Croce and Grilli (2013) also mention that ICT can be used to enhance the quality and timeliness of organizational intelligence and decision making and thus promote organizational performance. According to them, these benefits ICT can be achieved via the ability to communicate more easily and less expensively across time and geographic location.

Bhatt and Grover (2005) argue that ICT can help create (sustainable) competitive advantage for a business. Competitive advantage is about positioning a business in the industry (Porter 2001). ICT can then be used as tools to facilitate a superior position with respect to competitive forces. More specifically, ICT is argued to be the tools to increase entry barriers, increase bargaining power with suppliers and customers, offer new products and services, or change the rules of the competition (McFarlan 1984; Porter 1996; Porter & Millar 1985).

The next section will discuss the use of ICT in small businesses.

2.3.4 ICT and small businesses

ICT benefits for small businesses

Similar to the roles of ICT in larger businesses, Barba-Sánchez, Martínez-Ruiz and Jiménez-Zarco (2007) state that ICT application can provide sever benefits to small businesses. Brady, Saren and Tzokas (2002) suggest that ICT can enhance the productivity and effectiveness of certain activities or functions. For example, ICT can help improve accounting and budgeting practices via the appropriate use of accounting applications. With sales and marketing departments, they can expand their client base through e-marketing (e.g. websites, portals and mailing lists (Chyau 2005). Similarly, Kotelnikov (2007) reports the use of ICT in improving inventory management systems (for example, reducing inventory levels). Moreover, ICT applications can contribute to improve information and knowledge management inside small businesses (Barba-Sánchez, Martínez-Ruiz & Jiménez-Zarco 2007). In addition, ICT can enhance small businesses' ability to utilise linkages between activities, both within and outside the company (Porter & Millar 1985). Furthermore, Leenders and Wierenga (2002) argue that ICT can facilitate the creation of new knowledge within small businesses. In addition, ICT can also support the knowledge transfer process amongst staff members in small businesses (Corso et al. 2003).

Corbitt (2000) indicates that ICT enables small business to access to new environments as well as the generation of new markets. Chyau (2005) further explains that ICT connects small businesses more easily and cheaply to external contacts, whether locally or globally by reducing communication costs and bridging geographical barriers amongst customers and suppliers. ICT also allows small businesses to build on the market base through online marketing (Chyau 2005).

Besides, there are many other reasons for ICT use by small businesses. The most common ones are to enhance survival and/or growth, stay competitive and/or enhance innovation abilities of small businesses (Bruque & Moyano 2007). Small businesses use ICT in response or reaction to an event (Winter 2003), or pressure from customers, suppliers, or the internal and external environment; typically with an emphasis on improving efficiency (Nguyen 2009).

ICT applications in small businesses

The majority of small businesses have basic ICT equipment such as telephone, fax machine, and computers (Burgess 2002a). However, the issue is not whether small businesses have computers, but how well they use them (Louadi 1998). A recent survey (reported in 2010, surveyed in 2009) by the Vietnam Chamber of Commerce and Industry (VCCI) showed that the majority of Vietnamese SMEs use document processing and calculating software (91%). 46% of respondents reported the usage of email, but up to 44% said they had no demand with email.

According to this survey, 67% of surveyed companies used accounting software and about one third used human resource management software as well as sales management tools. For integrated systems such as CRM, ERP, they reported no demand. This result is closely related to findings in the literature that small businesses use computers mainly use them for administrative and operational purposes (such as accounting, budgeting, payroll, inventory control and the like) (Pollard and Hayne, 1988; El Louadi, 1998; Bridge and Peel, 1999).

The use of ICT in small businesses is affected by different factors. The following sections discuss such enablers and barriers.

Enablers of ICT use in small businesses

Enablers refer to factors which serve as driving forces to the use of ICT in small businesses. Previous studies have identified a broad range of factors that could positively affect ICT implementation in small businesses.

Cragg and King (1993) identified that owners' enthusiasm toward computing, low cost hardware and packaged software are the major factors motivating the choice of applications of ICT in small firms. In addition, Igbaria et al. (1997) stated that perceived ease of use, perceived usefulness, external support, external training and management support play important roles in affecting the acceptance of ICT in small businesses. Wang and Cheung (2004) added two more factors: pressure from competitors and the risk taking propensity of owners/managers. Wang and Cheung (2004) added two more factors: pressure from competitors and the risk taking propensity of owners/managers.

In summary, most of the literature focus on top management, employees, the external experts and ICT vendors, the firm's capability to handle the new ICT, the people and culture, and other firms within the network (Nguyen 2009). In another words, Burgess (2002a) suggests that in order to have a greater chance of successful implementation of ICT , it should be take into consideration the following factors:

1. the involvement of Owner/Managers in the implementation of ICT,
2. the involvement of users (employees) in development and installation,
3. the training of users;
4. the selection of applications chosen for computerization,
5. the use of disciplined planning methodologies in setting up applications,
6. the number of analytical/strategic (versus transactional) applications being run,
7. the level of ICT expertise within the organization and the role of the external environment (especially consultants and vendors).

Inhibitors to ICT use in small businesses

Many studies suggest that there are a large number of unsuccessful ICT implementations in SMEs and that their adoption rate of ICT is very slow (Nguyen 2009). There exist many possible reasons for this, such as the lack of top management support, skilled employees, the external experts and ICT vendors. Others include the firm's capability to handle the new ICT, the people and culture towards the adoption of ICT. In addition, the use of ICT from other firms within the network also plays an important role.

Other researched inhibitors include owners' reluctance toward technology, lack of ICT expertise, lack of managerial time (Cragg & King 1993), low priority for ICT enhancement, poor support (Cragg & King 1993), limited financial resources (Cragg & King 1993), poor relationships with ICT consultants (Cragg & King 1993), little desire for change (Cragg & King 1993), high costs (Williams, 1999), lack of support infrastructure and project management (Chesher & Skok 2000).

Burgess (2002b) suggested that it is worthwhile to also pay attention to other affecting factors such as lack of time to devote to the implementation and maintenance of ICT,

lack of use of external consultants and vendors, short-range management perspectives, a lack of understanding of the benefits that IT can provide, how to measure those benefits and a lack of formal planning or control procedures. In order to have an integrated picture on the factors affecting the use of ICT in small businesses, the researcher has grouped the above factors into employees, owners/managers, organisation, technology and external related factors. Table 2. 2 shows the summary of these factors. This summary also provides the background for the development of this study's research conceptual framework.

Table 2. 2 Summary on Factors affecting the ICT adoption in small business

Categories	Factors
Employees	Acceptance (DeLone 1988) Involvement/Participation (Montazemi 1988; Yap, Soh & Raman 1992) Knowledge (Montazemi 1988)
CEO/ Executive Owner- managers	Attitude (Thong & Yap 1995) Innovativeness (Thong & Yap 1995) Support (Yap, Soh & Raman 1992) Knowledge (Thong & Yap 1995) Rank (Ein-Dor & Segev 1978) Location (Ein-Dor & Segev 1978)
Organizations	Size (Ein-Dor & Segev 1978; Montazemi 1988) Location (Raymond 1985) Structure (Ein-Dor & Segev 1978) Resource (Ein-Dor & Segev 1978) (Yap, Soh & Raman 1992) Maturity (Ein-Dor & Segev 1978) Experience (Montazemi 1988; Raymond 1985) (Yap, Soh & Raman 1992) Climate/Culture (Ein-Dor & Segev 1978)
External	Competition (Thong & Yap 1995) System analysis/Programmer (Yap, Soh & Raman 1992) Consultant Effectiveness (Thong, Yap & Raman 1996) Vendor support (Yap, Soh & Raman 1992)
ICT	Age (DeLone 1988) Planning (DeLone 1988) Sophistication (DeLone 1988) Interface (Raymond 1985) Development (Raymond 1985) Operation (Raymond 1985) Applications/Types (DeLone 1988; Montazemi 1988) (Raymond 1985) (Yap, Soh & Raman 1992)

2.4 Knowledge, Knowledge management and knowledge transfer

2.4.1 Overview

In today's global knowledge society, knowledge has been realized as being a most valuable resource. Knowledge, according to Drucker (1993), is not just another type of resource besides land, labour, capital; it is the only meaningful resource which makes our new society unique.

Moreover, knowledge is important for not only societies but also for organizations (Maier 2004) as well as teams and individuals. From the knowledge based theory of the firm, knowledge is suggested to be an asset of the organization (Alavi & Leidner 1999). For organizations, the impacts of knowledge management are on people (employee learning, adaptability and job satisfaction), processes (efficiency, effectiveness and innovation), products, and performance (Frey 2002).

It is via creating new knowledge, distributing it across the organization and using in new products and technology, that organizations will be successful in turbulent situations (for example, staying in the same market but with new competitors with new products; or shifting to new markets) (Nonaka 1991). Hence, it is important for the organization to manage this special asset in an effective and efficient manner. It has also attracted researchers in conducting research relating to its nature, methodologies, processes, technologies, and practical implementations (Alavi & Leidner 2001). Knowledge is undoubtedly important for organizations and so is the management of knowledge in the contemporary business environment.

The following sections will review the concept of knowledge; knowledge management processes; and the combination of knowledge management and information communication and technologies.

2.4.2 Knowledge

Knowledge is defined as a “justified true belief” (Nonaka 1994, p. 15). It can be viewed as a state of mind (i.e. the state of knowing and understanding), an object, a process, a stipulation of having access to information, or capability (Alavi & Leidner 2001). In another words, knowledge can be considered as a collection of facts, information, and skills acquired by a person through experience or education; or the theoretical or practical understanding of a subject (McCall 2008).

From the information technology perspective, knowledge can be defined by distinguishing among data, information and knowledge (Alavi & Leidner 2001; Bingley et al. 2010). In this view, data is facts or raw numbers. Information is data with some contexts. Knowledge is about knowing how to use information. For example, a personal mobile phone number can be considered as raw data. However, if the person, who is using this mobile phone number, can make buying decisions, this will be the valuable information for a sales staff. However, in order to use this number properly to approach this prospective customer, it depends on the knowledge or experience of the sales staff.

Types of knowledge

Nonaka and Takeuchi (1995) suggest to classify knowledge into either “explicit” (or “codified” knowledge) and “tacit” knowledge.

Explicit knowledge is that component that can be codified and transmitted in systematic and formal languages (Nonaka & Takeuchi 1995). For example, explicit knowledge is information about rules and regulations, announcements, company contact information, organisational structure. With sales staff members, it is ability to search for customer data; product presentation, knowledge of local transportation system, knowledge about the local government structure. For technicians, it is assembly/ disassembly skills, preventive maintenance steps, basic troubleshooting skill and so forth.

Tacit knowledge is personal, context specific knowledge that is difficult to formalize, record, or articulate. It is stored in the ‘heads’ of people (Nonaka & Takeuchi 1995). It is mainly developed through a process of interaction, debate, and trial and error encountered in practice (Desouza & Paquette 2011). This type of knowledge tends to be

local, and not found in books, manuals, files or databases (Bingley et al. 2010; Smith 2001). Tacit knowledge is difficult to be captured and diffused. However, it contributes more value to the organization if compared to explicit knowledge (Chin Wei, Siong Choy & Geok Chew 2011). In small businesses, tacit knowledge normally exists under the name of 'experience' (Pham, TBN 2008). For examples, with sales staff member, it is the experience in how to effectively approach prospective customers once they have already got customer's information. With technicians, it is the troubleshooting skills once they have already gained the basic knowledge of the product principles of operations.

Knowledge conversion

These two types of knowledge are mutually dependent: tacit knowledge forms the background necessary for assigning the structure to develop and interpret explicit knowledge (Polanyi 1967). Tacit knowledge can be converted to explicit and vice versa. The knowledge conversion processes were introduced by Nonaka & Takeuchi (1995) and consisted of four forms: Socialization, Externalization, Combination and Internalization.

According to Nonaka & Takeuchi (1995), Socialization refers to an organizational process through which tacit knowledge held by some individuals is transferred in tacit form to others with whom they interact. This process can be carried out via interactions, observing, discussing, analysing, spending time together or living in the same environment.

Externalization refers to the transformation of some tacit knowledge into explicit knowledge. This process is often driven via theories, concepts, models, analogies, metaphors and so forth.

Combination refers to the conversion of codified knowledge into new forms of codified knowledge. By combining different bodies of explicit knowledge, new categories of knowledge are obtained. Explicit knowledge-explicit knowledge conversion can be achieved through channels of communication within the firm.

Internalization is a process of conversion of explicit knowledge into a tacit form. It basically reflects a type of learning process through which agents are taught and trained to perform specific tasks. Organizations provide training programs for their employees at different stages of their working with the company. By reading these training manuals and documents employees internalize the tacit knowledge and try to create new knowledge after the internalization process.

Locations of knowledge

Knowledge in organizations is located at various locations. Becerra-Fernandez & Sabherwal (2002) group them into people, artifacts and organizational entities.

For people, knowledge resides in either individuals (such as knowledge about the buying behaviours of a special group of customers) or groups (such as the understanding among group members in relation to certain work related situations). Knowledge is also stored in organizational artifacts such as practices (for example organizational procedures, rules, and norms), technologies (such as the information system supporting management in making purchasing decisions), or repositories either in books, papers, documents or electronic (such as a company website providing answer to frequently asked questions). In addition, knowledge is also stored in various organizational entities such as organizational units, organizations networks and inter-organizational networks.

2.4.3 Knowledge management

Theoretically, knowledge management is “knowledge creation, which is followed by knowledge interpretation, knowledge dissemination and use, and knowledge retention and refinement” (De Jarnett 1996, p. 1). Practically, knowledge management is “the process of critically managing knowledge to meet existing needs, to identify and exploit existing and acquired knowledge assets and to develop new opportunities” (Quintas, Lefrere & Jones 1997, p. 387).

Generally, knowledge management is a process involving set of different activities (Bingley et al. 2010) such as creating, storing/retrieving, transferring and applying knowledge (Alavi & Leidner 2001). Becerra-Fernandez and Sabherwal (2010, p. 56)

define knowledge management as “performing the activities involved in discovering, capturing, sharing, and applying knowledge so as to enhance, in a cost effective fashion, the impact of knowledge on the unit’s goal achievement”.

In this view of knowledge management, knowledge discovery is the development of new tacit knowledge or explicit knowledge from data and information, or from the synthesis of prior knowledge. There are two sub-processes of knowledge conversions taken from Nonaka (1994) namely combination and socialization processes.

Combination process, as previously reviewed, is used to convert explicit knowledge to new types of explicit knowledge. On the contrary, socialisation process is used to transfer tacit knowledge from one individual to other individuals (Nonaka & Takeuchi 1995).

In addition to the creation of new knowledge, knowledge capture is the process of retrieving either explicit or tacit knowledge that resides within people, artifacts or organizational entities (Dalkir 2011). Similar to the knowledge discovery process, there are also two sub-processes which are based on Nonaka’s work: externalization and internalization. Externalization is the process of converting individual’s tacit knowledge into explicit forms so the other employees are able to understand. On the contrary, internalization involves converting explicit knowledge into tacit knowledge via the notion of learning.

Once knowledge has been discovered or captured, it needs to be shared, or communicated to other individuals. This process is called knowledge sharing (Dalkir 2011). Depending on whether it is tacit or explicit knowledge, either the socialization or exchange process is carried out. As discussed, socialization is for tacit knowledge where the exchange process is used to share explicit knowledge mainly via communication (Nonaka 1994). After being discovered, captured and shared, knowledge is then used or applied by employees to support them in daily work related activities (Bingley et al. 2010).

In addition, other views also exist on knowledge management processes. Rollett (2003) suggests the process view of knowledge management including planning, creating, integrating, organizing, transferring, maintaining and assessing knowledge. Dalkir

(2011) recommends an integrated knowledge management cycle. This cycle consists of knowledge capture and/or creation, knowledge sharing and dissemination, knowledge acquisition and application. However, as argued by Bingley et al.(2010) , the difference is mainly in the way of numbering or labelling the processes while there is not much significant difference in the underlying concepts.

Knowledge Management and ICT

As reviewed in section 2.3.3 (refer p.25), Bhatt and Grover (2005) argue that ICT can help create (sustainable) competitive advantage for a business. In addition, many studies have proven that business values become attainable primarily from intangible assets, such as knowledge (Najafi & Goodarzi 2012; Nurach, Thawesaengskulthai & Chandrachai 2012). Section 2.4.1 outlined the need to manage organisation knowledge.

Successful knowledge management practice rely on many factors (Mohamed, Stankosky & Murray 2006). Critical success factors can be categorized into people, process and ICT oriented factors (Alberghini, Cricelli & Grimaldi 2010). People oriented factors consist of leadership and culture. Leadership refers to the vision actively promoted by top management. Culture is the combination of shared history, expectations, unwritten rules, and social customs that influence the perception of actions and communications of all employees (Alberghini, Cricelli & Grimaldi 2010). Process oriented factors refer to systematic processes used in the organisations to carry out company policies. ICT factors include collaborative and people oriented technologies and infrastructure (Alberghini, Cricelli & Grimaldi 2010).

ICT plays an important role in knowledge management systems since it facilitates many of the technology and people-based activities that are important to knowledge management success (Mohamed, Stankosky & Murray 2006). However, ICT alone cannot deliver knowledge management (Alavi & Leidner 2001). Rather, ICT acts as an enabler, making knowledge management both more effective and more efficient (Rollett 2003). Ruggles (1997) suggests that ICT should be used as tools to generate knowledge, code knowledge to make knowledge available for others and transfer knowledge to decrease problems with time and space when communicating in organizations.

Knowledge management tools/ methods

To assist practitioners, especially small and medium enterprise owners/ managers, the Asian Productivity Organization (APO) suggests common tools and methods which are often used in knowledge management (Young 2010). These methods are grouped into two different categories, non-ICT based and ICT-based methods. ICT based methods are carried out with the existence of ICT systems, varying from the simplest technology such as voice via telephone to more advanced technology such as knowledge portals or collaborative virtual workspaces.

According to Young (2010), each method is suitable for a specific knowledge management process. The APO suggests that there are five knowledge management processes in managing knowledge including identifying knowledge, creating knowledge, storing knowledge, sharing/ transferring knowledge and applying knowledge. From the work of Young (2010), Table 2.3 shows the knowledge management tools matrix. The brief explanations of these tools are presented in Appendix 1.

2.4.4 Knowledge transfer

As previously discussed, in the current competitive environment, knowledge is recognized as a fundamental asset for organizations. In this context, knowledge transfer has become one of the most critical knowledge management processes and has been attracting increasing interest recently (Al-Alawi, Al-Marzooqi & Mohammed 2007).

Some researchers view knowledge transfer as a process through which knowledge moves between a source and a recipient and where knowledge is applied and used (Carlile 2004; Szulanski 1996, 2000; Szulanski, Cappetta & Jensen 2004). Within an organization, knowledge can be transferred amongst individuals, between different levels in the organizational hierarchy and between different units and departments (Argote & Ingram 2000).

Table 2. 3 Knowledge management tool matrix

Tools/ Methods	Identifying knowledge	Creating knowledge	Storing knowledge	Sharing knowledge	Applying knowledge
Non -ICT based methods					
Brainstorming					
Learning and Idea capture					
Peer assist					
Learning reviews					
After Action review					
Story telling					
Collaborative Physical Workspace					
Knowledge Management Assessment Tool					
Knowledge café					
Communities of Practice					
Taxonomy					
Knowledge worker competency plan					
Knowledge mapping					
Knowledge management maturity Model					
Metor/ mentee scheme					
ICT based methods					
Document libraries leading to a DMS					
Knowledge bases					
Blogs					
Social network services					
Voice and VOIP					
Advanced search tools					
Building knowledge clusters					
Expertise Locator/ Whos' Who					
Collaborative Virtual Workspaces					
Knowledge portal					
Video sharing					

(Source: adapted from Young (2010))

The process of knowledge transfer has been described by many researchers using models (Argote & Ingram 2000; Bracci & Vagnoni 2011; Fei 2011; Kumar & Ganesh 2009). The basic model is from the idea which has originally been introduced by Shannon and Weaver’s (1949) mathematical approach to communication and information (Figure 2. 1). In this model, the signal/message starts from the information

source, by way of the transmitter, under the disturbances of the noises, at last arrives the destination. 'Noises' in this model refer to factors affecting the knowledge transfer process. Similar to the factors affecting the knowledge management in general, the knowledge transfer process is also affected by three groups of factors namely people, process and technology related factors (Alberghini, Cricelli & Grimaldi 2010).

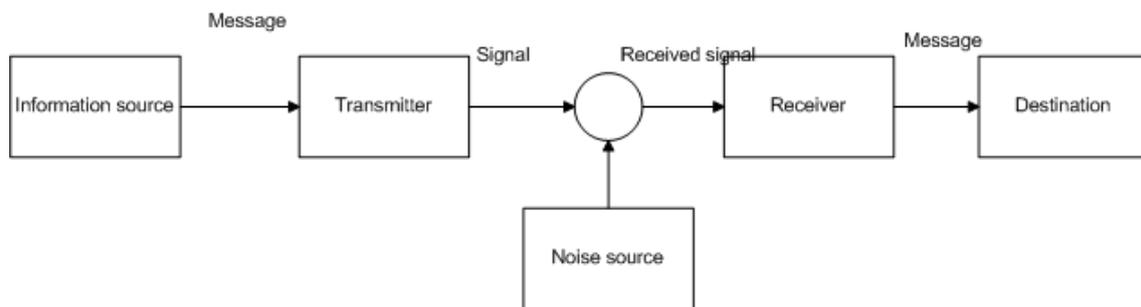


Figure 2. 1 Shannon and Weaver's communication model (1949)

There are many weaknesses of this representation which have been criticized by researchers (Robert, Mario & Denis 2007; Szulanski 2000). Firstly, the model is obviously linear. In other words, this model assumes that the knowledge transfer process is carried out steps by step from start to end. Moreover, the signal goes on a one-way road from the source to destination. Besides, the transfer direction cannot be reversed and there is no information feedback from the receiver to the sender to evaluate if the transfer process has been successful.

Further, this model only represents a single snapshot of transferring knowledge between two individuals at one point of time; whilst intra-organizational knowledge transfer should be regarded as a continuous process among different individuals/groups within an organization (Van Wijk, Jansen & Lyles 2008). Also, the knowledge transfer process under this representation assumes that both the senders and receivers are active and willing to send/receive without any motivated activities. Likewise, this model does not take into consideration the relationship between the sender(s) and receivers, types of knowledge, and the context where the knowledge transfer happens (Li Hong 2007).

Apart from the above disadvantages, two main points can be taken from this model to explain the process of knowledge transfer within the context of small businesses. First is that a knowledge transfer process has two main components, i.e. the source or sender

that shares the knowledge, and the receiver who acquires the knowledge. Secondly, the knowledge transfer process, although it looks simple, is complex due to various prerequisites/conditions, contextual issues surrounding the process or generally factors affecting the knowledge transfer process.

When assessing the value of practices such as knowledge management, small businesses' benefits can be viewed from different perspectives. Such perspectives can include a financial perspective (Lee & Choi 2003); an internal perspective and a customer perspective (Edvinsson & Malone 1997).

The financial perspective indicates whether a company's strategy, implementation and execution are contributing to bottom line (financial) improvement. The financial indicators may consist of profitability, revenue growth, and sales growth (Lee & Choi 2003). The customer perspective reflects customer satisfaction, customer retention, and market share in targeted segments. The internal process perspective is used to review the level of satisfaction of employees (Edvinsson & Malone 1997).

From the above view, Figure 2. 2 shows a simplified model of knowledge transfer which will be used as part of the proposed research conceptual framework.

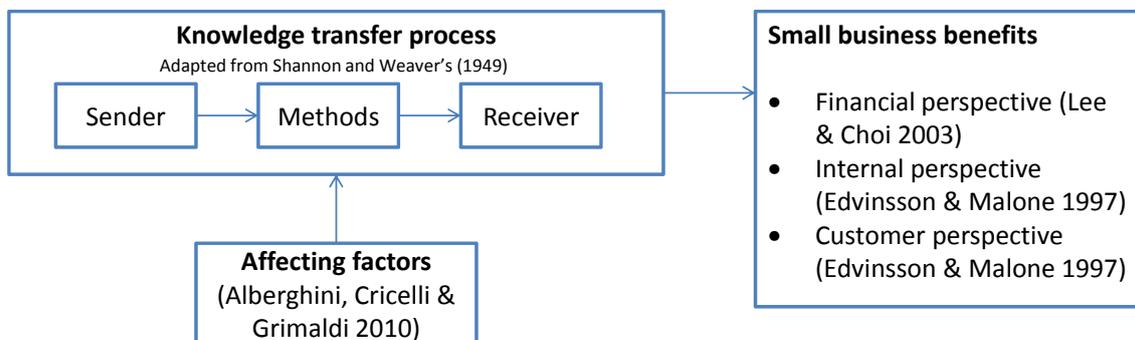


Figure 2. 2 Simplified knowledge transfer model

2.5 Knowledge transfer and small businesses

One major issue facing SMEs is the management of their knowledge due to their high staff turnover ratio (Wong & Aspinwall 2005). This can lead to the loss of knowledge associated with those who left the business (Wickert & Herschel 2001). In addition, as

analysed in section 2.2.2, small businesses also encounter issues such as the difficulty of recruiting skilled people, the willingness to share knowledge, the skills required to share knowledge, and so forth. It is thus a central issue for small business to manage the process of transferring knowledge within their organisations.

Small businesses are characterised by limited financial and human resources (Burgess, Sellitto & Karanasios 2009). This leads to a lack of skilled staff and out-dated ICT systems. Having fewer employees can make it faster and easier to initiate business changes such as implementing a new knowledge related strategy or new ICT related applications. However, with the staffing constraints, small businesses find it harder to assign dedicated staff for knowledge transfer initiatives (Wickert & Herschel 2001).

Furthermore, small businesses have simple and less complex structures (Blackburn & Kovalainen 2009). Moreover, small businesses are managed in most cases by their owners, with flexible and adaptable business processes (Ghobadian & O'Regan 2006). As well, the staff members are under close, direct supervision and influence of the (Wong & Aspinwall 2004). A simple management structure makes it easier to implement a change. Likewise, shorter and more direct communication allows faster knowledge transfer. But, low degrees of specialisation may result in inadequate expertise for knowledge transfer activities. Additionally, a lack of formal procedures may prevent the small businesses from having efficient knowledge transfer practices. Centrality of decision making by the owner/manager can be the main driver for transferring knowledge; but lack of management skills may restrict the success of such practices (Wong & Aspinwall 2004). Figure 2. 3 shows the summary of small business characteristics that can affect the knowledge transfer process.

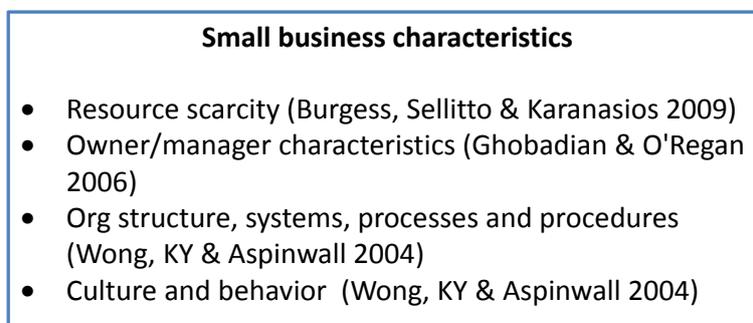


Figure 2. 3 Small business characteristics

2.5 Small business, knowledge transfer and ICT

Information communication technology (ICT) plays an important role in knowledge management systems, since it facilitates many of the technology and people-based activities that are important to knowledge management success. However, as reviewed, ICT alone cannot deliver knowledge management. Technology is the important enabler which is used to not only connect people to information, but also connect people to people to support the whole knowledge management process.

Organizations often implement ICT that are specifically designed to support various aspects of knowledge management activities in organizations (Alavi & Leidner 2001). For knowledge transfer, technology can improve the efficiency of knowledge transfer by increasing the speed of transfer and decreasing costs due to time and distance. Furthermore, technology can be used to remove barriers, provide access to information, improve process, and locate knowledge carriers and seekers (Hendriks, P 1999). In transferring knowledge, these technologies normally include networking technologies such as Intranets, Extranets, Web servers, browsers, knowledge repositories, portals; and communication and collaboration technologies such as telephones, internet telephone, fax machines, chat rooms, video conferencing, and so forth (Fei 2011).

In addition to the use of ICT applications in supporting knowledge transfer processes, the use of ICT in small businesses are affected by many other factors (summarised earlier in Table 2. 2 (refer p.30). To simplify the data collection process as well as to have an in-depth understanding of the use of ICT for knowledge transfer in small businesses, these factors are grouped into: ICT policy (Alberghini, Cricelli & Grimaldi 2010), ICT application (Fei 2011), ICT infrastructure (Alberghini, Cricelli & Grimaldi 2010) and ICT human resources (Burgess, Sellitto & Karanasios 2009).

ICT policy refers to any written or unwritten rules, regulations, procedures and ways of doing business in an enterprise. It represents the recognition, intention and determination of small business owners/managers and staff members to apply ICT in maximizing their knowledge transfer process efficiency (Pham, QT 2010). ICT infrastructure refers to ICT devices and services such as: servers, PCs, laptops, mobile devices, telephones, fax machines, networks, the Internet, Local Area Network (LAN),

Wide Area Network (WAN) and so forth. ICT infrastructure supports small businesses in automatically processing, communicating and doing business (Alberghini, Cricelli & Grimaldi 2010).

ICT applications generally refers to application software which change the processes and ways of doing business, especially transferring knowledge. ICT applications can be basic office applications such as Word processing, Email, Accounting software and so forth. Other applications supporting knowledge transfer include Document Management Systems, knowledge portal, and social network services. Appendix 1 provides the brief explanations about the common ICT applications used for transferring knowledge. ICT human resource refers to staff with ICT literacy and skills (Burgess, Sellitto & Karanasios 2009).

Figure 2. 4 shows the summary of ICT related factors affecting the knowledge transfer process in small businesses.

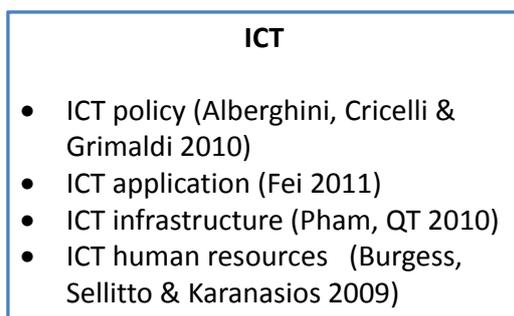


Figure 2. 4 Summary of ICT related factors affecting knowledge transfer in small businesses

2.6 Conceptual framework

In order to examine the research issues, from the above literature review, the conceptual framework is developed below to guide this research (Figure 2. 5).

In this framework, the knowledge transfer process is simplified to examine how knowledge is transferred within the context of small businesses. Furthermore, as discussed in section 2.4.4, the knowledge transfer process happens not only between individuals in the same group but also across the organization in many situations.

Moreover, the knowledge process is also affected by many factors which are either organization related or technology related.

However, research also indicates that the unique features of small businesses play a major role in shaping the use of ICT for knowledge transfer. Hence, it is expected that the interaction among these groups of factors impacts the knowledge transfer process and finally affects the benefits of small organizations. The outcomes of these knowledge transfer processes will need to be evaluated to provide inputs for modifying/formulating ongoing ICT strategies for knowledge transfer.

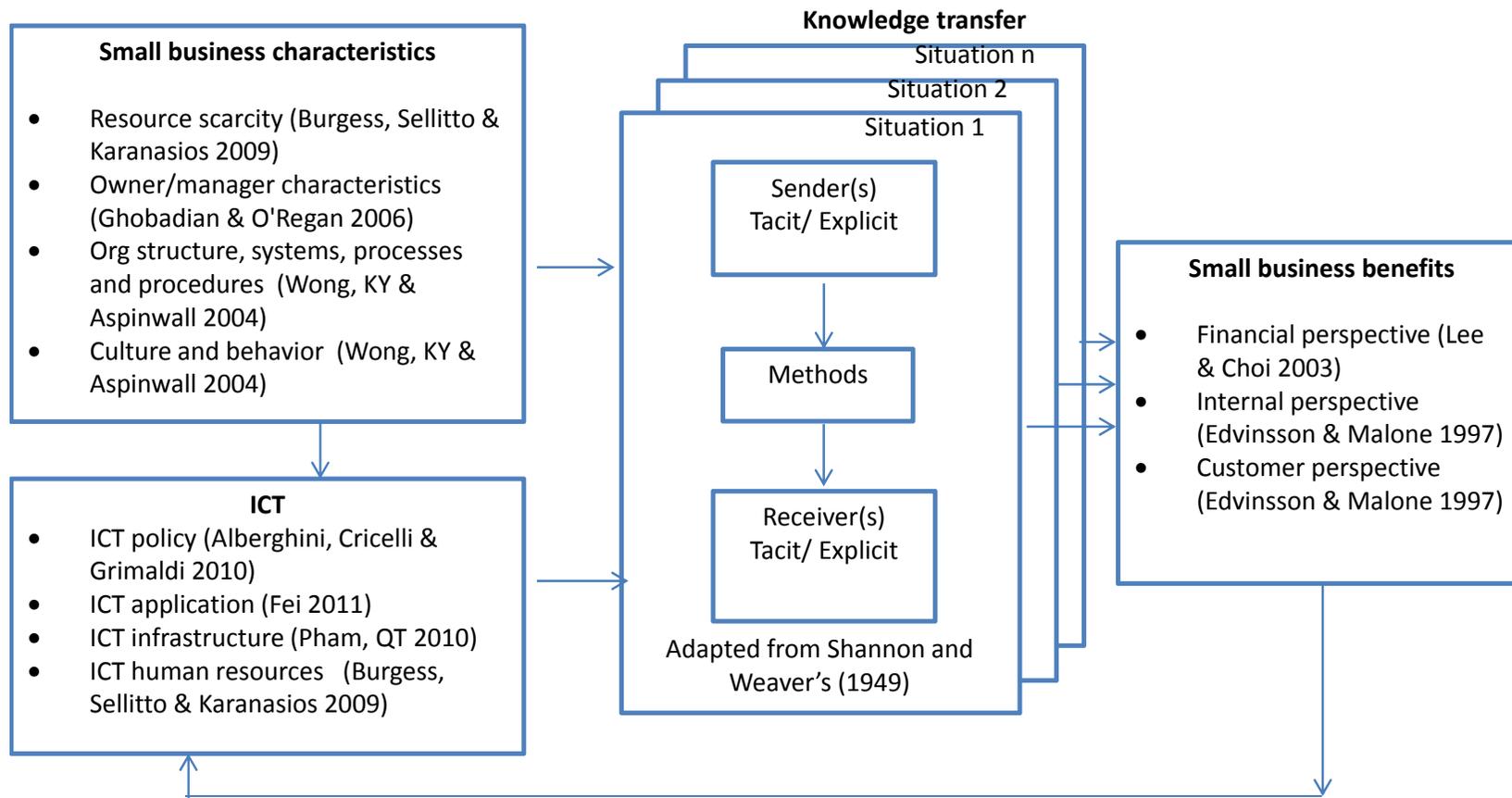


Figure 2. 5 Research conceptual framework

2.7 Summary of knowledge gap

Although interest in knowledge transfer research has increased in recent years, there still exist several issues which need to be further examined. There are only a few studies of knowledge management, particularly knowledge transfer, in the small business environment (Wong, KY & Aspinwall 2004). Moreover, as previously discussed, small businesses are different from large organizations. Hence, there is a need to further develop a proper understanding of knowledge transfer in the small business context (McAdam & Reid 2001). Previous researchers focused on one or a few elements that matter for knowledge transfer (Becker & Knudsen 2006). Rarely have all factors influencing knowledge transfer been taken into account in an integrated approach. It is also important to look at the interaction among these groups of factors and their impact on the knowledge transfer process. Finally, most of the previous research attempted to examine the factors affecting the process of knowledge transfer rather than to examine the link between intra-organizational knowledge transfer and organizational benefits (Becker & Knudsen 2006).

This study will attempt to fill in the above gaps by providing a practical understanding of the knowledge transfer process in small businesses. More specially, the overall aim of this study is to develop an understanding of the roles of Information Communication and Technology (ICT) in the knowledge transfer process in small businesses.

In order to achieve the research aim, from the literature review, the key research question is developed as below.

Key research questions: How and to what extent is ICT used as a component of the knowledge transfer process in small businesses?

This involves the examination of both enablers and inhibitors of ICT in small businesses. In order to answer this question, this research addresses the following six sub questions:

Sub question 1: What is the current practice regarding intra-organisational knowledge transfer process in small businesses?

Sub question 2: What forms do the ICT artefacts take (such as email/discussion forum, social networking, etc.)?

Sub question 3: What benefits does the intra-organisational knowledge transfer process provide small businesses?

Sub question 4: What are the difficulties with intra-organisational knowledge transfer processes in small businesses?

Sub question 5: To what extent can ICT be used to address these difficulties?

Sub question 6: How can small businesses formulate and implement an ICT strategy for knowledge transfer?

Chapter 3: Research design and approach

3.1 Introduction

This chapter presents the design and approach of the research. The chapter starts with the discussion of research methodology where research approach, research method and data collection technique are determined. The details about the research procedures are then discussed and followed by research limitations.

3.2 Research problem and research conceptual framework

Small businesses play a vital part of any economy. Recent research points out that one of the issues of small businesses is the high staff turnover ratio due to the low level of remuneration and limited chances for career path. This can lead to the loss of knowledge. For small businesses, ICT is seen as a factor influencing small business performance via building competences and improving business benefits. In addition, ICT is a crucial enabler for knowledge transfer. The overall aim of this study is to develop an understanding of the roles of Information Communication and Technology (ICT) in the knowledge transfer process in small businesses. The key research question is “How and to what extent is ICT used as a component of the knowledge transfer process in small businesses?” This involves the examination of both enablers and inhibitors of ICT in small businesses. In order to answer this question, this research will seek to answer the following six sub questions:

- **Sub question 1:** What is the current practice regarding intra-organisational knowledge transfer process in small businesses?
- **Sub question 2:** What forms do the ICT artefacts take (such as email/discussion forum, social networking, etc.)?

- **Sub question 3:** What benefits does the intra-organisational knowledge transfer process provide small businesses?
- **Sub question 4:** What are the difficulties with intra-organisational knowledge transfer processes in small businesses?
- **Sub question 5:** To what extent can ICT be used to address these difficulties?
- **Sub question 6:** How can small businesses formulate and implement an ICT strategy for knowledge transfer?

In order to examine the research problem given the specific research question, the conceptual framework was developed in Chapter 2 (as in Figure 3. 1) to guide this research. The collected data will also be used to revise this framework.

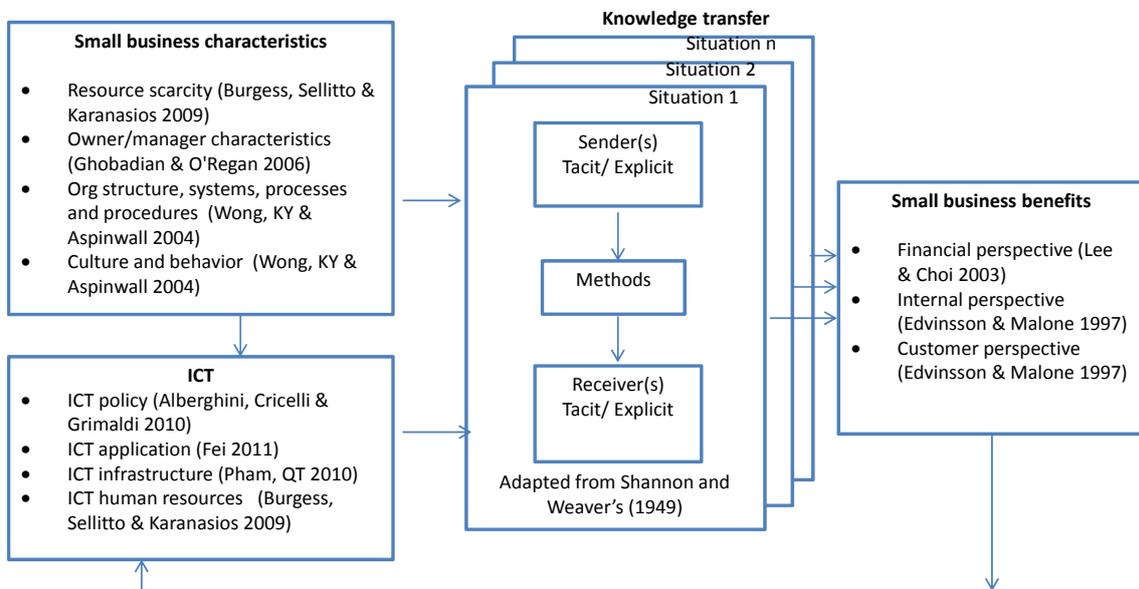


Figure 3. 1 Research conceptual framework

3.3 Research methodology

3.3.1 Research approach

Myers (1997, p. 1) states that “*all research is based on some underlying assumptions about what constitutes 'valid' research and which research methods are appropriate*”.

In business research, there are many research approaches such as positivism, post-positivism, critical research and interpretivism (Burgess & Schauder 2002).

Researchers following the positivism assume that the reality can be gained through measurable variables which are expected to be independent of the researchers or the instruments (Orlikowski & Baroudi 1991). Such studies are primarily to test theory.

On the contrary, the interpretivist approach places an importance on peoples providing an explanation on their own situation or event (Veal 2005). It is to create understanding of the phenomenon within contextual situations (Trauth 2001). While positivist research seeks to identify those details which offer propositions that then can be tested or identified in other cases; interpretive research seeks to combine those details into systems where the outcome is specific to that case (Lin 1998).

Small businesses are different from their larger counterparts who are armed with a great deal of research, frameworks and models in assisting them to grow. Small businesses themselves are also unique. Small business owners/managers are facing with not only daily activities to survive but also looking for ways to grow in many instances given their different constraints. In researching small businesses, it is argued that research needs to be practical and useful to interested parties particularly small businesses themselves (Burgess & Schauder 2002). To achieve these, it requires the researcher to work closely with research participants. It is therefore ideal to conduct research with practitioners in order to have detailed and in-depth understanding of the research issues in the natural context.

The overall aim of this study is to develop an understanding of the roles of Information Communication and Technologies in the knowledge transfer process in small businesses. Recent research indicates that there has been a general shift in ICT research away from technological to managerial and organizational issues where research issues/findings are context dependent (Myers 1997). Furthermore, the nature of knowledge transfer is dynamic because it involves different perspectives and understanding of different individuals (Burns, Acar & Datta 2011). It is thus expected for the researcher to treat the research subject as a whole, rather than a limited set of pre-selected features (Creswell 2007). It is because of the above analysis that this study employed the interpretive research approach which provides more insight, accuracy and depth on specific issues will be useful in this research project.

3.3.2 Research method

This study employed the case study method in which it examined small businesses in Vietnam to gain in-depth understanding relating to the central research question: ‘How and to what extent does ICT affect the knowledge transfer process in small businesses?’. Orlikowski and Baroudi (1991) argue that case study is the most common method used in information systems research.

A case study, which is an empirical inquiry exploring “*contemporary phenomenon in depth and within its real-life context*”, is most useful when “*capturing the knowledge of practitioners and developing theories from it*” (Yin 2003, p. 18). The case study method also allows the researchers to answer the ‘how’ questions in order to understand the nature and complexity of the issues (Cavaye 1996). Furthermore, as suggested by Benbasat, Goldstein and Mead (1987), a case study approach is a suitable research framework for examining an area in which few studies have been carried out. Research on the areas of small businesses, ICT and knowledge transfer is emerging and hence valuable findings can be gained via the use of case study research (Cavaye 1996).

3.3.3 Data collection technique

The study used predominantly the qualitative data collection technique including semi-structured interviews with open ended questions and document review. Interview is an essential source of case study evidence, because most of case studies are about human affairs (Yin 2003).

The semi-structured interviews were helpful in gaining information on the experiences, perceptions and opinions of the research participants (Creswell 1998). Open ended questions also allowed participants and the interviewer to follow up specific issues, dismiss them as insignificant, or suggest additional views during the course of the interview (Patton 2002). Yin (2003) adds that open-ended questions are a way to gain greater insight into the matter investigated. Furthermore, the opened-ended questions were used to overcome the weaknesses of closed questions and formal, structured interviews which do not allow responses to be probed more deeply and do not allow follow-up questions (Creswell 1998). Based on the key research question and sub

research questions, the open ended questions with probed questions were designed to assist the author to collect data. The interview questions are in Appendix 3.1.

In addition to semi-structured interviews, the researcher also reviewed the company documents such as company websites, employee handbooks, company announcements, ISO documents, working procedures, etc. for gaining insights into the knowledge transfer practice at the investigated companies. Figure 3. 2 summarises the research methodology of the study.

3.4 Research procedures

In conducting the case study research, there are many well-known case study researchers such as Stake (1995) and Yin (2003). Making use of their works given the research questions have been determined and defined; this study employed the following five steps:

- Select the cases
- Prepare to collect the data
- Collect data in the field
- Evaluate and analyse the data
- Prepare the report

3.4.1 Select the cases

In order to enable analysis of data across cases and to provide clearer insights, Benbasat, Goldstein and Mead (1987) suggest researchers to use a systematic study of several companies within an industry. Hence, this study employed the multiple cases strategy (Cavaye 1996) where participants were selected from the ICT retailer industry in Vietnam. Small ICT retailers were chosen because they are seen to be heavily dependent on sales and technical staff, who normally keep knowledge for themselves but may not be willing to share. Convenience was another reason as the author of this research has been working in this industry since 2001 which will help in gaining access to businesses in the data collection phase.

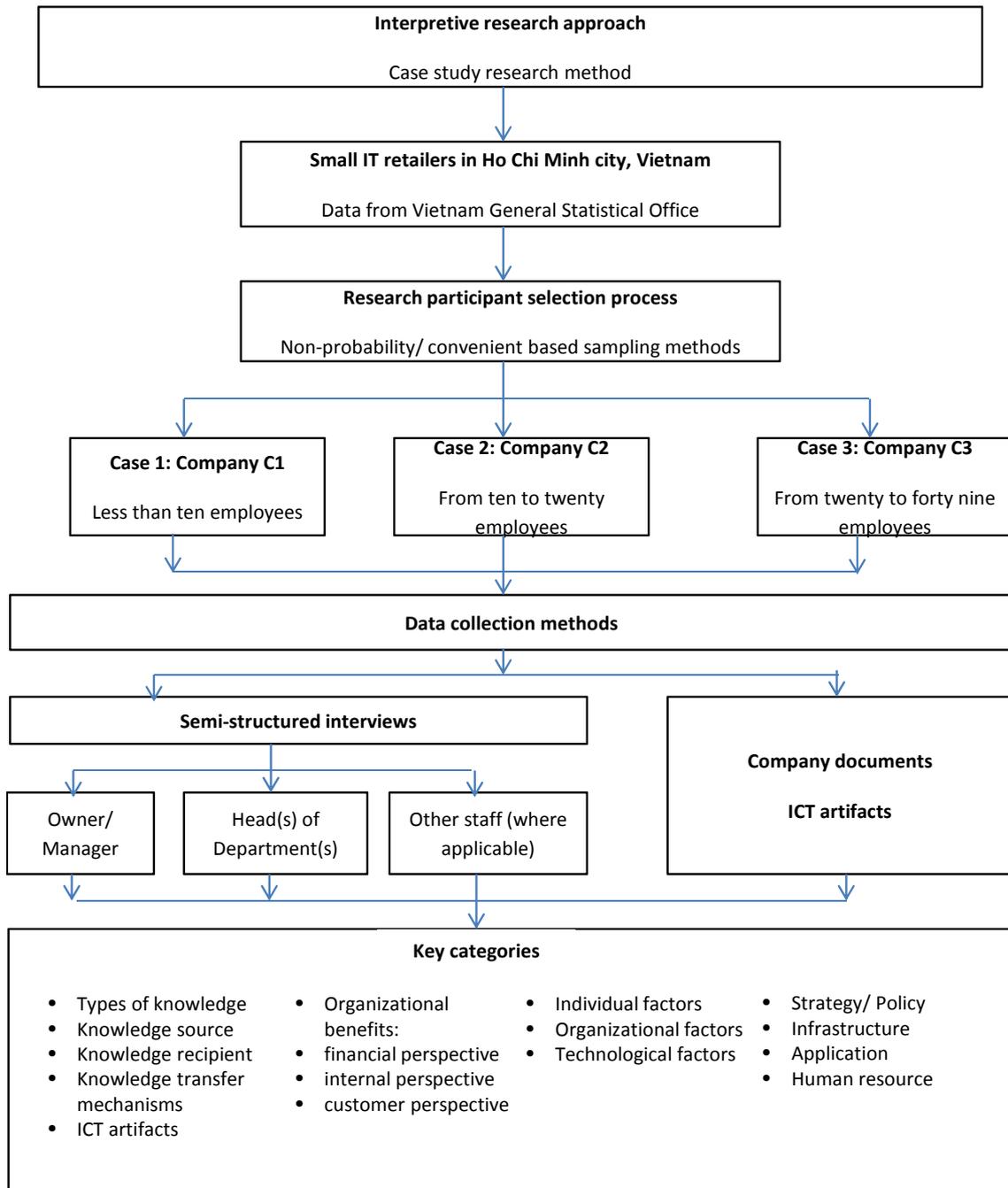


Figure 3. 2 Research methodology

Participants were selected from a list which was compiled from data provided by Vietnam General Statistical Office (GSO) to meet certain characteristics: (1) small business (that is less than 49 regular employees), (2) ICT retailers, (3) in Ho Chi Minh City (the largest city of Vietnam). To provide further insights into investigating the practice of knowledge transfer in small businesses , this list of participants was then

grouped in size consisting of companies with (1) less than ten employees, (2) from ten to twenty employees and (3) from twenty to forty nine employees (as classified by Vietnam GSO) and sorted alphabetically by company name.

Initially, the selection of participants was planned as follow. Every tenth participant was to be firstly contacted via telephone to ask for their participation into the study. The selection process was to be stopped when there is one IT retailer from each group agreeing to take part in the study. Three companies at different size group were expected to participate in this study. However, there was no official information on company size from Yellow Pages data source. Furthermore, the researcher failed to get company size from receptionists as of being classified as “sensitive” information which meant that they were not allowed to answer. Hence, the final approach was to ask for a meeting with the managers for sharing information about the research project; asking if they are interested in participating and getting draft data about the company. With this approach, instead of following the initial plan, the researcher carried out the participant selection process with the following steps. These steps were carried out interchangeably according to the available time of the owners/managers.

Step 1: Contacted every potential participant from the list by calling to the provided telephone numbers to arrange for the meeting. There were many out-dated telephone numbers (not recorded by the researcher) provided in the data from the Vietnam GSO. One hundred and twenty three calls were successfully made with the company receptionists and gone through to the managers. Thirteen owners/managers agreed to meet the researchers for further discussion about the project.

Step 2: Met the managers at their offices. The managers were provided the “Information to participants involved in research” sheets as in Appendix 3.2. Only eight out of thirteen owners/managers participated in the initial meetings. Two owners/managers rejected to take part in the study after the meeting. The first owner manager did not reject directly but she did not pick up following up calls. The second owner/manager agreed to participate in the study but he allowed the researcher to interview only himself. According to this research design (mainly as of time constraint), only three companies are needed. Hence, the first three companies who were willing to involve were selected for the study. It is because the researcher explained clearly the

participant selection process to the potential participants during the first meetings; hence the remaining three companies were happy not to participate.

The common rejecting reasons from both Step 1 and Step 2 are listed below:

- No time
- Not familiar with being interviewed
- Allow to interview only the owner/manager (Common response was “if you want to know anything, just ask me, I know everything about MY company”)
- Afraid of leaking sensitive information (as the student researcher was also working in the same industry)
- Referring to other companies by responding “my company is just a small one, nothing worth for you to research, I suggest to talk to Mr. A”
- Some owners/managers agreed at the beginning, but did not pick-up the following up call, it meant “No”

3.4.2 Data collection

Multiple forms of data collection were used including semi-structured interviews, company documents analysis and ICT artifacts reviewing. In order to reach the saturation of data, Guest, Bunce and Johnson (2006) suggest to analyze at least twelve interviews. However, this approach was not practical for small businesses (for instance, those with five employees), and needed to be scaled down accordingly. Hence, depending on the company size, three to eight semi-structured interviews with owners/managers; heads of department namely admin/accounting, technical, sales & marketing departments; and some other staff were used for collecting data where open ended questions were planned but not necessarily asked in the same order as in the list (Veal 2005).

These interview questions were tested for their appropriateness via two ‘pilot’ interviews with one academic person and one ICT engineer. From these ‘pilot’ interviews, the following comments were noted.

- It is necessary to give examples in advance before talking about “tacit/explicit” knowledge.
- The researcher should use both “knowledge transfer” and “training/experience sharing” to attract attention, especially when interviewing owners/managers. Similar to other terminologies, the research should localize the terms.
- The researcher should not use “informal terms”/”grandmother language” as of high level of educational background of respondents
- The researcher should be ready for paper-pen note-taking

When conducting interviews, a digital recorder was used for some interviewees who agreed in advance. Field notes with pen and paper were also utilized to assist in interpreting the participants’ attitude during the interviews. However, there was also unexpectedness with the use of recorder. For example, one owner/manager agreed to be recorded, but said NO later when the interview was conducted. In addition, for staff, especially admin and technician staff, although they agreed to be recorded, but because of “nervous”, it turned out that they did not behave normally until the recorded was turned off and taken away. Hence, no recorder was used for “staff” to ensure the quality of collected data. In summary, there were eight out of fifteen were recorded (more than fifty per cent).

For the unrecorded interviews, the interviews were carried out much slower to enable the researcher to take notes. This was to ensure that these unrecorded interviews were not inferior to the recorded interviews. Depending on the time constraint, some of the contents were fully taken notes. Others were in the point form. These seven unrecorded interviews were firstly double-checked with the respondents with regards to the contents for the validity purpose. They were then transcribed immediately in the same evening by the researcher.

Some other unexpectedness occurred when carrying the data collection are as follow:

- One case of “Skype” interviewing as the respondent was too busy for a face-to-face interview.

- One respondent got an important meeting right before the scheduled interview (sales meeting). From his behaviour, the student researcher decided not to carry out the interview but delayed to another day.
- The researcher did not take into consideration the sensitive time such as “September 5th: Nationwide school re-opening day” and long holidays on National Day (September 2nd). In addition, most of the interviews which were scheduled on “Friday morning” were delayed to another time as of either the tiredness of the respondents toward the end of the busy working week or the preparation for Saturday weekly meeting.
- There was one case of “Skype” interviewing as the respondent was too busy for a face-to-face interview.

There were totally fifteen interviews being carried out in the three selected companies. For the confidentiality purpose, the companies and interviewers were coded as in Table 3. 1.

Table 3. 1 Coding for interview transcripts

Respondents	Codes	Notes
Company 1 (C1) (45 employees)		
1. Owner/Manager	C1-OWNER	Not recorded, 11 pages
2. Middle manager/Accountant	C1-MM-ACCT	Recorded, 13 pages
3. Middle manager/Sales	C1-MM-SALES	Recorded, 18 pages
4. Middle manager/Technical	C1-MM-TECH	Recorded, 16 pages
5. Staff/Sales	C1-STAFF-SALES	Recorded, 16 pages
6. Staff/Technician	C1-STAFF-TECH	Not recorded, 7 pages
7. Staff/Admin	C1-STAFF-ADM	Recorded, 7 pages
8. Staff/Accountant	C1-STAFF-ACCT	Recorded, 9 pages
Company 2 (C2) (8 employees)		
1. Owner/Manager	C2-OWNER	Recorded, 14 pages
2. Staff/Admin	C2-STAFF-ADM	Not recorded, 8 pages
3. Staff/Technician	C2-STAFF-TECH	Not recorded, 9 pages
Company 3 (12 employees)		
1. Owner/Manager	C3-OWNER	Recorded, 11 pages
2. Middle manager/Sales	C3-MM-SALES	Not recorded, 8 pages
3. Staff/Admin	C3-STAFF-ADM	Not recorded, 9 pages
4. Staff/Technician	C3-STAFF-TECH	Not recorded, 8 pages

As mentioned earlier, this study also used company documents such as reports, operation manual/handbooks, ISO documents as a secondary source of data to add

another view for the analysis. The ICT artifacts such as email/discussion forum, social networks etc. current being used were also reviewed to access their roles in contributing to small businesses' benefits.

Once the data was collected, it was transcribed by the researcher into Word documents. These documents were then formatted to appropriate headings before importing into NVivo software for the process of coding. For data security purposes, several back up methods were utilised such as the use of Dropbox application for synchronising the files among different computers; uploading to Google drive service (an online document storing service) and emailing to the researcher email accounts.

NVivo, the software developed by QSR International, was used in the research for the following purposes (Bazeley 2007):

- Manage data: all collected interview transcripts were imported to NVivo for coding, extracting information and creating the draft data for writing the report. In addition, the information about respondents was also created according in NVivo.
- Coding the data: this process was done by reading the transcripts, highlighting the relevant texts, and dragging-dropping onto related themes.
- Extracting information: this was carried out by using the tools in NVivo to extract necessary information for analysis such as what did C1-OWNER and C2-OWNER comment relating to the themes of knowledge transfer policies and knowledge transfer methods. In this study, the extracted information was presented in the matrix form with rows (representing "Who") and columns (representing "What"). The extracted information was used to prepare for data analysing.

3.4.3 Evaluate and analyse the data

Prior to analysing data, based on the research questions in Chapter 1, a set of proposed categories was developed to guide the data analysis process (Mason 2002). For example, in order to examine how knowledge is transferred in small businesses, the basic categories are types of knowledge, knowledge source, knowledge recipient,

knowledge transfer mechanisms and ICT artifacts. More categories for other research objectives are listed in Table 3. 2.

Table 3. 2 Key categories

Research questions	Key Categories
1. What is the current practice regarding intra-organisational knowledge transfer process in small businesses? 5. What forms do the ICT artefacts take (such as email/discussion forum, social networking, etc.)?	<ul style="list-style-type: none"> • Types of knowledge • Knowledge source • Knowledge recipient • Knowledge transfer mechanisms • ICT artifacts
2. What benefits does intra-organisational knowledge transfer process provide small businesses?	<ul style="list-style-type: none"> • Organisational benefits
3. What are the difficulties with intra-organisational knowledge transfer process in small businesses?	<ul style="list-style-type: none"> • Individual factors • Organisational factors • Technological factors
4. To what extent can ICT be used to address these difficulties? 6. How can small businesses formulate and implement ICT strategy for knowledge transfer?	<ul style="list-style-type: none"> • Strategy/ Policy • Infrastructure • Application • Human resource

After carrying out and transcribing the semi-structured interviews in Vietnamese language, thematic analysis (Ryan & Bernard 2003) supplemented with the use of NVivo software (Bazeley 2007) was used to analyse the transcripts. This was carried out by reading transcripts, finding out patterns about the same themes or represents the same themes and then coding. Direct quotes were translated from Vietnamese into English by the researcher. More specifically, the above key categories were used in extracting the information from the collected data to look for the main themes. In doing this, these categories were represented by “Nodes” in NVivo. The coding activities were done by highlighting the texts which represented the themes/categories then dragging and dropping into the associated noted in NVivo. To ensure that the coding process has covered all the collected data, the researcher used NVivo to highlight all the coded texts. In addition, the bars with different colours assigned to different categories were also used to display how content has been coded. Figure 3. 3 shows an example.

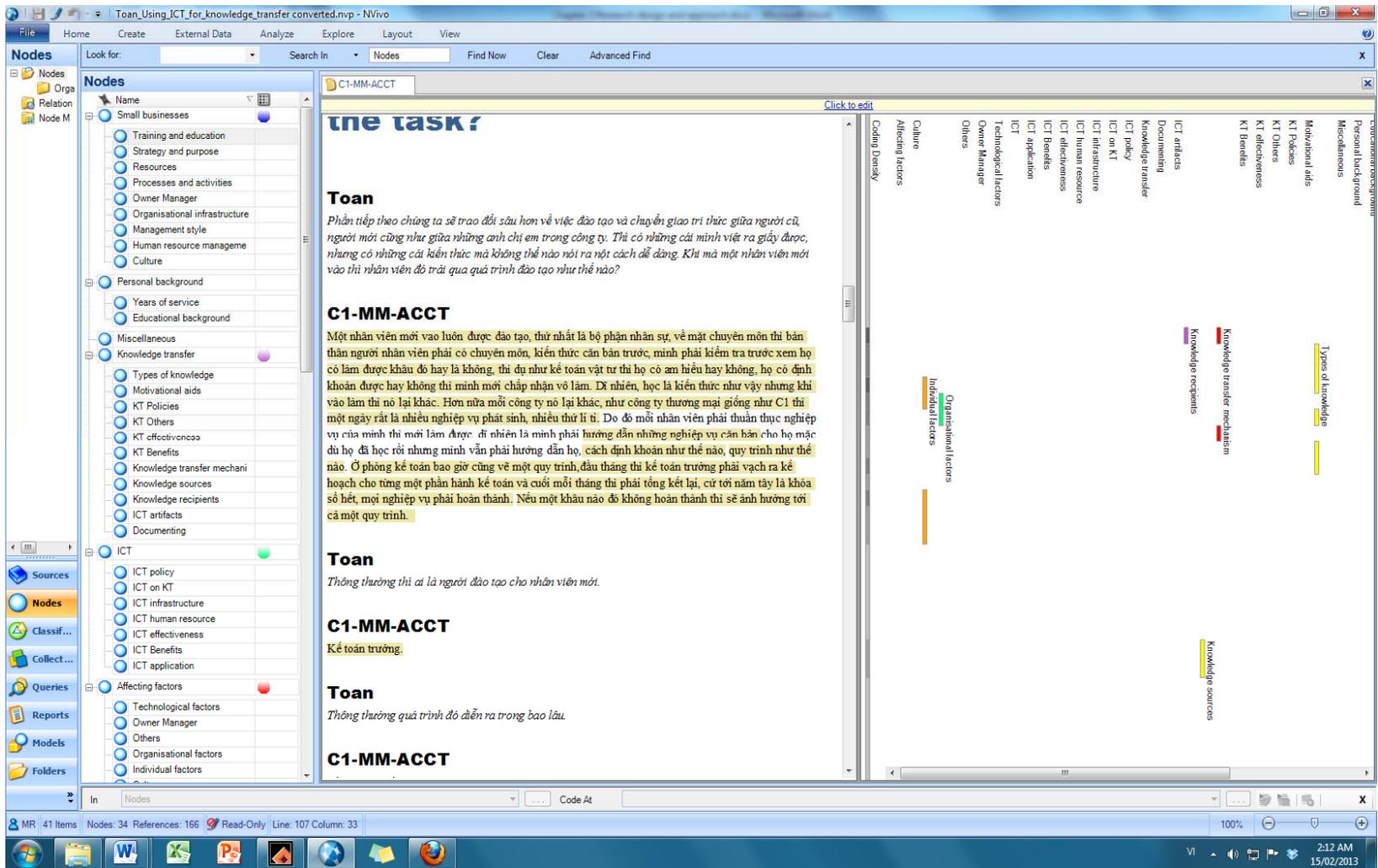


Figure 3. 3 Coding example

Codes (or nodes, or themes) were also further developed during this process. The final coding frame was analysed across the cases to develop the conceptual framework (Bryman 2008). Company documents were also reviewed. The final code list is provided in Appendix 3.2.

3.4.4 Presentation of findings

In order to prepare the report, the coded data was extracted for each research question; compared across the three companies, compared against each research question, compared back to the literature and then referred back to the research conceptual framework. The outcome of this process is presented in Chapter 4 and Chapter 5.

3.5 Ethics approval

This study involved human participants in interacting with people via interviews to collect required data for analysis. Hence, the researcher had to apply ethics approval from Victoria University Human Research Ethics Committee. The approval was granted on August 1st, 2012.

Consent from participants for this study was collected at the commencement of each interview. Participants were told how their identity would be protected and encouraged to speak openly in response to the questions and to freely withdraw from the study. They were given information on how to contact the researcher for any issues relating to the research.

3.6 Summary

This chapter discussed the methodology used in the research. In summary, the study followed the interpretive researched approach with the use of case study method. Data collection technique was predominantly qualitative based, with semi-structured interviews with open-ended questions.

The next chapter will present the findings of the study.

Chapter 4: Results

4.1 Introduction

Chapter 3 has outlined the research design and approach. In order to achieve the research objectives as specified at the conclusion of Chapter 3, 15 semi-structured interviews from three companies were conducted. In addition, to have different views on the use of ICT in the knowledge transfer process in small businesses, the participants were from different levels across the companies ranging from owner/manager and ‘middle’ managers to staff in different positions (namely sales, technical and administration roles). The collected data has been analysed using the thematic coding approach. Initially, one set of themed codes was developed from the research questions. These codes were tested when analysing the data from Company 1 and modified throughout the analysis.

This chapter presents the details of the three companies and the study results. This is to provide an overview of the practice of knowledge transfer in these companies. For each company, the following findings are presented:

- Company background
- The practice of knowledge transfer
- Knowledge transfer policies including common types of knowledge and common knowledge transfer mechanisms
- Benefits of knowledge transfer
- Difficulties of knowledge transfer

4.2 Company 1 (C1)

4.2.1 Company background

Founded in 1997, C1’s main business is to provide ICT products/solutions to customers directly or indirectly via its distributing network, mainly in Ho Chi Minh City of

Vietnam. Having 45 full time staff, it was categorised as a small and medium sized business. Aiming to achieving professional practices of management, C1 was certified.

There were eight participants from C1 in this study. Their positions and associated codes for the purposes of the presentation of findings are listed in Table 4. 1.

Table 4. 1 Coding for interview transcripts (Company C1)

Respondents	Codes
Company 1 (C1) (45 employees)	
1. Owner/Manager	C1-OWNER
2. Middle manager/Accountant	C1-MM-ACCT
3. Middle manager/Sales	C1-MM-SALES
4. Middle manager/Technical	C1-MM-TECH
5. Staff/Sales	C1-STAFF-SALES
6. Staff/Technician	C1-STAFF-TECH
7. Staff/Admin	C1-STAFF-ADM
8. Staff/Accountant	C1-STAFF-ACCT

As outlined in Chapter 2, small businesses can be characterized by:

- The influence of the owner/manager;
- Resource scarcity;
- Flat organizational structure,
- Simple and less formalised and standardised systems, processes and procedures; and
- Unified culture and behaviour.

This section examines these features to provide a background for Company 1.

Owner/manager characteristics

The owner used to be a teacher teaching English language, but also spent seven years working as a salesman in a foreign invested company (in the ICT industry) before starting company C1 with three friends. In managing the company, he shared that he normally did not directly take part in the daily activities of his staff. Instead, he tended to only monitor and provide advice when it was necessary. However, it was perceived differently by C1-STAFF-SALES. According to C1-STAFF-SALES, the owner closely supervised the sales team’s activities. This was to ensure that the sales staff members

were “*doing things right*”. Furthermore, the close supervision also enabled the owner to respond quickly to any sales related issues which might arise from daily tasks. The sales manager of company C1 also added that “*The boss manages our daily activities, especially the sales managers and sales supervisors. In certain important sales situations, he intervenes directly*” (C1-MM-SALES).

The above management style can be explained by the fact that the owner of C1 managed his company from the sales perspective, an area where he had expertise. Hence, as mentioned by C1-STAFF-SALES, he understood sales activities as well as the behaviour of sales staff. This also explains why the owner frequently involved himself in daily operations of the sales team without even recognising it. Another reason for the direct participation into the daily sales activities was explained by C1 owner “*however, in the Vietnam business context, for some projects, the commander has to directly be involved as required by the customers*” (C1-OWNER). In other functional teams such as administration/accounting and technical areas, the relevant managers made most important decisions as they were either family members or founding partners.

Resource scarcity

C1 did not seem to have financial resource scarcity. This was confirmed by both the owner and finance manager. According to C1-MM-ACCT, who was in charge of all financial related activities of C1, the working capital of C1 is “*over VND 35 billion (~AUD 1.75 million)*”. In addition, the owner of C1 also “*owns several companies in different provinces, instead of combining them into one (company)*” (C1-OWNER). Further discussions with C1-OWNER revealed that his other companies, managed by his brothers and sisters, focused on different geographical markets with either similar types of ICT products or different industries throughout Vietnam. According to C1-OWNER, this was to minimise the risks and also to share the profits to other family members. In addition, the main customers of C1 were from the government sector. In this sector, most of the buying decisions were made according to Vietnam bidding law where it required at least three different companies competing in one bid. In certain cases, three of his companies participated in the same bidding. This was to ensure a

higher chance of winning. Hence, it appeared that for C1, the owner just wanted the business to be small, at least in terms of size.

Furthermore, in terms of human resources, the majority of the staff members (nearly 70%) were university graduates, as illustrated in Figure 4. 1. The middle managers of C1 all had more than ten years of experience in the field. Two of them (C1-MM-TECH and C1-MM-SALES) gained their degrees from overseas. C1-MM-ACCT was in the final stage of her Master of Business Administration course.

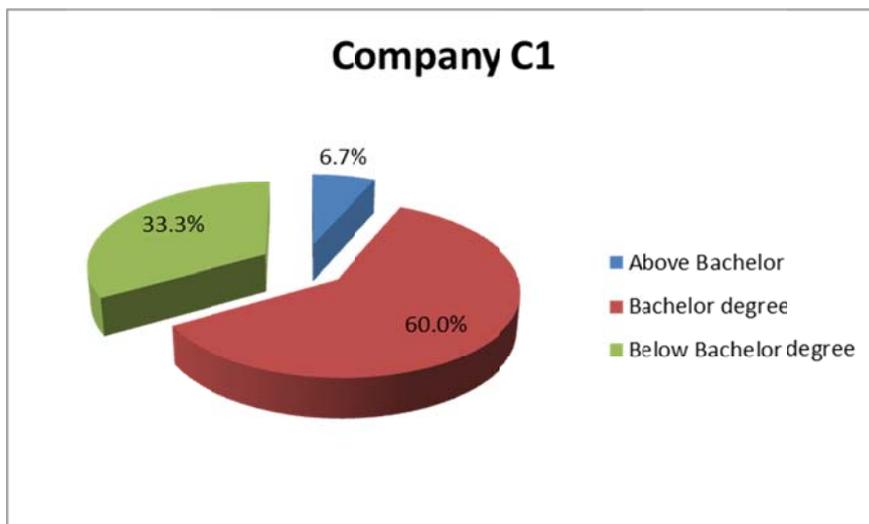


Figure 4. 1 C1 Human resource

With the exception of the sales department, there were minimum academic requirements in regards to recruiting new staff members. According to C1-MM-TECH, the minimum requirement for the technical staff members was an advanced diploma in ICT or electrical or electronic study. Similarly, accounting/ administration staff members were required to have graduated with at least an advanced diploma in accounting.

For the sales team, there was no specific recruiting requirement. Although they were perceived as “*the source of income which helps the company to survive*” (C1-OWNER), they had a high turnover ratio. C1-OWNER mentioned that “*the working period of sales staff is not too long, averaging around two to three years*”. This was an example of losing data, information and more importantly knowledge. C1-MM-SALES explained that, in company C1, sales staff worked with customers independently and had all of the customer data such as contact details; customer information (such as customer

upcoming demands or who were the ‘real’ decision makers [i.e. people who had strong influences on the final buying decisions]); or knowledge on how to effectively approach the customers or handle their various inquiries. Thus, the high sales staff turnover ratio leads to the risk of losing valuable sales knowledge.

Organisational structure

The company is structured into Sales, Technical and Accounting Departments under the management of department managers. These managers report directly to the owner. C1-MM-SALES commented that this flat organisational structure allowed quicker communication between staff and their managers. This advantage was also observed by both the managers of accounting and technical departments. C1-MM-ACCT shared that *“Information is communicated faster to others”*. Similarly, C1-MM-TECH acknowledged that *“due to the small size, information sharing or reporting is very convenient”*.

Having commenced in 1997, C1 was ISO9001:2008 certified in 2010. ISO9001:2008 is a quality management system which requires the company to follow certain registered working procedures to ensure the company’s commitment to quality and customer satisfaction and to improve the efficiency of company’s operations. However, C1 was still a company with a low degree of standardisation and formalisation in rules and procedures governing the activities of employees. The management styles were *“not standardised, they are ‘feeling’ based”* (C1-MM-ACCT). There were rules and regulations, *“but many of them are still on paper, not yet applied in reality. Once applied, if needed, these can be flexibly changed”* (C1-MM-ACCT). However, the level of flexibility varied among different functional teams.

Business processes

In the administration/ accounting and technical areas, where working procedures were standardized and clear, staff members were required to follow fixed steps and normally were not allowed to change. For example, C1-STAFF-TECH indicated that *“I work directly with my manager; I follow the working instructions which I have been trained”*. This idea was supported by the manager of this staff member, C1-MM-TECH, by stating that *“There are many procedures, rules and regulations ... we are not allowed to*

change (working procedures) but will have to make suggestions for revisions and get approval in writing". Likewise, in the administration/accounting group, the employees were expected to follow procedures. *"In general, I carry out my job according to instructions from the manager. I am not allowed and don't dare to do new things myself"*, said C1-STAFF-ADM. The accounting staff also supported this view by responding that *"I will suggest or ask for permission from my manager when having meetings. It is then her job to discuss with our boss"* (C1-STAFF-ACCT).

On the contrary, it was very flexible for the sales team at company C1. While the sales manager, C1-MM-SALES, admitted that *"There are working procedures"*, he also shared *"...but in some urgent and time constrained cases, we are allowed to skip certain steps"*. Furthermore, C1-STAFF-SALES provided a specific example of this flexibility. He said *"There are steps such as a, b, c in procedures, but we have to be flexible. For instance, we don't need to be back at the office to place a paper-based order with a signature. We are able to make it via phone, and then return back to required procedures later when we have free time"* (C1-STAFF-SALES). For sales staff, this flexibility was perceived to support their activities well. *"In terms of rules and regulations, small sized companies like ours are simpler. It is better in quickly supporting our daily sales activities"*, said C1-STAFF-SALES.

Culture and behaviour

Solely owned by the owner, the business culture is affected and shaped by the personality and outlook of the founder. *"We are like 'one extended family' "* was the common response from all of the interviewees when being asked about the glue that held their company together.

"Being a small sized company, with important positions held by family members or founding members who have close relationships, we can say in general that the working environment is 'family –based'. This helps hold people together in an appropriate order, create loyalty and mutual trust" (C1-OWNER).

Summary

In conclusion, although being classified as a small sized company, C1 had some differences from the common perceptions as reviewed in Chapter 2 about small businesses. Furthermore, among different functional teams, there also existed variations. Table 4. 2 summarises these highlighted features of Company C1.

Table 4. 2 Summary of C1 story

Small business characteristics	Literature	Company C1			
		Owner	Sales	Administration/ Accounting	Technical
Resource scarcity	Lack of skilled staff and other resources	With the exception of the financial resource, C1 faced skilled staff resource scarcity. However, the middle managers are skilled staff.			
Owner/Manager	Centralised decision making	Most decisions were made by the Owners	Due to the high technical knowledge required and clear definition of tasks, decisions were made by the managers middle managers.		
Organizational structure, systems, processes and procedures	Flat structures, low degree of standardization and formalization	More flexible, low degree of standardization	Working procedures were standardized and clear; the staff were required to follow the fixed steps and normally were not allowed to change.		
Culture and behaviour	Influenced by owner/managers	Solely owned by the owner, the business culture is affected and shaped by the personality and outlook of the founder.			

4.2.2 The practice of knowledge transfer

Knowledge transfer policies

In small businesses, the literature suggests that policies and working procedures are unclear. However, in company C1, abiding by ISO 9001:2008's Quality management system standards, there were written guidelines on working procedures which the staff used to carry out their tasks, particularly those which required the employees to follow step-by-step processes such as preventive maintenance (for technicians) or sales order checking (for accountants).

There were twenty three working instruction documents found when examining the ISO documents of C1. Although C1-OWNER confirmed that he “*always supports the practice of sharing knowledge among staff*”, with the exception of the training procedures for newly recruited staff, there were very few related written documents found by the researcher to assist this knowledge transfer policy. In terms of training newly recruited staff, there were written procedures. This type of knowledge transfer procedure was applied well across departments of Company 1. It was confirmed by C1-OWNER that “*for newly recruited staff there are procedures, they are very clear*”. This was mentioned by all of the staff members being interviewed.

However, because of the unclear knowledge transfer policy, there was a lack of documents guiding the staff in effectively carrying out the sharing/transferring activities. For example, the researcher failed to get information in regards to who was in charge of facilitating the transfer of knowledge in each of the departments. In addition, there were few related training courses/activities for staff to gain better skills in documenting, storing and sharing knowledge. Furthermore, no guidelines on using ICT and non-ICT tools for knowledge transfer were found. Similarly, there was no evidence in relation to motivational aids towards sharing knowledge and so on. For instance, C1-OWNER stated that “*so far, I haven’t thought of any way to motivate the staff to share*”.

The most common knowledge transfer methods in company C1, as presented in the next section, were meeting and emailing. However, it was difficult to find related documents guiding these activities or documenting the results from these activities for further following up, taking action or being used as a source of knowledge for others. If there were documents, it was mainly because of the requirements of ISO standards. C1-MM-ACCT mentioned that “*as we abide by ISO regulations, we are required to have minutes of meetings ... but it all depends*”. But, for specific types of knowledge such as company announcements, related government resolutions, meeting minutes were communicated well among staff without the existence of written policies. For example, in the administration/accounting group, “*Company announcements on certain issues have been documented in paper/email formats and circulated. If there is any new information or related government resolutions, or in general - any incoming and outgoing documents, we use announcement boards for staff to review them*” (C1-MM-

ACCT). Likewise, in the technical department, C1-MM-TECH revealed that “*with reports, we email the responsible staff for taking action and following up*”.

In summary, even though the owner of company C1 understood and supported knowledge transfer, it can be concluded from the company documents that there was no clearly related policy. However, for specific types of knowledge, the processes were communicated well across the company. In order to have an insight into the practice of transferring other types of knowledge, this section will be continued by examining the types of knowledge and associated methods of knowledge transfer in Company C1.

Common types of knowledge

As reviewed in Chapter 2, basically there are two types of knowledge: tacit knowledge and explicit knowledge. Explicit knowledge is the type of knowledge that can be codified and transmitted in systematic and formal languages. In company C1, there was explicit knowledge which was similar across the administration/accounting, sales and technical departments. This was knowledge about the company rules and regulations, announcements, company contact information, organisational structure and so forth. This basic company knowledge was expected to be in the employee handbook. However, it was interesting to find that there was no official employee handbook at company C1 (several different versions were found). The details were found in the form of internal company announcements either via email or hard copies (print-outs). Besides, in each department, different staff members were dealing with different explicit knowledge depending upon their roles. For example, all of the employees were required to complete product training courses. However, the administration and accounting staff members needed to know only the product codes. Sales staff were expected to understand the product specifications. The technicians were required to have an in-depth understanding of product configurations as well as the principles of operations to support their daily activities, which involved not only working with customers but also consulting the sales team. In addition, it was obvious that the explicit professional knowledge differed among the departments. For example, sales staff were dealing with searching for customer data from the Internet; technicians were carrying out the monthly preventive maintenance procedures; and accountants were familiar with

recording daily transactions into the accounting software. Table 4. 3 show the summary of explicit knowledge which was extracted from the interview transcripts.

Table 4. 3 C1's explicit knowledge

Explicit knowledge	Sales	Administrati on/ Accounting	Technical
Company knowledge			
Rules and regulations, announcements, company contact information, organisational structure, etc.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Product knowledge			
Basic product information such as product codes, stock, price	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Product specifications	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Product configurations, principles of operations and other in-depth product knowledge	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Individual/ specialised knowledge			
Administration/Accounting knowledge such as Accounting procedures; Bookkeeping skills; Accounting software; Data entry skills; Report preparing; Contracts, material composing, managing; Government rules/ resolutions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sales knowledge such as the ability to search for customer data from internal database or internet; product presentation; knowledge local transportation system; knowledge about the local government structure;	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Technical skills: Assembly/ disassembly skills; Preventive maintenance steps; Basic troubleshooting skills	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

On the other hand, tacit knowledge is personal, context specific knowledge that is difficult to formalize, record, or articulate. It is stored in the 'heads' of people. It is mainly developed through a process of interaction, debate, and trial and error encountered in practice. This type of knowledge tends to be local, and not found in books, manuals, files or databases.

From this understanding and the background of company C1, it was expected that tacit knowledge resides more in the sales and technical groups. Indeed, at company C1, sales staff members and technicians were required to equip themselves with more tacit knowledge. The sales employees at C1 were required to “*be able to search customer data, identify potential customers, approach customers to introduce the company products and services, respond to customer enquiries, ‘close’ sales and follow up future sales*” (Job description for Sales, Company C1). For the sales staff, tacit knowledge of sales skill was perceived as “*the most important set of skills*” (C1-MM-SALES, C1-STAFF-SALES). Each customer was different. Hence, it required the sales staff to have different methods in working effectively. This type of sales knowledge was from experience and ‘trial and error’ and was difficult to write down or explain. For example, the sales staffs of C1 were trained to have basic telephone and communication skills. However, in order to have a higher rate of successful ‘cold’ calls (that is, a phone call, first meeting or email approach to prospective customers for the very first time), the sales staff were not necessarily following the steps in which they were trained - it depended on the situation. Hence, in order to choose the right time to make a cold call, use the suitable voice tone if via telephone, choose the appropriate story/sentence to attract customer attention, and so forth, sales staff were expected to be able to convert the trained explicit knowledge into their own tacit sales knowledge. This is actually the process of internationalisation as described by (Nonaka & Takeuchi 1995). From the interviews, the following types of sales knowledge were extracted and can be classified as tacit knowledge:

- Product related knowledge: From the explicit knowledge on product information such as prices and specifications, the sales staff were expected to be able to convert these specifications into benefits in ways that their prospective customers were interested in. In company C1, the sales staff used the term FAB (Features and Benefits) skills.
- Customer related knowledge:
 - The ability to identify prospective customers: from the explicit knowledge on customer data, the sales staff then identified who were the prospective customers; and then who were the key decision makers of these customers and so forth. C1-MM-SALES shared that “*in Vietnam, the decision makers did not*

have to be at the same positions in every company. It is the art of the salesman to find out who is the key person to make or influence buying decisions” (C1-MM-SALES);

- The ability to effectively approach prospective customers, handle customer enquiries and manage the relationship for future businesses.
- Others: knowledge about the industry and competitors; social knowledge to support sales; other soft skills such as interpersonal skills, communication skills, networking skills and bidding preparation skills,

For technical staff, some common tacit knowledge which the technicians were required to have in order to carry out their daily activities were:

- Experiences in troubleshooting: C1-MM-TECH shared that *“No problem is alike. The service manual acts as a guide only, and in English. Hence it requires my staff to have experience in troubleshooting”*
- Handling difficult customers and interpreting customer inquiries into plain language for staff from non-technical backgrounds to understand and support the customers.
- Field inspection skills to provide data for layout drawings.

Administration/accounting staff at company C1 were dealing with several common types of tacit knowledge, such as the ability to analyse accounting/financial reports and interpret these reports into plain language for the owner to understand; and work with customers/ sales staff to identify and collect bad debts.

The above analyses highlight how C1, being a bit larger than most small businesses, actually has some specialisation of tasks. This might go against the idea of small business employees being generalists. However, this is to be expected as businesses grow. It is worthwhile noting that the size of the business can have an influence on the specialist nature of knowledge needed by individual employees. Table 4. 4 summarises the finding on common types of knowledge in company C1. The knowledge types are allocated at either the tacit (right) end or explicit (left) end of the row accordingly. With some types of knowledge such as product codes and organisational structure, the border between tacit and explicit is clear as indicated on the table. Others forms of knowledge are not as obvious.

Table 4. 4 Company C1’s findings on common types of knowledge

Types of knowledge		Company C1		
		Explicit	Tacit	Technical
Company knowledge				
Rules and regulations, announcements, company contact information, organisational structure, etc.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Product knowledge				
Basic product information (e.g. product codes, stock, price)		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Product specifications		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Product configurations, principles of operations; in-depth knowledge		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Features and Benefits (FAB) conversion	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Customer knowledge				
	Identify prospective customers	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Approach prospective customers, and	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Handle customer enquiries	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Manage relationships for future businesses	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Individual/ Specialised knowledge				
Administration/Accounting knowledge (e.g. Accounting procedures; Bookkeeping skills; Accounting software; Data entry skills; Report preparing; Contracts, material composing, managing; Govt regulations)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sales knowledge (e.g. ability to search for customer data; product presentation; knowledge of local transportation system; knowledge about the local government structure)		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Technical skills: Assembly/ disassembly skills; Preventive maintenance steps; Basic troubleshooting skills		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Experiences in troubleshooting	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Field inspection skills for layout drawings	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Others				
	knowledge of industry; social & soft skills – for sales & tender preparation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Common knowledge transfer mechanisms

The knowledge in company C1 was transferred among the staff using different methods. For newly employed staff (the recipient), transferrers were normally experienced heads of departments and/or supervisors. For other cases, anyone in the company could act as either senders or receivers of knowledge. Depending on which types of knowledge, certain methods, either ICT-based or non-ICT based, were used for transferring purposes. It is also worth noting that the staff used these methods in both *formal ways*, (that is, using it for business purposes within the company environment) and in *informal ways*, (using it either for business or individual purposes, outside the company environment but among employees).

Although no formal knowledge transfer strategy existed at Company C1, the staff utilised most of the common methods to facilitate the process of sharing and receiving the knowledge they need. Face-to-face gatherings, mobile phones and email were the methods that were used most for knowledge transfer at Company C1. The knowledge transfer activities at the sales groups were based mainly on non-ICT methods. If using ICT, they just used essential tools such as mobile messaging, email and messenger programs. This also happened within the accounting/administration groups. Social networking applications such as Facebook, blogs or wikis were rarely mentioned and were for personal usage only.

On the contrary, more ICT based methods were applied by the technical staff. They used basic tools such as emails, messaging, and messenger programs. Furthermore, the technical department also set up a forum for sharing technical knowledge, utilised technology based tools such as Teamviewer (software for remote support and online meetings via remote control/access over the Internet), Skype (video and voice call over the internet) and Computer Based Training (CBT) for training and supporting peers in daily activities. The researcher also observed that within the technical department, a document library which lead to a document management system was setup and in use. Explicit knowledge such as company rules, product information, service manuals and so forth were stored electronically and accessible to everyone within the company intranet. The technicians were also able to use the e-learning websites provided by their suppliers

for self-study. Table 4. 5 shows the common knowledge transfer methods in Company C1.

Table 4. 5 Common KT methods in Company C1

Knowledge transfer methods			Company C1		
			Sales	Admin/ Accounting	Technical
Non-ICT based methods	<i>Formal</i>	Training courses on skills, company rules and product information	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Face to face meeting	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Focus group with case studies or story telling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Peer support	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		On the job training	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Paper based company announcements/ notices	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Hands-on practices/ Demonstrating	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Coaching	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<i>Informal</i>	Informal gatherings via coffee breaks or similar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Face-to-face peer supports with case studies	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Quiz/ FAQ/ Games		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
ICT based Methods	<i>Formal</i>	Information sharing via emails, company intranet	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Mobile phones messaging	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Yahoo/ Skype peer supports	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Company technical forum	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Online meetings via Skype/ Teamviewer	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		E-learning training provided by suppliers	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Online peer supports (with mobile phone, yahoo, skype, teamviewer)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	<i>Informal</i>	Peer supports via Yahoo/ Skype/Mobile/ Facebook	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Professional forums (external)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

To transfer tacit knowledge, non-ICT methods were used more than the ICT based methods. The preferred method of transfer for this type of knowledge across Company C1 was face-to-face meetings with the use of story-telling, case study discussions or question and answer sessions. Peer assist during informal gatherings was also utilised. Technical staff also used hands-on practices or demonstrations to share tacit knowledge. Nonaka and Takeuchi (1995) call this the *socialisation* process where the tacit knowledge is transferred through interaction between individuals. In this case, tacit knowledge was exchanged through joint activities – such as being together, spending time together, and living in the same environment – rather than through written or verbal instructions. Table 4.6 shows the summary of knowledge types and associated knowledge transfer methods at Company C1.

Summary

This section has summarised the collected data from Company C1 in terms of its current practice of knowledge transfer activities. Note that Table 4. 4 and Table 4. 5 were not complete lists of the types of knowledge and knowledge transfer methods as they were excerpted from the interview transcripts only. However, it is worth noting the following trends at company C1:

- In technical and administration/accounting groups, where the procedures were less flexible, they were expected to have more explicit knowledge.
- Sales staff who normally interact with customers from different backgrounds, needed more flexible procedures. Furthermore, they were expected to have more tacit types of knowledge.
- The knowledge transfer activities at the sales groups were based mainly on non-ICT methods.
- More ICT based methods were applied by the technical staff.
- To transfer tacit knowledge, non-ICT methods were used more than ICT based methods.
- The size of the business looks to have an influence on the specialist nature of knowledge needed by individual employees

Table 4. 6 Knowledge types and transfer methods in Company C1

	Non ICT methods	ICT methods
Tacit knowledge	<ul style="list-style-type: none"> • Face-to-face meetings • Focus group with case studies or story telling • Informal gatherings via coffee breaks or similar • Hands-on practices/ Demonstrating • Quiz/ FAQ/ Games 	<ul style="list-style-type: none"> • Company technical forum • Professional forums (external) • Online meetings via Skype/ Teamviewer • Information sharing via emails • Mobile messaging for short messages
Explicit knowledge	<ul style="list-style-type: none"> • Training courses on skills, company rules and product information • Face to face meeting • Focus group with case studies or story telling • Peer support • On the job training • Paper based company announcements/ notices • Hands-on practices/ Demonstrating • Coaching • Informal gatherings via coffee breaks or similar • Face-to-face peer supports with case studies • Quiz/ FAQ/ Games 	<ul style="list-style-type: none"> • Information sharing via emails, company intranet • Mobile messaging • Yahoo/ Skype peer supports • Company technical forum • Online meetings via Skype/ Teamviewer • E-learning training provided by suppliers • Online peer supports (with mobile phone, Yahoo, Skype, teamviewer) • Peer supports via Yahoo/ Skype/Mobile/ Facebook • Professional forums (external)

4.2.3 Benefits of knowledge transfer

There are different approaches in seeking to understand the outcome of knowledge transfer activities to organisations. Initially, the researcher aimed to seek data on different perspectives of benefits which the knowledge transfer process provides to small business. Such perspectives were expected to include a financial perspective; an internal perspective and a customer perspective. The financial perspective indicates whether a company's strategy, implementation and execution are contributing to bottom line improvement. The financial indicators may consist of profitability, revenue growth,

and sales growth. The customer perspective reflects customer satisfaction, customer retention, and market share in targeted segments. The internal process perspective is used to review the level of satisfaction of employees.

However, the researcher failed to retrieve the necessary information for each of the above perspectives. One possible reason was that for small businesses, knowledge management is still a new concept. Hence, it was difficult for the interviewees to comment on its benefits in specific situations. Furthermore, there was no 'measurement' method, or knowledge performance index or any other similar tools in place for small businesses to reflect on its effectiveness. In addition, this research took advantages of the qualitative based data collection tools; thus information in relation to participants' perceptions was mainly collected. Hence, this section presents data in terms of the perceptions from the participants of the benefits which the knowledge transfer process provided to their companies or departments.

In the sales team, "*it (knowledge transfer) was better than before*", said C1-MM-SALES. In addition, C1-STAFF-SALES added that "*it was acceptable*". C1-STAFF-SALES also suggested that in the sales team, the "*benefits of the knowledge transfer process should be linked to the sales performance*". Sales performance, as mentioned by the owner of Company 1, was not simply counted on the sales revenue, but also on "*the repeated customers, loyal customers, etc.*" (C1-OWNER). Further examining the company documents, C1 sales staff performance was measured by different sales key performance indices (KPIs). The main sales KPIs at C1 included (1) Product based sales revenues (i.e. sales revenues for each type of products), (2) Sales growth (year over year, quarter over quarter), (3) Quote to Close ratio (that is, the number of quotes compared to successful sales); and (4) Repeated customers (number of orders from the same customer). Hence, with better knowledge transfer practices, sales staff were able to handle customer inquires in a more effective way (C1-STAFF-SALES), with better knowledge (C1-MM-SALES). In addition, as commented by C1-STAFF-SALES, the experienced sales staff at C1 (that is, having more knowledge than others, especially the newly recruited sales employees) were better than others in making sales decisions such as selecting and approach prospective customers, handling customer inquiries and so

forth. Hence, they had higher ‘quote to close’ ratios than those without sufficient knowledge.

In the administration/ accounting team, the outcome of the knowledge transfer process was also perceived to be better than in the past. More specifically, C1-MM-ACCT commented that *“our staff respond to customer inquiries with more professional behaviour and better than before”*. *“I am able to understand better our customer inquiries and respond quicker”*, commented C1-STAFF-ACCT. *“I think it is better than when I started. With more information about the company and the tasks, I am able to get the job done faster”* (C1-STAFF-ADM).

In the technical team, the technical manager, C1-MM-TECH, was not satisfied with the knowledge transfer activities in his department. He said *“at the moment, it is just at average level, not as good as expected”*. However, the technical staff, commented that he was *“... happy with it, as he is more knowledgeable when being trained by the experienced supervisor ... more confident when working alone”* (C1-STAFF-TECH).

From the owner perspective, even though C1-OWNER agreed that the knowledge sharing was effective; he also mentioned that *“this is just my feeling. I think we need to look for ways to evaluate it appropriately or ways to measure it”* (C1-OWNER).

Table 4.7 summarises the benefits of knowledge transfer perceived by C1’s participants.

Table 4. 7 KT benefits at C1

Knowledge transfer benefits (Literature)	Equivalent findings	C1		
		Sales	Administration/ Accounting	Technical
Improved competency (Skyrme & Amidon 1997)	More knowledgeable staff	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Improved efficiency (Skyrme & Amidon 1997)	Quicker task completion with less mistake	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Improve company performance	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Improved decision making (Frey 2002)	Quicker task completion with less mistake	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Improved learning (Wong & Aspinwall 2004)	(Information not available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improved innovation (Skyrme & Amidon 1997)	(Information not available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improved responsiveness to customers (Skyrme & Amidon 1997)	Better in handling customer inquiries	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Increased customer satisfaction	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Increased repeated customers, loyal customers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.2.4 Difficulties of knowledge transfer

This section addresses the difficulties of knowledge transfer practices at company C1.

Individual related difficulties

The literature indicates that the success of knowledge transfer activities is impacted by many factors. This section examines difficulties which were created and faced by individuals participating in the knowledge transfer process.

In the sales team, C1-MM-SALES noted that the knowledge sharing activities were “*all individual based*” (C1-MM-SALES). He further explained that, from the receivers’ side, it was up to them if they believed in the transferrers and/or the knowledge being transferred. He said “*there are people who do not believe [the information that is*

shared], *they think that the sharers just show off what they know*". C1-STAFF-SALES also commented that, especially with tacit type of knowledge such as personal sales experience (for example: skills to identify who might be prospective customers), he limited the sharing of his knowledge only to a few colleagues. It was because he experienced several cases where the receivers did not value what was being shared. Additionally, the transferees might not know if the shared knowledge was useful to them in carrying out their tasks.

Even if the transferees trusted both the sharers and the transferred knowledge, the success of the transfer process was also affected by the abilities of the sales staff who received the information. According to C1-STAFF-SALES, it was the ability of the receivers to absorb and apply the knowledge they had gained. In another words, this depended on the receivers' prerequisite knowledge to interpret the information they received into their own understanding; the ability to apply this knowledge in appropriate contexts and to provide feedbacks to the transferrers in regards to the knowledge they received. Moreover, C1-MM-SALES also mentioned about the ability of the transferees to ask questions. If they "*don't know how to ask for more information, then the sharers don't have to share more*" (C1-MM-SALES). Hence, also from the receiver's side, it was important for them to let the transferrers know what knowledge they were really in need of. C1-MM-SALES also suggested that the receivers should give a clear signal to motivate the sharers to share. Furthermore, according to C1-STAFF-SALES, the transferrers also needed to be respected. Hence, the ability of the receivers to provide appropriate feedback was also important in maintaining the continuation of the knowledge transfer process.

From the sharer's side, besides the responsibilities from the official roles they played in the company, the practice of knowledge transfer was mainly affected by the relationship between the receivers and the transferrers. C1-STAFF-SALES explained that "*I only share with the person I have close relationships with, or my close staff for the performance of my team*". 'Close relationship' in this situation represented the mutual trust between the sharers and the receivers. This comment suggested another issue impacting on the knowledge sharing activities. It is whether or not both the sharers and receivers are working in the same team. They tended to share with their teammates or

their staff to contribute to their team's performance. The transferrers shared their knowledge also because of "*their ego, the need to show off or self-actualisation*" (C1-OWNER).

In addition, for the confidentiality of information, C1-MM-SALES noted that the sales staff did not wish to share knowledge with the people whom they thought were irrelevant or directly competed with them in the same organisation. It was further asserted by C1-STAFF-SALES that the sales staff were afraid of leaking important information. He commented that "*for most of the salespeople, they are afraid of losing information. Hence, they normally hide or pretend that they don't know*". To secure their own jobs, salespeople simply just wanted to hold back knowledge. In other words, as explained by both C1-OWNER and C1-MM-SALES, the transferrers would be willing to share their knowledge to their peers if that knowledge sharing activities did not affect the sharers' future career path in the company.

In the accounting/ administration group, C1-MM-ACCT stated that her staff lacked the skills and abilities to effectively be involved in sharing and receiving knowledge. Similar to difficulties faced by the sales people, the knowledge transfer activities in this team was reported to rely on the relationship between the senders and receivers. C3-STAFF-ADM commented that transfer could occur "*if you are confident of your knowledge, if you trust others to share your knowledge*". Furthermore, C1-STAFF-ACCT and C1-STAFF-ADM both commented that the ability of the transferees to actively ask questions played an important role. This was also to signal the senders that the receivers were in need of and interested in the knowledge which the transferrers had. However, the respondents from the accounting/ administration team did not mention anything about the ability of the transferees to absorb and apply the knowledge they gained from the transfer process.

From the sharers' sides, one issue was that the transferrers were "*afraid of responsibilities*" (C1-MM-ACCT). This might happen in the case of sensitive or important business problems in which they were asked to provide information to help solve those issues. C1-MM-ACCT admitted that "*there are some cases of leaking our internal information to our competitors by some employees*". In these cases, they either referred to other people or were denied answering the questions. Similar to the sales

team, the knowledge transfer process at the accounting/ administration team was also affected by the sharing skills of the senders, the personal and work relationship between the two parties of the process (that is, senders and receivers), and the ego of the transferrers. However, job security appeared *not* to be a factor affecting the senders to make sharing decisions.

In the technical team, the respondents only raised only three problems of the knowledge transfer process, including the sender-receiver relationship, information confidentiality and job security. Another interesting finding from Company C1's interviews with the technical staff was that the English language of the receivers was also crucial in understanding the information they gained. For example, C1-STAFF-TECH made it clear that *"Too much information, I am not able to understand. Most of the information is in English. My colleague and I are not good in English"*. Table 4. 8 summarises the analysis in relation to the individual related difficulties of the knowledge transfer process at C1.

Table 4. 8 Individual related difficulties at C1

Individual related difficulties	C1		
	Sales	Administration/ Accounting	Technical
Receiver's difficulties			
Need/Interest of knowledge	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Signal to the transferrers	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ability to ask questions	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ability to absorb (including language)/apply knowledge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ability to provide feedback to the transferrers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sender - receiver personal relationship	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Sender - receiver work relationship	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Sender's difficulties			
Afraid of responsibilities	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Information confidentiality	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Job's securing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sender - receiver personal relationship	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Sender - receiver work relationship	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ego, Self-actualisation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Required sharing skills	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Organisation related difficulties

In relation to organisation related difficulties with the knowledge transfer process, C1-MM-SALES firstly mentioned about the lack of clear guidelines to support the knowledge sharing activities in the sales team at C1. For example, he explained that although C1 required the sales staff to conduct meetings every Saturday for sharing ideas and experiences, this activity was not carried out properly as planned. Even if there were meetings, minutes were not always documented for future reference. C1-STAFF-SALES gave another example about this issue by commenting on the lack of full explanations on the step-by-step working instructions or benefits of any new regulations or ICT applications which were implemented. The issue of unclear guidelines created a resistance to change from staff and hence affected the outcome of the knowledge transfer practice. C1-STAFF-SALES also suggested the use of necessary sanctions to somehow force people to follow company rules and regulations.

The scarcity of skilled human resources at C1 was also mentioned by C1-MM-SALES as another difficulty. Although the middle level managers at C1 were skilled people, C1 was still expected to have more staff members with required skills to support the practice of knowledge sharing. C1-MM-SALES reported that, as the company was small in size, ICT staff members had to participate in many activities outside their ICT work scope. Small businesses like C1 “*tended to not have ICT specialised staff*”, said C1-MM-SALES.

Furthermore, both C1-MM-SALES and C1-STAFF-SALES cautioned about the need for motivational aids to stimulate employees to exchange their knowledge with others. Further discussion with C1-MM-SALES revealed that there was no such a motivational scheme to drive the knowledge transfer activities at C1. C1-MM-SALES also expected that sufficient motivational aids lead to not only initiating people to share knowledge but also created a knowledge sharing culture among staff members. In relation to this, both C1-STAFF-SALES and C1-MM-SALES reported the need for C1 to create a knowledge sharing culture which currently did not exist. In addition, C1-MM-SALES added the need to have appropriate ways of measuring the outcome of the knowledge transfer process. He mentioned that “*this is to know where we are at the moment and what needs to be done to improve*” (C1-MM-SALES).

In the administration/ accounting team, C1-MM-ACCT also commented on the issues of transferring knowledge, including the scarcity of ICT skilled human resources and lack of clear policies. Similar to C1-MM-SALES, C1-MM-ACCT shared that there were rules and regulations, “*but many of them are still on paper, not yet applied in reality*” (C1-MM-ACCT). However, from the responses of the interviewees in this team, it looks that they did not face any problems with the sharing culture. In other words, the knowledge transfer culture was reported to exist in the administration/accounting group of C1. Furthermore, the participants also did not mention anything about the motivational schemes or measurement methods required for the practice of knowledge transfer.

Similarly, C1-MM-TECH also commented on the lack of clear policies in supporting the knowledge transfer activities. Both C1-MM-TECH and C1-STAFF-TECH did not address the issues faced by other teams such as scarcity of skilled human resources, sharing culture, motivational aids or measurement methods.

Table 4. 9 summaries the analysis of organisation related difficulties with the knowledge transfer practice at C1.

Table 4. 9 Organisation related difficulties at C1

Organisation related difficulties	C1		
	Sales	Administration/ Accounting	Technical
Scarcity of skilled human resource	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lack of clear policies	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Sharing culture	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insufficient motivational aids	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
No appropriate measurement methods	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Technology related difficulties

Another group of difficulties with intra organisational knowledge transfer in small businesses is related to technology.

Similar to policies for knowledge transfer, there was no clear policy for ICT at C1. Interviewees across sales, administration/ accounting and technical team suggested that C1 did not have a specific budget for ICT. In addition, there was no information on ICT

upgrade or ICT policy, how to access ICT effectiveness, or ICT human resource training plan. C1-MM-SALES commented that the ICT investment at C1 was not strategically planned. If there was any ICT related requirements needed, the decisions were made “*on the spot by the owner*” (C1-MM-ACCT).

In addition to the issue of unclear ICT policies, the sales team used different ICT applications. Besides the basic office applications such as word processing, spreadsheet, presentation and email application, the sales team at C1 also used Customer Relationship Management (CRM) software. However, C1-STAFF-SALES claimed that this application did not really support their daily activities in general and knowledge transfer practice (such as documenting, storing and retrieving knowledge). One possible reason for this might be that “*the software developers are not the salespeople*” (C1-STAFF-SALES). C1-MM-SALES was also aware of the ICT skills of his staff. He expected that they should have the necessary ICT training courses for the sales people to increase their skills in applying the ICT to advantage in exchanging information.

In the administration/ accounting team, C1-MM-ACCT and C1-STAFF-ACCT complained about the changes of accounting applications at C1. C1 have changed four different accounting applications from different suppliers within the last five years. C1-OWNER also agreed with this and went on to comment, in general, on the ICT applications at C1 that “*we have invested in accounting software, CRM, HRM, etc. but they are all independent, from different suppliers. Staff complained they are too slow and difficult to connect to from outside*” (C1-OWNER). Similar to C1-MM-SALES, the manager of the administration/ accounting team was also aware of the ICT skills of her staff.

Different from the sales and administration/ accounting team in terms of ICT applications, responses from C1-MM-TECH and C1-STAFF-TECH indicated satisfaction with their current ICT applications, especially the service management software, in supporting their activities. The reason, as explained by C1-OWNER, was the participation of the technical manager from the beginning stages of developing the mentioned applications. Furthermore, C1-MM-TECH also noted that there was problem with his staff in terms of ICT skills required for carrying out basic daily activities such as searching, storing and retrieving necessary information.

Table 4. 10 summaries the technology related difficulties with the knowledge transfer practice at C1.

Table 4. 10 Technology related difficulties at C1

Technology related difficulties	C1		
	Sales	Administration/ Accounting	Technical
ICT policies	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ICT applications	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ICT infrastructure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ICT human resources	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The next section goes on to discuss the second company, C2.

4.3 Company 2 (C2)

4.3.1 Company background

Founded in 2007, C2 operates in the ICT retailer industry. It focuses on directly approaching foreign invested companies in Ho Chi Minh City to provide ICT related solutions. Having only eight full-time employees including the Owner/Manager, company C2 was considered as a typical small business. Three out of eight employees participated in the study. Their details are in Table 4. 11. No recorder was used for C2-STAFF-ADM and C2-STAFF-TECH.

Table 4. 11 Coding for interview transcripts (Company C2)

Respondents	Codes
Company 2 (C2) (8 employees)	
1. Owner/Manager	C2-OWNER
2. Staff/Admin	C2-STAFF-ADM
3. Staff/Technician	C2-STAFF-TECH

Owner/manager characteristics

Company C2 was solely owned by an experienced ICT engineer who had worked for four years for a Foreign Invested Company in Vietnam as a systems engineer. He then

spent another three years working as a technical support manager. However, he really “*worked like a sales engineer*” (C2-OWNER) during that time. His knowledge of ICT as well as potential customers enabled him to have his own business.

Although having worked in foreign companies, where he said that he was able to gain experience in ‘professional ways’ of management, the owner/manager of C2 was still a multi-tasking manager who made most of the decisions in the sales, administration and technical areas. In addition, the owner of C2 tended to pay more attention to his areas of expertise, technical and sales activities. He also explained that with the current scope of his business (that is, small business size as well as small number of customers), this style of management was suitable for “*maximising the flexibility in dealing with daily business issues*” (C2-OWNER).

Resource scarcity

Company C2 was facing difficulties with both human and financial resources. C2-OWNER shared that his company had “*limited financial resources*”. In addition, he was also “*facing difficulties in recruiting staff*” as well encountering the fact that “*skilled staff don’t want to work with us*” (C2-OWNER). This was not because of the salary as C2-OWNER mentioned that he was “*willing to pay high salaries for the right people*”. It was because of the working environment at C2. There were not too many ‘attractive projects’, especially for ICT staff to become involved in. One of the reasons of not having big projects was that companies like C2 did not meet certain requirements, particularly financial conditions, and they were not allowed to join bidding tenders from governments. Hence, the skilled people were said to “*be afraid of losing their skills when working for small businesses*” (C2-OWNER).

Furthermore, small businesses like company C2 normally required their staff to be ‘multi-tasking’ employees who could carry out their jobs on their own. Hence, even if people with certain required skills agreed to work for small businesses, they might not have enough other necessary skills outside their own areas of expertise. For example, at company C2, an ICT network engineer was expected to not only design and install the computer networks, but also to carry out other related activities such as cabling (network and electrical systems); designing and installing the lighting systems; and

carrying out the maintenance activities of ICT peripheral devices such as printers, scanners, copiers, etc. (C2-STAFF-TECH).

Organisational structure and Business process

The organisational structure was flat with only two layers: the manager and the staff. There was no middle manager to support the manager in managing daily activities. The employees directly worked with, reported to and were supported by the owner. For example, C2-STAFF-TECH commented that *“I work directly with the manager ... I receive working orders from the manager. If I face difficulties which I am not able to fix, I call him”*. Compared to larger organisation where it might take time for staff to ask for advice or decisions, C1-OWNER believed that his small and flat organisation had advantages where he was able to make decisions immediately. Hence, customers as well as staff did not have to spend unnecessary time waiting to have final decisions.

At company C2, there were few rules and regulations. Moreover, they were easily revised by the owner. C2-OWNER explained that the most important purpose of his company business processes was to achieve the highest level of efficiency. Although there were not too many rules and regulations, C2-STAFF-TECH commented that *“they are different from project to project”*. Similarly, with the administration related tasks, if there was a need for change, the staff members were required to talk to the owner. *“I can make decisions within the pre-defined scope. Outside of that, we need to report to the boss”* stated C2-STAFF-ADM. Furthermore, C2 was perceived as a sales/ customer oriented structure (C1-OWNER). With this type of organisational structure, all of the procedures were *“for assisting the sales activities, very flexible”* (C2-STAFF-TECH).

Culture and behaviour

In terms of the company culture, C2-STAFF-ADM suggested that *“we don’t see a clear company culture”*. However, similar to Company C1, there were some basic activities which were aimed to hold the company together. C2-OWNER commented that *“We use the jobs to get people together ... Some other activities such as playing football and informal gatherings with beer for discussing in a relaxed way”*. Similar to C1, these activities were also for *“sharing experience”* among the staff members (C2-STAFF-

TECH). In summary, Company C2 is a typical small business with the characteristics as in Table 4. 12.

Table 4. 12 Summary of C2 story

Small business characteristics	Literature	Company C2
Resource scarcity	Lack of skilled staff and other resources	Facing problems in attracting and recruiting skilled staff. Solely founded by the owner, has scared financial resources
Owner/Manager	Centralised decision making	Centralised decision making. The owner/manager makes most decisions on both sales/ administration and technical matters
Organizational structure, systems, processes and procedures	Flat structures, low degree of standardization and formalization	Flat structure Not many rules and regulations Low degree of standardization and formalization
Culture and behaviour	Influenced by owner/managers	Not clear culture Influenced by the manager

4.3.2 The practice of knowledge transfer

Knowledge transfer policies

Similar to Company C1, there was no clear knowledge transfer policy in Company C2. Although there were written procedures for training newly recruited staff, no written guidance on practising knowledge transfer existed in C2. However, training activities also varied among the staff. C2-OWNER shared that *“In my company, I train different employees in different ways”*. The owner also asked his employees to learn how to carry out tasks by themselves. The trainer (normally also the owner) only showed staff members basic steps for different tasks such as document storing procedures, circulating of meeting minutes or basic trouble shooting techniques. The staff then had to learn how to carry out the assigned tasks by themselves.

Furthermore, due to its scarce resources, the owner of C2 explicitly mentioned that he would prefer to have experienced staff to have less time spent on training basic skills required for the jobs. He explained that instead of spending too much time to train new

employees from the beginning, he would rather recruit one who already has the necessary working experience.

Resulting from the lack of knowledge transfer policy, staff members at C2 were not given clear instructions on how to actively participate in the knowledge sharing process. The researcher also failed to collect information about working procedures related to knowledge management activities such as documenting, storing, retrieving, sharing and applying knowledge. Likewise, guidelines on how to use specific methods were also not available for staff at C2. Hence, in order to share and seek knowledge they needed, staff members had to rely on their own relationships and skills.

Even with its small size, it seemed that C2 was facing no serious problems with supporting daily activities. However, from the above analysis, it can be concluded that no form of knowledge transfer policy existed at C2. In order to understand how this unclear strategy affected the practice of knowledge sharing, the following section will address the common types of knowledge with which C2 staff was dealing. In addition, the common methods used in transferring knowledge among staff members of C2 will also be examined.

Common types of knowledge

Operating in the same business industry as Company C1, Company C2 was expected to process similar types of knowledge to Company C1.

The sales staff members at Company C2 shared more explicit knowledge than tacit knowledge. One possible reason for this was that although being classified as sales, C2-STAFF-ADM's jobs were more related to sales administration/ coordination activities. For example, the main tasks of C2-STAFF-ADM were to provide administrative support to both sales and technical staff members. This support included circulating information about new products, prices and stock levels amongst salespeople and technicians. In addition she was also in charge of communicating new work related announcements from the owners to staff. All of these tasks required her to work mainly with explicit types of knowledge. However, as collecting bad debts was also one of the tasks C2-STAFF-ADM was assigned to do, she was also required to have tacit

knowledge. According to her, in order to analyse and make decisions on bad debts; she only followed working instructions. However, in order to work effectively with customers to collect these account receivables; C2-STAFF-ADM needed to have experience. This provides an example of a tacit type of knowledge which C2-STAFF-ADM had to possess.

In Company C2, sales revenues came from the activities of the owner/manager and he shared little detail about his sales related tasks. However, as he was operating in a similar business to C1, it was expected that the owner/ manager, acting as the sales staff, required the same types of tacit knowledge to those sales staff members at C1. These included identifying prospective customers, approaching prospective customers, handling customer enquiries and managing future business relationships.

Technicians at C2 worked directly with customers. Responses from interviews revealed that they were required to deal with different types of knowledge. For example, they were expected to collect specific requirements from the customers. This information was then used to prepare necessary documents which were used in supporting pre-sales (that is, quoting, presenting solutions and handling customer inquiries regarding technical issues), during-sales (implementing the quoted solutions and training users/customers) and after-sales activities (carrying out maintenance activities). The ability to carry out basic troubleshooting techniques was considered to be explicit knowledge. However, the abilities to handle complicated customer enquiries, interpret these requirements into written materials and finally carry out the implementation of the projects required the technician at C2 to have tacit knowledge. In addition, as most of the ICT/ products/ solutions were in the English language, the technicians at C2 were also worried about their language knowledge in order to be able to absorb the required documentation to carry out their roles.

Table 4.13 shows the common types of knowledge with which the Company C2's staff were dealing daily.

Table 4. 13 Company C2's findings on common types of knowledge

Types of knowledge	Tacit	Company C2	
		Admin / Sales	Technical
Company knowledge			
Procedures, company announcements, new rules and regulations, working instructions from owner, contract and other companies materials; company information		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Technical related material such as field log books (for future reference); technical reports		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Product related knowledge			
Basic product information (e.g. product codes, stock information, prices)		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Product specifications, user manuals, configurations		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Installation guides		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Individual/ Specialised knowledge			
Handling customer enquiries (e.g. product information, prices, stocks, user guides)		<input checked="" type="checkbox"/>	<input type="checkbox"/>
Basic troubleshooting techniques		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Administration/Accounting skills		<input type="checkbox"/>	<input type="checkbox"/>
	Bad debt/ account receivable analysing and collecting	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Handling complex customer technical enquiries (e.g.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Understanding technical materials (in English)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Field inspection skills	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Common knowledge transfer mechanisms at Company C2

In terms of knowledge transfer tools and methods, face to face meetings were the non ICT based method which was most mentioned during the interviews. This method was utilised in both administration/sales and technical teams in sharing knowledge.

However, this was neither a compulsory nor regular activity. This happened only when

the owner instructed his staff to do so. C2-OWNER, explained that *“in general, if it is urgent, I will call a meeting to discuss. If it is important, I will ask staff to take notes”*. Further, because of the lack of knowledge transfer policies, at company C2, *“we don’t have any regulation on documenting the information required for tasks”* (C2-STAFF-TECH).

Besides formal face-to-face group meetings, the knowledge transfer practice at C1 was carried out via other non-ICT methods such as peer support, on the job training, training courses and focus groups with case studies. Whilst all of these methods were used by technicians, only peer support was applied by the administration/sales staff. Furthermore, for certain technical issues, knowledge or experience in handling these problems was directly instructed to the staff by the owner of C2 under the form of on the job training. Informal (that is, not happening during working hours) gatherings via coffee, lunch or sport activities were also reported by the respondents at C2 as other methods of exchanging knowledge amongst themselves.

In terms of ICT based methods, information sharing via emails was the most used ICT based tool. The employees at company C2 utilised only meetings and email as means of transferring knowledge. To support the circulation of knowledge within Company C2, there were requirements from the owner for summarising the meeting contents and these were emailed to employees. In relation to this matter, C2-STAFF-ADM shared that *“my boss requires me to summarise (the meeting contents) and email over to related employees if it is important”*. In addition to the meeting minutes, email was also used to circulate new product information, company rules and regulations.

Other ICT based tools used at C2 included Yahoo, Skype and mobile phone as means for peer supporting. These methods were used by all staff members at C2. The technical team used these methods mainly to support their peers with some simple technical situations. To support each other especially for certain complicated technical issues, technicians utilised other remote connection tools (for example Teamviewer application).

Table 4. 14 summarises the common knowledge transfer tools and methods in Company C2.

Table 4. 14 Common KT methods at C2

Knowledge transfer methods			Company C2	
			Administration/Sales	Technical
Non-ICT based methods	<i>Formal</i>	Regular face to face meetings	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Peer support	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		On the job training	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Directly instructed from the Manager	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Training courses	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Focus group with case studies	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	<i>Informal</i>	Informal gatherings via coffee breaks, lunch, sport activities or similar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ICT based methods	<i>Formal</i>	Information sharing via emails	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Yahoo, Skype peer supports	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Mobile phone messaging	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Remote logging in via Teamviewer or similar tools	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	<i>Informal</i>	Yahoo, Skype, Facebook peer supports	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Professional forum (external)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

From the interviews, the typical knowledge transfer scenario in Company C2 can be described in three basic steps. First, if there was a problem which the staff were not able to handle alone they were required to call the manager directly. Second, the manager instructed directly and if he thought something was important, he would call for a meeting. Third, depending on the situation, the owner manager might ask the administration staff to summarise meeting minutes and circulate this information to related staff via email. Hence, one-way knowledge transfer was the most common knowledge transfer activity. The knowledge was distributed by the manager (the transferrer) to his employees (the transferees). The transferees passively received the knowledge and then applied it (or not).

Summary

This section has presented the knowledge transfer activities at company C2. Some observations for company C2 from the data analysis are:

- The actual sales role fell mainly onto the owner/manager. Different from C1, both the sales/ administration and technicians dealt more with explicit knowledge at company C2.
- Similar to C1, more ICT and non ICT based knowledge transfer methods were developed and applied by the technical staff.

4.3.3 Benefits of knowledge transfer

As mentioned in Section 4.3.2, the knowledge transfer related policies were unclear at Company C2. Besides, there was no method in place to measure the outcomes of knowledge transfer practices. However, all of the respondents at C2 suggested that knowledge transfer at C2 was seen to be effective. For example, C2-OWNER pointed out that *“in general, I don’t know what indices to use in quantifying it, but I guess it was effective, up to 70%-80% of what I expected”*. He also mentioned that, if compared to the last two years, the knowledge transfer practice at C2 was more effective. C2-OWNER also clarified this by providing an example of how *“our staff members work better than before”*. The staff became more knowledgeable and skilful than they were at the time they were recruited. He observed that his staff knew how to look for necessary information either from within the company or outside. This information was used to solve the work problems they were facing. Thus, especially with his technical team, they were able to complete their tasks with fewer mistakes.

In the administration/ sales team, C2-STAFF-ADM commented that *“it (the outcome of knowledge transfer practice) was OK”*, without giving any additional information to support her comment. However, C2-OWNER added that his sales people became more experienced given the knowledge which had been shared from other staff members. Additionally, he also mentioned that the sales performance had improved. However, as mentioned in section 4.3.1, the main sales revenues of C2 were gained via the owner. Hence, the response about the improved sales performance is not taken into

consideration. However, C2-STAFF-ADM stated that “*I have less complaints from my peers and the manager*”. She was also able to handle customer inquiries more professionally compared to what she did in the past, thanks to more knowledge that she had gained. She mentioned that “*at the beginning, due to the lack of knowledge, I could not answer customer inquiries properly*”. Similarly, C2-STAFF-TECH also noted that “*with more knowledge, I am able to handle more complicated inquiries from customers*”.

Table 4. 15 provides the summary of knowledge transfer benefits at C2.

Table 4. 15 KT benefits at C2

Knowledge transfer benefits (Literature)	Equivalent findings	C2	
		Administration/ Sales	Technical
Improved competency (Skyrme & Amidon 1997)	More knowledgeable staff	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Improved efficiency (Skyrme & Amidon 1997)	Quicker task completion with less mistake	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Improve company performance	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Improved decision making (Frey 2002)	Quicker task completion with less mistake	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Improved learning (Wong & Aspinwall 2004)	(Information not available)	<input type="checkbox"/>	<input type="checkbox"/>
Improved innovation (Skyrme & Amidon 1997)	(Information not available)	<input type="checkbox"/>	<input type="checkbox"/>
Improved responsiveness to customers (Skyrme & Amidon 1997)	Better in handling customer inquiries	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Increased customer satisfaction	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Increased repeated customers, loyal customers	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.3.4 Difficulties of knowledge transfer

Individual related difficulties

In the sales/ administration team, C2-OWNER was the first to be aware of whether his staff were able to recognise that they were in need of knowledge. In addition, he was also wondering if the sales staff were really interested in acquiring the new knowledge. From the sender's side, C2-STAFF-ADM mentioned about being afraid of responsibilities as well as the confidentiality of sensitive information such as product pricing structure or product stock information. Furthermore, she also queried the level of ICT skills of the sharers in using ICT tools to share knowledge. For example, C2-STAFF-ADM noted that "*we all have different ways of saving data ... it is difficult (for other people) to search (for necessary information)*".

In the technical team, C2-STAFF-TECH discussed more about the sender's side. He commented that it was very difficult for them to share technical issues. This was because this might affect the transferrer's job. Hence, the technicians normally shared their knowledge with the people they trusted and had a close relationship with. This was especially important in case of sharing tacit knowledge such as how to handle complicated customer enquiries. According to him, it was not easy to gain technical experience. Hence, the technicians were very selective in choosing to whom they transferred knowledge to as well as what type of knowledge they shared. In certain cases, the senders were wondering if the knowledge they shared was useful to others. This was because certain types of knowledge were perceived to be important to the senders. However, it was not seen to be that important by the receivers. Hence, C2-OWNER commented, it was important that the receivers were expected to signal to the transferrers that they were in need of knowledge. In addition, C2-STAFF-TECH cautioned about the importance of giving feedback to transferrers.

Table 4.16 provides the summary of the individual related difficulties of knowledge transfer at C2.

Table 4. 16 Individual related difficulties at C2

Individual related difficulties	C2	
	Sales/ Admin	Technical
Receiver's difficulties		
Need/Interest of knowledge	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Signal to the transferrers	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ability to ask questions	<input type="checkbox"/>	<input type="checkbox"/>
Ability to absorb (including language)/apply knowledge	<input type="checkbox"/>	<input type="checkbox"/>
Ability to provide feedback to the transferrers	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sender - receiver personal relationship	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sender - receiver work relationship	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sender's difficulties		
Afraid of responsibilities	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Information confidentiality	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Job's securing	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sender - receiver personal relationship	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sender - receiver work relationship	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ego, Self-actualisation	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Required sharing skills	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Organisation related difficulties

In presenting data collected from the interviews in relation to the knowledge transfer practice in Section 4.3.2, C2 did not have any clear guidelines to support their staff members on how to share knowledge. For example, C2-STAFF-TECH shared that “*I don't see any guidelines ... we all do it differently*”. He also mentioned the lack of appropriate methods in measuring the performance of knowledge transfer practice. Furthermore, C2-OWNER also admitted that he did not think of any motivational scheme to motivate people to participate in the practice of exchanging their knowledge and experience with each other. Analysis in Section 4.3.2 also showed the lack of skilled (but not ICT skills) human resources at C2. Similarly, sharing culture was also not very clear at C2.

The above analysis is summarised in Table 4.17.

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Table 4. 17 Organisational related difficulties at C2

Organisation related difficulties	C2	
	Sales/ Admin	Technical
Scarcity of skilled human resource	☒	☒
Lack of clear policies	☒	☒
Sharing culture	☒	☒
Insufficient motivational aids	☒	☒
No appropriate measurement methods	☒	☒

Technology related difficulties

Similar to policies for knowledge transfer, there was no clear policy for ICT at C2. According to C2-OWNER, they did not have a specific budget for ICT. In addition, there was no information on upgrading ICT, ICT policy, how to assess ICT effectiveness, the existence of ICT human resource training plan and so forth.

In terms of ICT infrastructure, the researcher found no issue with this at C2. The common response from interviews was “*ICT infrastructure in my company is really good*”. This is understandable due to several reasons. Firstly, C2 was quite young and founded by experienced ICT engineers. Hence, they understood the importance of ICT infrastructure and invested on it. Secondly, according to C2-OWNER, the cost of ICT infrastructure in Vietnam nowadays is not really a problem if compared to other countries.

Although C2 was resource scarce, especially in regards to human resources; the staff members are skilful in some ICT use, at least in using basic ICT applications to get their job done. This is particular true in Company C2 when the interviewees mentioned that ‘ICT skills’ was one of the requirements in recruiting new employees.

The most common difficulties in terms of ICT at C2 were from the applications. At C2, they all used basic applications such as Word processing, Email, Accounting software and other tools such as Yahoo, Skype, and Teamviewer. However, the common comment from interviewees was that they were not satisfied with their current ICT applications. For instance: “*The current accounting software is really slow, it does not allow others to log in and does not allow connection from outside*” (C2-STAFF-ADM).

In terms of supporting applications for knowledge transfer purposes, no information was recorded at C2.

Table 4. 18 summarises the analysis in relation to the technology related difficulties of the knowledge transfer at C2

Table 4. 18 Technology related difficulties at C2

Technology related difficulties	C2	
	Sales/ Admin	Technical
ICT policies	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ICT applications	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ICT infrastructure	<input type="checkbox"/>	<input type="checkbox"/>
ICT human resources	<input type="checkbox"/>	<input type="checkbox"/>

The next section goes on to discuss the final company in the study, C3.

4.4 Company 3 (C3)

4.4.1 Company background

Founded in 2005, C3’s main business focused on supplying its own ICT solutions called ‘Intelligent motorbike/car parking management systems’. Out of its twelve employees, four participated in the study as described in Table 4. 19.

Table 4. 19 Coding for interview transcripts (Company C3)

Respondents	Codes
Company 3 (12 employees)	
1. Owner/Manager	C3-OWNER
2. Middle manager/Sales	C3-MM-SALES
3. Staff/Admin	C3-STAFF-ADM
4. Staff/Technician	C3-STAFF-TECH

Different from C1, company C3 only worked directly with end-users. This type of direct B2C (business to consumer) business expected its staff members (sales and technicians) to be equipped with high levels of ICT and customer satisfaction skills and experience in working with customers.

Owner/manager characteristics and organisational structure

Among the three companies which were selected in this study, Company C3 was the only one which followed a professional way of structuring and running the organisation. It was established by a group of two engineers who “... *studied and worked together*” (C3-OWNER). The two founders also shared important positions in the company. The first one was in charge of the overall operations as the Director (coded C3-OWNER). The other was the sales manager (coded C3-MM-SALES).

Although the organisational structure was flat, Company C3 was based on the ISO9001:2008 standard (not certified at the time of interview) with clear rules and regulations. Different from C1, where working procedures seemed to be designed only for the purpose of being certified by ISO authorities, the rules at C3 were “*developed from the actual activities of the company and continually revised to ensure effectiveness and flexibility*” (C3-MM-SALES). In addition, the founders of C3 were well educated and had working experience from their previous professional occupations. Thus, tasks were “... *clearly assigned, ISO based, and formalised*” (C3-STAFF-ADM).

Resource scarcity

In terms of resources, C3-OWNER admitted that “... *one of the biggest disadvantages is the financial resource*”. However, human resources were perceived as the strength of Company C3. C3-OWNER commented that “*we are not strong in working capital, but benefit from our skilled staff*”. C3-MM-SALES added that “*we have highly skilled and experienced staff who had been working together for years prior to opening this company*”.

Business process

Similar to Company C1, the sales/ administration staff was governed by rules, but not too many rules. However, these were clear, simple and easy to follow. C3-STAFF-ADM commented that “*working procedures are clear for the sales administration team; there are not too many changes. We simply follow working instructions and make online reports as scheduled*”. Furthermore, most of the staff were “on their own” in making decisions within their work scope. C3-MM-SALES commented that “*as the sales jobs*

are individually based and with clear targets, we don't need too many complicated rules".

The owner/manager suggested that although he monitored staff quite closely; *"it is to make sure that everything is on track, especially for major projects"* (C3-OWNER). Another reason for this was that C3-OWNER was also the one who directly coded and held the patent for the 'motor-bike number plate recognition source code' in their automatic motorbike parking solutions. Hence, he had to participate in major projects which required any other customisation of customer solutions.

Culture

Company C3 had a flexible working environment. It was not merely a result oriented company. Moreover, it was like an 'extended family' where the staff and managers seemed to freely share working experience amongst themselves. C3 was also perceived to successfully promote mutual trust, which held staff members together. Although C1 was a company where all activities were sales oriented, C3-MM-SALES, also a founder, commented that *"we understand that trust, willingness to share and taking care of each other are much more important. To some extent, we are all like brothers and sisters"*. C3-STAFF-ADM also agreed this fact by expressing that *"Although there are not too many staff, we are all happy. Tasks are clear. Our boss is very open, friendly, experienced and well-educated"*. C3-OWNER summarised that C3's company culture was people oriented. Respect to each other and personal relationships were the strengths.

Hence, it seems that at company C3, the working environment was predominantly influenced by the owner. There was a clear vision about his business and there was a suitable strategy in guiding its operation.

The above analyses of Company C3 are summarised in Table 4.20.

Table 4. 20 Summary of C3 story

Small business characteristics	Company C3
Resource scarcity	With the exception of financial resources, Company C3 has advantages from its skilled and experienced human resources.
Owner/Manager	Partly de-centralised decision making
Organizational structure, systems, processes and procedures	Flat structure, not too many rules and regulations but quite standardised and formalised.
Culture and behaviour	Flexible, somehow influence by the owners/managers

4.4.2 The practice of knowledge transfer

Knowledge transfer policies at Company C3

Amongst the three companies in this study, policies related to knowledge transfer activities were clearest with Company C3. The knowledge transfer policies were supported by the vision of the owner/ manager who understood the value of knowledge as well as the benefits the knowledge transfer process might provide to his company. In addition, the attitudes, intentions and behaviours of staff members were also actively engaged in the knowledge sharing activities within the organisation.

From the top management perspective, C3-OWNER’s view on knowledge transfer was that *“the more people who know the better”*. He also described this view further by expressing that if *“we share knowledge today, we will have new knowledge tomorrow”*. Hence, at C3, if the staff members were facing *“any problems, just ask any experienced staff members, they will handle it straight away”* (C3-OWNER). More specifically, *“normally we ask our direct supervisors ... or discuss among ourselves”* (C3-MM-SALES). This sharing practice can be explained by the fact that at C3, *“we don’t have too many employees, so we know who is who”* (C3-MM-SALES). In addition, the fruitful knowledge transfer practice was also affected by the organisational culture where the staff members *“basically motivate and support each other”* (C3-MM-SALES). In other words, C3-STAFF-ADM suggested that *“the working environment is very convenient for sharing knowledge”*.

In addition, it is worthwhile to note that the concepts of knowledge map, knowledge directory, and online knowledge repository existed. These were regularly utilised by staff members. Although the interviewees did not mention specific knowledge management ‘terminology’; the fact was that the staff members at C3 utilised these knowledge sharing concepts in their daily activities. For example, in relation to the online knowledge repository concept, “*most of the materials are online, hence it is convenient*” stated C3-MM-SALES. Furthermore, C3-STADD-ADM described the usage of knowledge maps or the knowledge directory by explaining that “*we have a contact list available in our internal forum which has detailed information on who is in charge of which areas; or we can also search by areas such as if I need this, who I should contact?*”. It was also important that this type of “*contact information is open*” to every staff member (C3-STAFF-ADM). At C3, “*This matter (knowledge transfer) is very flexible. We are small, but professional and have already digitalised most of the important information*” (C3-STAFF-TECH).

Common types of knowledge at Company C3

Company C3 was also doing businesses in the same ICT retailer industry with Company C1 and C2. However, Company C2’s main business is ‘box selling’, that is providing hardware to its customers; Company C1 focused on both box selling and ready-made solutions. Company C3 positioned itself in niche segments where it tailored its solutions to specific customer requirements with customised solutions designed for those customers. Thus, in addition to basic sales related knowledge such as sales skills, product information and so forth, sales staff members of Company C3 were required to have more in-depth knowledge about technical aspects of the products/solutions which they were to provide to customers. In addition, the interviewees did not mention the knowledge required to identify or approach customers. This might be explained by the types of product/ solutions as well as the market segment where they were positioned. C3 was providing unique solutions to its specific customers with special needs. In addition, there were only few competitors in the market. Thus, C3 sales people did not seem to spend extra effort looking for customers. Instead, they were required to have more knowledge about their specialised solutions. Moreover, sales staff members at C3

were not expected to have knowledge related to tender or local government structures as they were not their targeted customers.

Moreover, as observed previously, Company C3's rules and regulations were standardised. Thus, it required the administrative staff to deal more with explicit knowledge with clear working procedures. Similarly, technical staff were also using more step-by-step working procedures. However, as they were also working directly with customers, tacit skills such as communication and interpreting customer inquiries were also important. Sales and technical staff members at C3 worked closely together and with the customers. Hence, they possessed almost similar types of required knowledge. It is also interesting to observe that communication skills were frequently mentioned by all respondents during the interviews. Once again, this reinforces the comment on the positive knowledge sharing behaviour among staff members in Company C3. Table 4. 21 shows the common types of knowledge in C3.

Common types of knowledge transfer mechanisms at Company C3

Founded by the experienced ICT engineers and equipped with highly ICT skilled staff members, the knowledge sharing activities at Company C3 were carried out by different methods, supported by the use of different ICT tools. From the interviews and the researcher's observation (with the exceptions of materials required by the government to store hard copies such as financial reports, sales contracts, drawings, and so forth), information in Company C3 was digitalised or kept in electronic form. The data were stored either on shared folders on the company intranet, online on the company website, internal forums, solution forums or the company Facebook page. Although there was no Document Management System yet; document libraries existed at Company C3. In addition, the concepts of knowledge map, or Expert Locator also presented under the form of 'Who's Who' search tools.

Table 4. 21 Company C3's findings on common types of knowledge

Types of knowledge	Company C3			
	Tacit	Sales	Admin	Technical
Explicit				
Company knowledge				
Rules and regulations; announcements; company contact information; organisational structure; working procedures; images, information on typical projects; Logs of revised information from consulting, contract signing to installing/ implementing; contracts		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Products/ Solutions knowledge				
Basic product information (e.g. product codes, stock, price)		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Solution information; User manual; Installation manual		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Drawings with different versions		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Customer related knowledge				
	Handling customer related issues	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Interpreting customer inquiries	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Manage the relationship for future businesses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Individual/ Specialised knowledge				
Administration knowledge (e.g. telephone skills, document management skills, communication skills)		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Technical skills (e.g. wiring skills, equipment usage skills; drawing skills)		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sales skills (e.g. sales order preparation and management, presentation)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Communication skills	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Field inspecting skills	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Troubleshooting skills	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The company internal solution forum also acted as an effective online community of practice where staff members were free to get and share information, either using their identity or anonymously. The employees of C3, especially the technical staff, also took advantage of any ICT equipment/ solutions they had to enable the transfer of knowledge effectively. One example was that they used their smart phones to record videos of how they would 'troubleshoot' a particular installation - and uploaded these onto a Youtube service for their peers to follow. Also, technical staff captured every step they did in certain processes and shared these in the online forum. These activities were part of the internalisation process to actually convert the explicit knowledge from one individual into the tacit knowledge of others (Nonaka & Takeuchi 1995). Furthermore, it was compulsory to have minutes of meetings shared after every meeting. There were also staff members assigned especially for updating the company website, Facebook page and online forums. Although there was no written policy on documenting on how to carry out the tasks; there were employees who were in charge of preparing materials on solutions, case studies, procedures, and so forth. Table 4. 22 summarises the common knowledge transfer methods and tools used in Company C3.

Summary

This section has summarised the practice of knowledge transfer at company C3. From the analysis, some interesting observations at C3 are outlined as follow:

- The influence of owner/managers created the supportive environment and communities of practice for transferring knowledge.
- It is obvious that guided by its knowledge transfer policies and the vision from owners/managers (the clearest among the three investigated companies), staff members at company C3 utilised their current ICT systems/applications in supporting the transfer of knowledge amongst staff. Hence, more ICT based methods were found at C3.
- Technicians and sales staff members at C3 encountered similar types of knowledge as well as used similar methods of knowledge transfer.
- Administrative staff also used more ICT-based methods than those at other two investigated companies.

Table 4. 22 Common KT methods at C3

Knowledge transfer methods			Company C3		
			Sales	Admin	Tech
Non-ICT based methods	<i>Formal</i>	Face to face peer support	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Face to face regular meetings	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Training courses on skills, company procedures, rules, contact information and product information	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		On the job training	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Required Self-study/observation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Focus group with case studies or story telling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	<i>Informal</i>	Face to face peer support/case study analysing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Team discussion	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Phone calls	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Informal gathering via coffee breaks, lunches, sport activities	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ICT based methods	<i>Formal/ Informal</i>	Information (e.g. company announcements, product/ solution information, case study summary, etc.) sharing via emails	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Knowledge map (Who know what and how to contact)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Online peer support via Yahoo, Skype, Teamviewer; Phone calls/ Mobile messaging	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Computer Based Training courses (self-develop from recording the steps taken for a specific problems or provided from suppliers)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Self study with information from websites, forums, emails; company website, company facebook; community forum	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Internal solution forums	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Online focus group meetings	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Online knowledge directory via Intranet shared folders; Dropbox; Google drive, Youtube	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Video conference with Skype, Facetime Field log sharing via forum	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Video recording with mobile phones and uploading to Youtube	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Knowledge maps, expertise locator (Who's Who), document library/ knowledge directory, knowledge portal and video sharing, (although only at simple levels of usage) also existed at C3.

4.4.3 Benefits of knowledge transfer

Among the three companies, company C3 is considered to have the most advanced knowledge transfer policies to guide its activities towards sharing information amongst its staff members. In addition to its small size, the working environment also facilitated the sharing culture. The head of the sales team (C3-MM-SALES), also one of the founders, commented that *“our company is small, everyone knows each other; hence in terms of knowledge transfer, I believe that it is very effective”*. This opinion was also confirmed by other interviewees. For example, C3-STAFF-ADM commented about the practice of knowledge transfer that it was convenient. However, they *“... don't know how to measure it, but I think it is effective”* (C3-STAFF-ADM). C3-STAFF-TECH mentioned that *“according to what I know, our company has no measurement method ... but I believe that in our technical team, it is good”*.

In the sales team, C3-OWNER outlined that the salespeople had better skills in acquiring knowledge and experience. In addition, C3-MM-SALES also confirmed that his sales staff were more knowledgeable. Hence, he observed that they were better in handling customer inquiries. According to C1-OWNER, this might lead to increased customer satisfaction. These observations were also made by C3-STAFF-TECH and C3-STAFF-ADM.

Although no measurement methods existed at C3, C3-OWNER shared that he believed the outcome of knowledge transfer practice at his company played an important role in increasing the level of satisfaction of his employees. Other than that, C3-OWNER commented that if the employees are successful with their jobs, they will be happier with more income to support their living. This will result in them contributing a longer time to the company. In addition, both C3-OWNER and C3-MM-SALES suggested that the most important benefit gained from their company knowledge transfer practice was the presence of knowledge transfer culture.

Table 4. 23 summaries the benefits of knowledge transfer practice at C3.

Table 4. 23 KT benefits at C3

Benefits		C3		
Literature	Equivalent findings	Sales	Admin	Technical
Improved competency (Skyrme & Amidon 1997)	More knowledgeable staff	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Low staff turn-over ratio	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	More staff satisfaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improved efficiency (Skyrme & Amidon 1997)	Quicker task completion with less mistake	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Better knowledge sharing culture, leading to company culture	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Increased company reputation/ image	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Improved company performance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improved decision making (Frey 2002)	Quicker task completion with less mistake	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Improved learning (Wong & Aspinwall 2004)	(Information not available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improved innovation (Skyrme & Amidon 1997)	(Information not available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improved responsiveness to customers (Skyrme & Amidon 1997)	Better in handling customer inquiries	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Increased customer satisfaction	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Increased repeated customers, loyal customers	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.4.4 Difficulties of knowledge transfer

Individual related difficulties

Armed with appropriate guidelines supporting the knowledge transfer practice, responses from all interviewees of C3 indicated that they did not face any problems in regards senders of knowledge being afraid of sharing their knowledge. Furthermore, as analysed in section 4.4.2, C3 utilised ICT applications in documenting, storing and transferring information. Thus, as reported by C1-OWNER, the problem of information confidentiality did not exist at C3.

Further, the knowledge sharing culture at C3 also partly eliminated the difficulties arising from the senders-receivers relationship at the sales team. However, in the technical team and admin team, this difficulty did exist. For technicians, especially with the troubleshooting experience; *“it (the sharing behaviour) is all individual based, if you are confident on your knowledge, if you trust others to share your knowledge”* (C3-STAFF-TECH). C3-STAFF-TECH commented that *“If they are not the ones who have*

related benefits (that is, working in the same team, or being a leader), the quality of knowledge they share will depend on the relationship between them”. This comment pointed out another issue impacting on the knowledge sharing activities. It is whether or not both the sharers and receivers are working in the same team. They were willing to share with their teammates or their own staff to contribute to their team performance. If the senders and receivers were not in the same team, the senders only shared knowledge if they trusted or have a close relationship with the receiver.

Other difficulties from the receiver’s side also existed with the staff at C3. The summary of difficulties with knowledge transfer practice at C3 is in Table 4. 24.

Table 4. 24 Individual related difficulties at C3

Individual related difficulties	C3		
	Sales	Admin	Technical
Receiver’s difficulties			
Need/Interest of knowledge	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Signal to the transferrers	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ability to ask questions	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ability to absorb /apply knowledge	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ability to provide feedback to the transferrers	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Sender - receiver personal relationship	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sender - receiver work relationship	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sender’s difficulties			
Afraid of responsibilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Information confidentiality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Job’s securing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sender - receiver personal relationship	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sender - receiver work relationship	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ego, Self-actualisation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Required sharing skills	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Organisation related difficulties

As observed in section 4.4.1, with the exception of financial resources, C3 had advantages from its skilled and experienced human resources. Although, C3-OWNER commented that “*There is currently no policy on documenting or similar*”, there were some forms of guidelines in relation to the knowledge transfer practices at C3. These guidelines were to guide the staff in using necessary methods/ tools in exchanging

knowledge within the organisation. Hence, it seems that C3 did not face many serious difficulties in terms of their lack of formal knowledge transfer policies. Likewise, with the strong vision of sharing knowledge from the founders, knowledge sharing culture existed at C3 in gathering people together and facilitating the knowledge transfer practice.

However, at C3, there was no motivation aid to trigger their employees to share their knowledge. Likewise, there was also no specific method in motivating the employees to participate in the sharing process at C3.

Table 4. 25 summarises the organisation related difficulties of knowledge transfer at C3.

Table 4. 25 Organisation related difficulties at C3

Organisation related difficulties	C3		
	Sales	Administration/ Accounting	Technical
Scarcity of skilled human resource	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of clear policies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sharing culture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insufficient motivational aids	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
No appropriate measurement methods	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Technology related difficulties

In terms of ICT, the very first and common response from the participants at C3 was the complaint about ICT applications in general as well as in supporting the practices of transferring knowledge. C3-OWNER commented that these difficulties happened not only at his business but across the industry. According to him, there was no ‘all-in-one’ solution for small businesses in Vietnam. In some companies, he observed that they used different ICT applications such as accounting, sales/ customer relationship management, service management applications and so forth. But, these applications were independent of each other. C3-STAFF-ADM also suggested that there was a need for the company and ICT application developers to work together closely for ICT solutions tailored to C3’s needs. However, it seems that this type of difficulty (that is, general ICT applications) did not bother the technicians at C3. C3-STAFF-TECH shared that he was happy with the current ICT applications for carrying out tasks. But,

this participant was also aware of the need to have specialised ICT applications to support the knowledge transfer activities. He mentioned that *“with the current ICT applications, if I want to connect to the ICT applications from outside (that is, when he is not in the office), I will still need to connect via VPN (the virtual private network technology which allows the remote access to private networks). It is not always successful and hence it is not convenient”*.

In terms of ICT policies, at the time the interview was conducted, C3-OWNER commented about the company’s future ICT plan in relation to the upgrading of ICT applications at C3. However, similar C1 and C3, prior to the interview time C3-OWNER did not pay much attention to ICT policies. This was also confirmed by other interviewees at C3.

Table 4. 26 summarises the technological difficulties with the knowledge transfer practices at C3.

Table 4. 26 Technology related difficulties at C3

Technology related difficulties	C3		
	Sales	Admin	Technical
ICT policies	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ICT applications	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ICT infrastructure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ICT human resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

This chapter has presented the collected data from the three investigated companies. Chapter Five will discuss the results across the cases in regards to the research questions and the overall research framework.

Chapter 5: Discussion

5.1 Introduction

Chapter 4 has presented the collected data to provide an overview of the current practice of knowledge transfer in the three companies. This chapter will discuss the collected data in relation to the research questions. In addition, this chapter will also relate findings from the cases back to the relevant literature. This will provide the basis for revising the conceptual framework which was developed at the early stage of this study.

5.2 Company background summary

As reviewed in Chapter 2, small businesses are characterised by limited financial resources, simple and less complex structures, managed in most cases by their owners, with flexible and adaptable business processes and staffed by modest human resources under close, direct supervision and influence of the owner (Burgess, Sellitto & Karanasios 2009; Ghobadian & O'Regan 2006; Wong & Aspinwall 2004). Limited resources can lead to a lack of skilled staff and out-dated ICT systems.

Additionally, having fewer employees can make it faster and easier to initiate business changes such as implementing a new knowledge related strategy or new ICT related applications. However, with the staffing constraints, small businesses find it harder to assign dedicated staff for knowledge transfer initiatives. Also, a lack of formal procedures may prevent the small businesses from having efficient knowledge transfer practices. Centrality of decision making by the owner/manager can be the main driver for transferring knowledge; but lack of management skills may restrict the success of such practices (Wong & Aspinwall 2004).

In regards to the case businesses, C2 is the typical small business with resource scarcity, flat business structure, simple rules, centralised decision making and unclear company culture. C1 and C3 also had flat organisational structures. Rules were standardised and formalised across C3. Data collected from C1 also highlighted how this small business, being a bit larger, actually has some specialisation of tasks occurring. This goes against

the idea of small business employees being generalists. However, this is to be expected as businesses grow. Hence, the size of the business looks to have an influence on the specialist nature of knowledge needed by individual employees (Moffett & McAdam 2006; Serenko, Bontis & Hardie 2007).

Financial resources were limited in both C2 and C3. But, C1 did not see this as the major problem. C1 had difficulties in human resources particularly at the staff level. However, the middle managers were skilled staff. Human resources were perceived to be one of the strengths of C3.

In all three companies, owners/managers tended to focus/intervene in the areas either they were good at or they regarded as important areas. For example, as an experienced salesman, the owner of C1 worked closely with the sales team and most of the decisions in this department were either influenced or made by the owners. However, both owners of C2 and C3 were experienced ICT engineers and technical staffs in these companies were monitored directly by them.

Table 5. 1 summarises the above observations for the three companies.

It can be concluded that in the three companies, the background of the owners/managers had a significant impact on any strategic decisions in their small businesses.

Table 5. 1 Small business characteristics across the cases

Small business characteristics	Literature	Company C1	Company C2	Company C3
Resource scarcity	Limited financial resources; Modest human resources; Modest know-how with less expert professionals	With the exception of the financial resource, C1 faced resource scarcity. However, the middle managers are skilled staff.	Facing problems in attracting and recruiting skilled staffs. Solely founded by the owner hence having scared financial resources	With the exception of financial resources, Company C3 is beneficial from its skilled and experienced human resources
Owner/Manager	Owner is the manager; centrality of decision making; modest management skills; directive/ closely supervision	For sales team, most of decisions were intervened by the Owners; As of high technical knowledge required and clear tasks, decisions were made by the managers; middle managers.	Centralised decision making	Partly de-centralised decision making
Organizational structure, systems, processes and procedures	Flat structures, low degree of standardization and formalization	More flexible, low degree of standardization for Sales teams. With technical and accounting team, working procedures were standardized and clear; the staffs were required to follow the fixed steps and normally were not allow changing.	Flat structure Not many rules and regulations Low degree of standardization and formalization	Flat structure, not too many rules and regulations but standardised and formalised.
Culture and behaviour	Operations and behaviour of employees influenced by owner-managers' ethos and outlook; Results oriented	Solely owned by the owner, the business culture is affected and shaped by the personality and outlook of the founder.	Not clear culture; Influenced by the manager	Flexible, somehow influence by the owners/managers

5.3 Current practice and forms of knowledge transfer across the cases

This section discusses the collected data in relation to *Sub question 1: What is the current practice regarding intra-organisational knowledge transfer process in small businesses?* and *Sub question 2: What forms do the ICT artefacts take (such as email/discussion forum, social networking, etc.)?*

Recent knowledge management research in SMEs indicates that knowledge has become the most important strategic factor in company operations (Durst & Wilhelm 2011). Other research reports that small businesses often experience the loss of knowledge in different ways, such as the departure of skilled employees either via retirement or them leaving to work for competitors (Wickert & Herschel 2001). The loss is not only their knowledge but also the investment in human resource management activities through training and development.

The overall aim of this study was to develop an understanding of the roles of Information Communication and Technology (ICT) in the knowledge transfer process in small businesses. This study went further to investigate the practical knowledge transfer activities in use. Chapter 4 has presented the collected data in relation to the current practice of knowledge transfer in these three companies. In particular, the knowledge transfer policies have been outlined to provide a general understanding of the guidelines in small businesses in supporting knowledge sharing. Whilst there was no clearly written policy, the three companies had different ways to address the issue of sharing knowledge amongst their staff members. The common types of knowledge have also been revealed from the interviews to provide an overall picture of what the staff members in these three companies were dealing with in their daily activities. Table 5. 2 shows the company knowledge aggregated across all of the companies.

Different types of knowledge have been associated with different methods and tools in the process of transferring knowledge among employees. In addition to the methods and tools which have been set out in this section, data with regards to the forms of ICT artifacts has also been summarised.

Table 5. 2 Company knowledge across the cases

Company knowledge across the cases	Types of knowledge	
	Tacit	Explicit
Company knowledge		
Rules and regulations; announcements; company contact information; organisational structure; working procedures; images, information on typical projects; Logs of revised information from consulting, contract signing to installing/ implementing; contracts	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Technical related material such as field log books (for future reference); technical reports; drawings with different versions	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Product related knowledge		
Basic product information (e.g. product codes, stock, price)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Product specifications, user manuals, configurations, installation guides; solution guides	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Product configurations, principles of operations and other in-depth product knowledge	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Customer knowledge		
Identify prospective customers	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Approach prospective customers, and	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Handle customer enquiries	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Manage the relationship for future businesses	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Individual/ Specialised knowledge		
Admin/Accounting knowledge (e.g. Accounting procedures; Bookkeeping skills; Accounting software; Data entry skills; Report preparing; Contracts, material composing, managing; Government rules/ resolutions)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sales knowledge (e.g. ability to search for customer data; product presentation; knowledge of local transportation system; knowledge about the local government structure)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Technical skills: Assembly/ disassembly skills; Preventive maintenance steps; Basic troubleshooting skills	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Experiences in troubleshooting	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Bad debt/ account receivable analysing and collecting	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Handling complex customer technical enquiries (e.g.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Understanding technical materials (in English)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Field inspection skills	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Admin knowledge (e.g. telephone skills, document management skills, communication skills)	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The knowledge type list as presented in Table 5. 2 is incomplete as it represents only the feedback from interviewees. However, it provides a base for further work which may provide a generalised list of the types of knowledge assets which a small business

should pay attention to creating, capturing, storing, transferring and applying in its knowledge base. The proposed knowledge asset list might also be used as a checklist for managers as well as staff to assist them in their daily activities. In addition, it might guide the creation of a knowledge directory in small businesses.

As outlined in Chapter 2, in order to assist small business owners/managers with practical, in-depth understanding of the core tools and techniques widely used in undertaking KM in an organization, the Asian Productivity Organisation (APO) has suggested a list of twenty six common methods/ tools often used in knowledge management (Young 2010).

Table 5. 3 shows the common methods used by the three selected companies and the associated types of knowledge (tacit or explicit) which the methods were used to transfer, with a comparison to the list suggested by APO.

Table 5. 3 KT methods across the cases

Methods/ Tools		C1	C2	C3	Tacit	Explicit
APO (Young 2010)	Equivalent activities used by respondents					
Non -ICT based methods						
Brainstorming	Face to face meeting	<input checked="" type="checkbox"/>				
Learning and Idea capture	Required Self-study/observation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Peer assist	Peer support	<input checked="" type="checkbox"/>				
Learning reviews		<input type="checkbox"/>				
After Action review		<input type="checkbox"/>				
Story telling	Story telling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Collaborative Physical Workspace	Training courses, On the job training, hands-on practices, demonstrating; Face-to-face peer supports with case studies	<input checked="" type="checkbox"/>				
Knowledge Management Assessment Tool		<input type="checkbox"/>				
Knowledge café	Focus group with case studies, Informal gatherings	<input checked="" type="checkbox"/>				
Communities of Practice	Quiz/ FAQ/ Games	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Taxonomy		<input type="checkbox"/>				
Knowledge worker competency plan		<input type="checkbox"/>				
Knowledge mapping	Knowledge mapping	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
KM maturity Model		<input type="checkbox"/>				
Mentor/ mentee scheme	Coaching	<input checked="" type="checkbox"/>				
ICT based methods		C1	C2	C3	Tacit	Explicit

Document libraries leading to a document management system						<input checked="" type="checkbox"/>
Knowledge bases		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Blogs		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Social network services		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Voice and VOIP	Online peer support via Yahoo, Skype, Teamviewer; Phone calls/ Mobile messaging	<input checked="" type="checkbox"/>				
Advanced search tools		<input type="checkbox"/>				
Building knowledge clusters		<input type="checkbox"/>				
Expertise Locator/ Whos' Who	Knowledge map (Who know what and how to contact)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Collaborative Virtual Workspaces	Company technical forum; Online meetings via Skype/ Teamviewer; Professional forums (external); Online focus group meetings; Video conference with Skype, Facetime Field log sharing via forum	<input checked="" type="checkbox"/>				
Knowledge portal	Internal solution forums	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Video sharing	Video recording with mobile phones and uploading to Youtube	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Other methods/tools employed in the cases (not from APO)						
Paper based company announcements/ notices		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Information sharing via emails		<input checked="" type="checkbox"/>				
E-learning training provided by suppliers		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Online peer support (with mobile phone, yahoo, skype, teamviewer)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Peer supports via Yahoo/ Skype/Mobile/ Facebook		<input checked="" type="checkbox"/>				
Remote logging in via Teamviewer or similar tools		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Computer Based Training courses (self-develop from recording the steps taken for a specific problems or provided from suppliers)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

The three companies used more non-ICT based methods than ICT-based methods.

For non-ICT methods, C1 used six methods. Five methods were applied at C2. C3's staff members utilised nine methods in sharing knowledge. Amongst the three companies, C3 was in a better position to take advantage of the necessary methods for transferring knowledge. This difference is shown more clearly when examining the application of ICT-based methods. With the exceptions of the use of ICT tools which are not in the suggested list of APO, C1 and C3 used only two out of 11 suggested ICT methods. The staff members at C3 utilised nine out of 11 suggested methods.

At C3, as summarised in Chapter 4, the influence of owner/managers created the supportive environments/ communities of practice for transferring knowledge. Staff members at company C3 utilised their current ICT systems/applications in supporting the transfer of knowledge amongst staff. Amongst the three investigated companies, given the knowledge transfer policies and the visions from owners/managers, C3 was seen to be more advanced in using appropriate methods for the practice of knowledge transfer. Hence, this also further supports the observation about the influence of the owner/manager among the three companies.

Another observation across the three companies is that tacit knowledge was mostly transferred by non-ICT methods; while explicit knowledge was shared among staff members by both non-ICT and ICT methods. Even if tacit knowledge was transferred by using ICT methods, these ICT methods needed to be assisted with an environment allowing the members to interact, discuss, observe and spend time together. This can be explained by understanding the nature of tacit and explicit knowledge and the knowledge conversion processes suggested by (Nonaka & Takeuchi 1995). According to Nonaka and Takeuchi (1995), these represent the process of socialisation (used to covert tacit knowledge to tacit knowledge) and externalisation (used to convert tacit knowledge to explicit knowledge).

Summary

In terms of the knowledge transfer practice, although not guided by relevant knowledge transfer policies, staffs in the three companies have recognised the important role of sharing knowledge amongst themselves. To transfer knowledge, depending on the nature of jobs and thus the types of knowledge, the employees utilised appropriate methods (non-ICT or ICT based methods) which were common at their companies.

In addition, two observations from the above analysis can be made across the cases.

Firstly, the owner/manager, who set the knowledge transfer polices, plays an important role in supporting the use of suitable methods for transferring knowledge within the small business environment.

Secondly, the results suggest that tacit knowledge is still mainly transferred by non-ICT methods, with explicit knowledge being a combination.

5.4 Benefits of knowledge transfer across the cases

This section discusses the findings in relation to *Sub question 3: What benefits does the intra-organisational knowledge transfer process provide small businesses?*

Knowledge is viewed as key resource (Davenport, De Long & Beers 1998) and strategic asset (Wong & Aspinwall 2004) of organisations. Knowledge, and hence the knowledge transfer process, can contribute greatly to the overall performance of organisations. As outlined in Chapter 2, the potential benefits of knowledge transfer (or knowledge management in general) include improved competency (Skyrme & Amidon 1997), efficiency (Skyrme & Amidon 1997), decision making (Frey 2002), learning (Wong & Aspinwall 2004), innovation and improved responsiveness to customers (Skyrme & Amidon 1997).

The benefits of the knowledge transfer process at C1, C2 and C3 have been presented in section 4.2.3, section 4.3.3 and section 4.4.3 respectively. The obvious outcome in relation to the outcome of the knowledge transfer practice was that it resulted in having more knowledgeable staff. This benefit was perceived at all of the three investigated companies. According to Skyrme and Amidon (1997), knowledgeable staff help the organisation develop key competencies to meet future unanticipated needs.

Furthermore, the participants from C1, C2 and C3 reported that they were able to complete the assigned tasks quicker than they had previously. More importantly, the interviewees also mentioned that they encountered fewer mistakes in handling work related problems. This finding also supports Frey (2002)'s research. In other words, the staffs at all companies were able to make decisions better with more knowledge. Hence, they believed that, with more knowledge, they contributed to the improvement of their company performance.

In addition, the interviewees also revealed that the staffs from the three companies were better at handling customer inquiries. Interviewees from C1 and C3 also reported that their companies were experiencing increased customer satisfaction. This supports the finding of (Skyrme & Amidon 1997), who explain that staff who had appropriate knowledge shared with them are able to have a deeper understanding of customer needs. Hence, they respond to customer inquiries with an improved, responsive approach.

However, amongst the three companies, C3 was the only company where the staff members mentioned during the interviews that they also experienced a better knowledge sharing culture than before. Also, C3-OWNER ascertained that the low staff turnover ratio at C3 partly resulted from good knowledge transfer practices at his organisation.

Table 5. 4 compares the benefits of the knowledge transfer practice at the three companies.

Table 5. 4 Findings on knowledge transfer benefits across the cases

Benefits		C1	C2	C3
Literature	Equivalent findings			
Improved competency (Skyrme & Amidon 1997)	More knowledgeable staff	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Low staff turnover ratio	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	More staff satisfaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improved efficiency (Skyrme & Amidon 1997)	Quicker task completion with less mistake	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Better knowledge sharing culture, leading to company culture	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Increased company reputation/ image	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Improved company performance	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Improved decision making (Frey 2002)	Quicker task completion with less mistake	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Improved learning (Wong & Aspinwall 2004)	(Information not available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improved innovation (Skyrme & Amidon 1997)	(Information not available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improved responsiveness to customers (Skyrme & Amidon 1997)	Better in handling customer inquiries	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Increased customer satisfaction	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Increased repeated customers, loyal customers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Summary

There were different types of benefits which the knowledge transfer process provided to the three invested companies. However, these benefits are only the perceived benefits which the participants thought of at the time when the interviews were conducted.

Interviewees suggested that they were in need of more concrete measurement methods/ indicators to evaluate the efficiency of their knowledge transfer practices. This lack of methods for assessing the knowledge transfer practices in small businesses promises to be an interesting topic for future research.

5.5 Difficulties of knowledge transfer across the cases

This section examines the collected data in relation to Sub question 4: What are the difficulties with intra-organisational knowledge transfer processes in small businesses?

In general, the outcome of the knowledge transfer process in the three companies was realized to be somehow effective. Even though there was no measurement in place, to some extent the process provided benefits to these three organisations. However, organisations are all different. Similarly, the individuals within the same organisation are also different in many ways. Thus, it is expected that there exist difficulties with the sharing of knowledge inside the small business environment.

Research in SMEs has examined and ranked different factors affecting the success of knowledge management. Wong and Aspinwall (2005), from the works of Skyrme and Amidon (1997), Davenport, De Long and Beers (1998); Holsapple (2005), extracted eleven critical factors including management leadership and support, culture, information technology, strategy and purpose, measurement, organisational structure, processes and activities, motivational aids, resources, training and education, and human resource management. The lack of performance in these areas can cause difficulties for small businesses in managing knowledge (Wong & Aspinwall 2005).

However, these studies examined knowledge management in general. The aim of the undertaken research focuses only on the knowledge transfer process in the three small

businesses. Hence, in order to understand the issues the three companies were facing, from the review of literature in Chapter 2 and the analysis of collected data in previous sections, the affecting factors are grouped into relevant themes/nodes including Individual, Organisational, Technological difficulties (Gorelick & Tantawy-Monsou 2005).

Individual related difficulties

As outlined in Chapter 2, the outcome of the knowledge transfer process is affected by both the senders and receivers (Hendriks, PHJ 2004). According to Lichtenstein and Hunter (2008), the beliefs, attitudes, intentions and behaviours of both the sharers and receivers impact on the effectiveness of the knowledge sharing practice.

From the receivers' side, Bhatt (2002) stated that firstly the receivers need to know that they are lacking of certain types of knowledge. In addition, they are expected to signal this to the knowledge owners (Bhatt 2002). This is to let the transferrers know that the receivers are in need of knowledge. Other difficulties from the receivers' side include the ability to ask questions (Neve 2003), the ability to absorb knowledge (including language), the ability to apply knowledge, the ability to provide feedback to the transferrers (Lichtenstein & Hunter 2008) and the relationship (both work related and personal related types of relationship) to the knowledge owners (Andrews & Delahaye 2000).

Senders might resist sharing their knowledge because they are afraid of the consequences of doing it (Heydari et al. 2011). In addition, the transferrers might consider the knowledge being required as confidential (Lichtenstein & Hunter 2008). Furthermore, to secure the jobs, staff members may keep knowledge for themselves (Heydari et al. 2011). Other difficulties with the knowledge transfer practice caused by the transferrers consist of the relationship (both work related and personal related types of relationship) with the knowledge inquirers (Andrews & Delahaye 2000), the senders' self-actualisation and the existence of adequate knowledge sharing skills (Andrews & Delahaye 2000).

The individual related difficulties with the knowledge transfer practice at C1, C2 and C3 have been presented in section 4.2.4, section 4.3.4 and section 4.4.4 of Chapter 4 respectively. The transferrers and the transferees at C1 reported that they encountered all of the mentioned difficulties. At C2, no information was recorded in relation to the ability of the receivers to ask questions as well as the ability to absorb and apply knowledge. However, these results might not be sufficient enough to indicate that these two difficulties did not exist as only three interviews were conducted.

On the contrary, the participants at C3 clearly mentioned that they did not encounter any problems with either the ability to ask questions or the ability to absorb and apply the knowledge they received. In addition, the transferrers at C3 also did not see any risks of sharing the knowledge they owned. Similarly, they were also not afraid of taking related responsibilities of transferring the knowledge when asked. However, it is worthwhile noting that the problems arising from the senders and receivers relationship also happened at C3. This might contradict the previous finding in section 5.4 that C3 had already developed some a successful knowledge sharing culture. With the existence of knowledge sharing culture, it is expected that the relationship between the sharers and receivers supports the knowledge transfer process.

However, this contradiction might be explained if the results as shown in Table 4.10 are examined. This result indicated that this type of difficulty occurred only with technical staff. With technicians, C3-OWNER shared it was normal that they did not actively share what they gained. Likewise, C3-STAFF-TECH supported this view by commenting that it was hard for him, as a technician, to become an experienced staff member who could handle complicated customer inquiries. Hence, he only shared his experience amongst those whom he had the close relationship with.

Table 5. 5 provides the summary of the findings on individual related difficulties across the three investigated companies.

Table 5. 5 Findings on individual related difficulties across the cases

Individual related difficulties	C1	C2	C3
Receiver's difficulties (Kilduff & Tsai 2003)			
Need/Interest of knowledge (Bhatt 2002)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Signal to the transferrers (Bhatt 2002)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ability to ask questions (Neve 2003)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ability to absorb (including language)/apply knowledge (Lichtenstein & Hunter 2008)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ability to provide feedback to the transferrers (Lichtenstein & Hunter 2008)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Sender - receiver personal relationship (Andrews & Delahaye 2000)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Sender - receiver work relationship (Andrews & Delahaye 2000)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Sender's difficulties (Lichtenstein & Hunter 2008)			
Afraid of responsibilities (Heydari et al. 2011)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Information confidentiality (Lichtenstein & Hunter 2008)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Job's securing (Heydari et al. 2011)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sender - receiver personal relationship (Andrews & Delahaye 2000)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Sender - receiver work relationship (Andrews & Delahaye 2000)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ego, Self-actualisation (Lichtenstein & Hunter 2008)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Required sharing skills (Andrews & Delahaye 2000)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

From the above analysis of the individual related difficulties, it can be concluded that at least amongst the three investigated companies, the success of the knowledge transfer process depends mostly on capability, personality and attitude of the individuals who participate in the activities. The individual factors are from both sides including the one who transfers the knowledge and the one who receives the knowledge.

Similarly, from the transferees' side, the transfer process depends on the receivers in regards to:

- what and which type the knowledge they need,
- from whom they get knowledge,
- in what ways,
- if they are capable enough to absorb and apply it, and
- the ability to give appropriate feedback to the transferrers.

Organisation related difficulties

The previous section has analysed difficulties relating to the human resource aspect of the three companies. Lack of skilled staff who know willing and capable of sharing and receiving knowledge is crucial to the success of intra-organisational transfer process in small businesses (Burgess, Sellitto & Karanasios 2009; Holsapple & Joshi 2000). As outlined in Chapter 2, other difficulties with the knowledge transfer practice at the organisational level include the lack of clear knowledge transfer policies (Holsapple & Joshi 2000), sharing culture (Hendriks, PHJ 2004), insufficient motivational aids (Salleh & Wee-Keat 2002) and no appropriate measurement methods (Holsapple & Joshi 2000).

The success of knowledge transfer or any other activities are guided by related strategies or policies. In presenting data collected from the interviews in relation to Sub research question 1, with the exception of Company C3 where there were *some* forms of unwritten knowledge transfer policy; Company C1 and C2 did not have any clear guidelines to support their staff members to share knowledge. However, at C3, with the support and leadership of the management, the knowledge sharing practice was partly supported with certain forms of knowledge transfer policies. Furthermore, the knowledge share culture was created to provide the necessary environments (Communities of Practice) for the staff to exchange their experience.

Another organisation related difficulty is that, in the three companies, there was no motivation aid to trigger the employees to share their knowledge. There was also no specific method in motivating the employees to participate in the sharing process in both Company C2 and C3. Likewise, there were no appropriate measurement methods to assess the performance of the knowledge transfer practice at all three companies.

Table 5. 6 shows the organisation related difficulties with the knowledge transfer process across the three companies.

Table 5. 6 Findings on organisation related inhibitors across the cases

Organisation related inhibitors (Wong & Aspinwall 2005)	C1	C2	C3
Scarcity of skilled human resource (Burgess, Sellitto & Karanasios 2009; Holsapple & Joshi 2000)	☒	☒	☐
Lack of clear policies (Holsapple & Joshi 2000)	☒	☒	☐
Sharing culture (Hendriks, PHJ 2004)	☒	☒	☐
Insufficient motivational aids (Davenport, De Long & Beers 1998; Salleh & Wee-Keat 2002)	☒	☒	☒
No appropriate measurement methods (Davenport, De Long & Beers 1998; Holsapple & Joshi 2000)	☒	☒	☒

Technology related difficulties

Another group of difficulties with intra organisational knowledge transfer in small businesses is related to technology (Alavi & Leidner 2001). As outlined in Chapter 2, this group of factors consists of ICT policies (Alberghini, Cricelli & Grimaldi 2010), ICT applications (Fei 2011), ICT infrastructure (Pham, QT 2010) and ICT human resources (Burgess, Sellitto & Karanasios 2009).

Similar to policies for knowledge transfer, there was no clear policy for ICT in any of the cases. All three companies did not have specific budgets for ICT. In addition, there was no information on how ICT upgrades occurred, evidence of ICT policy, processes on how to assess ICT effectiveness, ICT human resource training plans, and so forth.

The three companies exhibited attributes of resource scarcity, especially human resources; but as outlined in Section 4.2, the staff members were skilful, at least in using basic ICT applications to get their tasks completed. This is particularly true in Company C2 and C3 as they mentioned that 'ICT skills' was one of the requirements in recruiting new employees.

From the results, the most common difficulties in terms of ICT in these three companies emerged from the use of applications. All three companies used basic office applications such as Word processing, Email, Accounting software and other tools such as Yahoo, Skype, Teamviewer, Dropbox, Google Drive, and so forth. Particularly, Company C1 was using accounting software, CRM, HRM and specialised service management software to support its after sales service. Furthermore, C3 applied the

simple concepts of Document Libraries, Knowledge map or Expert Locator to support the activities of sharing knowledge (as presented in Section 4.3). However, the common response was that they were not satisfied with their current ICT applications, particularly ICT applications to support the knowledge transfer practice.

In terms of ICT infrastructure, as outlined in Chapter 4, the researcher found no issue with this in all of the three selected companies.

Table 5. 7 summarise the technology related difficulties with the knowledge transfer practice at the three companies.

Table 5. 7 Findings on technology related difficulties across the cases

Technology related difficulties (Alavi & Leidner 2001)	C1	C2	C3
ICT policies (Alberghini, Cricelli & Grimaldi 2010)	☒	☒	☒
ICT applications (Fei 2011)	☒	☒	☒
ICT infrastructure (Pham, QT 2010)	☐	☐	☐
ICT human resources (Burgess, Sellitto & Karanasios 2009)	☒	☐	☐

Summary

This section has analysed the difficulties with the intra organisational knowledge transfer process in Company C1, C2 and C3. These difficulties were related to individuals who took part in the knowledge sharing process; organisations where the knowledge transfer took place and technology which provided tools to support the knowledge sharing. Table 5. 8 summarises the aggregated difficulties of transferring knowledge in the three companies.

Table 5. 8 Findings in relation to difficulties across the cases

	Inhibitors
Individual related difficulties	<p>Receiver’s side Need/Interest of knowledge Signal to the transferrers Ability to ask questions Ability to absorb (including language)/apply knowledge Ability to feedback to the transferrers Available resources such as time Sender - receiver personal relationship Sender - receiver work relationship</p> <p>Transfer’s side Afraid of responsibilities Information confidentiality Job’s securing Sender - receiver personal relationship Sender - receiver work relationship Ego/ Self-actualisation Required sharing skills</p>
Organisation related difficulties	<p>Scarcity of skilled human resource Lack of clear policies Sharing culture Insufficient motivational aids No appropriate measurement methods</p>
Technology related difficulties	<p>No specific ICT policy for knowledge transfer Lack of information on related knowledge transfer ICT applications ICT human resources</p>

5.6 Using ICT based methods to address knowledge transfer difficulties

This section discusses the data in relation to Sub question 5: To what extent can ICT be used to address knowledge transfer difficulties?

Opinions in regards to the roles of ICT in knowledge management and thus the knowledge transfer process vary among the researchers. Whilst some state that there is little or no relationship (Wilson 2002); others argue that ICT and knowledge management are closely related to each other (Holsapple 2005). However, ICT alone cannot deliver knowledge management. Rather, ICT plays an important role as an enabler, making knowledge management both more effective and more efficient (Rollett

2003). Ruggles (1997) suggests that ICT should be used as tool to enhance and enable the ability to generate knowledge, code knowledge to make knowledge available for others and transfer knowledge to decrease problems with time and space when communicating in organizations. With knowledge transfer, ICT is only the ‘backbone’ to enhance the activities of locating and transferring knowledge (Rhodes et al. 2008).

Table 5. 3 shows the ICT based methods used for transferring knowledge across the three companies. The usage of these methods for supporting the transfer of knowledge was presented in Chapter 4. Table 5. 8 summarises the difficulties the three companies were facing in transferring knowledge. In this section, the researcher attempts to address these difficulties (with the exception of technology related difficulties) with the ICT-based methods (in terms of check box) which were used by the three companies.

For example, one of the difficulties is that the transferrer is afraid of responsibilities over the information they have shared. In this case, senders are able to take the advantage of online systems to contribute their knowledge anonymously to their business community. Such systems include document libraries, knowledge bases, blogs, social network services, collaborative virtual workspaces, knowledge portal and video sharing. This recommendation is presented in Table 5. 9.

Another difficulty is information confidentiality. This happens when the sharer is afraid of the leaking of sensitive information to unexpected people. A clear knowledge management strategy which provides guidance on which types of knowledge are accessed (that is user’s permissions [including both publishing and retrieving], methods such as document management systems, knowledge bases and Who’s Who) can be used to overcome this difficulty.

Using a similar approach, given the brief descriptions of the methods as in Appendix 1: Brief explanation on knowledge transfer tools/ methods and the types of knowledge transfer difficulties in Table 5. 8, the summary of which ICT-based methods can be used to address which types of knowledge transfer difficulties is presented in Table 5. 9.

From Table 5. 9, there are some observations as follows:

- There are several difficulties which cannot be addressed using ICT-based knowledge transfer methods. These include difficulties coming from the ‘short-term’ working behaviours of the staff members which prevent them from sharing their knowledge; the required sharing skills of the transferrers; and the majority of the organisation related difficulties (except for scarcity of skilled human resource and sharing culture). These types of difficulties are highlighted in Table 5. 9.
- “Advanced search tools” cannot be used to address any of the mentioned difficulties. These tools are offered by most of the search engines to retrieve more concise information according to the key words/ syntaxes used by the people who are looking for information. Hence, this method is more suitable to identify knowledge. For better visual effects, this related column is also highlighted in Table 5. 9.
- ‘Video sharing” ICT based method refers to the ability to publish video content, either to a specific audience or the entire world. Hence, it only relates to the sender’s side to address certain difficulties. Similarly, the receiver related difficulties in relation to this method are also highlighted in Table 5. 9.

However, this requires further investigation in the practical small business environment to have an in-depth understanding of both positive and negative effects of each ICT based method in regards to different type of difficulties.

Table 5. 9 Using ICT based methods to address KT difficulties

	Document libraries leading to a DMS	Knowledge bases	Blogs	Social network services	Voice and VOIP	Advanced search tools	Building knowledge clusters	Expertise Locator/ Whos' Who	Collaborative Virtual Workspaces	Knowledge portal	Video sharing
Individual related difficulties											
Transfer's side											
Afraid of responsibilities	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Information confidentiality	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Securing jobs	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Short-term working attitudes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Tx-Rx personal relationship	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				
Tx-Rx work relationship	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				
Self-actualisation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
Available resources (eg time)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Required sharing skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Receiver's side											
Need/Interest of knowledge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Signal to the transferrers	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ability to ask questions	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ability to absorb (including language)/apply knowledge	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ability to give feedback to the transferrers	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Available resources (eg time)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Rx-Tx personal relationship	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Rx-Tx work relationship	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Organisation related difficulties											
Scarcity of skilled HR	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
Lack of clear policies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
The roles of Owner/Manager	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Sharing culture	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
Insufficient motivational aids	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				

5.7 Revised research conceptual framework

This section addresses Sub question 6: How can small businesses formulate and implement an ICT strategy for knowledge transfer?). The initial research conceptual framework (Figure 5. 1) was developed based on Shannon and Weaver's (1949) mathematical approach to communication and information given the key research question and literature review in Chapter 2. In this framework, the knowledge transfer process is simplified to examine how knowledge is transferred within the context of small businesses. Moreover, the knowledge process is also affected by many factors which are either organization related or technology related. However, research also indicates that the unique features of small businesses play a major role in shaping the ICT. Hence, it is expected that the interaction among these groups of factors impacts the transfer process and finally affects the benefits of small organizations.

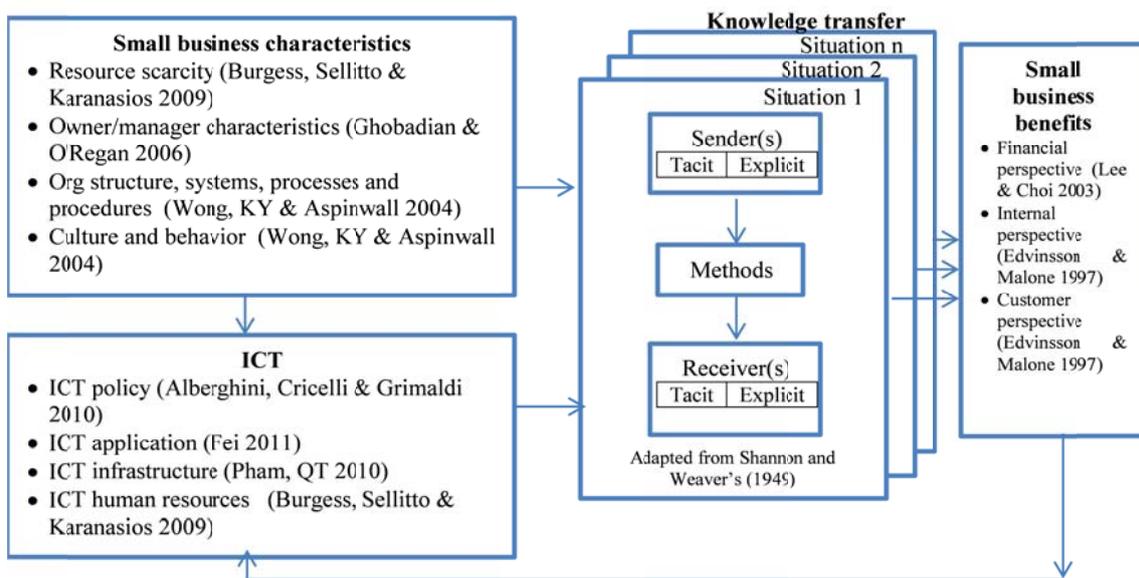
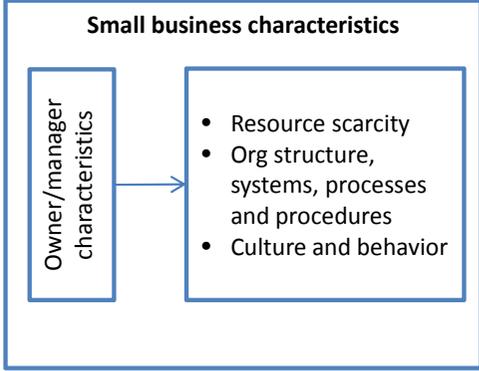
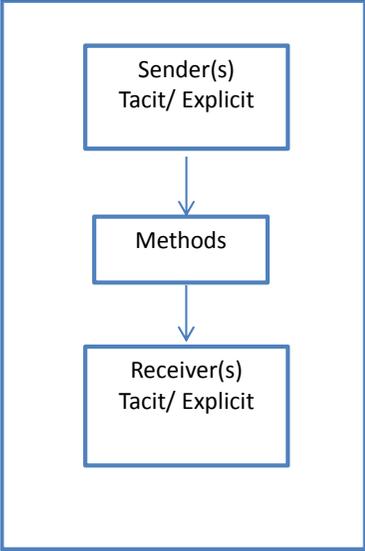
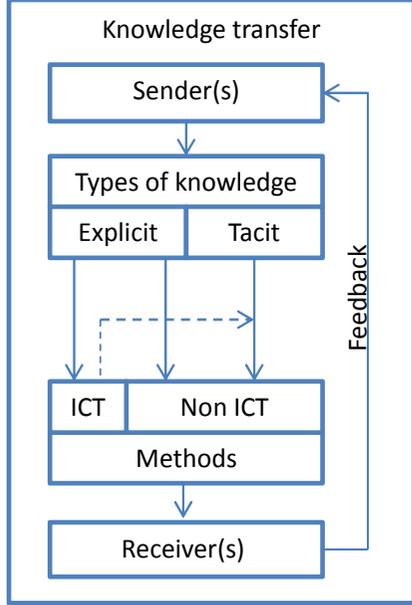


Figure 5. 1 Initial research conceptual framework

However, from the analysis of the collected data from the three companies as in Chapter 4 and Chapter 5, the following observations were found in relation to the research conceptual framework. In addition to the observation, the framework has been revised as described in Table 5. 10. Each row of the table describes the initial section of the framework, how it has been revised and finally provides the revised section of the framework.

Table 5. 10 Research conceptual framework revision

Initial framework	Observations	Revised framework
<p>Small business characteristics</p> <ul style="list-style-type: none"> • Resource scarcity (Burgess, Sellitto & Karanasios 2009) • Owner/manager characteristics (Ghobadian & O'Regan 2006) • Org structure, systems, processes and procedures (Wong, KY & Aspinwall 2004) • Culture and behavior (Wong, KY & Aspinwall 2004) 	<p>As outlined in section 5.2, the background of the owners/managers seems to have a significant impact on any strategic decisions in their small businesses. Hence, to stress the importance of the owner/ manager, the small business characteristic section of the framework is revised as in the right column.</p>	<p>Small business characteristics</p> 
	<p>As analysed in section 5.3, tacit knowledge is still mainly transferred by non-ICT methods, with explicit knowledge using a combination of methods. In addition, explicit knowledge is shared amongst staff members by both non-ICT and ICT methods.</p> <p>As outlined in section 5.3, it is necessary for the receivers to give appropriate feedback to the transferrers</p> <p>The knowledge transfer part of the framework is revised as in the right column.</p>	<p>Knowledge transfer</p> 

Initial framework	Observations	Revised framework
<p style="text-align: center;">ICT</p> <ul style="list-style-type: none"> • ICT policy (Alberghini, Cricelli & Grimaldi 2010) • ICT application (Fei 2011) • ICT infrastructure (Pham, QT 2010) • ICT human resources (Burgess, Sellitto & Karanasios 2009) 	<p>As outlined in section 5.5, ICT infrastructure does not seem to act as a difficulty to the knowledge transfer practice. However, this observation will need to be further investigated. Hence, the ICT part of the framework remains unchanged.</p>	<p style="text-align: center;">ICT factors</p> <ul style="list-style-type: none"> • ICT policy • ICT applications • ICT infrastructure • ICT human resource
<p style="text-align: center;">Small business benefits</p> <ul style="list-style-type: none"> • Financial perspective (Lee & Choi 2003) • Internal perspective (Edvinsson & Malone 1997) • Customer perspective (Edvinsson & Malone 1997) 	<p>As outlined in 4.3.2, the researcher failed to retrieve necessary information for each of the designed perspectives.</p> <p>Further, as mentioned in section 5.4, there was an increasing need for more concrete measurement methods/ indicators to evaluate the efficiency of their knowledge transfer practices.</p> <p>Hence, the small business benefits part of the framework, at the moment, can be renamed as in the right column.</p>	<p style="text-align: center;">Knowledge transfer performance assessment</p> <ul style="list-style-type: none"> • Financial perspective • Internal perspective • Customer perspective

With these observations, the research conceptual framework is revised as in Figure 5. 2.

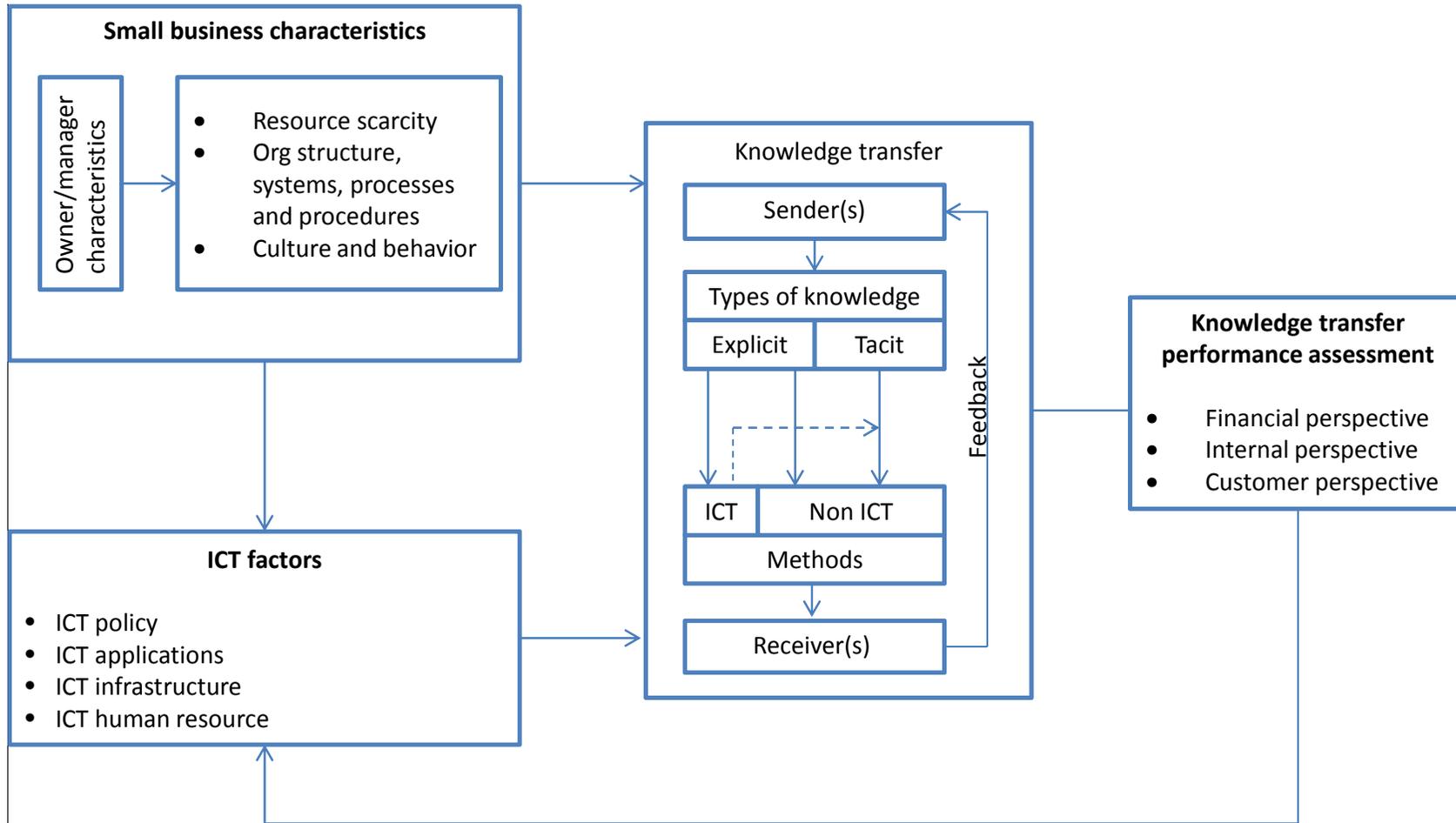


Figure 5. 2 Revised research conceptual framework

Chapter 6: Conclusion

6.1 Introduction

This research attempted to contribute input to knowledge by examining the roles of Information Communication Technologies (ICT) in small businesses. The key research question was “How and to what extent is ICT used as a component of the knowledge transfer process in small businesses?”.

The study was carried out by conducting fifteen semi-structured interviews with owners/manager and staff members in three small ICT companies in Vietnam. This was to examine how knowledge was transferred in small businesses. In addition, the study also aimed to study the benefits as well as difficulties that knowledge transfer provides to small businesses. The results were used to revise an ICT oriented knowledge transfer framework for small businesses. This revised framework could be used to assist small business owners/ managers to formulate and implement an ICT strategy for knowledge transfer.

This chapter starts with the intensive summary of research observations from the collected data in the three companies. It then addresses the contribution and limitations of the study and suggests future work from this research.

6.2 Summary of research observations

This section presents the summary of this researcher’s observations which were discussed in Chapter and Chapter 5.

Observation 1: Knowledge transfer policies in small businesses

As reviewed in Chapter 2 (Section 2.2.2), small businesses are characterised by simple planning and control systems with unclear policies. Knowledge management research in small businesses also indicates that a clear strategy is important for managing

knowledge (Pillania 2008; Wong & Aspinwall 2005). If small businesses are guided by supporting a knowledge management strategy, they will be able to identify, create, capture, store, transfer as well as apply the knowledge effectively for gaining better benefits (Alegre, Sengupta & Lapiedra 2011).

As observed in Chapter 4, while C3 did have some forms of knowledge transfer guidelines for its staff to perform basic activities such as documenting, searching, storing and transferring knowledge; there was almost no written knowledge transfer related strategy. With supporting strategies for sharing knowledge, C3 was perceived to experience greater benefits over C1 and C2. In addition, more methods (both non-ICT based and ICT based methods) were used by staff members at C3.

Although the literature review covered knowledge management in general, the importance of strategy in knowledge transfer in small businesses is also supported by the collected data from the three companies. This observation suggests that small business owners/ managers need to pay careful attention to having appropriate strategies for the knowledge transfer processes in their companies to assist them to achieve better benefits.

Observation 2: The size of the business, the nature of the jobs, the types of knowledge, and the methods for transferring

As outlined in Chapter 2, there are basically two types of knowledge: tacit knowledge and explicit knowledge (Nonaka & Takeuchi 1995). Explicit knowledge is the type of knowledge that can be codified and transmitted in systematic and formal languages. On the other hand, tacit knowledge is personal, context specific knowledge that is difficult to formalize, record, or articulate. It is stored in the 'heads' of people.

In terms of knowledge transfer methods, the Asian Productivity Organization (APO) suggests common tools and methods which are often used in knowledge management (Young 2010). These methods are grouped into two different categories, non-ICT based and ICT-based methods.

The collected data from the three companies in relations to the types of knowledge were grouped into company knowledge, product knowledge and individual/ specialised knowledge. From this research, it is observed that staff whose jobs require less flexibility need to have and handle more explicit types of knowledge. On the contrary, employees might need to have more tacit types of knowledge if their working procedures are more flexible.

Furthermore, from the analysis in Chapter 4, it seems that when small businesses grow or are a bit larger than most small businesses, there is likely to be some specialisation of tasks. This research also suggests that the size of the business can have an influence on the specialist nature of knowledge needed by individual employees.

In addition, this research also indicates that tacit knowledge was mainly transferred by non-ICT methods, with explicit knowledge being transferred via a combination of methods. In addition, explicit knowledge was shared among staff members by both non-ICT and ICT methods. Hence, depending on the types of knowledge, the senders and receivers of knowledge will select the methods which are suitable for them.

Observation 3: The effect of transferrer and transferee characteristics on the knowledge transfer process

As reviewed in Chapter 2, the outcome of the knowledge transfer process is affected by both the senders and receivers (Hendriks, PHJ 2004). Durst and Edvardsson (2012) claim that the current research focus is mainly on the sender's side of the knowledge transfer process. According to Lichtenstein and Hunter (2008), the beliefs, attitudes, intentions and behaviours of both the sharers and receivers impact on the effectiveness of the knowledge sharing practice.

This research suggested that from the transferrers' side, it is their decisions on what knowledge to transfer, if they want to transfer (actively or passively participate in the transfer process); to whom they transfer; how (which methods are used) to transfer, and finally if they are skilful enough to transfer knowledge effectively.

Similarly, from the transferees' side, the transfer process depends on the receivers in regards to what and which type of knowledge they need, from whom they get

knowledge, in what ways, if they are capable enough to absorb and apply it and the ability to provide appropriate feedback to the transferrers.

Observation 4: The need to have appropriate methods to assess the performance of the knowledge transfer practice

As mentioned in Chapter 2, knowledge is the important asset in organisations of all sizes. Knowledge, and hence the knowledge transfer process, play crucial roles in contributing to the overall organisational performance.

In examining the benefits which the knowledge transfer process provided to small businesses in this research, the researcher was not able to get the required information. As explained in Chapter 4, one possible reason was that for small businesses, knowledge management is still a new concept. Furthermore, there was no 'measurement' method, or knowledge performance index or any other similar tools in place for small businesses to reflect on its effectiveness.

In addition, the participants, especially the owners/ managers, all mentioned that they were need of an assessment method to evaluate the performance of the knowledge transfer practice at their organisations. The knowledge transfer performance measurement model needs to be practical, dedicated for small businesses. According to the participants, this is to provide necessary feedback of what they have been doing in relation to transferring knowledge. This feedback can then be used as inputs to revise/ improve the knowledge transfer practice.

6.3 Research contribution

This research contributed to knowledge via the interpretive/qualitative research approach by developing an understanding of the intra-organisation knowledge transfer practices in small businesses. As summarised in Section 2.7 of Chapter 2, there was a need to further develop a proper understanding of knowledge transfer in the small business context (McAdam & Reid 2001). This study examined the factors affecting the transfer of knowledge amongst the staff members of participating companies. These

factors came from the individuals participating in the process (that is, the senders and receivers of knowledge), the organisations where the activities of sharing knowledge are taken place, and the ICT which played an important role in enabling the knowledge transfer practice. These factors were discussed in detail in Chapter 5 and are summarised in Table 6. 1.

Table 6. 1 Knowledge gaps and findings

Gaps	Findings
Factors affecting the knowledge transfer process	<p>Individual related factors</p> <ul style="list-style-type: none"> • Senders • Receivers <p>Organisation related factors</p> <ul style="list-style-type: none"> • Owner/manager characteristics • Resource scarcity • Organisation structure, systems, processes and procedures • Culture and behaviour <p>Technology related factors</p> <ul style="list-style-type: none"> • ICT policy • ICT applications • ICT infrastructure • ICT human resource

Another gap was also identified in Section 2.7 of Chapter 2, which was the interaction among these groups of factors and their impact on the knowledge transfer process. The findings in relation to this gap were analysed in Chapter 5 and summarised in Table 5.10 as well as in Section 6.2 earlier. Furthermore, Chapter 2 also revealed the need to examine the link between intra-organizational knowledge transfer and organizational benefits. However, as stated in Observation 4 of Section 6.2 earlier, in examining the benefits which the knowledge transfer process provided to small businesses in this research, the researcher was not able to get the required information. This is obviously an area for future research work.

These findings were used to revise the research framework as in Figure 5.2. The development of the knowledge transfer framework for small businesses is also the unique empirical contribution of this study. This framework can be used as a practical

guide for developing the knowledge transfer policies. In detail, small businesses' owners/managers, employees and consultancy partners can take the following points into consideration when participating into the knowledge transfer process.

Knowledge is transferred between individuals. However, individuals are all different. Hence, it is expected that receivers of knowledge understand what and which type of knowledge they need, from whom they get knowledge, in what ways, if they are capable enough to absorb and apply it and if they have the ability to provide appropriate feedback to the transferrers. With senders, it is their decision as to what knowledge to transfer, if they want to transfer (that is, actively or passively participate into the transfer process); to whom they transfer; how (which methods to use) to transfer, and finally if they are skilful enough to transfer the knowledge effectively. Thus, in addition to the senders 'volunteering' to actively engage in the knowledge transfer activities, it is important for the receivers and the owners/managers to understand the natural behaviours of the knowledge owners to select suitable actions.

Furthermore, small business owners/ managers need to understand their crucial roles in providing the appropriate knowledge transfer environments to their employees. In addition to having understood the benefits which the knowledge transfer process provides to their organisations, they are expected to take into account the factors (as analysed in Chapter 5) affecting the outcomes of the process. The above mentioned points are also beneficial for consultancy partners in providing better support for their small business clients.

6.4 Research limitations

As outlined in Chapter 3, the first limitation resided in the case study method of this research. Only three IT retailer companies in Ho Chi Minh City were investigated, fifteen interviews in total. The sample size of three small businesses was not intended to give a generalised view on what is happening in the IT retailer industry. The findings were only the insights of the knowledge transfer practice in these three companies. However, the small sample size allowed the researcher to investigate in detail the practices of using ICT for knowledge transfer purpose in these three companies. Although there are some generic lessons suggesting that all businesses could benefit

from a more formal approach to knowledge transfer, the findings from this study indicate that even this small sample of small businesses did this in different ways depending on their available resources. Furthermore, small businesses are all different and are facing different issues in utilising their current ICT in transferring knowledge. Whilst the approaches might vary, the research framework generated from this study can provide most businesses with a structured manner in which to deal with the issues concerned.

Second, the decision to participating in the study depended solely on the owners/managers of the companies. Thus, it was possible that only companies with better ICT based management systems or at least with some forms of ICT applications wanted to be involved. Thus, there might have potential bias in regards to the characteristics of owners/managers which in return might have affected the findings. However, the researcher tried to overcome this limitation by following the revised research procedure in selecting the cases. In doing this, the researcher explained clearly the meaning of ICT to potential research respondents to minimize the resistance to participate. In addition, three companies of different sizes (and hence, available resources) also provided different stories in applying ICT to the transfer of knowledge. Furthermore, it was from the research results that the ICT artefacts which were used in these companies were so basic that they were expected to exist in most small businesses. Hence, the bias (if any) was minimised.

Lastly, the researcher used mainly semi-structured interviews to collect data. Thus, the results depended heavily on the cooperation of the people interviewed, their honesty, carefulness and willingness to reveal the reality about the topics being discussed. Furthermore, the research was also limited to the selected information/ company documents which were available to the researcher. This potential limitation was overcome by interviewing different staff members working in different positions in the selected companies. The interview transcripts were then analysed systematically and compared within each case and across the cases.

6.5 Future work

The following are some of the areas which can be investigated in the future.

One future research area is to test the research framework in a wider, small ICT retailer industry. In addition, it is also worthwhile carrying this study to other small business industries where they handle more tacit (or specialised) type knowledge. This might include small tourism enterprises, small logistic service providers or small auditing companies.

Another future research area, which the researcher is keen to undertake, is to develop a practical method for assessing the knowledge transfer practice of small businesses. In addition, this could also be further developed to measure the maturity level of the knowledge transfer practice within small businesses. Furthermore, such a method could also be used by small business owners/ managers to benchmark with other small businesses in the same industry for future necessary action.

Appendix 1: Brief explanation on knowledge transfer tools/ methods

Tools/ Methods	Brief explanation
Non-ICT based methods	
Brainstorming	A simple way of helping a group of people to generate new and unusual ideas
Learning and Idea capture	A process of documenting, or writing down explicitly, what individuals think that have learned or new ideas.
Peer assist	A technique used by a team to seek assistance from peers, experienced members or experts regarding a significant issue the team is facing
Learning reviews	A technique used by a team to aid team and individual learning during the work process
After Action review	A technique to evaluate and capture lessons learned upon completion of a project.
Story telling	Sharing of knowledge by a person with knowledge in a certain area for people with common interest.
Collaborative Physical Workspace	Providing a space/ physical environment where people feel comfortable in sharing stories.
Knowledge Management Assessment Tool	A survey questionnaire designed to help organizations conduct an initial and rapid assessment of its readiness for Knowledge Management (KM).
Knowledge café	A way to have a informal group discussion, to reflect, and to develop and share any thoughts and insights.
Communities of Practice	Groups of people who share a concern or a passion for something they do, and learn how to do it better as they interact regularly.
Taxonomy	A technique that provides the structure to organize information, documents, and libraries in a consistent way.
Knowledge worker competency plan	A personal competency plan for individuals to develop the critical skills required to become an effective knowledge worker
Knowledge mapping	A process by which organizations can identify and categorize knowledge assets within their organization—people, processes, content, and technology
KM maturity Model	A structured collection of elements that describes the different levels of KM maturity in an organization

Mentor/ mentee scheme	A work relationship between a senior and junior organizational member with an intentional agenda designed to transfer experience and learning.
ICT based methods	
Document libraries leading to a document management system	A library system to provide better information and document management.
Knowledge bases	An information repository that provides a means for information to be collected, organized, shared, searched and utilized
Blogs	A simple 'journal style' website that contains a list of entries, usually in reverse chronological order
Social network services	Social network services are online systems that support social networking (i.e. a social network is a group of people who share a common area of interest)
Voice and VOIP	A service for sending both audio and video signals between computers, using a broadband connection and some low-cost equipment, such as a webcam and a headset.
Advanced search tools	The use of advanced search tools that are offered by most of the search engines
Building knowledge clusters	Refer to different individuals, teams, and organizations who come together, virtually, on the Internet, to better communicate, collaborate, learn, and share knowledge through the cluster.
Expertise Locator/ Whos' Who	An ICT tool to enable effective and efficient use and/or share of existing knowledge by connecting people who need particular knowledge and people who own the knowledge.
Collaborative Virtual Workspaces	A online space/ environment (irrespective of where they are physically located) where people feel comfortable in sharing stories.
Knowledge portal	A portal containing structured information, knowledge networks and communities, discussion forums, and collaborative workspaces to better encourage, surface, and transfer knowledge
Video sharing	The ability to publish video content, either to a specific audience or the entire world

Source: adapted from (Young 2010)

Appendix 2: Interview protocol

Participant's background

Question 1: To begin, can you tell me about your background? (Employment; years of service; education level)

Knowledge transfer in small businesses

<p>Question 2: Can you describe how did you learn the following procedure? [PICK ONE]</p> <ul style="list-style-type: none">• Sales order checking (for accounting/admin staff)• Customer data searching (for sales staff)• Basic preventive maintenance (for technical staff)	<p>Question 3: And how about the following work practice? [PICK ONE]</p> <ul style="list-style-type: none">• Identifying/collecting bad debts (for accounting/admin staff)• Handling difficult customers (for sales staff)• Hardware/software trouble shooting (for technical staff)
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In knowledge management, there are three major stages in relation to how knowledge about conducting business processes is transferred between employees: learning how to carry out the task; the methods used to document the processes involved in carrying out the task; and documenting the task itself using these methods.

For Question 2 and 3, the following question will be used for following up

Question a: How did you learn about how to carry out the task?

Question b: What processes are currently in place to document how to carry out the task?

Question c: Do you document/ have you documented how to carry out the task? Please describe this process.

Question d: What role does ICT play in each of these stages of knowledge management? Can you provide examples of these?

Question e: How successful is the knowledge management process for documenting how this task is carried out? How do you measure success in this instance?

Knowledge transfer and ICT in general

Question 4: Please comment about the effectiveness of your knowledge management processes in general?

Question 5: Please comment about the effectiveness of ICT in regards to your knowledge management processes?

Question 6: Thinking of the current contribution of knowledge transfer to your company, what do you think your company can do to improve the use of ICT for knowledge transfer?

References

- Alavi, M & Leidner, D 1999, 'Knowledge Management Systems: Issues, Challenges, and Benefits', *Communications of the Association for Information Systems*, vol. 1:7.
- Alavi, M & Leidner, DE 2001, 'Review: Knowledge management and knowledge management systems: Conceptual foundations and research issues', *MIS Quarterly*, vol. 25, no. 1, p. 30.
- Alberghini, E, Cricelli, L & Grimaldi, M 2010, 'Implementing Knowledge Management Through IT Opportunities: Definition of a Theoretical Model Based on Tools and Processes Classification', *Proceedings of the European Conference on Intellectual Capital*, pp. 21-33.
- Alegre, J, Sengupta, K & Lapiedra, R 2011, 'Knowledge management and innovation performance in a high-tech SMEs industry', *International Small Business Journal*.
- Andrews, KM & Delahaye, BL 2000, 'Influences On Knowledge processes In Organizational Learning: The Psychosocial Filter', *Journal of Management Studies*, vol. 37, no. 6, pp. 797-810.
- Argote, L & Ingram, P 2000, 'Knowledge Transfer: A Basis for Competitive Advantage in Firms', *Organizational Behavior and Human Decision Processes*, vol. 82, no. 1, pp. 150-69.
- Bannock, G 2005, *The economics and management of small business : an international perspective*, Routledge, New York.
- Barba-Sánchez, V, Martínez-Ruiz, MP & Jiménez-Zarco, AI 2007, 'Drivers , Benefits and Challenges of ICT Adoption by Small and Medium Sized Enterprises (SMEs): A Literature Review', *Problems and Perspectives in Management*, vol. 5, no. 1, pp. 103-14.
- Bazeley, P 2007, *Qualitative data analysis with NVivo*, SAGE, Los Angeles.
- Becerra-Fernandez, I & Sabherwal, R 2010, *Knowledge management : systems and processes*, M.E. Sharpe, New York.
- Benbasat, I, Goldstein, DK & Mead, M 1987, 'The Case Research Strategy in Studies of Information Systems', *MIS Quarterly*, vol. 11, no. 3, pp. 369-86.
- Bhatt, GD 2002, 'Management strategies for individual knowledge and organizational knowledge', *Journal of Knowledge Management*, vol. 6, no. 1, pp. 31-9.

- Bhatt, GD & Grover, V 2005, 'Types of Information Technology Capabilities and Their Role in Competitive Advantage: An Empirical Study', *Journal of Management Information Systems*, vol. 22, no. 2, pp. 253-77.
- Bingley, S, Urwin, G, Hunter, MG & Burgess, S 2010, 'Website Development and use in CBOs: A Knowledge Management Perspective', *The International Journal of Interdisciplinary Social Sciences*, vol. 5, no. 5, pp. 327-38.
- Blackburn, R & Kovalainen, A 2009, 'Researching small firms and entrepreneurship: Past, present and future', *International Journal of Management Reviews*, vol. 11, no. 2, pp. 127-48.
- Bracci, E & Vagnoni, E 2011, 'Understanding Small Family Business Succession in a Knowledge Management Perspective', *IUP Journal of Knowledge Management*, vol. 9, no. 1, pp. 7-36.
- Brady, M, Saren, M & Tzokas, N 2002, 'Integrating Information Technology into Marketing Practice -- The IT Reality of Contemporary Marketing Practice', *Journal of Marketing Management*, vol. 18, no. 5/6, pp. 555-77.
- Bruque, S & Moyano, J 2007, 'Organisational determinants of information technology adoption and implementation in SMEs: the case of family and cooperative firms', *Technovation*, vol. 27, no. 5, pp. 241-53.
- Bryman, A 2008, *Social research methods*, 3rd edn, Oxford University Press, Oxford ; New York.
- Burgess, S 2002a, 'Information Technology in Small Businesses: Issues and Challenges', in S Burgess (ed.), *Managing Information Technology In Small Business - Challenges And Solutions*, Idea Group Publishing, Hershey PA, pp. 1-17.
- (ed.) 2002b, *Managing Information Technology In Small Business - Challenges And Solutions*, Idea Group Publishing.
- Burgess, S & Schauder, D 2002, 'Small Business E-Commerce Research: An Interpretivist Approach?', in A Wenn (ed.), *Skilling the e-Business Professional*, Heidelberg Press, Melbourne, Australia, pp. 105-23.
- Burgess, S, Sellitto, C & Karanasios, S 2009, *Effective Web Presence solutions for small businesses: strategies for successful implementation*, Information Science Reference.
- Burns, AT, Acar, W & Datta, P 2011, 'A qualitative exploration of entrepreneurial knowledge transfers', *Journal of Knowledge Management*, vol. 15, no. 2, pp. 270 - 98.
- Cantú, LZ, Criado, JR & Criado, AR 2009, 'Generation and transfer of knowledge in IT-related SMEs', *Journal of Knowledge Management*, vol. 13, no. 5, pp. 243-56.

- Carpenter, RE & Petersen, BC 2002, 'Is the growth of small firms constrained by internal finance?', *Review of Economics and Statistics*, vol. 84, no. 2, pp. 298-309.
- Cataldo, A, Sepúlveda, M & McQueen, RJ 2012, 'Exploring the IT Usage in SMEs from New Zealand, Colombia and Chile Using Action- Research Methodology', *Journal of Innovation Management in Small & Medium Enterprises*, pp. 1-8.
- Cavaye, ALM 1996, 'Case study research: a multi-faceted research approach for IS', *Information Systems Journal*, vol. 6, no. 3, pp. 227-42.
- Chen, S, Duan, Y, Edwards, JS & Lehaney, B 2006, 'Toward understanding inter-organizational knowledge transfer needs in SMEs: insight from a UK investigation', *Journal of Knowledge Management*, vol. 10, no. 3, pp. 6-23.
- Chesher, M & Skok, W 2000, 'Roadmap for successful information technology transfer for small businesses', paper presented to Proceedings of the 2000 ACM SIGCPR conference on Computer personnel research, Chicago, Illinois, USA.
- Chin Wei, C, Siong Choy, C & Geok Chew, G 2011, 'Inter-organizational knowledge transfer needs among small and medium enterprises', *Library Review*, vol. 60, no. 1, pp. 37-52.
- Churchill, NC, and Lewis, V. L. 1983, 'The Five Stages of Small Business Growth', *Harvard Business Review*, vol. 61, no. 3, p. 10.
- Chyau, C 2005, *Why Should Countries Embed ICT into SME Policy?*, UNDP.
- Colombo, MG, Croce, A & Grilli, L 2013, 'ICT services and small businesses' productivity gains: An analysis of the adoption of broadband Internet technology', *Information Economics and Policy*.
- Corbitt, BJ 2000, 'Developing intraorganizational electronic commerce strategy: an ethnographic study', *Journal of Information Technology*, vol. 15, no. 2, pp. 119-30.
- Corso, M, Martini, A, Pellegrini, L & Paolucci, E 2003, 'Technological and Organizational Tools for Knowledge Management: In Search of Configurations', *Small Business Economics*, vol. 21, no. 4, pp. 397-408.
- Cragg, PB & King, M 1993, 'Small-firm computing motivators and inhibitors', *MIS Quarterly*, vol. 17, no. 1, p. 14.
- Creswell, JW 1998, *Qualitative inquiry and research design: Choosing among five traditions*, SAGE Publications, London.
- 2007, *Qualitative inquiry & research design : choosing among five approaches*, 2nd edn, Sage Publications, Thousand Oaks.
- Curran, J & Blackburn, R 2001, *Researching the Small Enterprise*, SAGE Publications.

- d'Amboise, G & Muldowney, M 1988, 'Management Theory for Small Business: Attempts and Requirements', *Academy of Management Review*, vol. 13, no. 2, pp. 226-40.
- Dalkir, K 2011, *Knowledge Management in Theory and Practice*, Massachusetts Institute of Technology.
- Dandridge, TC 1979, 'Children are not "little grown-ups": Small business needs its own organisational theory', *Journal of Small Business Management*, vol. 17, no. 2, p. 5.
- Davenport, TH, De Long, DW & Beers, MC 1998, 'Successful Knowledge Management Projects', *Sloan Management Review*, vol. 39, no. 2, pp. 43-57.
- De Jarnett, L 1996, 'Knowledge the lastest thing', *Information Strategy, The Executives Journall*, vol. 12, no. 2, pp. 3-5.
- DeLone, WH 1988, 'Determinants of Success for Computer Usage in Small Business', *MIS Quarterly*, vol. 12, no. 1, p. 11.
- Desouza, KC & Paquette, S 2011, *Knowledge management : an introduction*, Facet, London.
- Dewett, T & Jones, GR 2001, 'The role of information technology in the organization: a review, model, and assessment', *Journal of Management*, vol. 27, no. 3, pp. 313-46.
- Drucker, P 1993, *Post-Capitalist Society*, Butterworth Heinemann, Oxford.
- Durst, S & Edvardsson, IR 2012, 'Knowledge Management in SMEs: A Literature Review', *Journal of Knowledge Management*, vol. 16, no. 6, pp. 3-34.
- Durst, S & Wilhelm, S 2011, 'Knowledge management in practice: insights into a medium-sized enterprise's exposure to knowledge loss', *Prometheus*, vol. 29, no. 1, pp. 23-38.
- Edvinsson, L & Malone, MS 1997, *Intellectual Capital: Realizing Your Company's True Value by Finding Its Hidden Brainpower*, HarperBusiness, New York.
- Ein-Dor, P & Segev, E 1978, 'Organizational context and the success of management information systems', *Management Science*, vol. 24, no. 10, p. 14.
- Fei, J 2011, 'An empirical study of the role of information technology in effective knowledge transfer in the shipping industry', *Maritime Policy & Management*, vol. 38, no. 4, pp. 347-67.
- Frey, RS 2002, 'Small business knowledge management success story—this stuff really works!', *Knowledge & Process Management*, vol. 9, no. 3, pp. 172-7.

- Ghobadian, A & Gallear, D 1997, 'TQM and organization size', *International Journal of Operations & Production Management*, vol. 17, no. 2, pp. 121-63.
- Ghobadian, A & O'Regan, N 2006, 'The Impact of Ownership on Small Firm Behaviour and Performance', *International Small Business Journal*, vol. 24, no. 6, pp. 555-86.
- Gorelick, C & Tantawy-Monsou, B 2005, 'For performance through learning, knowledge management is critical practice', *Learning Organization, The*, vol. 12, no. 2, pp. 125-39.
- Greiner, LE 1972, 'Evolution and Revolution as Organisations Growth', *Harvard Business Review*, vol. July-August, pp. 37-46.
- Guest, G, Bunce, A & Johnson, L 2006, 'How Many Interviews Are Enough?', *Field Methods*, vol. 18, no. 1, pp. 59-82.
- Hendriks, P 1999, 'Why Share Knowledge? The Influence of ICT on the Motivation for Knowledge Sharing', *Knowledge & Process Management*, vol. 6, no. 2, pp. 91-100.
- Hendriks, PHJ 2004, 'Assessing the role of culture in knowledge sharing', in *Fifth European Conference in Organisation, Knowledge, Learning and Capabilities (OKLC 2004)*, Innsbruk.
- Heydari, AR, Armesh, H, Behjatie, S & Manafi4, M 2011, 'Determinant of incentive factors in knowledge sharing', *Interdisciplinary Journal of Contemporary Research in Business*, vol. 3, no. 1, p. 14.
- Holsapple, CW 2005, 'The inseparability of modern knowledge management and computer-based technology', *Journal of Knowledge Management*, vol. 9, no. 1, pp. 42 - 52.
- Holsapple, CW & Joshi, KD 2000, 'An investigation of factors that influence the management of knowledge in organizations', *The Journal of Strategic Information Systems*, vol. 9, no. 2-3, pp. 235-61.
- Hooper, CN 1972, 'Defining "small business" in government programs', *Journal of Small Business Management*, vol. 10, no. 4, pp. 28-34.
- Huber, GP 1990, 'A Theory of the Effects of Advanced Information Technologies on Organizational Design, Intelligence, and Decision Making', *Academy of Management Review*, vol. 15, no. 1, pp. 47-71.
- Hunter, MG, Burgess, S & Wenn, A 2005, *Small Business and Information Technology: Research Techniques and International Case Studies*, Heidelberg Press, Victoria, Australia.

- Igbaria, M, Zinatelli, N, Cragg, P & Cavaye, ALM 1997, 'Personal Computing Acceptance Factors in Small Firms A Structural Equation Model', *MIS Quarterly*, vol. 21, no. 3, p. 27.
- Kharuddin, SMA, Zariyawati; Md Nassir, Annuar. 2010, 'Information System and Firms' Performance: The Case of Malaysian Small Medium Enterprises', *International Business Research*, vol. 3, no. 4, p. 8.
- Kilduff, M & Tsai, W 2003, *Social networks and organizations*, SAGE, Thousand Oaks, Calif.
- Kotelnikov, V 2007, *Small and Medium Enterprises and ICT*, United Nations Development Programme – Asia-Pacific Development Information Programme and Asian and Pacific Training Centre for Information and Communication Technology for Development, Bangkok.
- Kumar, JA & Ganesh, LS 2009, 'Research on knowledge transfer in organizations: a morphology', *Journal of Knowledge Management*, vol. 13, no. 4, pp. 161 - 74.
- Kuwayama, M 2001, *E-Commerce and export promotion policies for Small and Medium-Sized Enterprises: East Asian and Latin American Experiences*, International Trade and Integration Division, United Nations Publications, Santiago, Chile.
- Lee, H & Choi, B 2003, 'Knowledge Management Enablers, Processes, and Organizational Performance: An Integrative View and Empirical Examination', *Journal of Management Information Systems*, vol. 20, no. 1, pp. 179-228.
- Leenders, MAAM & Wierenga, B 2002, 'The effectiveness of different mechanisms for integrating marketing and R&D', *Journal of Product Innovation Management*, vol. 19, no. 4, pp. 305-17.
- Li Hong, L 2007, 'From Shannon-Weaver to Boisot: A Review on the Research of Knowledge Transfer Model', in *Wireless Communications, Networking and Mobile Computing, 2007. WiCom 2007. International Conference on*, pp. 5439-42.
- Lichtenstein, S & Hunter, A 2008, *Toward a Receiver-Based Theory of Knowledge Sharing*, Current Issues in Knowledge Management, IGI Global, USA.
- Lin, AC 1998, 'Bridging Positivist and Interpretivist Approaches to Qualitative Methods', *Policy Studies Journal*, vol. 26, no. 1, pp. 162-80.
- Louadi, ME 1998, 'The Relationship Among Organization Structure, Information Technology and Information Processing in Small Canadian Firms', *Canadian Journal of Administrative Sciences / Revue Canadienne des Sciences de l'Administration*, vol. 15, no. 2, pp. 180-99.
- Maier, R 2004, *Knowledge Management Systems*, Springer, Berlin.

- Mason, J 2002, *Qualitative researching*, 2nd edn, SAGE, London.
- McCall, HVSG 2008, 'Use of Knowledge Management Systems and the Impact on the Acquisition of Explicit Knowledge', *Journal of Information Systems*, vol. 22, no. 2, pp. 77-101.
- McFarlan, FW 1984, 'Information technology changes the way you compete', *Harvard Business Review*, vol. 62, no. 3, pp. 98-103.
- Mintzberg, H 1979, *The Structuring of Organization*, Prentice-Hall, Englewood Cliffs, NJ.
- Modimogale, L & Kroeze, JH 2011, 'The Role of ICT within Small and Medium Enterprises in Gauteng', *Communications of the IBIMA*, vol. 2011.
- Moffett, S & McAdam, R 2006, 'The effects of organizational size on knowledge management implementation: Opportunities for small firms?', *Total Quality Management & Business Excellence*, vol. 17, no. 2, pp. 221-41.
- Mohamed, M, Stankosky, M & Murray, A 2006, 'Knowledge management and information technology: can they work in perfect harmony?', *Journal of Knowledge Management*, vol. 10, no. 3, pp. 103-16.
- Mohd Sam, MF, Hoshino, Y & Hayati Tahir, MN 2012, 'The Adoption of Computerized Accounting System in Small Medium Enterprises in Melaka, Malaysia', *International Journal of Business & Management*, vol. 7, no. 18, pp. 12-25.
- Molnar, Z, Nguyen, HH, Homolka, L & Macdonald, RJ 2011, 'Knowledge Management as a solution for the shortage of competent employees in SMEs at the developing country (Case study: Vietnam)', *Journal of Systems Integration*, vol. 2, no. 3, pp. 38-46.
- Montazemi, AR 1988, 'Factors Affecting Information Satisfaction in the Context of the Small Business Environment', *MIS Quarterly*, vol. 12, no. 2, p. 18.
- Myers, MD 1997, 'Qualitative Research in Information Systems', *MIS Quarterly*, vol. 21, no. 2, pp. 241-2.
- Najafi, M & Goodarzi, T 2012, 'Information technology as accelerator of knowledge management practice in SMEs supply chain', *Interdisciplinary Journal of Contemporary Research in Business*, vol. 4, no. 4, pp. 571-83.
- Neve, TO 2003, 'Right Questions to Capture Knowledge', *Electronic Journal of Knowledge Management*, vol. 1, no. 1, p. 8.
- Nguyen, TH 2009, 'Information technology adoption in SMEs: An integrated framework', *International Journal of Entrepreneurial Behaviour and Research*, vol. 15, no. 2, pp. 162-86.

- Nonaka, I 1991, 'The Knowledge-Creating Company', *Harvard Business Review*, vol. 69, no. 6, pp. 96-104.
- 1994, 'A Dynamic Theory of Organizational Knowledge Creation', *Organization Science*, vol. 5, no. 1, pp. 14-37.
- Nonaka, I & Takeuchi, H 1995, *The Knowledge Crating Company: How Japanese Companies create the Dynamics of Innovation*, Oxford University Press, New York.
- Nurach, P, Thawesaengskulthai, D & Chandrachai, A 2012, 'Factors That Improve the Quality of Information Technology and Knowledge Management System for SME(s) in Thailand', *China-USA Business Review*, vol. 11, no. 3, pp. 359-67.
- OECD 2002, *OECD Small and Medium Enterprise Outlook 2002* OECD Publishing, Paris.
- Orlikowski, WJ & Baroudi, JJ 1991, 'Studying Information Technology in Organizations: Research Approaches and Assumptions', *Information Systems Research*, vol. 2, no. 1, pp. 1-28.
- Patton, MQ 2002, *Qualitative research and evaluation methods*, SAGE Publications, London.
- Peterson, RA, Albaum, G & Kozmetsky, G 1986, 'The public's definition of small business', *Journal of Small Business Management*, vol. 24, no. 3, p. 63.
- Pham, QT 2010, 'Measuring The ICT Maturity Of SMEs', *Journal of Knowledge Management Practice*, vol. 11, no. 1.
- Pham, TBN 2008, 'Intra-organizational knowledge transfer process in Vietnam's Information Technology companies', Doctor of Economics and Social Sciences thesis, the University of Fribourg.
- Pillania, RK 2008, 'Strategic issues in knowledge management in small and medium enterprises', *Knowledge Management Research and Practice*, vol. 6, no. 4, pp. 334-8.
- Polanyi, M 1967, *The tacit dimension*, Routledge & K. Paul, London.
- Poon, S & Huang, XC 2004, 'E-commerce and SMEs: a reflection and the way ahead', in N Al-Qirim (ed.), *Electronic commerce in Small to Medium-Sized Enterprises: Frameworks, Issues and Implications*, Idea Group, Hershey, PA, USA, pp. 17-30.
- Porter, ME 1996, 'What is strategy?', *Harvard Business Review*, vol. 74, no. 6, pp. 61-78.
- 2001, 'Strategy and the Internet', *Harvard Business Review*, vol. 79, no. 3, pp. 62-78.

- Porter, ME & Millar, VE 1985, 'How information gives you competitive advantage', *Harvard Business Review*, vol. 63, no. 4, pp. 149-60.
- Premkumar, G 2003, 'A Meta-Analysis of Research on Information Technology Implementation in Small Business', *Journal of Organizational Computing & Electronic Commerce*, vol. 13, no. 2, pp. 91-121.
- Quintas, P, Lefrere, P & Jones, G 1997, 'Knowledge management: a strategic agenda', *Journal of Long Range Planning*, vol. 30, no. 3, pp. 385-91.
- Raymond, L 1985, 'Organizational Characteristics and MIS Success in the Context of Small Business', *MIS Quarterly*, vol. 9, no. 1, p. 16.
- Rhodes, J, Hung, R, Lok, P, Lien, BY-H & Wu, C-M 2008, 'Factors influencing organizational knowledge transfer: implication for corporate performance', *Journal of Knowledge Management*, vol. 12, no. 3, pp. 84-100.
- Robert, P, Mario, R & Denis, S-J 2007, 'A systems-based dynamic knowledge transfer capacity model', *Journal of Knowledge Management*, vol. 11, no. 6, pp. 81-93.
- Robins, SP 1996, *Organisational Behavior*, Prentice-Hall International Inc.
- Rollett, H 2003, *Knowledge Management: Processes and Technologies*, Kluwer Academic Publishers, London.
- Ruggles, R 1997, *Knowledge Management Tools (Resources for the Knowledge-Based Economy)*, Butterworth-Heinemann, Newton, MA.
- Ryan, GW & Bernard, HR 2003, 'Techniques to Identify Themes', *Field Methods*, vol. 15, no. 1, pp. 85-109.
- Salleh, Y & Wee-Keat, G 2002, 'Managing human resources toward achieving knowledge management', *Journal of Knowledge Management*, vol. 6, no. 5, pp. 457-68.
- Serenko, A, Bontis, N & Hardie, T 2007, 'Organizational size and knowledge flow: a proposed theoretical link', *Journal of Intellectual Capital*, vol. 8, no. 4, p. 18.
- Skyrme, D & Amidon, D 1997, 'The Knowledge Agenda', *Journal of Knowledge Management*, vol. 1, no. 1, pp. 27-37.
- Smith, E 2001, 'The role of tacit and explicit knowledge in the workplace', *Journal of Knowledge Management*, vol. 5, no. 4, pp. 311 - 21.
- Stake, RE 1995, *The art of case study research*, Sage Publications, Thousand Oaks, Calif.
- Street, CT & Meister, DB 2004, 'Small business growth and internal transparency: the role of information systems', *MIS Quarterly*, vol. 28, no. 3, p. 34.

- Szulanski, G 2000, 'The Process of Knowledge Transfer: A Diachronic Analysis of Stickiness', *Organizational Behavior and Human Decision Processes*, vol. 82, no. 1, pp. 9-27.
- Thong, JYL 1999, 'An Integrated Model of Information Systems Adoption in Small Businesses', *Journal of Management Information Systems*, vol. 15, no. 4, p. 29.
- Thong, JYL & Yap, C 1995, 'CEO Characteristics, Organizational Characteristics and Information Technology Adoption in Small Businesses', *International Journal of Management Science*, vol. 23, no. 4, p. 14.
- Thong, JYL, Yap, CS & Raman, KS 1996, 'Top Management Support, External Expertise and Information Systems Implementation in Small Businesses', *Information Systems Research*, vol. 7, no. 2, p. 20.
- Trauth, EM (ed.) 2001, *Qualitative research in IS: issues and trends*, Idea Group Publishing, London.
- Van Wijk, R, Jansen, JJP & Lyles, MA 2008, 'Inter- and Intra-Organizational Knowledge Transfer: A Meta-Analytic Review and Assessment of its Antecedents and Consequences', *Journal of Management Studies*, vol. 45, no. 4, pp. 830-53.
- Varintorn, S, Nazrul, I & Uday, K 2009, 'Influence of SME characteristics on knowledge management processes: The case study of enterprise resource planning service providers', *Journal of Enterprise Information Management*, vol. 22, no. 1, pp. 63-80.
- Veal, AJ 2005, *Business research methods : a managerial approach*, 2nd edn, Pearson Addison Wesley, South Melbourne.
- Vinten, G 1999, 'Corporate Communications in Small - and Medium-Sized Enterprises', *Industrial and Commercial Training*, vol. 31, no. 3, pp. 112-9.
- Wang, S & Cheung, W 2004, 'E-Business Adoption by Travel Agencies: Prime Candidates for Mobile e-Business', *International Journal of Electronic Commerce*, vol. 8, no. 3, pp. 43-63.
- Welsh, JA & White, JF 1981, 'A small business is not a little big business', *Harvard Business Review*, vol. 59, no. 4, p. 10.
- Whyte, G & Classen, S 2012, 'Using storytelling to elicit tacit knowledge from SMEs', *Journal of Knowledge Management*, vol. 16, no. 6, pp. 950-62.
- Wickert, A & Herschel, R 2001, 'Knowledge-management issues for smaller businesses', *Journal of Knowledge Management*, vol. 5, no. 4, pp. 329 - 37.
- Wilson, TD 2002, 'The nonsense of "knowledge management"', *Information Research*, vol. 8, no. 1, p. 33.

- Winter, S 2003, 'Understanding dynamic capabilities', *Strategic Management Journal*, vol. 24, no. 10, pp. 991-5.
- Wong, KY & Aspinwall, E 2004, 'Characterizing knowledge management in the small business environment', *Journal of Knowledge Management*, vol. 8, no. 3, pp. 44-61.
- 2005, 'An empirical study of the important factors for knowledge-management adoption in the SME sector', *Journal of Knowledge Management*, vol. 9, no. 3, pp. 64 - 82.
- Yap, C, Soh, C & Raman, K 1992, 'Information systems success factors in small business', *Omega*, vol. 20, no. 5, p. 13.
- Yesseleva, M 2012, 'Small-and medium-sized enterprises: Data sources in Australia', *Global Journal of Business Research (GJBR)*, vol. 6, no. 2, pp. 83-92.
- Yin, RK 2003, *Case study research : design and methods*, Sage Publications, Thousand Oaks.
- Young, R (ed.) 2010, *Knowledge Management Tools and Techniques Manual*, Asian Productivity Organization, UK.
- Yusof, SM & Aspinwall, E 2000, 'TQM implementation issues: review and case study', *International Journal of Operations & Production Management*, vol. 20, no. 6, pp. 634-55.