

**COLLABORATIVE SUPPLY CHAIN
PRACTICES: TAIWANESE COMPANIES IN
CHINA**

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TAIWANESE COMPANIES IN CHINA**

A thesis submitted for the Degree of Doctor of Philosophy

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DECLARATION OF AUTHENTICITY

This thesis is submitted in fulfilment of the requirements of the Degree of Doctor of Philosophy at the University of Stirling.

This work has been conducted exclusively by my own research. The work of which it is a record has been performed by myself, and all sources of information have been specifically acknowledged by references.

I have presented a paper from this thesis at peer-reviewed Ph.D. workshop in the 12th International Federation of Purchasing & Supply Management (IFPSM), summer school on advanced purchasing.

.....
Ya Ling Tsai

Date.....

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ABSTRACT

The aim of this research is to investigate collaborative supply chain practices between Taiwanese and Chinese companies. To that end, we seek to address four main objectives: 1) to investigate and provide evidence of collaboration in supply chain management; 2) to evaluate supplier development within supply chain collaboration; 3) to investigate the internal processes of supply chain collaboration; and 4) to examine the outcomes of supply chain collaboration.

To explore collaboration in supply chain management, we conduct an extensive review of the state of the art in collaborative supply chain, and we base our investigations and discussions on three real-life companies that practice collaborative supply chain methods in the target countries. Each study contains detailed information on each company, including the company's background, history, culture, marketing strategy and their collaborative practices. We employ pattern-matching structures to analyse current collaborative practices, which allows us to determine the similarities and differences between theoretical collaboration and collaborative supply chain in practice.

We have analysed both the literature and collaborative methodologies used by the companies in each case study, and we have identified a number of key findings that address each of the four research objectives. On one hand there is evidence to support the use of collaboration in supply chain management between Taiwanese and Chinese companies. However, to increase collaboration, we propose agreements between the countries and identification of key suppliers. On the other hand, dominant and powerful partners may prevent good collaboration within the supply chains. Therefore, in order to create an open minded and collaborative culture, we propose greater trust between Taiwanese buyers and Chinese and Taiwanese suppliers. The value in collaborative supply chain can then be realised, which has a positive impact on the business in terms of increasing competitive advantage and customer satisfaction. In addition, such collaborative practices provide the motivation for collaborative supply chain management between Taiwanese buyers and Chinese and Taiwanese suppliers.

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Chapter One

Introduction

1.0 Introduction

This chapter aims, firstly, to characterise the motivation for this study, and then introduce the research background. Next, it brings in the research problems that were suggested by scholars around the research theme and defines the aim of this study. The research aim and objectives are explained in the next section. Finally, there is an overview of the structure of this thesis.

1.1 Motivation for the study

The enthusiasm for this study is due to Wen-Long Shi, who is a Taiwanese businessman and the founder of Chi Mei Corporation. He asked why; when his company's customers request a service, their suppliers, including his own company, do not collaborate to help to create new products that make more market opportunities. This enlightened businessman suggested that suppliers who provide materials should collaborate, and developed a great interest in the field of supply chain management focussing on supply chain collaboration.

The other motivation is the author's curiosity about how Taiwanese technology industrial manufacturers collaborate in the chain of supply. Taiwanese companies

are famous for their strong supply chain team in manufacturing high-technology products in the world. Recently, Taiwanese companies have invested in China because China is set to be a popular market. This study starts to combine the businessman's suggestion on supply chain collaboration with the framework of Taiwanese companies operations in China. Furthermore, the study will seek to view the supply chain collaboration of Taiwanese companies in China from the perspective of Western academic philosophy in order to develop a greater understanding of this collaboration.

The follow section discusses the background of the research and explores the resulting research problems leading to the main research objective for this study.

1.2 The background of the research

The background of the research is divided into two parts. Firstly, there is an exploration of supply chain management and supply chain collaboration based on a review of the academic literature. The second phase examines the Taiwanese companies operating in China and wishing to engage in supply chain collaboration.

Supply chain management as developed from the mid-1960s to the mid-1990s paid more attention to logistics and purchasing within the supply chain channel (Kampstra *et al.*, 2006). It engaged in activities from the raw materials resources

collection to manufactured goods, order communication and management, products warehousing and the delivery path, and the final customer satiation (Lummus and Vokurka, 1999).

Supply chain management involves operations like sourcing, products, delivery, and the information systems linking the supply channel participants (Serve *et al.*, 2002).

The purpose of supply chain management is to reduce costs, introduce innovative products, make the operations run smoothly, meet uncertain demand with rapidly delivery and the satisfy customers in order to increase revenue, allowing businesses to confront the competitive market.

Moreover, regarding hardware facilities, supply chain management uses high-tech systems in their operations to fit in with the internet age. Still, the software facilities depend on the suppliers, manufacturers, distributors, and customers' working circumstances. Those participants, including suppliers, manufacturers, distributors and customers, started to align the supply channel processes and develop tactical co-operation among national and international supply chain management. Hence, the alignment is from the upstream and downstream abilities for the whole supply chain partners in order to create value for the customers (Harrison and van Hoek, 2002).

Furthermore, the business firms integrate the whole supply chain resources and need to co-ordinate their supply chain partners. To develop this, all the supply chain

partners find that collaboration is a significant factor in allowing them to affect the whole supply chain channel (McLaren *et al.*, 2002, Simatupang and Sridharan, 2005b).

Collaboration has had a position within supply chain management and it has also been related to buyers and suppliers' organisations since the 1990s. A simple description of collaboration is for two or more firms to work together to achieve their aim (Simatupang and Sridharan, 2002). Moreover, Bititci *et al.* (2004, p.252) state that:

“Accordingly, value creation in collaborative organisations should be a win-win-win situation for all parties concerned”.

They pointed out that the motivation to collaborate arises from economic advantages in favour of the supply chain partners, from the suppliers to the buyers and the final customers. Collaboration integrates operations in order to co-ordinate different firms but they must be aligned in the supply chain and need to understand more about the firms within supply chain channel.

As a consequence, after recognizing the important role of collaboration within supply chain management, it is then important for individual firms to revise their decision-making processes, such as collaborative types, internal and external operations and technological development, as these will also influence their goal of supply chain collaboration.

As Wilding and Humphries (2006, p.313) pointed out:

“it is also possible for collaborative enterprise to bring operational advantages in the longer term as the partners become more effective as they develop through prior experience and active management of the learning process”.

The appearance of supply chain collaboration has produced effective supply chain operations but it is also important to learn from one’s collaborative partners in order to create intensely collaborative relationships with them.

Without doubt, the major point is buyers and suppliers’ relationship within the supply chain collaboration, which relates to trust and commitment, to form a good network in order to attain the value of collaboration. Perhaps a powerful buyer or supplier can control the supply chain collaboration but also needs to become aware of the supplier development within the supply chain channel. In addition, the suppliers and suppliers on horizontal collaboration may be a new concept for supply chain collaboration but possibly will bring other challenges for the supply chain partners.

This discussion of supply chain collaboration from the academic perspective lends a context to the second section exploring the supply chain collaboration of Taiwanese companies in China. Taiwanese companies first entered China in the 1970s and 1980s but in the early 1990s had begun direct selling from Taiwan to China in main industries (Yeung, 2003). Since 1997, China has opened up its business policies

through its entry to the World Trade Organization (WTO), after which many companies transferred their investment to China.

Taiwanese industrialists anticipated developing the Chinese market through their advantages of language and similar cultural background. Taiwanese companies explored their enormous market in China and their operation systems developed an “*enclave*” scheme (Hsu, 2006). This was a very big opportunity and was more flexible; Taiwanese companies were not only cooperating with their previous Taiwanese supplier partners, who had followed them into China but cooperated with their local Chinese suppliers to extend their product lines. By doing this, they sought to meet local demand and be competitive in the new market.

From this perspective, the Taiwanese suppliers can be seen as becoming vital to China’s need to discover and broaden the ability to meet local demand and be competitive in the new market. Moreover, the industry consists of many companies, each with their own intelligence to be the other company’s suppliers and to link to their supply channel to cope with the changeable surroundings. In other words, the industrial system has to govern the inter-firm relations and mechanisms. Taiwan’s technology industry comes from the individual innovative firm itself, and also from the collective capability of the industrial system (Berger and Lester, 2005).

The literature review covers the “how” and “what” of the significance of supply chain collaboration; the intention is then to explore the “how” and “what” of the way that Taiwanese companies operate supply chain collaboration in China. This will require a study to examine the supply chain collaboration operations and the supplier development between Taiwanese and Chinese suppliers. In addition to this, it is necessary to realize the Taiwanese and Chinese suppliers’ values and motivation in order to respond to their Taiwanese buyers and how these modify their purchase behaviour to influence their Chinese suppliers. The questions these raise are very significant for the supply chain collaboration model for Taiwanese companies in China. Therefore, these questions will be the basis of research to more fully understand supply chain collaboration.

1.3 Statement of the problem and the research objectives

The aim of this study is to understand the supply chain collaboration of Taiwanese companies in China and make a contribution to the field of supply chain collaboration. The study will focus its attention on the nature and type of supply chain collaboration that is being practiced by Taiwanese companies in China. This will be achieved through empirical research into supply chain collaboration by Taiwanese companies in China.

In the past some Taiwanese customers would not buy “made in China” products, especially laptops, as they did not trust the quality of Chinese workmanship, even when the company producing the goods was a Taiwanese company. Recently, the situation has changed rapidly and products “made in China” are now found all over the world. The reason is Taiwanese companies have educated their Chinese employees and suppliers on quality control management and efficient supply chain collaboration in China.

On the other hand, successful supply chain collaboration needs collaborative partners that understand each other and work together in order to suit the customers’ requirements in advance so that can get more benefits and be competitive (Simatupang and Sridharan, 2005a). When firms undertake collaboration, it is vital that they understand each other, but even though Taiwanese and Chinese companies have similar cultural backgrounds, gaps in their understanding of each other are still apparent.

Despite a common language, values and business practice there may be issues over linking buyers and suppliers. There is potential for mutually beneficial collaboration but to what extent is this being realised? What are the issues surrounding collaborative relationships in the supply chain and how can collaboration be strengthened? By exploring current practice in supply chain collaboration, insight

may gained into the development of successful chain collaboration and the issues that may present them from reaching their potential in delivering benefit to all partners. Therefore the following research questions will be addressed:

Q1: How does supply chain collaboration work for Taiwanese companies in China?

Q2: What is the supplier development between Taiwanese and Chinese suppliers within supply chain collaboration in China?

Q3: How do Chinese suppliers' organisations respond to the Taiwanese buyers and suppliers in China?

Q4: How do Taiwanese organisations as buyers understand the Taiwanese and Chinese suppliers' motivation in China?

The critical issue is the position of individual firms within the supply chain collaboration and the challenge of collaboration. The question is how they collaborate with their supply chain partners. Therefore, to achieve the overall aim of this thesis, the following research objectives have been identified and the concept of the research is shown on figure 1.1:

- Objective One : To provide empirical evidence on supply chain collaboration
- Objective Two: To evaluate supplier development within supply chain collaboration
- Objective Three: To investigate the internal processes of supply chain

collaboration

- Objective Four : To examine the outcomes of supply chain collaboration

Initially, this research needs to find out the factors that help the Taiwanese and Chinese companies to work together, and then better understand the reasons why the supplier chain partners may not wish to collaborate with each other or the problems related to supply chain collaboration that mean that it cannot operate successfully. This research will then review the key points to successful supply chain collaboration and develop recommendations.

In addition to this, the firms may seek new collaboration partners, the cheapest resources for their products, and to create new markets. In the global competitive environment, firms pay more attention to the added value from the global supply chain which reduces the lead-time, just-in-time and the relationship with suppliers to allow firms to be stable in the global market. Most of the literature on supply chain collaboration is from the buyer perspective, but there is a paucity of material from the supplier perspective. According to Krause and Ellram (1997):

“Supplier development is important from at least three perspectives: a purchasing perspective, a corporate perspective, and more generally, a national perspective” (Krause and Ellram, 1997, p.22).

One of the research objectives is to discuss the suppliers’ development from the perspective of both Taiwanese and Chinese suppliers in order to evaluate supply

chain collaboration; this relates to research question two. It is necessary to understand the suppliers' development and appreciate the different types of supply chain collaboration. In addition to this, it is necessary to appreciate the buyer and supplier relationships, suppliers' management and the supplier and supplier associations.

Nevertheless, this research focuses not only on collaboration in the supply chain channel but also investigates the supply chain operations processes. The reason is basically to use the supply chain processes to determine the factors in supply chain collaboration. In other words, it is a kind of internal assessment for supply chain collaboration; this is very important for Chinese suppliers to allow them to respond to their Taiwanese buyers and suppliers. When Chinese suppliers know how to operate their internal processes within supply chain collaboration, they can work more effectively with Taiwanese buyers and suppliers.

The question is what is the real value for different supply chain collaborative partners and how can this value be maintained in a long-term collaboration relationship. This information could assist in understanding the motivation of Taiwanese and Chinese suppliers to do supply chain collaboration for their Taiwanese buyers in China.

This study is to make a contribution to the field of supply chain collaboration. This research is expected to show that not only can supply chain collaboration play a significant role in team work but that it can also generate innovation between the internal and external supply chain in order to get more value from supply chain collaboration.

All in all, the four objectives of this research are to provide a detailed study about supply chain collaboration and develop findings about supply chain collaboration to contribute to both academia and practice. The Taiwanese companies' buyer operations model in China and their supply chain collaboration can serve as an illustrative example for those who would like to invest in China.

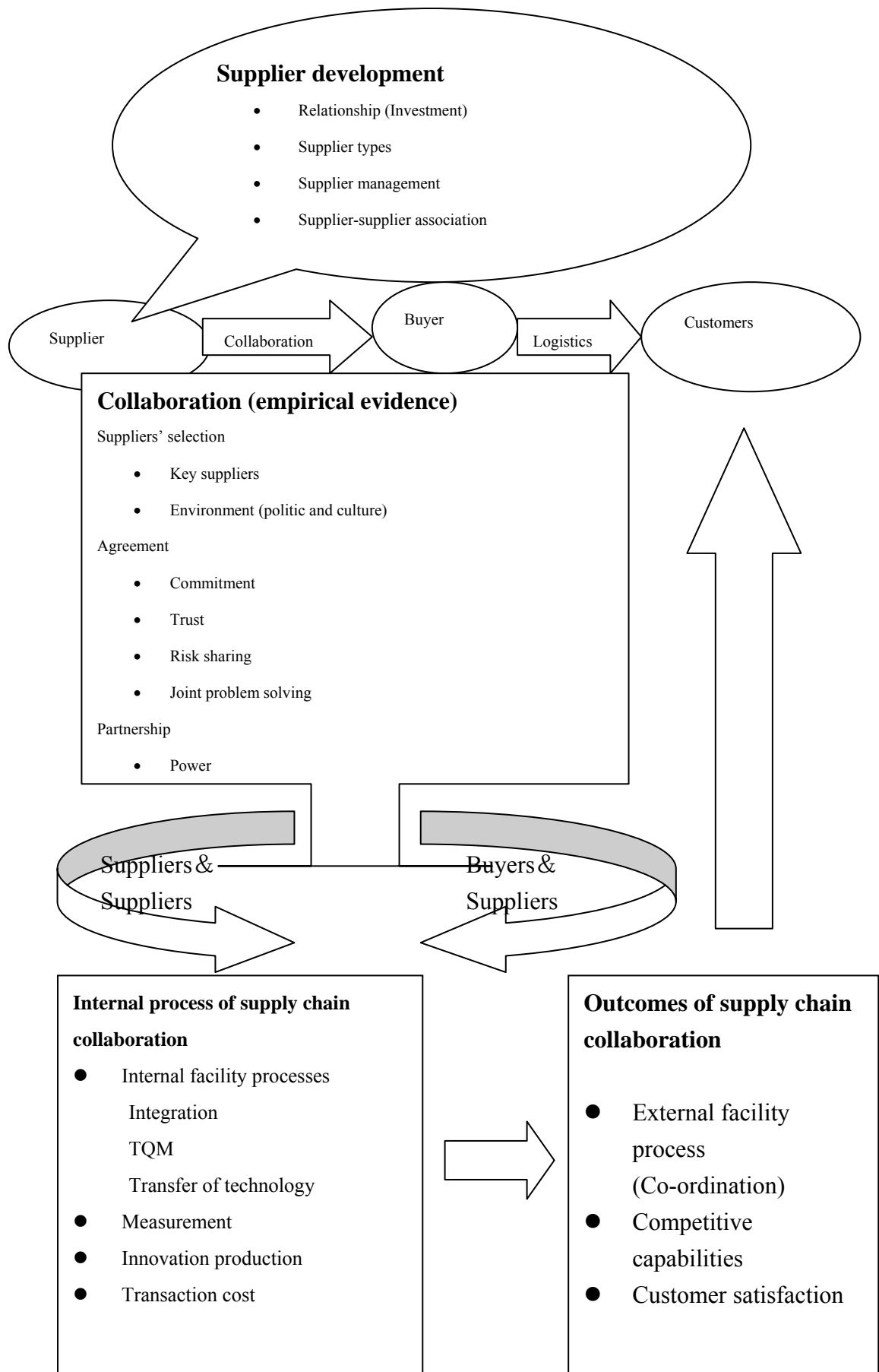


Figure 1.1: The concept of the research objectives

1.4 An overview of thesis structure

The structure of this thesis is separated into the introduction, literature review, fieldwork, methodology, findings and discussion, and, finally, the conclusion; six chapters in all. The thesis structure is shown on figure 1.2.

Chapter one: The introduction to this study. The motivation to do this research was presented in this section, as well as the research background and the research problems in order to identify the research aim and objectives. After that, the thesis structure is presented and a summary is given at the end of this chapter.

Chapter two: This chapter is a literature review starting from the principles of supply chain management in order to define it, and to become acquainted with its significance and development. In addition to this, the aim is to recognize why firms undertake supply chain collaboration and then work out its outcomes. The structure of supply chain collaboration includes its different types and then the relationship within supply chain collaboration in order to compare the Western and Eastern relationships between buyers and suppliers. Still, it is necessary to examine the basic and detailed supply chain collaboration processes; the basic processes can be seen from the decision-making and the build up of trust and commitment within the supply chain collaboration. Besides, the supply chain collaboration detailed processes are assessed through their network and technological developments. The

discussion of supply development in this study is a key point of supplier management to recognise the supplier relationships in order to study the development of suppliers and the integration circumstances for them. The research gap generated from the literature review is revealed at the end of this chapter.

Chapter three: The fieldwork is about Taiwanese and Chinese companies who undertake supply chain collaboration in China. At the beginning, the link from supply chain collaboration to Taiwanese companies in China is examined. Then it is necessary to establish the characteristics of Taiwanese companies, determine why they invest in China and the history of Taiwanese companies' investment and industrial structure in China. The understanding of high-technology is based on the procurement strategy in order to understand their supply chain collaboration. After discussing the limitations for Taiwanese companies in China from the research background, the research objectives are then tested for the Taiwanese companies moving their supply channel into China. In addition to this, the main question is, how does supply chain collaboration work for Taiwanese companies in China? We need to find out the best supply chain collaboration way for Taiwanese and Chinese companies, and Taiwanese and Chinese suppliers' development in China.

Chapter four: The methodology chapter begins with the research questions. It is essential to explore those different aspects of qualitative and quantitative research,

and then to compare which method is best suited to this study. A case study approach has been chosen for this fieldwork. A more detailed introduction of the selected companies, the point of interviews, the pre-interview and the interview processes for this case study are then presented before discussing the design of the questionnaire for the interviews used to gather the empirical research. After that, the steps and methods of the analysis are interpreted. The reliability, validity and limitations of the methodology are discussed at the end of this chapter.

Chapter five: This chapter presents the findings and discussion. In order to develop context, the background, history, and company culture is presented for each of the three companies used in the cases. The same headings and sub-headings are used for each and relate to the research objectives. This will allow the incorporation of academic literature to analyse the contrast between academia and practice. Then, the cross-case companies are examined in terms of their similarities and differences. The discussion is developed at the end of this chapter.

Chapter six: The conclusion chapter responds to the research questions. The results are divided into two parts; the supply chain collaboration and supplier development. Next, the contribution to knowledge is presented in terms of both theory and practice. The limitations of this study are outlined in this chapter. The final section

of this chapter provides recommendations for future research before concluding the thesis.

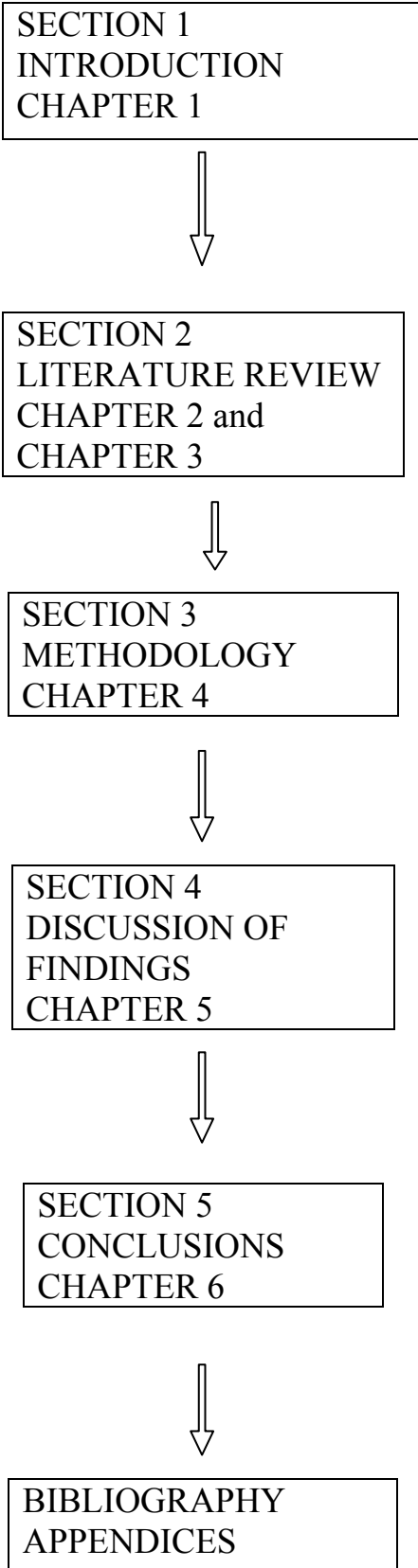


Figure 1.2: Thesis Structure

Chapter Two

Collaborative supply chain practices

2.0 Introduction

Since the 1990s, the importance of forming collaborations in order to provide an efficient supply chain, has attracted attention from both firms and academics (Chandra and Kumar, 2000; Barratt, 2004). The outcome of supply chain collaboration (SCC) includes revenue enhancement, cost reductions and operational flexibility to cope with high demand uncertainties (Simatupang and Sridharan, 2005b) in order to create more competitive capabilities and customer satisfaction. Cost reduction is leading to collaboration members having more agility in terms of their operations and catering for customers' competence to face rival businesses as well make more revenue.

This chapter will first outline the principles of supply chain management. The next section will examine the definition of supply chain collaboration, followed by an examination of the SCC processes. Then, supplier development will be discussed.

This chapter will conclude with an outline of the literature review-research gap.

2.1 Principles of supply chain management

2.1.1 The background of logistics to supply chain management

In the 1960s, logistics, with the components of material supplies, manufacturing, transportation, and customers, began to provide opportunities for organisations to develop corporate efficiency (Waters, 1999). For instance, efficient logistics channel the raw materials from the suppliers through distribution centres to the customers. The key to the success of logistics lies in the willingness of the companies involved to share potential business opportunities and benefits.

During the 1970s, logistical operations were a major source of costs. In order to remain competitive, firms had to assess the growing charges and rising activity costs (Waters, 2003). Supply chain management (SCM) was focussed on the suppliers through distribution centres to the customers from the mid-1980s in the industry (Lee and Kincade, 2003).

In other words, Waters (2003, p.5) indicated that *“Logistics is the function responsible for the flow of materials from suppliers into an organisation, through operations within the organisation, and then out to customers”*. Furthermore, logistics was responsible for the moving of raw materials, mechanisms, completed products, people, information, paperwork, messages, and knowledge.

There has been confusion between the meaning of *“logistic”* and *“supply chain management”*; this was clarified by Lummus *et al.* (2001, p.431) *“Logistics is*

generally viewed as within one company, although it manages flows between the company and its suppliers and customers” and “Supply chain management includes that logistical flows, the customer order management and production processes and the information flows necessary to monitor all the activities at the supply chain nodes”. This explanation suggests that logistics is more simply focused on delivery but in supply chain management more attention is paid to the operations within the supply chain channel.

To sum up, SCM is the underlying philosophy of managing the supply chain that evolved to respond to changing business trends. This phenomenon has received close consideration by researchers and practitioners from a variety of perspectives.

2.1.2 The definition of supply chain management

Defee and Stank (2005, p.29) define supply chain management according to the Council of Supply Chain Management Professionals (CSCMP, formerly The Council of Logistics Management (CLM)) as follows:

“Supply Chain Management encompasses the planning and management of all activities involved in sourcing and procurement, conversation, and all Logistics Management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service provides, and customers. In essence, Supply Chain Management integrates supply and demand management within and across companies (www.cscmp.org)”.

Supply chain management (SCM) involves many organisations in the integration of raw materials, the transformation of goods and the delivery of final products to customers in order to support all sections of the industry to create an efficient supply chain channel (Stonebraker and Liao, 2004).

Researchers have proposed several definitions of SCM, as follows:

Lummus and Vokurka (1999, p.11) described SCM as:

“all the activities involved in delivering a product from raw material through to the customer including sourcing raw materials and parts, manufacturing and assembly, warehousing and inventory tracking, order entry and order management, distribution across all channels, delivery to the customer, and the information systems necessary to monitor all of these activities”.

The whole supply channel includes the participants, such as the suppliers, manufacturers, distributors, and customers, linked together so they can fulfil the multi-functions which provide low-cost, high-quality, and rapidly delivery to the marketplace in order to offer the customers product or service satisfaction.

Serve *et al.* (2002, p.246) defined supply chain management (SCM) as *“a technique for linking a manufacturer’s operations with those of all of its strategic suppliers and its key intermediaries and customers”* and *“By establishing these supply-based links, companies can build bridges and establish partnerships with suppliers, customers and carriers to more effectively reduce operating cost, improve customer service and expand into markets”*. In addition to this, *“Most successful supply chains have devised approaches for the participants in the supply chain to work*

together in a partnering environment". From this observation, it is possible to establish how the participants engage in the activities of the supply chain.

Other researchers have expressed similar ideas on integrating full participation in SCM. For example, Harrison and van Hoek (2002, p.6) said that "*The alignment of upstream and downstream capabilities of supply chain partners to deliver superior value to the end customer at less cost to the supply chain as a whole*". In other words, the point of the supply chain as a whole is the alignment between supply chain members, of which the end customer is very significant. SCM is concerned with managing the entire process of raw materials, manufacture, packaging and distribution to the customer (Harrison and van Hoek, 2002). Then the final customers will get lower cost products and good services as they are the focus of all supply chain partners. From this analysis, SCM has been defined as giving more thought to the final customer. Furthermore, according to Svensson (2003, p.305) after reviewing definitions, he indicated the "*SCM might be seen as a management philosophy that strives to integrate the dependent activities, actors, and resources into marketing channels between the point-of-origin and the point-of-final-consumption. This means that SCM comprises different kinds of dependencies in, between and across companies in marketing channels*". From his summary of SCM, he gives an example from Zailani and Rajagopal (2005, p.380) who state that

“A supply chain is a network that includes vendors of raw materials, plants that transform those materials into useful products, and distribution centres to get those products to customers”. The issue how do the network operations within supply chain management work. Every firm want to get benefits from the supply chain channel but who can they trust to work with to obtain satisfaction for their customers.

The criticism is that it is vital to focus not only on what customers want but also their requirements, and then create more value for them. From this point, Lambert *et al.* (1998b) said that the challenge of managing the supply chain is multifaceted work and also involves logistics to deliver the product and information from the key suppliers to their key customer.

In other words, the supply chain operations need to co-ordinate the whole channel members' activities and respond to the customers. That is a spirit of co-operation within supply chain management to make the whole supply chain more effective.

The theme is to integrate the whole supply chain members from logistics to supply chain to confirm every step in the operation in order to act in response to the customer, to achieve the supply chain management.

2.1.3 The importance of supply chain integration

Integration is an extremely major action within supply chain management (Bales *et al.*, 2004). Normally, the integration is a “vertical line” in the supply chain channel to link the suppliers to customers; this is including all of the partners and operational activities within the whole supply chain management. Stonebraker and Liao (2004, p.1037) said “*Vertical integration may also facilitate stabilization of production quality or quantity, and management of the process flow of costly or risky technologies, permitting a more efficient, standardized, and high-volume output*”. The output is the value from the efficient supply chain operations reflected in the SCM flows.

Lummus and Vokurka (1999, p.11) state that:

“Supply chain management coordinates and integrates all of these activities into a seamless process. It links all of the partners in the chain including departments within an organization and the external partners including suppliers, carriers, third party companies, and information systems provides”.

The integration all of firms within supply chain channel partners means not only the internal of firms’ organisation departments but also including the supply chain partners working in the whole supply chain channel.

Furthermore, Chandra and Kumar (2000, p.102) said that “*It is important to employ cross-channel co-ordination when sharing some of the common resources among different supply chains*”. The main job in the co-ordination is to let all of the firms within supply chain channel run very effectively. This is expecting to develop more

competitive ability from the whole supply chain when the supply chain partners coordinate with each other (Lummus and Vokurka, 1999, p.12). Strictly speaking, this is one of the values of supply chains to have successful co-ordination processes within the supply chain management.

Subsequently, the further discovery by Mikkola and Skjott-Larsen (2006) that the integration of whole supply chain not only modifies the processes of manufacture of the products but can also lead to innovative products; *“This trend also forces firms to make strategic planning of its resources as well as the regime appropriability of the innovation with respect to the market and competitors”* (Mikkola and Skjott-Larsen, 2006, p.217). The integration needed for more strategic planning with the whole supply chain must not only focus on the partners involved, but also needs to think about the whole market strategically. This is a more critical issue than before as it is not only concerned with the integrated the process or participators with supply chain management.

The integration process makes the supply chain channel more complex. It can be said that the integration of the supply chain channel influences the supply chain management. The partnership between the buyer and supplier is totally changed through the integration of supply chain. Prior to integration, the buyer and supplier only have the “buy and sell” connection; in other words, the suppliers only provide

the material to their buyer. After integration, the other supply chain partners join their buyer organisation operation processes and also need to coordinate. In addition, the advanced integration of the supply chain channel can lead to the creations of new joint products. This totally redefines the meaning of supply chain management and creates more challenges for the participators working together within supply chain channel. The integration influence on the development of supply chain management is discussed further in the next section.

2.1.4 The development of supply chain management

The evolution of supply chain management, from the 1960s and 1970s, means that firms have started to integrate all the functions within the supply chain channel with the joint aim of satisfying their customers (Chou *et al.*, 2004). Chandra and Kumar (2000, p.100) said “*During the period from 1960 to 1975, corporations had vertical organization structures and optimization of activities was forced on functions*”.

Then, material requirement planning (MRP) was developed within the SCM innovations and successfully integrated those functions in order to improve the SCM performance. In this period, the SCM focused on the integration of SCM processes to achieve the aim of SCM and to make all functions more effective.

The development of SCM, in the late 1970s and early 1980s, was focused on the Western automotive industry which was facing increasing competition from the Far Eastern automotive industry, especially in terms of cost and value (Houlihan 1987 cited in Christopher, 1992). Houlihan (1987 cited in Christopher, 1992) pointed out the Western vehicle manufacturer's relationship with the suppliers focuses on the least-total-cost and transferred cost within the supply chain.

In contrast, Spekman *et al.* (1998,p.630) said “*Ford Motors is as successful as its ability to co-ordinate the efforts of its key suppliers (and its suppliers' suppliers) as steel, glass, plastic, and sophisticated electronic systems are transformed into an automobile that is intended to compete in world markets against the Japanese, the Germans, and other US manufacturers*”. The Japanese companies often keep a good relationship with their key suppliers to optimise the performance of the whole chain and create value for the final customers. And Japanese carmakers use just-in-time (JIT) technique system to achieve efficient inventory management and also find a way to communicate with suppliers effectively (Chou *et al.*, 2004).

Theodorakioglou *et al.* (2006, p.148) said that “*Supplier management issues, like information sharing, establishment of long-term and trusting relationships with suppliers, mutual dependence and commitment are also advocated by the TQM philosophy. Also, internal integration, a prerequisite for SCM implementation is a*

key point in the TQM philosophy". TQM engages in recreating a vital position to monitor the whole SCM operation and monitoring quality within supply chain management. This is further explained by the Temtime and Solomon (2002, p.181) definition:

"TQM is a management philosophy for continuously improving quality of goods and services delivered through the participation of all organizational members; it is the process of making quality the concern of everyone in the organization".

That is why TQM have understood the variation between customers and suppliers in the organisation at that time. All employees must remember TQM all the time in order to achieve the TQM for the whole supply chain partners.

Companies are now expected to achieve a high level of customer satisfaction, in order to outperform their competitors. Many companies focus on how they can do better to meet their customers' requirements. Some of them have adopted TQM principles as a solution to their problems. In other words, the goal of TQM is to reduce the cost for their customers (Wong, 2002).

As can be seen, SCM has grown, from integrating all the functions within the supply chain channels in order to achieve cost reductions and create more value. In the next stages, SCM focuses more on JIT (Just in Time) and the use of EDI (Electronic Data Interchange) to manage the data in the supply chain, and then pays attention to TQM to assist the SCM quality standard establishment.

Although, the global business has changed since the late 1980s and early 1990s, the aim is to add value and reduce costs within the supply chain management (Wagner *et al.*, 2002). For this, Chandra and Kumar (2000) state that, from 1990, supply chain management has paid more attention to corporations, especially to extend the business' competitiveness, and strategic associations have been growing. Co-operation was a strategic decision among firms to face increasing national and international competition. The firms started to align their processes and calculate the total cost for a product from its source to provide customers with the lowest prices possible (Chandra and Kumar, 2000); they point out that “*Manufacturing systems in organizations have been enhanced with information technology tools such as enterprise resource planning, distribution requirements planning, electronic commerce, product data management, collaborative engineers, etc.*” (Chandra and Kumar, 2000, p.100-101). The other reason for this is that the technology has assisted firms in reducing their costs and allowed companies to combine their supply chain partners.

Defee and Stank (2005, p.28) state, “*significant performance enhancements associated with these techniques were not achievable without the cooperation of supplier, and in some cases, customer firms*”. Hence, the techniques without supplier support cannot see efficient functioning. The reason is that the supplier

needs to control the quality first and respond to the customer information for their buyer. In addition to this, from the SCM operations, the team members found that the relationship and communications are very significant in achieving their goals.

The advent of the internet meant that firms need to face a more competitive situation and SCM can support the firm to take competitive advantage of the resources to implement the process (Chandra and Kumar, 2000). The reason for this is that the competitive advantage comes from the reduced costs and transactions, high-quality, and good service in order to increase their profits. Firms are examining effective supply chain management within the supply chain channel operation, which also needs the supply chain members' collaboration.

Conversely, Chandra and Kumar (2000) stated that the goals of the supply chain are mutually agreed between the tactical partners in a strong cooperation. In addition to this, the team members need to negotiate and communicate with each other and then co-operate throughout the whole channel in order to achieve the goals of supply chain collaboration. The different backgrounds and cultures in which the firms collaborate, especially manufacturing products skill and methods, which need more communication to understand the other firm when they have the different thoughts. Supply chain collaboration is augmented and accepted within supply chain management. This will be discussed further below.

2.2 Supply chain collaboration

2.2.1 The motivation of supply chain collaboration

There is no doubt that the successful development of SCM performance has to focus on customers' needs and expectations (Svensson, 2003). Furthermore, the performance of the supply chains can affect customer satisfaction. Therefore, the goal of SCM is to meet the needs of the customers by supplying the right product at the right place, time, and price. In other words, the customer satisfaction is the goal of supply chain management.

In addition to this, one factor related to customer satisfaction, Lee and Amaral (2002) point out that SCM is anticipated to achieve well in terms of both costs and services from an operational perspective. That is why the best combination of operational activities has to be found, in order to ensure that the core objective of satisfying the customer requirements at the lowest possible cost is achieved. No single component can be seen disjointedly from the other; they have to be viewed through both the influence of the channel system and the critical effect.

Nowadays, the customer services are to be a kind of goal of customer satisfaction. Chung *et al.* (2007) referred to three approaches, the construct of a service system, after-sales service, and satisfaction investigation as a target for customer service.

The after-sales services include service satisfaction with the product, questionnaire feedback, acknowledgment letter delivery, telephone interviewing, and sales interviews. In short, the management of customer complaints is very important for organisations and they also need to respond to their feedback. Even though, in today's internet age, some steps can be taken on websites, there is also a need for more after-sales services management. This can lead to greater customer satisfaction in order to acquire more benefits within supply chain collaboration.

Furthermore, Giunipero *et al.* (2006, p.833) pointed out that *“It is no surprise that “two heads are better than one” when it comes to solving problems.... This is especially true in a global environment, with team members located all over the world”*. This is especially true in the global trade business environment that requires the local market's messages. When the supply chain partners can integrate and collaborate together, it can reduce the lead-time and to send the products all over the world more quickly.

On the other hand, Aryee *et al.* (2006, p.947) said that *“The value to be gained from collaboration is manifested as enhanced business performance as a result”*. It is without doubt true that the performance improvement is the goal of supply chain collaboration but provides more opportunities in order to get more marketing fields, which is very important for supply chain collaboration. Then, Jacob and Ehret (2006)

stated that the transaction cost theory is one of capable of explaining the specific recourse in this new institutional economics.

Dyer (2000, p.91) pointed out that the transaction costs “*involve all of the costs associated with conducting exchanges between firms. Transaction costs take many everyday firms--management meetings, conferences, phone conversations, sales calls, bidding rituals, reports, memos---but their underlying economic purpose is always to enable the exchange of goods, services, or ideas*”. Undoubtedly, from the transaction cost observation, it involves exchange costs between firms. If firms can collaborate with each other, they can cover some costs or consider that the collaboration relationship does not cost more to their collaborative partners. In other words, the firm would like to invest in transacting joint costs with other firms, involving logistics, distribution, procurement, and marketing function. This is based on the principle of collaboration; the firm is thinking that the transaction cost can be reduced and shared with the other firms.

The transaction costs can be divided into four parts according to Dyer (2000, p.92) search costs, contracting costs, monitoring costs, and enforcement costs. Search costs are spent on the information collection and finding the right partners to be collaborative members. Contracting costs focus on the agreement negotiated and written during the suppliers' collaboration period. In addition, the monitoring costs

are for monitoring the agreement operation and making sure of the firms' responses.

Doubtless, the enforcement costs are spent on bargaining and the partner who does not comply well in the agreement context.

After that, Binder and Clegg (2006, p.958) referred from Coase (1937) and

Williamson (1975) opinions that a guide to offer the occasion to manage for supplier relationship based on transaction cost economics (TCE). Consequently,

Jacob and Ehret (2006, p.107) referred that "*Transaction cost economics (TCE) theory is associated closely to information economics and property rights theory.*

TCE explicitly introduces opportunism and asymmetrical information as assumptions about economic behaviour in market transactions". According to their

(Jacob and Ehret, 2006, p.107) explanation "*One reason for the existence of asymmetric information and degrees of freedom for opportunistic behaviour is the*

limited rationality of economic actors". The asymmetries can make a buyer and

suppliers' arrangements balance their relationship. Nevertheless, the asymmetrical

relationship can create opportunities in market-based situations regarding the

economic concept of TCE. Furthermore, they referred to the fact that opportunism

has two players in the market; one is the victor who takes the advantage

opportunistically, and the other is a loser who does not take any opportunities. In the

business market, firms always want to be a victor. Hence, in addition to expending

the transaction costs on the vertical integration; it can enhance the value of the network and develop each other's supply chain partner's firms (Kleinaltenkamp and Ehret 2006).

Recent work by Millington *et al.* (2006, p.190) pointed out that *"In order to investigate the relationship between supplier adaptation to buyer requirements and ownership type, three measures of adaptation are defined: supplier investments, buyer control and buyer investments"*. The reason for requiring a supplier to relate to a buyer groups is to build a good relationship and maintain it in order to gain more value from the buyer parts.

On the other hand, the important investments in transaction costs are based on the strategic value network. Buyer and supplier collaboration can be a good policy for supply chain members.

2.2.2 The definition of supply chain collaboration

Simatupang and Sridharan (2002, p.19) said that:

"A collaborative supply chain simply means that two or more independent companies work jointly to plan and execute supply chain operations with greater success than when acting in isolation".

Therefore, collaboration, in the context of the supply chain, means sharing commitment, trust and respect, skills and knowledge, and intellectual agility between supply chain partners (Barratt, 2004). All of the members in the SCC chain

have to integrate and act as a homogenous unit. In addition to this, the value is enhanced throughout the chain and the matching of supply and demand profits (Simatupang and Sridharan, 2005a). Consequently, SCC members' joint decision making is preferable to create competitive advantage through mechanisms such as increased market access, better material sources, and cost-effective transportation. In order to achieve this, the SCC members must have a very close relationship.

The strategy is to focus on the collaborative partners' relationship and improvements in the SCC process. Relationship orientation includes constructs such as trust (Sahay, 2003b) and power (Cox, 1999) because most collaborative partners are not equivalent in terms of bargaining power and, if a partner is to be trusted, that partner cannot take advantage of a relatively stronger situation or behave opportunistically.

In other words, Defee and Stank (2005, p.34) stated that *“a strong leader firm may use its power to influence, rather than dominate, the supply chain behaviours of other firms; in either case the leader's power will influence the other members of the supply chain, with either a beneficial or injurious effect depending on the power bases used. Positive uses of power tend to lead to stronger supply chain relationships, which in turn lead to improved performance”*. For that reason, the heightened communication also includes frequent meetings and other forms of

management interaction. The formalisation of the ruled procedures, objectives and performance expectation and procedures is necessary for successful collaboration implementation.

Min *et al.* (2005) point out that collaborative processes include information sharing, joint planning, joint problem solving, joint performance measurement, and the leveraging of resources and skills. Information sharing becomes a regular norm that encompasses multiple levels across firms. In addition to this, they stated the information technologies include electronic data interchange (EDI), database, data warehouse and data mining techniques, and the internet to illustrate the collaboration channels. Joint planning relies on the fact that collaborative partners must work together to solve supply chain problems.

As a point, the success of collaborative efforts cannot be guaranteed until performance is correctly monitored and measured (Min *et al.*, 2005). This often involves jointly leveraging each other's resource and skills. The leveraging skill is made possible by specialisation.

2.2.3 The outcomes of supply chain collaboration

The outcomes from the joint relationship and interactive feedback are both used to make improvements. As discussed above, the consequences of SCC in terms of

expansion are efficiency, effectiveness profitability and the reinforcement of the relationship. Efficiency and effectiveness were often mentioned. It is a gauge for resources to utilise and effectiveness goals are accomplished (Min *et al.*, 2005). The efficiency also describes how to reduce material costs, go through the supply chain flow smoothly and achieve customer satisfaction (McLaren *et al.*, 2002). The outcome of collaborative efforts is expected in the responses in traditional performance areas. The goal of traditional performance is to make more profits and create new markets within supply chain management. The relationship and interactive feedback are used to make improvements.

According to the literature, supply chain collaboration (SCC) provides benefits to the chain members (Sahay, 2003a). That is why SCC has become a popular topic in business fields recently (Min *et al.*, 2005, p.237). Especially in today's complex competitive business environment, collaboration is the driving force behind an effective SCM. Furthermore, a competitive environment has encouraged companies to re-examine their value chains, reduce costs and improve quality at every stage.

As Bititci *et al.* (2004, p.251-252) said "*collaboration should result in creation of new and unique value propositions based on a unified approach to value creation*" and "*value creation in collaborative organisations should be a win-win-win*"

situation for all parties concerned". The win-win-win situation is linked from suppliers to buyers and finally to customer satisfaction.

Furthermore, the benefits of collaboration derive from the opportunity to access new markets, new technologies and new skills, to reduce operational costs and production time to market, and to optimise the overall supply chain performance (Simatupang and Sridharan, 2002, p.19). It can also include revenue enhancements, cost reductions, and operational flexibility to cope with high demand uncertainties (Simatupang and Sirdharan, 2002, p.15).

In addition, Walter *et al.* (2001, p.366) said "*the supplier needs to offer value to the customer but also needs to gain benefits from the customer at the same time*". The value not only comes from the suppliers but also some benefits come from the customers. Walter (2001, p.366) pointed out "*This does not only apply to customers but also to suppliers. Empirical results indicate that suppliers focusing on a few selected customers achieve higher profitability in long-term relationships by reducing their discretionary costs to a greater extent than supplier firms who employ a transactional approach to deal with customers*". Hence, from a theoretical point of view, such as that of Koch (1999), the 80/20 principle is where the organisations focuses on 20% of their customers who will benefit their business

more and pay less attention to the other 80% of customers. The point is not only to focus on the key customers but also to understand what they are thinking.

According to Simatupang and Sridharan (2005b, p.258) "*The advent of supply collaboration creates the need, at the intercompany level, to pay special attention to the understanding of collaboration in order to prepare the chain members to create collaborative efforts successfully*". This demands more effort within the supply chain collaboration to help business firms to understand their customers better in conjunction with supply chain partners.

In contrast, many authors (Sahay, 2003a; Bititci *et al.*, 2004; Barratt, 2004; Simatupang and Sridharan, 2005b) discuss collaboration, benefits, rewards and risk sharing, together with the exchange of information as the foundation of collaboration. In order to maximise the success of collaboration, they need a comprehensive understanding of its value to the organisation. It is not only about value to the customer organisation, but also value in the suppliers' organisation (Walter *et al.*, 2001).

2.3 The structures of supply chain collaboration

2.3.1 The types of supply chain collaboration

There is a variety of potential forms for supply chain collaboration, requiring differing degrees of commitment.

Kanter (1994, p105-107) indicated that the creative relationships achieve five types of integration in collaboration:

1. *Strategic integration* – this involves continuing contact among the top leaders to discuss broad goals or changes in each company.
2. *Tactical integration* – this brings middle professionals together to develop plans for specific projects.
3. *Operational integration* – this provides ways for carrying out day-to-day work.
4. *Interpersonal integration* – this builds a necessary foundation for building and sustaining the future of a relationship.
5. *Cultural integration* – this requires the people involved in the relationship to have the communication skills and cultural awareness to bridge inter-organisational and interpersonal differences.

Subsequently, Sahay (2003a, p.77) indicated that the supplier collaboration and customer collaborative types are as follows:

1. **Supplier collaboration:** Collaborating with suppliers will bring benefits from activities like new product design, order's communication, and investment planning.

It will help ensure that future material needs are satisfied.

2. Customer collaboration: To collaborate in business, partners need to share and modify each other's demand plans and forecasts electronically. This approach helps to ensure that customer requirements are met efficiently.

Barratt (2004,p.32) divided these into two main collaborations: one is classifying horizontal collaboration, which occurs when two or more unrelated or competing organisations cooperate to share information or resources, such as joint distribution centres. Vertical collaboration occurs between two or more organisations, which ultimately serve relatively similar end customers. It is similar to customer collaboration.

Du (2007, p.528) said that *“As a result, the production organization model of many companies has begun a transition form the “ vertical solution” to the “ horizontal solution”, a new kind of model for organization and management of production”*.

Big organisations cannot always act in response to multifaceted customers' requests, and incomplete resources cannot always be used in the complex market immediately but a horizontal solution can to collect the key suppliers' ideas to solve the customers' problems in the value chain. In addition to this, she pointed out that the new type not only connects a simply chain (horizontal) but also a supply

network (virtual group) in order to improve the competitive advantages and reduce the investment and risk.

For horizontal supply chain collaborate types, the argument found in Porter (1990, p.663) said that *“While antitrust should be tough on horizontal cooperation and mergers, policies that protect inefficient or lagging competitors should be abolished”*. The critical antitrust issue from horizontal cooperation emerge because firms need to invest in and create new products together but they can make the rules to impede the antitrust. On the other hand, Porter (1990, p.663) pointed out that *“Antitrust laws must also not be a barrier to vertical collaboration between supplier and buyers that is so integral to the innovation process”*. Vertical collaboration is more focused on supply chain channel efficiency, when the cooperation divides the works. It can also obtain competitive advantages from the combining of product processes with only finite investment in technology or machines so that antitrust almost does not come out.

Even though different types have different integration methods, the most important feature is to form a good collaboration between each independent organisation. In addition to this, the main point is based on the premise of creating long-term relationships, the development of complementary capabilities, and a commitment to

joint planning and sharing of information (Walter and Gemunden, 2000 ; Macbeth, 2002, p.734).

Nevertheless, the SCC types are more agile than before, especially in exploiting the internet, and have a greater understanding of the meaning of collaboration. In addition to this, the SCC types have to fit in with the organisations' needs for a collaborative style and having a good collaboration relationship to accomplish high-quality goals.

2.3.2 Collaborative supply chain relationships

From the above analysis of the SCC types, it can be seen that the relationship within supply chain collaboration needs to pay more attention to achieving the goal of collaboration; some researchers (Walter and Gemunden 2000; Woo and Ennew, 2004; Giunipero *et al.*, 2006) have discussed this issue already.

Welch and Wilkinson (2004) state that the Industrial Marketing and Purchasing (IMP) group have done research for more than 20 years into the buyer-supplier relationship within international operations firms. Woo and Ennew (2004, p.1255) referred to "*The output from the IMP research was the empirically grounded interaction model which drew on elements of inter-organizational theory and new institutional economic theory, to represent and explain the nature of buyer-seller*

relationships". The IMP research aims to identify the buyer-seller relationships within the inter-organizational relationship.

Fynes and Voss (2002, p.592) stated that the buyer and supplier relationship is based on transaction cost theory, political economy theory, social exchange theory and resources dependence theory. In addition to this, Ellegaard *et al.* (2003, p.348) referred that some theoretical areas relate to the buyer and supplier relationship, such as: "*organizational studies, industrial economics, industrial and relationship marketing, strategic supply chain management, purchasing and strategic development*". From here, it can be seen that the buyer and supplier relationship is complex and includes many theories.

From exploring the IMP model analysis, it appears that the relationship between buyer and supplier can be divided into two stages: the short-term and long-term relationship. From this point, Woo and Ennew (2004, p.1255) stated:

"In the interaction model, four groups of variables were identified that describe and influence the interaction between buyers and sellers. These include the interaction process which embraces short-term exchange episodes (e.g. product/service exchange, information exchange, financial exchange, and social exchange) and long-term relationship behaviours (e.g. institutionalization and adaptation), the atmosphere affecting/affected by the interaction, the participants in the interaction process, and the environment in which the interaction takes place".

The short-term relationship builds up through product or service exchange, information exchange, financial exchange, and social exchange between the buyer and suppliers. It is without a doubt that the supply chain collaboration activities start the innovation of products for their customers.

Next, the buyer and supplier need to exchange information to grasp the market data that can then generate more collaboration benefits. In addition to this, the relationship not only put up the product and information exchange but also needs financial support and social activities to connect the collaboration relationship (Woo and Ennew, 2004). From this examination, the firms amalgamate with other firms to construct a financial vision, and firms are absorbed into firms due to the cost factors surrounding the supply chain collaboration relationship. Social replacement assists the collaborators to better understand each other's organisational culture and can respond to the opposite firm more rapidly. The reason for this is, as Walter and Gemunden (2000, p.89) state:

“They have to motivate business partners, colleagues, and superiors, to cooperate with them, to solve conflicts, and to take responsibility for the success of a relationship”.

In addition to this, when those firms combine the collaborative activities together, they can catch the first time data immediately and further be acquainted with the customers. The collaborative relationship is based on the short-term and long-term relationship behaviours, such as institutionalism and adaptation. According to Woo

and Ennew (2004), the long-term relationship includes institutionalisation and adaptation. Those of collaborative behaviour include the coordination in order to expand and keep the long-term relationship. The relationship quality has been examined from the perspective of firm communication skill and the degree of trust.

Furthermore, Giunipero *et al.* (2006, p.831) pointed out that “*Developing long-term partnerships with suppliers and maintaining those relationships will be a key value-add as teaming between buyers and suppliers will provide the opportunity to reap the rewards of mutual risks and reward sharing*”. It can be seen that long term relationships build up a revolution’s effectiveness between buyers and suppliers in order to share the risk and benefits together. The other factor is adaptation to maintain the buyer-supplier long-term relationship. In short, the collaborative firms who would like to continue the long-term relationship but need to formulate the standard regulation to manage and monitor the organisation but are also required to modify the behaviour within collaboration firms (Woo and Ennew, 2004).

In addition to the arguments above about the relationship between buyer and suppliers, Ford and Hakansson (2006, p.249) referred to four challenges: The first was “*business sales or purchases could sensibly be considered as isolated events involving customers that entered and then left the market for a particular product*”. Then, they emphasis “*these transactions are simply episodes in continuing*

relationships between supplier and customer". Without a doubt customer requirements can influence the business purchase decisions in order to make the buyer and supplier relationship closer and also reduce the transactions cost between the collaboration association. That is why they observed the "*interaction between active suppliers and customers, both of which could be involved in determining, developing and implementing the transactions between them*". In addition, they challenge "*the idea that marketing consisted of independent action by a supplier in constructing its marketing mix and projecting it at a passive market*". Strictly speaking, the collaborative operations involve more than two independent organisations working together to get the advantage from transaction development. The third challenge was: "*the idea that customers (or suppliers) can be considered as a homogeneous, atomistic group*". From this point, they indicated the fourth challenge was "*the similarity of the tasks in which both parties were engaged*". The firms also need to understand the buyer and suppliers' past business record as a reference, and then more quickly increase their collaborative relationship (Ford and Hakansson, 2006).

The IMP group investigated the buyer-supplier relationship; additionally they extend the relationship to cross countries in order to do business globally. Welch and Wilkinson (2004, p.216) state "*Seen through the IMP lens, relationship and*

networks that extend across borders are key explanatory factors for firm internationalisation and the development of foreign markets. While the focus on IMP research has been the study of inter-firm relationships, there is growing recognition that relationships with political actors such as governments can also be critical to foreign market activity". The IMP group has developed the model for organisational relationships in order to face the competitive business environment.

The development of the IMP model in the international supply channel is needed to recognise the local political operations that are supplementary to building up the new supply chain connection and then can generate a new market in the global business. Therefore, as Welch and Wilkinson (2004, p.217) pointed out "*The political embeddedness of a business network, as formulated by existing IMP research, can take four forms: political institutions, political actors, the political activities of firms and political resources*". Subsequently, they described how the political institutions can form new political and social values to symbolise the new rules and regulations.

In other words, when the organisation transfers their firms into a new country, they must follow the local political policy in order to protect their own authority in the foreign country and also take advantage of the political policy. Then, Welch and Wilkinson (2004, p.217) suggest "*Political actors can help form or change the*

business network with which they are connected through facilitating or disruptive activities”, following the policies of the political actors in connection with the business network throughout the political activities.

The main point made by Welch and Wilkinson (2004, p.217) is that “*Companies may engage in lobbying efforts on their own or join forces with competitors, while they also face a decision about the degree of autonomy they give subsidiaries to manage relations with local governments* ”. From this perspective, companies need to consider local government policies and take advantage of the good relationship with them in order to run their trade business or local business in other countries.

Furthermore, Welch and Wilkinson (2004, p.218) explain: The government’s political resources include: “*public sector contracts; licences and approvals; industry policies and regulation; support in the form of tax concessions; tariffs and other protectionist measures; funding for research and development and regional development, and so on*”. Based on local government, especially the political policy, the IMP model is more flexible for forcing the competitive business global market and can take advantage of developing their supply chain collaborative relationship.

Barratt (2004, p.35) identifies another key point regarding SCC: “*One of the major supporting elements of collaboration is a “collaborative” culture, which is made up of a number of elements: trust, mutuality, information exchange and openness and*

communication". Particularly for international business, this culture must relate to all members from the different countries within supply chain collaboration. The different cultures have their thoughts and working style to communicate. This will be discussed in the next section.

2.3.3 Western vs. Eastern buyer-supplier relationship

Buttery and Wong (1999, p.148) suggest that business relationships are based on transaction cost theory, social exchange theory and interaction theory in western cultures; the transaction cost theory related research is information and the cost of monitoring contractual performance in western business firms.

In addition to this, Fletcher and Fang (2006) state the IMP research literature has discussed culture as a vital factor within relationships and networks in international business. The reason is the culture adoption can help businesses become more successful in the other countries. International business includes many different countries' culture of business so that collaborative partners need to have a greater understanding of their partners' business thinking in order to get fluent commitment and trust; it is also a key point in operating the SCC. Chinese culture is based on Confucius and "*guanxi*", which is the building of relationships within a network to develop their business relationships (Buttery and Wong, 1999).

Undoubtedly, Confucianism spirit has deeply influenced the Chinese in dealings all over the world, specifically in Taiwan, Japan, Korea, Singapore, and China (Ordoñez de Pablos, 2005). According to Leung and Wong (2001, p.55) “*The Confucius social hierarchical theory, i.e. the five relationships of emperor-subject, father-son, husband-wife, brother-brother and friend-friend (pronounced as wu-lun in Chinese) perpetuates its influences in modern China*”. They said “*the word “lun” is actually a concise description of the guanxi among these five relationships*”. Indirect relationships also have an influence, for example, when you know someone’s brother and you are someone’s friend and then you can rely on this guanxi to do the business with someone’s brother because both of you have the guanxi with the other person. This is related to idea of “*renqing*” within Chinese social exchange meaning to give a “*face*” (mianzi) to get the reciprocity as a basic guanxi within Chinese culture (Lee *et al.*, 2001) .

In other words, “*Guanxi is one of the major dynamics in Chinese society. Guanxi has been a pervasive part of the Chinese business world for the last few centuries*” (Luo, 2000, p.1). Lee *et al.* (2001, p.54) shared this opinion, and said that “*Guanxi is especially important in the early stages of business development in China*”. This means it applies to SCC, the supplier and buyer seek guanxi when they do not know each other but want to do business together. It is a kind of superficial characteristic

of social life in the Chinese community and businessmen are used to using this kind of social connection in their business. They call it “*yingchou*”, in particular are used to allow them to dinner parties, deal with business while enjoying them to the full. In other words, it is beneficial to have a commendable *guanxi*.

Furthermore, Pressey and Qiu (2007, p.108) stated that, “*Most of the research in a Chinese context has focused on building and maintaining successful business guanxi*”. Chinese always like to talk about the use of *guanxi* to do their business and from it to increase their influence in order to be more successful business firms. Chinese businesspeople look for “*we are the same*” coming from *guanxi* social components such as friendships, neighbours, classmates; or any relations to accomplish their business. Leung *et al.* (2005) also argue the Chinese culture does not fit with Western business organization systems because Chinese use these networks to manage their business based on the personal trust from the *guanxi*.

Furthermore, Gomez-Arias (1998) observed how some researchers (Bjorkman and Kock, 1995) have recommended *guanxi* for relationship marketing. The reason for this is that *guanxi* knows how to explain the relationship, network, and interaction which may be more suitable for relationship marketing even though relationship marketing has been very significant between buyers and suppliers for a long time.

Buttery and Wong (1999,p.152) stated “*Guanxi is the building of a relationship which, in the business context, may start from two people wishing to transact business through various stages to the establishment of an “old friend” status when business can be transacted quickly and flexibly on the basis of trust*”. As they say, guanxi is capable of creating business relationships for those who want to do business with other firms and seek guanxi in order to create a good beginning.

The issue is what to do at the beginning. Even though the Chinese business model can also be employed, the problem is finding an opportunity to have guanxi and then do the business with the firms. If the firm cannot find any special guanxi, then it must implement a business strategy starting from a delicate relationship after investigating their company’s background, history, and location and so on, with their potential business partner’s firms.

Moreover, Li and Wright (2000, p.374) said that “*guanxi is meant to build long-time commitment to the relationship. Where the guanxi networks through an intermediary, the social status of that intermediary makes a great difference*”. They explain that when the guanxi is good, then they can have a long-term commitment; if not, the advantage coming from guanxi is useless.

The critical query is how to distinguish between good and bad guanxi. Fan (2007, p.505) points out that “*Good guanxi establishes close and friendly relationships on*

the basis of emotional ties, trust and long-term mutual benefits. Bad guanxi is the by-product of pure utility and opportunism, and is often associated with bribes, kickbacks and material benefits". If the guanxi is very good, then they can keep long-term, friendships, always helping and trusting each other, but if the guanxi is only built up for a particular purpose, it may be taken advantage of at the beginning but does not remain in the long-term.

According to Leung and Wong (2001, p.55) guanxi is very significant in Chinese business; "*guanxi is established on mutual benefits, and bargaining powers of negotiating parties are equal*". In other words, when the buyer and supplier has a good guanxi, the buyer is always very satisfied by their supplier, and then can discuss the project, share the risk and profit and solve the problem together. The main reason is both of them reflect they have established guanxi and then generated their "*xinyong*" (personal trust) between them so that they trust each other (Leung *et al.*, 2005). That is why Ordoñez de Pablos (2005, p.443) said "*Good guanxi fosters the development of reliable xinyong*".

By comparison for US, Japanese and Taiwanese business firms, using the Western business model, place more emphasis on individual achievement and competition to achieve the firms' goal (Yang, 1984 cited in Buttery and Leung, 1998). The reason is Western business firms focus on "*system trust*" instead of "*interpersonal trust*".

Luhmann (1979, p.50 cited in Leung *et al.*, 2005, p.532) explain that the: *“system is functioning and trust is in place in this system, not in people or specific individuals”*.

They also pointed out the interpersonal trust as like *“guanxi”* in Chinese is about the *“personal relationship networks of informal social bond that individuals carry expectations and obligations to facilitate exchange of favours among them”* (Leung *et al.*, 2005, p.534).

In addition to this, Buttery and Wong (1999) stated that the Chinese were more comfortable with cluster relationships and networks because they were a collectivist culture before. They still keep the team-working relationship after repealing collectivism in China. On the other hand, the Western business style is more individualistic. From this comparison, they pointed out that Chinese business is the middle way between Americans and Europeans and it is prudent to convince Western cultures to move the focus from personal achievement to focus on the team work relationship.

On the other hand, the xinyong (trust) is a result of guanxi. Leung *et al.* (2005, p.533) point out that *“Therefore, it is logical to propose that a buyer is strongly motivated to establish a partnership relationship with a supplier if the buyer perceives the contact person within the supplying firm has xinyong”*. Chinese businesspeople think that xinyong (trust) is key to maintaining a long-term

relationship. That is why Leung *et al.* (2005) say that “*Chinese buyer and supplier emphasize more on xinyong at a personal level rather than satisfaction at an organizational level to generate partnership relationship*” (Leung *et al.*, 2005, p.550). That is why guanxi is very important for businesses to produce xinyong (trust) like goodwill. Besides, Buttery and Leung (1998) pointed out the guanxi is very important in China, it can make things happen, for example it is good for firms’ business and investment and also a key factor in SCC.

The discussion section about the structures of supply chain collaboration from the supply chain collaboration types has highlighted the relationships within supply chain collaboration and the differences between Western and Eastern buyer-supplier relationship and how it can start the process of supply chain collaboration.

In addition to this, SCC should have two processes that cover both interior and external aspects. This dyad of internal and external processes will be discussed in the next section.

2.4 The supply chain collaborative processes

2.4.1 The basic supply chain collaboration process

2.4.1.1 Decision making processes in supply chain collaboration

At first, SCC requires strategic decisions to identify the aim between the supply chain collaborative partners. The aims which help the decision and responsibilities are the main requirements for a successful collaboration. Decision management can be defined as the extent to which the chain members are able to make critical decisions at the planning and execution levels for their supply chain efficiency (Simatupang and Sridharan, 2002). This can be conducted through face to face meetings and virtual discussions that have been arranged to make decisions (Simatupang and Sridharan, 2005b). The reason for this is that the members need to coordinate critical decisions during their supply collaboration. In any case, if the supply chain makes a strategy decision, they need the power structure to be in place between the collaboration members. As Cox (1999, p.172) suggested, to manage the supply chain strategy and make it operational, it is essential that the supply chain partners understand the power structures that exist in their supply chain. This power enables the members to make effective strategic decisions within the supply chain.

Inventory costs can be reduced through this joint decision-making process (Simatupang and Sridharan, 2005b). The reason is according to Simatupang and Sridharan (2005b, p.264) pointed out that joint decisions may include decisions about items, such as sales and order forecasts, inventories, replenishments, order placements, order deliveries, customer service levels, and pricing. This method

enables the supplier to match the supply with the demand from a supply-chain-wide perspective and, thereby, improve profits for SCC members. For example, the suppliers need to understand the customers' requirements for the new products. Indeed, as Ramsay and Wagner (2006, p.897) explained, the suppliers' motivations are affected by "*Supplier needs preferences regarding the behaviour and purchase offerings of customers*". The decision management is very important as it enables the chain members to make appropriate decisions contributing to the overall performance achievement.

The decision making including the collaboration processes has been divided by Simatupang and Sridharan (2002, p.19-20) into four steps; the first step requires identifying the strategic collaboration needs and finding the right partners with the right capability; the second step involves forward planning to manage the interdependencies of resources, tasks, and capabilities for future requirements; the third step requires the supply chain members to perform daily operations that effectively meet the requirements of the short and long-term goals. The final step is to evaluate and decide on the agreement. This can help SCC members to cooperate successfully. As Simatupang and Sridharan (2002, p.20) said "*Interdependence is a key concept in the analysis of such collaboration*", the critical judgment is on how

the interdependent business firms can work efficiently within the supply chain collaboration.

Nevertheless, interdependence is a factor in the structure of collaboration (Simatupang and Sridharan, 2002). Basically, the supply chain members have to ensure their connection, protect their own business, and make interdependence a critical process in collaboration. To identify the interdependence between SCC members is critical, as the performance benefits of the integration will be limited (Simatupang and Sridharan, 2002; Barratt, 2004) if the processes at the tactical and strategic levels are not integrated.

In addition to this, the collaborative process is developed to meet the specific needs of each individual company. Simatupang and Sridharan (2002) referred to some of the most influential factors, such as the future requirements and operations that affect a company's specific approach, having to be fully developed by the company's SCC approach, its particular business environment, the available technology, and their SCC relationships.

2.4.1.2 Supply collaboration's relationship builds up trust and commitment

The role of trust and communication in SCC began to evolve in the last quarter of the 1990s. As the latter half of the 1990s approached, the concepts of trust in supply

chain began to challenge the explanatory power of transaction cost theory (TCC) (Sahay, 2003b). Kwon and Suh (2005, p.29) said “*It is difficult to imagine a serious business commitment without trust*”. In other words, the commitment is based on the trust. The relationship is combining trust and commitment together within the supply chain collaboration.

In recent times, Lehtonen (2006, p.429) referred to two collaborative relationships: operational and strategic partnerships. The operational partners mean that the firm works with only some key suppliers and the focal point of the factors of the relationship process. The development of strategic partnerships is a strategy used when firms face competition in the industry. However, when their supply partners actually join the business, this means that the firm needs to modify their competitive plan. In practice, some industries have strategic partnership, such as pharmaceuticals, chemicals, energy, computers and semiconductors and telecommunications (Ellram, 1992 cited in Sahay, 2003b).

Giunipero and Eltantawy (2004, p.703-704) state that “*High-technology markets are characterised by a rapid pace of technology change involves a high degree of uncertainty for buyers. An important source of uncertainty stems from buyer’s lack of experiences with product technology*”. And “*Rapid technology changes makes difficult for buyers to evaluate suppliers’ performance and predict any likely*

problems that might arise in the production and the delivery of the product". This is similar as Ma (2004, p.913-914) said the business firm cannot produce their products single-handedly especially in the computer industry, which is always rapidly shifting: *"In such an environment, collaboration is a necessity and slow learners will not survive"* (Ma, 2004, p.913-914). The example of Silicon Valley firms suing other firms for stealing their *"know-how"* but still collaborating with each other during the law suits illustrates this. The reason for this is because the firm needs to learn from their competitors in order to get more competitive profits. Moreover, Cox proffered (1999, p.168) the theory of *"co-opetition"*, and explained that the organisation does not have an advantage only from their competitor's failures but that also it is very important to be cooperative with them.

After the firm decide to collaboration, the collaborative relationships require trust and commitment for long-term cooperation along with a willingness to share risks (Sahay, 2003b). Therefore, there is a need to develop a link between the level of trust and commitment, as there is a need for certain actions that benefit both parties to be achieved in order to improve the overall supply chain performance. The example referred to Simpson & Power (2005) involves Japanese automotive companies building up good relationships with their suppliers. This is can range from them send their employees to their suppliers companies to training their

suppliers employees or to assisting in solving problems and improving their suppliers' manufacturing skills. Such action can not only create a better relationship but also build trust between buyer and suppliers.

In other words, when the companies have more trust in their supply chain collaborative partners, then the commitment is express in their relationship. As Jonsson and Zineldin (2003, p.224) said "*The cooperative efforts of channel members should result in greater trust ,commitment, channel efficiency and the achievement of goals, thus leading to higher levels of satisfaction*". In other words, the collaborative relationship builds up trust and commitment, resulting in important benefits from the supply chain collaboration.

2.4.2 The detailed supply chain collaboration processes

2.4.2.1 The network

Sahay (2003a, p.76-77) pointed out that:

"Companies look at their supply chains - the upstream part of the value-chain from the company's perspective - as a means of focusing on their own core competencies, of leveraging those of vendors, of lowering their costs, and, thus, becoming more responsive to customers. Each link in the chain must add competitive advantage".

This can be a network such as sets of supply chain partners that comprise the flow of goods and services from the original sources to the customers.

In addition to this, the supply network is not only a collective of related companies but consists of different settings (Yee and Tan, 2004). Mills (2004, p.1013) stated that supply networks encompass not only the “*upstream*” network of suppliers but also the “*downstream*” network of customers. The supply networks are more focussed on the concept of high-quality products and good services. Yee and Tan (2004, p.355) suggest that “*It is important not to focus just on the inter-firm collaboration and relationships between two independent business units, but to take into consideration other members in the supply network*”. That is why some researchers (Yee and Tan, 2004; Bititci *et al.*, 2004) have highlighted that collaboration can enhance supply network performance.

Bititci *et al.* (2004, p.255) argued that “*the type of value created and obtained by a specific collaboration is dependent on the degree of maturity of that collaboration*”.

That is to say the different collaborative types bring different value for supply chain collaborative partners.

Bititci *et al.* (2004, p.266) stated the value transactions as follows:

- *Shareholder value --- the value proposition of each member to its shareholders.*
- *Individual value proposition --- the value proposition of each member to its customers.*

- *Intra-network value proposition --- the value proposition of each member to the overall network.*
- *Network value proposition --- This is a function of the combined competencies and capabilities of the network but it may be a combination of traditional value propositions in the case of virtual and extended enterprises and a structural and infrastructural value proposition in the case of a supply chain.*

There is guidance for addressing specific supply-related problems, such as choosing the type of supply network suitable for particular circumstances or how the best network technologies enable the effective flow of SCC.

Ultimately, as Mills *et al.* (2004, p.1014) focus on “*the network that is formed by the flow of material, services and associated information*”; they say it extends to the “*technology chains*” and “*knowledge networks*” which are related to the full network of supply chain. From here, as can be seen, technology is a very important part of successful SCC network. This is further explored in the next section.

2.4.2.2 Technological developments in supply chain collaboration

The best network technologies can assist supply chain collaboration partners in communicating with each other. Yet, face-to-face communication between collaborative members that was the traditional medium is becoming an expensive

option. Recently, global business has changed due to the innovation of high-technology tools. It is without doubt that technology can provide a very important link between SCC members.

These new methods of electronic communications have been used as a key tool for at least 20 years (Cagliano *et al.*, 2003). Cagliano *et al.* (2003,p.1142) said “*EDI was the first tool that was widely diffused and enabled this kind of communication, while more recently internet-based applications seem to overcome most of its original limitations*”. Before the internet, the company use the data exchange to communication their orders and improve their products’ quality. The internet has enabled business firms to use more information technology than before.

Mackay *et al.* (2003, p.49) point out that “*Quick response (QR) is a business strategy enabled by IT to improve communication and coordination between supply chain partners*”. They referred to a related approach that creates efficient customer response (ECR), which was originally based on QR, but specifically applies QR values to the organisation. Nevertheless, they say “*QR and ECR are two of the business outcomes firms have used to meet this competitive challenge*” (Mackay *et al.*, 2003, p.49). Using QR, the run of products and the flow of information are both faster than before. It assists the smooth delivery of the products to customers on time, and information technology (IT) can reduce inefficiencies in the supply chain.

Delivery time is significantly shortened due to the reduction of manufacturing and shipment times and increased efficiency in the supply chain.

In addition to this, Zsidisin and Ellram (2001) consider that IT has helped bridge the communication gaps between many organisations. For collaboration, the supply chains' partners need to deal with the customers' data in large amounts so they need more effective systems to help them. The information system is not only for the actual material and information flow but also for product development and collaborative learning within the supply chain collaboration. In other words, the information system is really changing the communication between buyer and suppliers within supply chain collaboration.

As technology changes, the way that business is carried out and the technological systems that facilitate SCC form a solid bridge between the supplier's members and create a link between customers and suppliers. It has become a valuable tool between suppliers and customers.

2.5 The supplier development

2.5.1 Supplier management

Goffin *et al.* (1997) said that the supplier is the provider who offers the material, manages the price and quality then efficiently delivers to their buyers. In other

words, the suppliers can support their buyers to get competitive advantage through product quality and cost reduction; therefore, supplier management is very important in the whole supply chain management.

Goffin *et al.* (1997) describe supplier management as “*organizing the optimal flow of high-quality, value-for-money materials or components to manufacturing companies from a suitable set of innovative suppliers*” Goffin *et al.* (1997, p.422).

The suppliers not only provide high-quality materials but also can join in new products projects with their buyers. This innovation takes on new products or services and sometimes needs to change the supply chain or manufacture processes which are a very significant project for firms (de Brentani, 2001). Therefore, the supplier who has the innovative idea about the raw material can then support their buyer to design the new product together in order to systematize the best supply chain management.

Current supplier management would like suppliers to contribute to new product design, reduce costs and provide the opportunity for improving performance in order to build long-term relationships with buyers (Szwejczeński *et al.*, 2001; Goffin *et al.*, 1997). This can be seen from Goffin *et al.* (1997, p.423) who point out that “*Good suppliers can help manufacturers during the development of new products and processes, with long-term quality improvements and cost reductions*

and can provide enhanced delivery performance". As they say this is really a challenge for the business to choose good key suppliers to maximise performance and be better than their competitors. It is without doubt that good suppliers can not only create new products with their buyer but also increase the whole supply chain channel performance. That is the reason that when academic and practitioners discuss any related topic on supply chain management they must mention the suppliers.

In addition to this, Ndubisi *et al.* (2005, p.334) said that "*Supplier management strategy is the strategy used by the manufacturer to improve its supplier's performance and capabilities to meet the manufacturer's short-term and/or long-term supply need*". It can be seen from the buyer's expectations about choosing the right suppliers that can follow both firms' business strategy in order to train or monitor the suppliers' understanding of the quality or service required to face the rapid, competitive marketing.

On the contrary, Hsu *et al.* (2006, p.232) found that "*buyers are looking beyond price, with the ability to create value and contribute to generating competitive advantage being a more critical consideration*". The critical consideration then, is about buyers wishing to have a long-term relationship with the suppliers, and the negotiated price is less of a consideration in supplier selection.

Moreover, Kannan and Tan (2002, p.11) said “*Greater dependence on suppliers increases the need to effectively manage suppliers. Three dimensions underlie supplier management: (1) effective supplier selection; (2) innovative supplier development strategies; and (3) meaningful supplier performance assessment mechanism*”. On the other hand, after the firms choose their key suppliers, the buyer company would like a supplier with the ability to work with them and support them to accomplish their objectives. This is supported by Leung *et al.* (2005, p.531), who point out that “*A buyer’s favourable judgement will eventually generate a buyer’s satisfaction and hence allows a supplier to contribute to that part of a buyer’s value chain. A buyer’s satisfaction produces credibility and establishes trust with the supplier at organizational level that results in a mutually profitable long-term partnership relationship*”. The long-term partnership relationship allows the buyer to develop more trust in the suppliers who can create more value for them.

In addition to this, Lihong and Goffin (2001) point some factors for management suppliers, such as firm’s size and purchase type, supplier’s organisational culture, political situation, and competitive environment. The different firm’s types also have different purchase types to influence supplier’s management; small businesses may focus on the supplier who can assist them to design innovative products and create a new market but not mind much about the purchase costs. Whether or not

the supplier organisation culture suits the buyer organisation influences the collaborative relationships. The political situation is also a factor in supplier management, especially in the international business when a buyer develops a new market in other countries (Lihong and Goffin, 2001, p.77).

Nevertheless, supply management has developed and the buyer's firms who wish to have a close relationship with their suppliers not only need to better understand their suppliers, but also can add more value through excellent supply management. Once suppliers have been managed, relationships need to be developed.

2.5.2 The supplier relationships

Gadde and Snehota (2000, p.307) said suppliers have been becoming significant within supply chain management since 1990s. They point out that "*No business can do without suppliers and, as a rule; there is a notable continuity in relationships to suppliers*". That is, the supplier has an effect on the future of the company in the technology development, product quality and performance. Yet, not only for this reason, they also point out "*The impact of a specific supplier relationship depends on how it fits into the operations and the strategy of the buying company and how other supplier and customer relationships are affected*" (Gadde and Snehota,2000, p.307). It can be seen that the high-quality supplier role not only focuses on the

product but also needs to match the buyer organisation's culture in order to build up a good relationship.

Before discussing having a good relationship with suppliers, it is necessary to know the organisational buying behaviour. The buyer selects the supplier, who can create more value for them; the value creation includes good service, efficient procurement, effective supply chain management, high-quality, and the use of technologies to choose their key customers and suppliers (Sheth and Sharma, 1997). From this point, Ndubisi *et al.* (2005, p.333) point out that "*To build more effective relationship with suppliers, organizations are using supplier selection criteria to strengthen the selection process*". The suppliers' selection needs to pay more attention to the business firms in order to create more benefits. This also criticises the supplier behaviour, which needs to know the way to develop the supplier relationship to have advantages like competitive advantage, more mutual benefit, and investment and organisation culture. Thus it can be seen when the buyer has a good relationship with suppliers and loyalty can be built up among suppliers, especially when the buyer needs help.

Philipsen *et al.* (2007, p.25) referred to three types of suppliers as standard goods suppliers, traditional suppliers and partnership suppliers. The standard goods suppliers' duty is to provide the basic mechanism and goods for buyers. Next, the

traditional supplier is offering customisation products. The strategic supplier is similar to a partner with their buyers creating more value together for their customers and products development. Conversely, the partnership suppliers can have long-term cooperation and investment relationship. That is why Gadde and Snehota (2000, p.306) suggest that the buyer would like to establish a close 'partnership' with their suppliers and reduce the number of suppliers and only focusing on strategic suppliers. This can also be seen from Hsu *et al.* (2006, 214) who state that "*Supplier selection is a crucial process that addresses how organizations select strategic suppliers to enhance their competitive advantage*". Thus, suppliers' selection is a challenging topic for organisations within supply chain collaboration.

In addition, Chin *et al.* (2006, p.745) said "*The criterion is composed of sourcing strategies, evaluation and selection of potential suppliers, and motivation of suppliers*". According to their description, the strategies consider not only the suppliers but also need to consider the buyers' organisations; for example, how the buyer manufacturing operation decision and the functions are linked to the supplier's location and characteristics. The more important thing for buyers to judge is how the suppliers can share the buyer's vision and achieve their goal. From this point, the buyer also needs to motivate and monitor their suppliers to enhance the

performance. This can be examined in two parts: one is the supplier performance improvement; the other is so that the buyer and suppliers can have a long-term collaborative relationship (Chin *et al.*, 2006).

All in all, the supplier relationship within the firms is vital but what is the supplier development within supply chain managed and what is the influence within dyadic firms?

2.5.3 The development of suppliers

Da Villa and Panizzolo (1996, p.40) stated the history of supplier development from the 1960s and 1970s; the named traditional relationship was arms-length between buyer and supplier. The arms-length relationship allowed the buyer only to have a bargaining relationship with his supplier. In addition they referred from the 1970s and 1980s; the logistic relation is under a medium degree of integration and co-operation between buyer and supplier. On the other hand, the technological development and product innovations factors helped buyer and supplier to have a strong partnership. Then, the partnership relationship was strategic for integrating the relationship between buyer and supplier since the 1990s (Da Villa and Panizzolo, 1996). Yet, Szwejczewski *et al.* (2005, p.878) point out that “*It is unclear how the typical forms of supplier –manufacturer relationship will develop in 2000s*”. The

buyer and supplier relationship has become more complicated which impacts on the internet age in the new millennium. That does not clarify the relationship between buyer and supplier. It is, without doubt, the supplier development that is still very important within supply chain collaboration.

Academics have some theories for explaining this topic of supplier development, and Sanchez-Rodriguez *et al.* (2005, p.290-291) study of the supplier development practices and selected literature (Table2.1) show that products improve supplier accomplishments and can be retuned to progress the buyer's performance. In addition to this, the quality, cost, and delivery are a standard which is an intensive information exchange on the supplier part. Conversely, collaborating with suppliers focuses on raw materials which can develop new materials, then help the buyer to design new products.

Table 2.1: Supplier development practices and selected literature

Supplier development practices	Selected literature
Buying from a limited number of suppliers per purchased item	Forker and Hershauer (2000); Forker <i>et al.</i> , (1999) Krause (1997); Krause (1999); Krause <i>et al.</i> , (2000)
Supplier performance evaluation and feedback	Forker and Hershauer (2000); Forker <i>et al.</i> , (1999); Krause (1997)
Parts standardization	Handfield <i>et al.</i> , (2000)
Supplier certification	Forker and Hershauer (2000); Forker <i>et al.</i> , (1999); Krause (1997); Krause (1999)
Supplier reward and recognition	Krause (1997); Krause(1999); Krause <i>et al.</i> , (2000)
Plant visits to suppliers	Krause (1997)
Training to suppliers	Forker and Hershauer (2000); Forker <i>et al.</i> , (1999); Krause (1997); Krause <i>et al.</i> , (2000)
Intensive information exchange with suppliers (e.g. sharing of accounting and financial data by the supplier and sharing of internal information, such as costs and quality levels, by the supplier)	Krause (1999)
Collaborating with suppliers in materials improvement and the development of new materials	Forker and Hershauer (2000); Forker <i>et al.</i> , (1999)
Involvement of supplier in the buyer's new product development process	Trent and Monczka (1999)

Resource: Sanchez-Rodriguez *et al.*, 2005, p.291.

From the supplier development practices research analysis; they also indicated that supplier skills, time and resources are required to carry out particular activities in the basic, moderate, and advanced supplier development. In the description of the three step supplier development from them, the first step in the basic stage includes making the quality, cost and delivery performance, providing a response to the suppliers and setting up the raw materials of standardisation. Next, the second stage pays attention to the suppliers' performance in upgrading and collaborating with the suppliers regarding materials. In the final step, they point out that "*measures of training provided to suppliers, supplier's involvement in the buyer's new product design process, sharing of accounting information by the supplier, and sharing of cost and quality information by the supplier*" (Sanchez-Rodriguez *et al.*,2005, p.291). From their observations, in the organised steps of the development suppliers, as can be seen, the supplier focuses primarily on the quality, cost, and delivery processes.

Then, the suppliers recognise that collaboration in terms of raw materials can assist them to enjoy more benefits. In other words, this allow suppliers to involve their buyers in the design new products, and then share the cost, quality and information with the other suppliers and buyers during the collaboration. Their buyer is training their suppliers in the high-level supplier development.

In contrast, Theodorakioglou *et al.* (2006,p.149) state that “*The companies, in order to respond to the new market dynamics, reduce the number of suppliers that collaborate with, and especially those who provide the company with components that have a significant impact on the quality of their final product*”. From the buyers’ perspective, the buyers would like to recognise the collaborative suppliers who can manage the new raw materials to manufacture the new products for them to deliver to their final customers with their tactical suppliers.

Therefore, Da Villa and Panizzolo (1996, p.39) said “*the range of activities and services the buyer must provide expands: ability to monitor the supply market, to manage and control the supply network, to offer training and technical assistance and even, sometimes, financial services, to the suppliers*”. The example is the Japanese automotive company which was in competition with western industry throughout the 1980s and 1990s (Ellegaard *et al.*, 2003, p.346). The Japanese company had 300 suppliers, compared to 1,000-2,500 in the west and operated a strict strategy of suppliers but had a close relationship with their main suppliers in order to create more competitive advantage (Wilding and Humphries, 2006, p.311). The Japanese company integrated their up-stream suppliers through effective supply chain management all over the world.

In addition to this, as Ellegaard *et al.* (2003, p.347) state “*a number of environmental and national factors have high importance for the leader companies managing their networks. Most notable is the honour, respect and discipline culture in Japanese industry*”. This is a cultural factor, since the leader company and brand name are greatly respected in Japan. That is why the supplier integration is more simple and quick in the Japanese industry (Ellegaard *et al.*, 2003). The successful Japanese automotive industry is based on their suppliers’ support and collaboration. In other words, the suppliers are in a major position to help the Japanese companies to run their business globally.

Wagner (2006, p.554) referred to some problems of supplier development, such as “*current suppliers are not able to provide a demanded product*”. This is a gap between providing and demanding from suppliers to their buyers; the suppliers cannot know their real demands to provide the right product at the right time. That is why Wagner (2006.p.554) states “*suppliers are either not performing up to expectations or requirements*”. The other problem is that the product’s quality cannot cope with the other competitors.

The critical problem is that the suppliers can not access the main markets (Wagner 2006). For this problem, Wagner (2006, p.554) suggested three methods to move towards the suppliers’ growth from supplier switching, vertical integration, and

supplier development. Firstly, the suppliers need to exchange and examine their sources to help their buyers to create new products. In the second step, the suppliers can involve the manufacturing programme in order to better understand the product processes, although, the aim of supplier development is to enhance the performance of products.

Furthermore, Chandra and Kumar (2000, p.104) said *“It is important to establish strategic partnerships with suppliers for a successful supply chain. Corporations have started to limit the number of suppliers they do business with by implementing vendor review programs”*. The aim of the programme is to know the customer requirements, then provide the products and services for them through the suppliers.

With the advance of supplier partnerships, the firm needs to be acquainted with financial performance to get more strategy sharing and make plans for the supply chain operations. In other words, they need to set up a cross organisational culture and employ forecasting and information technology for the collaboration. The reason for this is that the technological system can help the supplier to analyse the customer’s shopping recode and may be able to enter the customer’s system to link their production schedules and get other useful information (Chandra and Kumar, 2000).

From the above discussion on the development of suppliers, it is not only to know the buyer and supplier relationship but also the need to understand the supplier and supplier relationship. It is necessary to start from the suppliers' integration to find more about the suppliers in the supply chain collaboration.

2.5.4 The suppliers' integration

The original chain part of supply chain management is the suppliers; when the integration among the suppliers is working effectively, then it can influence the success of the whole supply chain's activities.

Ragatz *et al.* (1997, p.191) said "*Effective integration of suppliers into the product value/supply chain will be a key factor for some manufacturers in achieving the improvements necessary to remain competitive*". The reason is suppliers' engage product's cost quality, technology, delivery time and also need to respond their buyers. In other words, when the suppliers make more contribution the new products it can create more benefits within supply chain channel. The critical argument is how to motivate suppliers together to work on new products design. If it succeeds, it will have more competitive capability for all supply chain partners.

Lee-Mortimer (1994, p.42) stated that most companies have cultivated in their suppliers a strategy of a long-term integration, whereby the suppliers are selected

and developed to provide high-quality design and products. He discovered four actions that are associated with suppliers as follow: First, the supplier involvement is a key to integration. The reason is that choosing the correct suppliers can involve product design; managing unfinished and changing information in order to deal with the enlarged load of information path that can respond to changes in it. Secondly, the suppliers must know and contribute to the goal of integration that is very clearly communicated to them. Thus, the goal is an indicator that improving manufacturability can affect competition by offering good services in the integration plan. Thirdly, the internal process of suppliers' integration is the integration of processes, and combining complexity and interdependences of tasks, people, and processes is necessary. In addition to this, the interdependent company has to get used to their partners working together and to think of their partners' needs. Therefore, the collaboration members need a formal agreement to be in accord with the progress of the work. Fourthly, the good partners' relations cannot expect that the agreement and development and maintenance of a relationship is based on trust and good and open communication. Good communication includes open conversation and sensible opportunities within the collaboration members. In short, the integration actions not only focus on the progress and relationship but also have

to know the strategies from the contributions of associated joint ventures (Lee-Mortimer, 1994).

Cousineau *et al.* (2004) stated that many companies use suppliers' integration to obtain competitive benefits; the reason for this is that the suppliers' integration has to be supported by product design, the components of products, systems, processes and customer services. In other words, the materials, products, delivery, cash flows, and customer services can also be involved in suppliers' integration, which makes the whole supply channel more effective. Kim and Oh (2005, p.223) said that "*the supplier can expect to become profitable as well since the manufacturer should buy more from the supplier: this is the primary motivation on the supplier's part to coordinate with the manufacturer for quality improvements*". Hence, the motivation for suppliers is get more benefit form the supply chain channel.

The suppliers' collaboration strategy is the focal point for high quality and lower costs in order to design new products to offer the customers and make more profit (Rich and Hines, 1997). On the other hand, collaboration includes the key suppliers who can provide better performance for the company. Then, the company can manage better value through the process within the supply chain channels and make sure that their product quality and delivery time make the firm more powerful. This situation of making the suppliers powerful is inclined to make the buyers powerful

also. This situation can improve integration incentives and control costs (Rich and Hines, 1997).

On the other hand, Giunipero *et al.* (2006, p.839) said that “*a supplier collaboration module will help ensure that future supplier capacity requirements will be in place to meet future demand requirements for new products and services*”. Hence, collaboration can involve the strategic decisions in the supply chain, such as product design, pricing, production and distribution, to allow the participants to join in the processes, but it is also necessary to consider how to maximise profits. From this viewpoint, Rich and Hines (1997) indicate that suppliers’ partnership means expanding the long-term relationship which can share the benefits and risks inside the partnership. That is why Choi *et al.* (2002, p.119) point out that in “*supplier-supplier relationships, many buyers suggest that the relationship between suppliers is important. Some buyers prefer to have their suppliers not communicate with each other, lest they lose the benefit of competitive pressures*”. Furthermore, there is a development of a structured collaboration process within the information exchanges in order to increase the performance of the supply chain.

Due to the global environmental changes and swift high-technological developments, collaboration is more important, especially suppliers’ association with their buyer within SCC. It can be seen that international firms have to change

when operating a global business and the organisation has to transfer to other countries. The supplier-supplier association can develop the new market to create more new products for their customers. The suppliers' relationship may have been that of competitors in the past, but they are now collaborators in the supply chain.

2.6 Outcome of the Literature Review - the Research Gap

2.6.1 Summary of the literature review

From the prior literature review, the research emphasis is on the significance of supply chain collaboration, and exploring collaborative organisation behaviour and the response processes within the supply chain. Although the literature discussed why collaboration plays a vital role within supply chain management, and how these represent value to the buyer in order to build up a good relationship within suppliers little research discussed suppliers motivations to form collaborative relationships.

Efficient supply chain collaboration has been discussed in the literature review, and, as can be seen, the supply chain channel involves many organisations in the integration of raw materials, the transformation of goods and the delivery of final products to the customers in order to support all sections of the industry (sections 2.1.2 and 2.1.3). From the observation, firstly, the collaboration partners chosen is

one of the most important decision-making problems, since selecting the right suppliers significantly reduces the purchasing costs and improves corporate competitiveness (section 2.2.1). In addition to this, joint decisions may include decisions about items, such as sales and order forecasts, inventories, replenishments, order placements, order deliveries, customer service levels, and pricing. This method enables the supplier to match the supply with the demand from a supply-chain-side perspective and, thereby, improve the profits for the SCC members (section 2.4.1.1).

Secondly, the different collaborative types have different objectives in order to achieve the goal of supply chain collaborations; such as strategic, tactical, operational, and interpersonal and cultural integration.

Thirdly, when the collaborative type choose suppliers' association and then focus more on new product development, order fulfilment and capacity planning, it will help to ensure that future material needs and satisfied (section 2.5.4). At least, this selection needs to formulate the agreement between the collaborative partners. In other words, the formalisation of the ruled procedures, objectives and performance expectation and procedures is necessary for successful collaboration implementation and it is essential to achieve a long term relationship and collaborative arrangement (section 2.2.2).

During the collaborative processes, the partners need to share information, joint planning, joint problems, and joint performance (section 2.2.2) and create competitive advantage through mechanisms, such as increased market access, better material sources and cost-effective transpiration (section 2.2.2). The transaction cost of the supplier-buyer relationship can enhance knowledge and develop a long-term relationship with each other (section 2.2.1). Strictly speaking, this collaborative behaviour includes coordination in order to expand and keep the long-term relationship (section 2.3.2).

Next, it is necessary to have communication, trust and respect, skills and knowledge and intellectual agility within collaboration activities (section 2.2.2). Relationship orientation includes constructs, such as trust and power, because most collaborative partners are not equivalent in terms of bargaining power and, if a partner is to be trusted, that partner cannot take advantage of a relatively stronger situation or behave opportunistically (Section 2.2.2). In taking strategic decisions, they need the power structure to be in place between the collaboration members (section 2.4.1.1).

It is without doubt that the successful development of SCM performance has to focus on customers' needs and expectations (section 2.2.1). That is why responding effectively can help the members to concentrate on ways of improving their rapid responses to customers' requirements and anticipation (section 2.2.3). From the

feedback, the suppliers can also gain innovative ideas, technologies, and market access from their customers. The argument is that, if the supplier does not respond to the customers' needs, then the customer may complain or change their suppliers (section 2.2.3).

The development of suppliers also needs to realise that firms' support plant and go through delivery networks, and then not only focus on the raw material but also to develop new products (2.5.1). In other words, the suppliers' association has to be supported by product design, the components of the products, systems, processes and customer services (section 2.5.2). To ensure that the core objective of satisfying the customer requirements at the lowest cost is achieved is a goal of supply chain collaboration (section 2.2.1).

2.6.2 The research gap

In the 21st century, it is a necessity for businesses to use collaboration to get into competitive positions. Likewise, SCC members can respond to their customers' requirements very quickly and elevate their capabilities much better than ever before. Especially in the new technological age, communication and sharing knowledge with each other is relatively easy. Nowadays, SCC has made collaborative firms more effective than before.

This is why SCC has become a new important strategy for companies seeking to create a competitive advantage. This relationship can be managed through a small number of suppliers. Additionally organisations can work with limited strategic suppliers in order to maintain their collaborative relationships and also cope with the global competition in its supply chain.

Nevertheless, today's SCC extends beyond the first-tier suppliers and customers (Mejza and Wisner, 2001). The companies are also learning to listen to the customers' needs, with both consistency and modularisation being implemented to enable cost-efficient mass customisation. On the other hand, even with supply chain collaborative partners, information sharing may be limited to the easy and occasional sharing of thoughts and views amongst the managers. In summary, the more effective the SCC is, the more competitive the companies becomes. From this review, as expected, not only can SCC play an important role in team work but it can also generate innovation between the internal and external supply chain.

Furthermore, from the above literature review, as can be seen, many researchers (McLaren *et al.*, 2002; Simatupang and Sridharan, 2002; Min *et al.*, 2005) discuss supply chain collaboration, focussing on the buyer-suppliers collaboration but seldom researchers (Giunipero *et al.*, 2006) investigate the association with the suppliers' collaboration.

The collaboration may not start from the original supply chain channels; the suppliers who collaborate in constructing good quality raw materials, on-time delivery, and a quick response to the customers in order to make the whole supply channel successful. In addition to this, when supplier and supplier collaborate together, they can work together to design innovative products for their buyers. This supplier and supplier collaboration can help the partners to find new buyers in order to create their new markets. The argument is why the supplier and supplier collaboration is not very popular within supply chain management. **The research gap concerns supplier and supplier collaboration on horizontal supply chain collaboration type.** On the other hand, it found that most of the literature on supply chain collaboration was from the buyer perspective but the SCC from the supplier perspective is under researched. From here, a key question that needs to be addressed there is what are the key factors in successful supply chain collaboration for suppliers and their development.

What are the issues that prevent supply chain partners from accepting such collaboration if there are really so many benefits as suggested by the scholars' research works presented here? In addition to this, to find out the evidence for help and hampering does the supply chain collaboration. From examining the internal processes and outcomes of supply chain collaboration is to be acquainted with

buyers to understand their suppliers and how suppliers respond to their buyers.

Chapter Three

The background of supply chain collaboration for Taiwanese companies in China

3.0 Introduction

The focus of this chapter is to examine the supply chain channel business environment in practice and to discuss the way in which Taiwanese companies going into China approach supply chain collaboration. The beginning of this chapter links to the previous chapter and discusses the rationale for choosing Taiwanese companies' supply chain collaboration in China for this study.

In order to provide context, the second section of this chapter examines the history of Taiwanese companies' investment in China. This will allow a better understanding of the characteristics of Taiwanese companies and the Taiwanese industrial structure. The third section focuses on the procurement strategy of high-technology industrial companies that invest in China.

The next section discusses the research background related to the research objectives and how this is moving the supply chain to China and working with indigenous local suppliers. Then, the research problems are stated at the end of this chapter.

3.1 The rationale for choosing Taiwanese companies in China

The previous chapter discussed the significance of supply chain collaboration within supply chain management and identified a research gap for supplier and supplier collaboration in a horizontal supply chain collaboration style. It can be seen that the supply chain collaboration plays a vital role and offers value to buyers and suppliers and can facilitate supplier development. Without doubt choosing the right suppliers is an important element of supply chain collaboration.

After discussing the collaborative types within the supply chain collaboration, is the buyer and supplier collaboration more effective than supplier and supplier collaboration or the same? The main reason for choosing Taiwanese companies is that Taiwanese companies have a very good buyer and supplier relationship within the technology industries. Supply chain collaboration is very successful in Taiwan. Add to this that China is an attractive market in the world. The combination of these two reasons, led to the decision to base this research on Taiwanese companies in China. By examining the collaboration between Taiwanese and Chinese companies, the research seeks to fill the research gap on supply chain collaboration.

In general, Taiwanese companies like to get together in a “*satellite*” system to undertake their business and link their buyer and supplier relationships (Hsu, 2006).

In addition to this, this becomes a family guanxi within the Taiwanese network style all over the world. Some of Taiwanese companies undertake original equipment manufacturing (OEM) famous for producing laptops globally. The close buyer and supplier's relationship assists Taiwanese companies in getting more resources support; not only keeping material cost down but also allowing the development of innovative products to keep and create markets. In addition to this, some Taiwanese companies want to transfer their companies from OEM to ODM (Original Design Manufacturing) in the future.

Recently, the world market has focussed on the Chinese market. Taiwanese companies also have this 'China dream' and they think the China is their 'world manufactory' to manufacture the products for trading all over the world. From here, it can be seen, the development of new supply chain channels has moved from Taiwan to China. The critical argument rising is, can the similar culture of two business firms allow them to work together within supply chain collaboration? That is the other reason for this research to be based in China. From this research, it is necessary to know the interaction between Taiwanese and Chinese business firms in order to know their supply chain collaboration situation in China. It is expect to gain a better understating of the way Taiwanese companies operate their supply chain collaboration in China.

To sum up, after discussing supply chain collaboration from the academic perspective; this study will focus on the approach of Taiwanese companies taken in China to better understand supply chain collaboration. This study wishes to discover the evidence of help and hindrance of supply chain collaboration. Furthermore, the supplier development is the other main objective for this study. From here, the research would like to understand how Taiwanese suppliers achieve growth and how Chinese suppliers seek to improve themselves.

All in all, it is necessary to better understand Taiwanese and Chinese business firms.


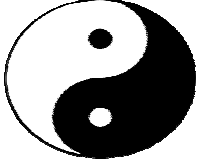

These issues are explored in the following sections.

3.2 Taiwanese companies' investment in China

3.2.1 The characteristics of Taiwanese companies

Yu and Miller (2003) identified the main characteristics of Chinese business style based on three doctrines (see Table3.1).

Table 3.1 The main characteristics of Chinese business style based on Yu and Miller (2003, p.26)

The main characteristics of Chinese business style influenced by the three doctrines			
Pictures & Style	Buddhism	Taoism	Confucianism
			
Business style	<ul style="list-style-type: none"> • Obey • Trust • Morals and stable mentality 	<ul style="list-style-type: none"> • Control • Collectivism • Hierarchy 	<ul style="list-style-type: none"> • Friendship • Network • Loyalty

Source:

Buddhism picture: <http://en.wikipedia.org/wiki/Buddhism>

Taoism picture: <http://en.wikipedia.org/wiki/Taoist>

Confucianism picture: <http://service.moninet.com.tw/gb1/afgb.php?A=j9-chigi&page=10>

Basically, Buddhism, Taoism and Confucianism have deeply influenced Taiwanese thinking and government guidelines for policy. This can see from Yu and Miller (2003) research; Buddhist thought educates businesspeople to obey and trust their partners due to their morals and stable mentality. This educates businesspeople to trust their partners without doubt because of the Buddhist thought that lets them believe that trusting people is the best way to get along with them. Taoism emphasises the link between people and nature to follow nature's rule. Its expression in business style is to teach businesspeople to understand the hierarchy and collectivist meaning. This is reflected in the fact that businesspeople sometimes

do not have any contract but can still run their business. Confucianism is the strongest authority in China, Taiwan, Japan, Korean, Singapore, and Vietnam. Business people use it as a base for their friendships, networks, and loyalty (Yu and Miller, 2003).

For Taiwanese companies, Yu and Miller (2003, p.26) say that *“Taiwan has achieved rapid economic growth through a process of ‘industrialisation’ and ‘westernisation’ which has resulted in a major change in its social culture and economic structures”*. They explain that *“The extension of larger-scale multinational corporations investing in Taiwan has created a challenging environment for both western and Chinese managers in term of management practices and also indirectly changed the local social culture”*. In other words, Taiwanese companies have combined the Chinese and western culture from operating in the global business environment. The critical concern is how can they to balance both cultures and adapt to different social cultures in order to manage their business all over the world.

Due to the geographical limitations in Taiwan, the business style is focused on small and medium-sized enterprises (SMEs) and family businesses. In addition to this, Wei and Christodoulou (1997, p.619) defined Taiwanese manufacturing small and medium-sized enterprises as having: *“1. registered capital: not more than 40*

million NT dollars; 2. employees: not more than 200; 3. a current factory licence”.

Taiwanese SMEs have been enjoying growth and exporting their products from Taiwan. Most Taiwanese SMEs are the suppliers for OEM (original equipment manufacturing) for their buyer companies who are the main OEM companies for the famous (big) brand high-technology companies all over the world. That is why they always rely on the main Taiwanese OEM companies' technology skill and orders for their business and development. In the Taiwanese OEM high-technology business environment, this kind of supply chain channel is said to be like a dragon; a channel to work together through upstream to downstream collaborations. In the 1980s, Taiwan's businesses moved their manufacturing works to developing countries to access cheaper labour and material in order to have more competitive ability (Wei and Christodoulou, 1997).

Yu *et al.* (2007) referred to Taiwanese companies' entrepreneurship characteristics as: (1) guerrilla entrepreneurship; (2) original equipment manufacturer (OEM); (3) small businesses, flexibility and production network; and (4) regional arbitrageur. The characteristics are very clear to see among the Taiwanese manufacturers, especially electronics companies that know how to transfer their resources very effectively to different markets and avoid strong competitors.

Taiwan was fortunate to ride out the Asian financial crisis in 1997 due to the cooperation between companies in a variety of parts (Wong and Tam, 2000). This reason is expressed by Rao (2002,p.634) , who said that *“In Taiwan, many large companies have taken up this partnering system to enhance their competitiveness in the international market, improve the quality of their products, improve environmental performance and reduce their production costs”*. The partnering system is *“called the central firm, which coordinates the transactions between upstream suppliers called satellite firms and downstream buyers to work together”* (Rao, 2002, p.634). According to this description, these Taiwanese companies are operating in a similar way to that described by Hsu (2006). The *“satellite”* system is used to expand the system when they gratify their buyers and word of mouth gets them more buyers.

On the other hand, Rao (2002, p.634) points out that *“The central firm rewards the satellite firms by providing special credits, free staff training on quality and environmental performance, and relaxed audit requirements ”*. This can explain the special relationship, like generating guanxi, to offer special services for buyers to make them feel that they are special or unique; designing training courses for both sets of employees in order to create and improve the products’ quality. The buyer and supplier have a family association to extend their business strategy, like family

members always support you. This promotes family guanxi between buyer and suppliers.

Numazaki (1997 cited in Yu *et al.*, 2007) observes that most of the Taiwanese Laoban (bosses) are the chief within their own company and always use their guanxi to run their family business. It is without doubt that Taiwanese social networking, such as partner and guanxi enterprise activities, is similar to the Chinese traditional customs and cultures. The success of SMEs is not only vital to Taiwan's economic development, but also crucial to the prosperity of many small communities.

In addition to this, Porter (1990, 589) said that "*A firm gains important competitive advantages from the presence in its home nation of world-class buyers, suppliers, and related industries*". However, the home nation supply chain partners can support each other all the time. This can be seen in Taiwanese business firms, as in the high-technology industry, when one main buyer company gets an order, then their suppliers also get more orders from them. This provides more value for the supply chain collaboration. This phenomenon shows how the Taiwanese economy developed in the past. Yet, to continue technological development and face future markets, Porter (1990, p.589) points out "*Having a strong cluster at home unblocks the flow of information and allows deeper and more open contact than is possible*

when dealing with foreign firms". This can be seen in the way that Taiwanese business firms get together to invest in China and work with their Chinese business partners.

Furthermore, Porter (1990, p.680) points out that "*Global strategies not only themselves create new sources of competitive advantage, but provide a better foundation for proactive innovation instead of passive response to foreign OEM customer requests*". The critical and complex global competitive advantage not only includes innovative products but also requires firms to proactively do things before their customers request it. Taiwan has responded on OEM and ODM (Original Design Manufacturing) in the production and export of information products in the "*high tech*" field, to become the world's third largest supplier of information products (Wong *et al.*, 2001). Still, Taiwanese companies think that they need to focus on innovation and upgrade their professional skills from ODM (Original Design Manufacturing) to OBM (Original Brand Manufacturer). This could be a developing history of the Taiwanese business model in the world.

Conversely, Taiwan is a small island and needs to trade with other countries. Based on this reason, Taiwanese companies also need to find factories in other countries to produce and create markets.

3.2.2 The history of Taiwanese companies' investment in China

China has become one of the largest producers of information technology equipment. This has impacted on the Taiwanese economy. This phenomenon is identified by Wang (2004,p.1) as: “*A unique business model whereby orders are received in Taiwan but production takes place in mainland China and goods are shipped from mainland China has gradually taken shape*”. Taiwanese companies receive the orders and then manufacture the products in China and sell their products all over the world.

Lu *et al.* (2003) stated that Taiwan and China has the same culture which is based on Confucian thought and speak a common Chinese language. This allows easier communication for business when there is international trade business between two companies. This can be a business model for the cross strait (Map 3.1) between Taiwan and China industries, and one that will cover the varying political situations. This political situation deals with the complex relationships and interactions between China and Taiwan. They have had two different types of government; the Republic of China (ROC) and the People's Republic of China (PRC) since 1945 after the civil war.

Full (2007) found that in the 1980s, the Taiwanese government steadily relaxed the restrictions on investment and trade to China. Taiwanese companies found other

ways to invest in China. They exported goods indirectly through Hong Kong, and then transferred the trade and investment to China in 1985. This circumstance changed in 1987 when Taiwanese people were permitted to visit China for the first time since the war in 1949 (Map 3.2).

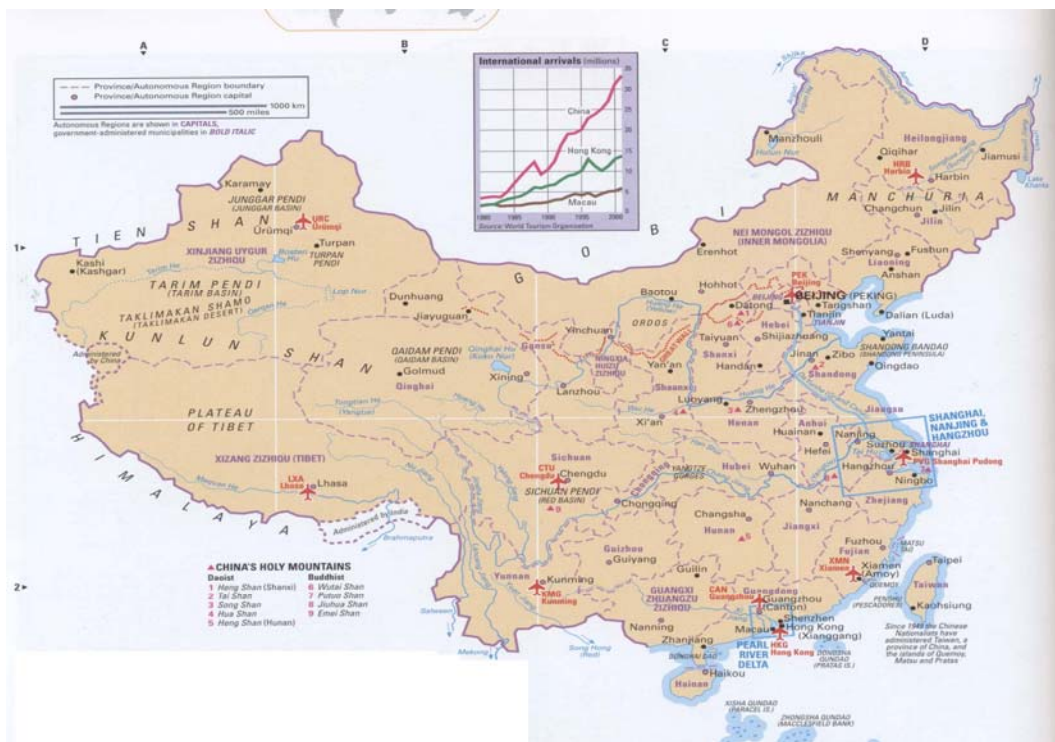
The Taiwanese government changed their policy about the location for activity outside Taiwan in 2001 (Wang, 2004). After this, Taiwan's production capability moved to China where some mass production occurred. This was not only to make laptop computers, their leading electronics export, but also represented a huge increase to China in terms of the supply of IT hardware (Table 3.2).

Map 3.1: Map of Taiwan Strait



Source: Burles (2003, p.125)

Map 3.2: Map of China and Taiwan



Source: Burles (2003, p.126)

Table 3.2 Taiwan's Overseas Investment by Industry, 1952-2002

	Taiwan's overseas Investment (Excluding Mainland China)				Investment in Mainland China	
	1952-1992		1993-2002		1991-2002	
	Approved Investment		Approved Investment		Approved Investment	
	US\$1,000	% of Total	US\$1,000	% of Total	US\$1,000	% of Total
Food and beverages	198,662	6.20	292,642	3.16	1,491,253	6.15
Textiles	232,865	7.26	556,012	6.01	976,944	4.03
Garments	13,832	0.43	238,657	2.58	435,126	1.80
Leather goods	4,440	0.14	20,674	0.22	220,724	0.91
Wood products	33,925	1.06	209,266	2.26	651,411	2.69
Paper products	110,721	3.45	125,678	1.36	626,734	2.59
Chemical	712,530	22.23	947,553	10.24	1,754,643	7.24
Plastics products	147,498	4.60	78,727	0.85	706,729	2.92
Rubber products	-	-	94,294	1.02	1,895,086	7.82
Non-metal products	207,981	6.49	217,615	2.35	1,271,802	5.25
Basic metals	456,676	14.25	438,097	4.74	2,248,162	9.27
Machinery	28,732	0.90	43,930	0.47	875,787	3.61
Electronics & electrical appliances	1,057,767	33.00	5,245,662	56.70	8,669,863	35.77
Transportation	-	-	576,048	6.23	999,963	4.13
Precision instruments	-	-	166,182	1.80	1,416,084	5.84
Total	3,205,629	100.00	9,251,037	100.00	24,240,311	100.00

Source: Investment Commission Website cited in Wang (2004)

After 2002, as can be seen from Table 3.3, the export and import share of Cross-Straits trade increased until 2007. The main reason China has been growing their economy since China's accession to the WTO in 2001 when they opened up their market worldwide.

Table 3.3 The share of Cross-Straits Trade in Taiwan Total Foreign Trade

Unit: %

Period	Estimates by Mainland Affairs Council, ROC		
	export share	import share	total trade
1984	1.40	0.58	1.06
1985	3.21	0.58	2.17
1986	2.04	0.60	1.49
1987	2.28	0.83	1.71
1988	3.70	0.96	2.47
1989	5.03	1.12	3.31
1990	6.54	1.40	4.23
1991	9.79	0.46	5.57
1992	12.84	1.03	7.31
1993	16.28	1.31	9.19
1994	16.99	2.17	9.93
1995	17.15	2.97	10.36
1996	17.63	2.97	10.79
1997	18.08	3.41	11.03
1998	17.62	3.91	11.00
1999	17.22	4.07	11.00
2000	16.46	4.43	10.67
2001	20.27	5.47	13.45
2002	23.30	7.04	15.89
2003	25.43	8.61	17.70
2004	26.83	9.95	18.72
2005	28.36	11.00	20.04
2006	28.27	12.23	20.65
2007	29.13	12.76	21.36
Jan-May			

Note: 1. The denominators are Taiwan's trade volume to the world; the numerators are Taiwan's trade volume to Mainland China

Source: R.O.C. Customers statistics

Wang (2004, p.4) said that *"In this vertical division of labour, the parent company in Taiwan supplied machinery, raw materials and semi-finished goods. After processing, the goods were export to the United States, Europe, or some other market, creating a complementary trade model whereby orders were received in Taiwan but production was performed in mainland China and the finished goods*

were shipped from mainland China". This can be seen from the fact that trade business products from 'made in Taiwan' changed to 'made in China', especially the high-technology products; for example laptop, keyboards, mouse, and so on. Most Taiwanese companies investing in China were SMEs; they operated by renting factory buildings and then importing material from Taiwan to process for export and the finished product's manufacture in China in order to export the goods to their market. This was also a small global supply chain channel. Moreover, after investment in China, some Taiwanese SMEs had a bigger scale and business model than before when they were in Taiwan.

According to the above analysis, it can be seen that Taiwanese companies' investment in China has increased every year. It is critical to discover how Taiwanese and Chinese business companies work together. This is discussed in more detail in the following sections.

3.3 High-technology companies in China

3.3.1 Procurement strategy for raw materials and semi-finished goods

According to Huang and Lin (2006, p.970) "*In high-tech industries, external technical resources generally come from collaboration and technology transfer*".

The reason is that the high-tech industries need elevated research and development

(R&D) to meet the complexities of competitive marketing to develop quickly and use a lot of qualified engineers within the other fashioned industries (Huang and Lin, 2006).

Most Taiwanese companies in the high-technology industry have moved towards investment in China, while primarily the products being made in China were mainly low-end peripherals, such as keyboards, mice and computer casings. Wang (2004) stated that Taiwanese companies that first set up their branches did not use the key point technology in that location or to purchase the raw materials from Taiwan. In addition to this, Wang said that *“If the raw material suppliers in the home country move production to that investment location too, causing an industry cluster to take shape, then it is inevitable that the overseas operation in question will become localized”* (Wang, 2004, p.5). It is very clear to see this in Taiwanese high-technology companies in China.

3.3.2 Collaboration between supplier and buyer within Taiwan’s high-technology industrial

Serve *et al.* (2002, p.251) stated that *“The benefits of developing supply chain efficiencies using B2B are many. Collaboration among supply chain vendors improves demand forecasts, promotes efficient inventory management, and reduces*

cycle times". Business and business would like to collaborate with each other; the reason is they know they can benefit from the supply chain channel on lead time and more support from their supply chain partner. This is found in Taiwanese business firms within the high-technology industry.

Intellectual property is a very important factor within high-tech industries. This can be seen from Serve *et al.* (2002, p.251), who said that "*Intelligence about the customer and what the customer has ordered is transmitted upstream, so that every organization in the supply chain has visibility re the information and can respond accordingly*". They think that an effective supply chain not only has an effective supply chain flow with its partners but can also share information within the supply chain partners. They add that "*When information is made immediately available to supply chain members, tier1 and tier2 suppliers can act immediately, thereby eliminating the delays that created inefficiencies in the past*" (Serve *et al.*, 2002, p.251). This can let the supply chain channel run more smoothly and bring into line the internal and external processes in order to achieve the goal of supply chain management.

According to Chin *et al.* (2001) the evolution of quality management in China consisted of several phases. Phase I (from 1949-1956) was influenced by Russia's model which focused on central control by the government so that the companies

did not have independent quality control departments. Next, in the Chinese quality control period (from 1957-1977), the employees discussed the quality troubles and gained knowledge of techniques from each other, but this was destroyed by the Cultural Revolution in 1966 (Hopkins *et al.*, 2004). In the next phase (from 1978-2000), the TQM concept entered China's companies rapidly from foreign companies who invested in China. Subsequently, Chin *et al.* (2001, p.843) said that

“Some studies also found that many Chinese enterprises have not built their own strengths of quality management practices, and are relying heavily on the support from their parent or partner companies that invested in China”. In other words, Chinese business firms do not undertake the products' quality control. Their foreign business needs to monitor or request the products quality control to run the business in China.

Furthermore, Hopkins *et al.* (2004, p.374) concluded from their research that

“managers and workers in the PRC (People's Republic of China) do not have as good an understanding of modern quality management principles as managers and workers in the ROC (Republic of China, Taiwan)”. The reason is that Chinese business firms do not have the concept of product quality control management. As can be seen, quality control is not very efficiency in China. On the other hand, Taiwanese companies are trading all over the world so they have more trade

business experiences than most Chinese business firms. That is why Taiwanese business firms have more focus on the products' quality management than Chinese business firms.

To sum up, there are two main points to work with Taiwan's high-technology companies, one is intelligence, and the other one is high-quality products. When their supply chain collaborative firms can more pay more attention to it, it can increase the value to each partner within supply chain collaboration.

Nevertheless, firms can also move backwards or forward to different stages in a supply chain, such as moving from the production of finished goods to intermediates or raw materials with supply chain collaboration.

3.4 The research background rationale for the research problems

3.4.1 Moving supply chains to China

Many manufacturers move to lower investment countries, such as India and Morocco, where business firms can get low cost labour and some preferential investment advantages. Also, some business firms go to developing countries in order to access new markets that often require companies. The business firms have to choose their target market to cope with their competitors and extend their business territory. In addition, the first consideration regarding the target market

occupied is to use lower cost materials to create more innovation products and so obtain competitive ability.

There are three points from Morgan's (2007, p.270) research on the supply network:

1. *“The economic focus for world manufacturing and trade will continue to shift to non-western areas of the world, so the issue of cultural assimilation or flexibility will gain in importance throughout the supply networks of the world. Measuring cultural interactions in supply networks is still in its infancy and will undoubtedly require some new approaches that are as yet undefined. However, as has already been argued, this development will be essential if effective international supply networks are to be established”.*

2. *“The nonlinearity of changes in the world's climate will have major changes on both local and international trade. Weather patterns will become more extreme and the ability to monitor and predicting these changes will require significantly different types of performance measurement in the future if supply networks are to remain robust and relatively risk free”.*

3. *“The dwindling reserves of fossil fuels will inevitably lead to price rises. In turn these will eventually require supply network organisations to address total supply network costs – an area that is largely unexplored at present. To achieve this total cost profile will require unprecedented level of cooperation between organisations,*

especially in the area of comparative financial performance measurement and the agreement on measurement standards”.

From the three points, it can be seen that future supply network will be global with supply chain channel crossing different cultures between the trade businesses. It will also need to monitor and work on different types of supply chain collaboration. In addition to this, cost control is becoming more important, especially in different countries. There is also a need for agreement within supply networks at this time (Morgan, 2007). Nevertheless, business buyers have more incentives to choose their suppliers in their target market of developing countries. It is becoming recognised that marketing has become the responsibility of different cultures in business organisations in recent years (Strzelczak and Hung, 2006). Without a doubt, cultural phenomena influence marketing success, as proved by the corporate stage and economic growth at the national level, since cultural interferences were visible in business ventures and processes of successful economic integration. Culture is recognised by Strzelczak and Hung (2006), who indicated that practices, traditions, communication patterns, knowledge and any other capabilities and habits acquired by a population are valid in the business context.

On the other hand, the comprehensible cultural differences between Western countries and China influence their supply chain collaboration and organisation

behaviour within their reliability, trust, learning and decisions making patterns (Strelczak and Strelczak, 2004). Even though Taiwanese and Chinese business firms have a similar culture, they still need to spend more time communicating with each other. The good thing is they do not need to take a long time and it is easier than for other foreign business firms in supply chain collaboration.

Taiwanese companies moving into China look as if they can take advantage of the low labour costs and increased market opportunities in order to develop global markets. Taiwanese and Chinese companies speak the same language within the supply chain collaboration relationships; the fact that different politics may influence them is a crack in the collaborative relationships.

3.4.2 To work with indigenous local suppliers

Serve *et al.* (2002) said people play an important role within supply chain collaboration. This is seen from Fawcett *et al.* (2008.p.45) research findings, who point out that *“Forming the right teams for the right tasks will then result in well-defined pilot projects and success stories that will help create buy-in from other organizations members and thus increase their commitment to SC collaboration”*.

The people are the key factor as they operate the whole supply chain to make successful collaborative innovations. When the supply chain collaboration is

working with the right partners, they will interact with one another within the whole supply chain channel. They do not need to spend more time on training or education; they can see the benefit from supply chain collaboration.

The Taiwanese manufacturing industry gives the impression of effective industrial networks composed of a particular manufacturer within wide entrepreneurship and the capability to face changing circumstances (Brookfield, 2003). Many Taiwanese suppliers have moved with their buyers to China, which Hsu (2006) calls a 'Chicken's nest', since the prior collaborative relationships are certain to move and help the core firms to replicate their supply chains swiftly in China. This means their main buyer company will invest in China and then supplier companies will follow them to China. At the beginning, all of them will set up their branch manufactures close together in the same city in China. After a period, the buyer and their suppliers still need to look for cheaper materials or find new business partners in China. From here, Taiwanese business firms would like to see what their local Chinese suppliers firms can learn from them or their Taiwanese suppliers. This not only can get a market in China but also can help Chinese suppliers' development.

According to the Chinese government policies or for other reasons, such as reducing costs, Taiwanese companies need to buy materials from their local suppliers. The reason for this is because Taiwanese companies that export their materials to China

will be charged high taxes, and must then increase their products' cost and so lose competitive ability. The solution is that Taiwanese companies need to collaborate with their local suppliers. This not only can pass muster with the Chinese government policy regulations but also leads to a better understanding of their local customers through the local suppliers. Based on this situation, Taiwanese companies may consider linking up their local suppliers to cope with the competitive surroundings and contraction of the supply chain to emulate other global firms, taking advantage of the supplier network and local linkages (Brookfield, 2003). There is an argument that choosing a local supplier needs to consider many conditions, before they agree to a proposal.

This is a very big change and is more flexible than before; Taiwanese companies not only cooperate with their previous Taiwanese supplier partners who follow them into China but also their local suppliers to develop new products. These products may meet local demand and be competitive in new markets all over the world.

3.5 Finding out the research problems

3.5.1 Summary

From the above review of the Taiwanese companies' investment in China, it can be concluded that most Taiwanese companies follow a SME business structure,

especially in high-technology industries (section 3.2.1 and section 3.3). The Taiwanese companies are famous for OEM and do business with well-known companies in the world. In addition to this, the Taiwanese companies need to have a good long-term relationship with their suppliers because they need to collaborate together in order to get the materials cost down and innovate products for their customers. The Taiwanese companies from buyer to suppliers are like “*satellite*” organisations that get together. This can be said to be a chain reaction from the buyer to their suppliers’ reflection in supply chain operations within collaborative partners, such as the transfer to the target markets (section 3.2.1). The fact is, the Taiwanese companies have improved their production base, and transferred their physical work to lower cost areas like China but they keep their coordination centre and R&D department in Taiwan. The main point is that the laptop companies prefer to work together with existing suppliers to improve costs and quality (section 3.3.2). On the other hand, there are two reasons for Chinese companies welcoming Taiwanese companies, one is they want to learn from the business and technology experiences from Taiwanese companies. The other reason is that the Taiwanese companies’ have a similar language and culture compared with other countries (section 3.2.2), and the growth in the cross-strait economic and trade exchanges

between Taiwan and China. Furthermore, they are investing more effort and R&D energy to develop products that meet the tastes of China's consumers (section 3.3.1). It is without a doubt that culture is a key element in running trade business. It is very clearly that the comprehensible cultural differences between Western countries and China influence their supply chain collaboration and organisation behaviour within their reliability, trust, learning and decisions-making patterns (section 3.4.1). Nevertheless, Taiwanese companies went to China not only to invest but also to set up their 'world manufactory' in order to get to their markets all over the world. It is very different because Taiwanese firms have always collaborated with their previous Taiwanese supplier partners but after going to China, they are considering or collaborating with local Chinese suppliers in order to design new products that suit the local market and might be competitive in the new markets all over the world (section 3.4.2).

3.5.2 The research problems

Recently, the trade business has focused on the China market. They not only want to invest there because of the lower labour costs but also wanted to do successful business there. Kristensen and Gronhaug (2007) referred to some problems about cooperation, such as different language, personalities (culture), reciprocal

expectations, physical barriers and lack of information to innovate the products.

Still, the Taiwanese and Chinese companies speak the same language but does that mean they can collaborate well together. Will the Chinese suppliers treat the Taiwanese buyer and suppliers like a family and always agree by implication with the collaborative relationship?

On the other hand, what is the real reason that Taiwanese buyers want to collaborate with Chinese suppliers in order to know the difference between Taiwanese and Chinese suppliers' development? The research problem is that when firms engage in collaboration, it is necessary to understand that while Taiwanese and Chinese companies do have a similar culture, there is still a gap. The main question is, how does supply chain collaboration work for Taiwanese companies in China?

Moreover, what has been the Chinese and Taiwanese suppliers' development since Taiwanese companies went into China? Trying to find the best supply chain collaboration way for Taiwanese and Chinese companies, the following chapter discusses the methodology used to assist the researcher in discovering more practical phenomena during the research process and explore the consequences of the research problems.

Chapter Four

Methodology

4.0 Introduction

This chapter presents the methodology for this study. Building on the previous two chapters that reviewed the relevant literature in this area, it begins by establishing the focus of research questions on supply chain collaboration for Taiwanese companies in China. After establishing the research questions, it is necessary to investigate the methodology schemes, and compare the advantages and disadvantages of qualitative and quantitative research. This leads to the decision on the choice of methodology to suit this study. Based on this rationale, a method is selected and an explanation is given of the fieldwork design and the particulars of the context.

Subsequently, this chapter gives an outline of the selected companies and interview processes. Following the pre-interview practice, the design of the interview schedule was revised for the objectives of this research. The final two sections provide an explanation of the data analysis used for this study and the limitations of the analysis, connected with the present research.

4.1 The focus of research questions

The literature review discussion led to research questions on the subject of the supply chain collaboration. The focus is Taiwanese companies who use supply chain collaboration in China. The research objectives will be designed to address these research questions within Taiwanese companies' collaborative supply chain collaboration practice in China. The main reason for the chosen focus is due to Taiwanese companies in the technological industries being successful in the supply chain channel with good long-term buyer and supplier relationships. The question is, how do Taiwanese buyers work with their Taiwanese and Chinese partners and what has been the resulting Taiwanese and Chinese supplier development within supply chain collaborations in China?

The business process is extremely multifaceted, especially within marketing and purchasing companies, and engages the high-technological ability and financial association. The purchasing processes and decisions are multidisciplinary and multifaceted, involving two dependent buyer and supplier firms in long-term collaboration. The long-term collaboration relationship is reflected in the suppliers' development. From this perspective, it is necessary to develop a comprehensive and normative representation of collaboration.

The collaboration firms involve the dependence of buyer-supplier organisations among business operations in supply chain collaboration. Therefore, this collaborative partnership focuses on the buyer and suppliers' perspectives in dyads. Moreover, it is necessary to understand the motivation of the organisation buyers' and suppliers' behaviour in connection with major strategic decisions. The motivation identified is the commercial benefits to firms in providing their products and services. In addition to this, suppliers need to respond to their buyers; buyers need to gain a better understanding of their suppliers' motivation.

The main research questions arising from Taiwanese companies operating in China are:

Q1: How does supply chain collaboration work for Taiwanese companies in China?

Q2: What is the supplier development between Taiwanese and Chinese suppliers within supply chain collaboration in China?

Q3: How do Chinese suppliers' organisations respond to the Taiwanese buyers and suppliers in China?

Q4: How do Taiwanese organisations as buyers understand the Taiwanese and Chinese suppliers' motivation in China?

Based on these key questions, more detailed factors are identified to assist in answering the research questions. The research objectives can be grouped according to these questions leading to a more focussed discussion of the methodology.

First of all, there are many factors that influence the buying preferences of the buyer firms, which are very significant in addition to technical and economic considerations. Some of the concepts of sociology and psychology are subtle and not easy to identify (Chisnall, 1995). For example, in business negotiations, the communication between the buying and selling companies are at both corporate and individual levels. At the former level, contractual responsibilities are arranged.

In addition, the agreements influence organisations' collaborative processes in order to build up a good relationship within the supply chain collaboration. According to the buyer-suppliers' collaborative arrangements, both firms can make a strategy decision to manage performance measurement and change the rules between collaborative firms.

Buyers buy products and services for their organisation, and their buying behaviour is also influenced by these arrangements. The buying behaviour is multifaceted , such as the firm's environment (physical, technological, economic, political, legal, cultural), organisation (technology, structure, goals and tasks, actors), buyer centre (technological constraints and technology available to the group, group structure,

group tasks, member characteristics and goals, leadership), and the buying decisions (Webster and Wind, 1972 cited in Chisnall, 1995).

The buyers' responsibilities refer to the extent of their responsibility for the different decisions relating to purchases. Examples include the setting of the levels of stock held, deciding on a purchased product specification, as well as setting order quantities, delivery dates, pricing targets, etc (Ford, 1993). The first main objective arises from the above argument:

Objective1: To provide empirical evidence on supply chain collaboration.

The value generated by the suppliers for a buyer can contribute to their collaboration with suppliers. The suppliers' value also includes reducing the cost, and then creating more benefits and improving competitiveness. Suppliers need to measure and monitor the relationship in order to improve their performance, be proactive and constantly improve the products or services they are offering. The critical issue is that the suppliers not only provide value themselves but also they have to think of the buyer's requirement and not the buyer's desire.

Nevertheless, power is one of motivations for the suppliers to be responsive to their buyer. When the suppliers are more powerful than the buyer, they may wish to

transfer knowledge and skill competences to their buyer in order to have a good relationship.

Hence, when the buyer and suppliers are able to increase their effective supply network based on trust and good communication, the network assistant collaboration members can achieve TQM and manage the aim to gather the buyer's requirements to solve problems. Those factors are responsive to the buyer and create successful supply chain collaboration. These factors include order quantities, good payment systems, delivery times, and good communication with their collaborative suppliers. Suppliers have to change their service level and redesign the products with the buyer. On the other hand, buyers have to consider the local government policies and the other economic elements. Nevertheless, the technological instruments, and cultural and competitive factors also have to be considered during the supply chain collaboration processes.

There are two main objectives arising here:

Objective 2: To evaluate supplier development within supply chain collaboration.

Objective 3: To investigate the internal process of supply chain collaboration.

It is more of an advantage than a disadvantage to be collaborative partners, especially in a supply channel, providing conditions allow a balance that is a philosophy of collaboration within buyer-suppliers. Companies can use theories and tools, such as a relationship portfolio analysis and key account management to determine their marketing strategy, while existing relationships must be maintained and strengthened to protect against growing competitive pressures. The main point to survive in the increasingly international competitive environment is that suppliers must aggressively seek to establish new relationships both in the domestic and foreign markets. It is doubtless important to examine the outcomes of supply chain collaboration.

Objective 4: To examine the outcomes of supply chain collaboration.

In addition to this, to identify four main objectives to employ in the research fieldwork, it is important to establish where Taiwanese companies are in China. That is, to see the supply chain channel being used across two countries to run their global marketing. Hence, international supply chain collaboration needs to consider many elements, such as the cultural phenomena within customs' requests and values (Strzelczak and Huang, 2006). From those factors, the research questions become evident, followed by the research aim, which is to find out what motivates suppliers

to build long-term relationships with their buyers within supply chain collaborations in Taiwanese and Chinese companies.

Having established the questions, the issue then turns to the most appropriate methodology to use.

4.2 Methodological issues

4.2.1 The research methodology options

After outlining the research questions, it is necessary to identify the most appropriate methodology for this study. It is essential to recognise the philosophical methodology function before to choosing this research methodology. According to Easterby-Smith *et al.* (1991, p.21) there are three points to be considered: the first, the methodology can assist in making the research design clear. The research design includes where and how to collect the evidence data for providing good interpreted to answer the research questions. Secondly, a knowledge of the philosophy lets the researcher know how to avoid mistakes and points up the limitations for their research. The third one is that the knowledge of philosophy can create the dissimilar subject or knowledge structures from the research design from researchers past experiences. That is to say the research method is significant in linking theory and

data in the research. In brief, Creswell (2003, p.5) identifies three questions to think about when designing research methodologies:

“What knowledge claims are being made by the researcher (including a theoretical perspective)? What strategies of inquiry will inform the procedures? What method of data collection and analysis will be used?”

Healy and Perry (2000, p.118) pointed that *“In essence, the aim of much marketing research is to describe and explain complex, social science phenomena. An appropriate scientific paradigm within which to research these marketing phenomena is realism”*. They also stated that there are four paradigm groups: positivism, critical theory, constructivism and realism. Each of them has three elements which are ontology, epistemology, and methodologies. Marketing research seeks a deep explanation for phenomena and can be based on realism research. The common methodologies, are for realize focus case studies for convergent groups, using interviewing and triangulation, for the interpretation of research subject by qualitative or quantitative methods (Healy and Perry, 2000, p.119).

In management research, Sobh and Perry (2006, p.1199) said *“Realism is an increasingly useful worldview for some social scientists. Indeed, it is a “growing movement transforming the intellectual scene”*”. In marketing research, the realism paradigm is more accepted because the aim of research needs to explain more phenomena between the academic research and industrial practices (Healy and Perry (2000). In other words, Thompson and Perry (2004, p.406) said *“the realism*

paradigm was appropriate for the generalising project in the example action research experience because it was about the external reality of tendering for any development aid projects by any firm". They describe that the example project can build up theory about the development and in general. In addition, the research framework relates the research topic to all projects developed from the research literature reviews.

There are two main methodologies: quantitative and qualitative. Quantitative research focuses on statistical techniques (Jobber and Horgan, 1987 cited in Easterby-Smith *et al.*, 1991). Qualitative research explores social constructs, such as: human beliefs, behaviours, perceptions and values. It is essential to make use of research methods drawn from this perspective to conduct observation and qualitative interviews (Hirschman, 1986 cited Easterby-Smith *et al.*, 1991). It can be seen that the big difference between qualitative and quantitative research is based on how the data is collected. If the research subjects can collect more data, then it is possible to adopt quantitative research. On the other hand, when the research needs more in-depth explanations, one can choose qualitative research. Nevertheless, the research methodology is founded on the theory, and then the researcher can choose which methodology to use for their research questions (Martin, 1981).

The main point is to decide which methodology to use for the research subject, based on the nature of the research questions. After outlining the research questions, the methods suited for this research should become clearer. The following section discusses methodologies in more detail.

4.2.2 Qualitative vs. Quantitative research

The nature of research can be either qualitative or quantitative. Qualitative research is a method based on small samples intended to provide insight and understanding of the problem setting which one is more focused on the analysis of data, such as words (Malhotra, 1996). Quantitative research involves the collection of primary data from a large number of individuals, frequently with the intention of projecting the results to the larger population (Martins *et al.*, 1996). Therefore, Black (1999) referred to the two research methodologies' differences: Quantitative research is based on the collection of data from representative samples from large populations but qualitative research involves a more in-depth investigation of the topic.

In short, Matveev (2002) summarised that the quantitative methods offer a high level of measurement precision and statistical power, while qualitative methods offer in-depth information about the natural world's communication in the research.

After that, he points out the strengths and weaknesses of quantitative and qualitative

research as follows: The advantage of the quantitative method is that it is able to state a research problem and both the independent and the dependent variables for investigation. It is necessary to have formal research goals, and test the hypotheses and findings in order to draw conclusions. It is important to finish the collection of reliable data consequent to the forced observations, using laboratory experiments.

In addition to this, it measures the successive performance of the research subjects.

The disadvantage of the quantitative method is that it cannot provide the researcher with information about where the research phenomenon occurs. It is incapable of controlling the environment in which the respondents answer the survey. It is only outlined in the original research proposal from the closed type questions and the structured format, and cannot encourage the evolution and continuous investigation of a research phenomenon (Matveev, 2002).

On the other hand, the advantage of the qualitative method is that provides a more realistic feel of the real world compared with quantitative research, which cannot be experienced in the numerical data and statistical analysis used. It is more flexible for data collection, followed by the analysis, and interpretation of the collected information, such as interviews and experiments. In addition to this, it offers a holistic view of the phenomena under investigation and the ability to interact with the research subjects in their own language. The disadvantage of the qualitative

method depends on the personal characteristics of the researcher and reaches different conclusions based on the same information; it is difficult to explain the information obtained from different respondents. It requires a high level of experience of the respondents' knowledge. The respondent only tells some particular stories and ignores others, causing a lack of reliability (Matveev, 2002).

Further, Creswell (2003) compares qualitative research to quantitative research and finds that the former needs to choose participants, sites, documents or visual material but that this does not necessarily suggest random sampling or the selection of a large number of participants and sites, as typically found in quantitative research. He said that validity does not produce suggestions in quantitative research but that qualitative researchers can use reliability to check for the reliability of subject development.

Chang (2000, p.241-242) uses the scientific view to compare quantitative and qualitative research:

1. From the ontological point of view: quantitative research believes that the world exists objectively; qualitative research thinks that the world belongs to human subjectivity and the research can interpret it.

2. From the epistemological view: quantitative research means exploring the world objectively; qualitative research thinks that the researcher has to join or close-up the data, and then acquires a real understanding.

3. From the methodological perspective: quantitative research uses the data to find the results and it also analyses the results from the various data. Qualitative research means in-depth investigation to discover the idiographic factors and emphasis in the same situation to find out the differences.

Quantitative research needs to hypothesize the questions for the survey but the hypotheses do not catch the research aim and the findings cannot solve and discover the research problems. Quantitative researchers also need to produce statistics for the large numbers from the questionnaires. The advantage of quantitative research is that it can get most of the respondents' results. On the other hand, the disadvantage is that it can obtain a broader response and solve simple questions but that does not mean that it can get more deep feedback (Chang, 2000).

Qualitative research does not need to have a hypothesis. It is very deep research to explore a social phenomenon. It also discusses the why and how questions to find out the research problems. The benefit is that qualitative research can know the deep answers but may be receive a few reviews from their respondents. The disadvantage is that the findings from a few respondents cannot reveal most of the observation

(Chang, 2000). More details about qualitative research discussions are in the next section.

4.2.3 Definitional qualitative research

4.2.3.1 The definition of qualitative research

Qualitative research, according to Creswell (2003), is interpretative research, with the inquirer characteristically concerned with a continued experience with the participants. Locke *et al.* (2000) supposed that this introduces a range of strategic, ethical, and personal issues into the qualitative research process. Hesse-Biber and Leavy (2004) assumed that it is a divided field of investigation that encompasses microanalyses drawing on historical, comparative, structural, observational, and interrelation ways of knowing.

The above scholars illustrate how qualitative research is a focus of the interpretative script and considers the participants' experiences and picture of historical, further comparative and observational research. In addition to this, Denzin and Lincoln (2005,p.3-4) said “*Qualitative research involves the studied use and collection of a variety of empirical materials --- case study; personal experience; introspection; life story, interview; artefacts; cultural texts and productions; observational, historical, international, and visual texts --- that describe routine and problematic*

moments and meanings in individuals' lives". In other words, the qualitative purpose is to describe, explain and predict real world phenomena, involving how to use qualitative data to explain or understand social phenomena.

Consequently, the classification of qualitative research includes interpretive, action research, case study, ethnography, discourse, and hermeneutics (Chang, 2000). The reason for this is that it builds on both the scientific and philosophical foundation to observe social phenomena. A social phenomenon cannot only be expressed by language, but is about emotion. That is why human behaviour is not fixed, specific, or impersonal, but depends on people, affairs and places. This identifies the qualitative research's purpose, not only explanation, but also interpretation. Recently, qualitative research has provoked a more challenging and striking debate. The challenge is to the ability of the researcher to discover the truths and represent the realities of others (Mason, 2004). In other words, the qualitative debate, as can be seen, argues that the more details that form the characteristics of qualitative research, the easier it is to find answers from them.

4.2.3.2 The characteristics of qualitative research

Additionally, according to Creswell (2003, pp.181-182) the characteristics of qualitative research are:

- Qualitative research takes place in a natural setting.
- Qualitative research uses multiple methods that are interactive.
- Qualitative research is emergent rather than tightly prefigured.
- Qualitative research is fundamentally interpretive.
- Qualitative research views social phenomena holistically.

According to their explanation: at first, the qualitative researcher is required to go to the place (home, office, public place) to do the survey and collect data from the participants. From the collected data, it is possible to discover the aspects that emerge because qualitative research is more tightly prefigured. Those aspects, similar to the questions, may change and be refined as the inquirer learns what to ask and to whom it should be asked. It can help the researcher to learn about the phenomena of the participants' interest. On the other hand, qualitative research is basically interpretive because the researcher has to explain the data very clearly and develop a description of it, although this research has to be careful not to bring any personal interpretation to the qualitative data analysis. The reason is that the qualitative research vision is a social phenomenon holistically. Qualitative research comes into the observation from a broad, panoramic view rather than micro-analysis. The researcher uses complex reasoning that is multifaceted and simultaneous and thinking about the process back and forth from the data collection and analysis.

Furthermore, the researcher has to adopt and use one or more strategies of inquiry as a guide for the procedures in the qualitative study.

Mason (2004) defines several points regarding qualitative research; it has to be responsible for its quality and its claims. The researcher cannot hold a judgemental position, but provide material for the reader to judge. That is why qualitative research should involve critical self-scrutiny by the researcher. In addition to this, qualitative research should produce explanations or arguments, rather than claiming to offer mere descriptions. Qualitative research should be conducted as a moral practice with regard to its political context. This process will be discussed in the next section.

4.2.3.3 Qualitative data collection procedures

The qualitative data collection procedures defined by Creswell (2003, p.185-188) include the following steps:

First step: Identify the purposefully selected sites or individuals for the proposed study. To select participants or sites will best help the researcher to understand the research problems. Miles and Huberman (1994 cited in Creswell 2003, p.185) talk about the participants and site from four aspects:

1. The setting: Where the research will take place?

2. The actors: Who will be observed or interviewed?
3. The events: What the actors will be observed or interviewed doing?
4. The process: The events undertake by the actors within the setting.

The researcher has to find the place, and who will be observed or interviewed, which event will be explored and what is the events process, as the first step.

Secondly, the collection procedures in qualitative research involve four basic styles (Creswell, 2003, p.186-187), as shown in table 4.1:

1. Observations: the researcher has to know the role as an observer during the research. The main advantage of this style is that is possible to obtain firsthand experience with the participants. The disadvantage is that the information about secrets cannot be published or reported.
2. Interviews: there are three kinds of option; face-to-face, telephone, or group interviews. The interviewee may provide the past data but it is not indirect data.
3. Documents from newspapers, journals, diaries, and e-mail: hand written work is evidence. The documents collected can save money and time but some materials are not good for validity and reliability in research.
4. Audiovisual materials: these include photographs, videotapes, art objects, computer software, and film. The benefit is providing an opportunity for the

participants to directly share their realism, but the weak spot is that the presence of observers may be disruptive and affect the responses.

The third step is to analyse the data and interpretation; the process of data analysis includes preparing the data for analysis, then thinking of the different analyses methods to progress to a deeper understanding of the data. It is necessary to represent the data and do some description of the extensive meaning of it. The data analysis is an ongoing process and affects all of the participant information. The analysis results can be presented in tables, graphs and figures. Interpreting means comparing the findings with the past literature and theory, raising questions, and advancing an agenda. In the end, the final step has to make a proposal to mention the strategies that were used to validate the accuracy of the findings (Creswell, 2003, p.188).

Qualitative research is very strong in terms of validity and gives good suggestions from the findings for the reader (Creswell and Miller, 2000). For this reason, Creswell (2003) recommended that the research proposal should identify and discuss one or more strategies to check the findings. The strategies include triangulating the data to examine the evidence from the source, using rich and thick descriptions to express the findings. It also has to help the researchers to clarify

their study and present negative or discrepant information for their research, and then provide an in-depth understanding of the phenomenon to enhance the truth.

Data collection types	Options within types	Advantage of the type	Limitations of the type
Observations	<ol style="list-style-type: none"> 1. Complete participant: research conceals role 2. Observer as participant: role of researcher is known 3. Participant as observer: observation role secondary to participant role 4. Complete observer: researcher observes without participating 	<ol style="list-style-type: none"> 1. Researcher has firsthand experience with participants 2. Research can record information as it is revealed 3. Unusual aspects can be noticed during observation 4. Useful in exploring topics that may be uncomfortable for participants to discuss 	<ol style="list-style-type: none"> 1. Researcher may be seen as intrusive 2. “Private” information may be observed that the researcher cannot report 3. Researcher may not have good attending and observing skills 4. Certain participants (e.g., children) may present special problems in gaining rapport
Interviews	<ol style="list-style-type: none"> 1. Face-to-face: one on one, in-person interview 2. Telephone: researcher interviews by phone 3. Groups: researcher interviews participants in a group 	<ol style="list-style-type: none"> 1. Useful when participants cannot be observed directly 2. Participants can provide historical information 3. Allows research “control” over the line of questioning 	<ol style="list-style-type: none"> 1. Provides “indirect” information filtered through the views of interviewees 2. Provides information in a designated “place” rather than the natural field setting 3. Researcher’s presence may bias responses 4. People are not equally articulate and perceptive
Documents	<ol style="list-style-type: none"> 1. Public documents such as minutes of meetings, and newspapers 2. Private documents such as journals, diaries, and letters 3. E-mail discussions 	<ol style="list-style-type: none"> 1. Enables a researcher to obtain the language and words of participants 2. Can be accessed at a time convenient to the researcher – an unobtrusive source of information 3. Represents data that are thoughtful, in that participants have given attention to compiling 4. As written evidence, it saves the researcher the time and expense of transcribing 	<ol style="list-style-type: none"> 1. May be protected information unavailable to public or private access 2. Requires the researcher to search out the information in hard-to-find places 3. Requires transcribing or optically scanning for computer entry 4. Materials may be incomplete 5. The documents may not be authentic or accurate
Audiovisual materials	<ol style="list-style-type: none"> 1. Photographs 2. Videotapes 3. Art objects 4. Computer software 5. Film 	<ol style="list-style-type: none"> 1. May be an unobtrusive method of collecting data 2. Provides an opportunity for participants to directly share their “reality” 3. Creative in that it captures attention visually 	<ol style="list-style-type: none"> 1. May be difficult to interpret 2. May not be accessible publicly or privately 3. The presence of an observer (e.g., photographer) may be disruptive and affect response

Table 4.1: Qualitative Data Collection Types, Options, Advantages, and Limitations Source: Creswell (2003, p.187)

According to Carson *et al.* (2001), ultimately qualitative research is fitting where the research focus is on the in-depth understanding of how, why and in what phenomena happen; and what influences phenomena. In addition to this, it is very important to explain the description and understand of the research actions.

4.2.3.4 The qualitative research materials

From about the discussions about qualitative research, then Denzin and Lincoln (2008, p.4) point that:

“Qualitative research involves the studied use and collection of a variety of empirical materials — case study; personal experience; introspection; life story; interview; artifacts; cultural texts and productions; observational, historical, interactional, and visual texts — that describe routine and problematic moments and meaning in individuals’ lives”.

The qualitative researchers use those materials for a broad range of organised interpretation in order to recognise their research findings. Furthermore, they say *“qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them”* (Denzin and Lincoln, 2008, p.4).

This research is better suited to qualitative research. The reason for this is that multiple case studies are preferred to create findings before their analysis and conclusion. The success of finding the answer to the problem concerns the efficient supply chain collaboration by Taiwanese companies in China. In addition to this,

the critical issue for supplier development is required to observe Taiwanese and Chinese suppliers in China. The argument is how Chinese suppliers to respond Taiwanese buyers; and suppliers in China are required to know both firms' organisation behaviours. On the other hand, to understand how Taiwanese buyers find out about Taiwanese and Chinese suppliers' motivation, it is necessary to have more time for in-depth interviews with them.

The next section will explore further the use of case studies as the research scheme.

4.2.4 Methodology intended for case study research

4.2.4.1 Definition of case study

Cassell and Symon (1995,p.208) comment that *“Case study research consists of detailed investigation, often with data collected over a period of time, of one or more organizations, or groups within organizations, with a view to providing an analysis of the context and processes involved in the phenomenon under study”*.

The phenomenon is related to the research subject to find out the research problems.

The case study involves one or more organisations, their partners or some groups within the organisations, but they must have some relationship with the organisations. Without doubt, the nature of each case study is different. The collected data in case studies depends on the members of the organisations. During

a period of time, a survey is conducted within the organisations, or the prior data and history are collected in order to analyse the organisations' context and processes. Nevertheless, according to Cassell and Symon (1995,p.211) "*The case study is an important method in industrial relations and industrial sociology because it has allowed for the complexity of processes of conflict and cooperation, especially among sub-culture in the organization, to be described and analysed in ways which have not predetermined what constitutes conflict and cooperation for particular groups*". As can be seen from their examination, the case study is more acceptable within industrial research topics, and can better explore the firm's processes and company condition. They also point out that case studies need to develop theoretical frameworks.

In addition to this, Stake (edited by Denzin and Lincoln, 2005, p.443) said that "*Case studies are a common way to do qualitative inquiry*". That is why he supposed that a case study can optimise sympathy for the research; it goes through triangulation, description and interpretation and is not just a single step but is also continuous throughout the period of the study. A case study is based on empirical research to investigate the case in terms of its influence on its community, support and the other circumstances. The empirical knowledge comes from the society built on the major groups. From the social group meetings, one can know what has

happened and observe the groups' experiences; this can help the readers to better recognise the case activities (Stake edited by Denzin and Lincoln, 2005). The main point in the case study is to understand more clearly the activities in order to find out and solve the research problems.

In other words, Carson *et al.* (2001) referred to the qualitative research methods: in-depth interviewing and convergent interviewing; case-based studies; focus group interviews; ethnographic studies; grounded theory; action research and learning. They pointed out that case studies usually focus on research problems relating to 'how and why?' It is more significant to find implications rather than conclusions. The reason for this is that case study research is based on "how and why". Furthermore, they also point that "*Qualitative research is suitable where the research emphasis is on in-depth understanding of how, why and in what context certain phenomena occur; and what impacts upon or influences such phenomena*" (Carson *et al.*, 2001, p.66). It argues about the related compounds, social science and what the research wants to know. Consequently, case study research is descriptive research that integrates and gives details from inside to outside the situation of the cases. The description of the answers to the research questions how and why are not only in a straight line from one to another, but include many

phenomenon factors in order to answer the research questions. It is also linked to many factors that are the findings in case study research.

Furthermore, Yin (2003, p.1) said that *“The case study is but one of several ways of doing social science research. Other ways include experiments, survey, histories, and the analysis of archival information. Each strategy has peculiar advantages and disadvantages, depending on three conditions: (a) the type of research question, (b) the control an investigator has over actual behavioural events, and (c) the focus on contemporary as opposed to historical phenomena”*. That is why he said that case study research strategy contributes to the information about individuals and groups, and organisational, social, political, and related phenomena. The case study is focused on relations and processes. As Denscombe (1998) said, it is within a social environment to develop what is the one thing related to the other necessary features and how the other is a variety of things linked. It is not only the internal organisational features but can also be discovered from the external organisation in terms of its social behaviour.

The strength of case studies is that they can deal with a full variety of evidence from documents, facts, interviews, and observations in a historical study. In addition to this, the case studies collect primary data and focus on the particular organisations in a deeper interview within the context of this research method.

4.2.4.2 The case study method

The number of case studies selection is normal to choose more than one case. Carson *et al.* (2001) explain that several cases, as multiple experiments, respond to the survey and sum up that the minimum number of case studies falls between two to four cases. The case studies are chosen as capable of being based on the type of industry, two countries traded with, and the size of firm. After choosing the case studies, it is necessary to choose the number of interviews in each case.

When deciding the case and interviewee numbers, and then starting the interviews, the next stage is to analyse the data. The research must very clearly describe the data analysis. It has to explain why a difference was found in the interview and give emphasis to the reasons why differences occur (Carson *et al.*, 2001). Most qualitative research adopts original content analysis to analyse the data. That is, they use code words to describe their data information and the codes relate to the question, hypothesis, and concept. The research theory provides the codes to examine the data analysis and reports. That is why Carson *et al.* (2001, p107) said “*The prior theory is also used to provide a tight structure to categorize the interviews into subsections of report of the data analysis*”. The interview questions based on the research theory are related to the data analysis, and then feedback is

given to the research questions to explain the phenomena in the research. This data analysis uses the code examination related to the literature and framework and is adapted to the exact industry or company characteristics discovered in the investigative research. Nevertheless, the case studies focus in more depth on the literature structure, mainly in the comparison of the theoretical and descriptive research.

The case study research characteristic is observation from several perspectives. Moreover, Carson *et al.* (2001) referred to resources, such as magazine articles, company pamphlets, reports and news of the company to help the data analysis of the interview transcripts more credible. On the other hand, the case study processes help to make the interview more trustworthy; the interview procedures offer a framework for “criteria analysis” to achieve the research aims underlying the theory. The criteria analysis permits the researcher to put together the codes’ focal point on the research point.

The criteria quality is to judge the design by certain logical tests. Yin (2003, p33) referred that the tests include reliability, conformability, and data dependability (U.S. General Accounting Office, 1990). There are four tests (see table 4.2) relevant to case studies as follows:

Yin (2003, p.34) said that the data collection involves two tests: one is construct validity, which also comprises multiple sources of evidence, such as newspapers, magazines, television, company catalogues, and so on. This evidence can be a chain, and then it is important to find the key information to draft the case study report. The other test concerns the reliability of the data collection; it is the opposite side of validity data collection in using the case study practices to develop the case study database. The external validity is capable of testing the research design; it is based on the theory of choosing single-case or multiple-case studies to set up replication logic. The multiple-case studies choose more than one case to explore the research questions but it is based on logic replication.

Test	Case Study Tactic	Phase of research in which tactic occurs
Construct validity	<ul style="list-style-type: none"> ● Use multiple sources of evidence ● Establish chain of evidence ● Have key information review draft case study report 	Data collection data collection composition
Internal validity	<ul style="list-style-type: none"> ● Do pattern-matching ● Do explanation-building ● Address rival explanations ● Use logic models 	Data analysis data analysis data analysis data analysis
External Validity	<ul style="list-style-type: none"> ● Use theory in single-case studies ● Use replication logic in multiple-case studies 	research design research design
Reliability	<ul style="list-style-type: none"> ● Use case study protocol ● Develop case study database 	Data collection Data collection

Table 4.2 Case Study Tactics for Four Design Tests
(Source: COSMOS Corporation cited from Yin, 2003, p34)

As the data analysis mentions the internal validity, and then it is very important to ensure high-quality description and use rival explanations to test the logic of the research findings.

4.2.4.3 The interviews of the case study

Gorman and Clayton (2005) said that the interview case study uses data collected from the individual interviews linking the research and the subjects in general. Additionally, Denscombe (1998) pointed out that the interview does not need to collect much technical information but the basic technical skills are required for researchers who already have the ability to conduct a conversation. During the

research interview, the researcher can use a tape recorder to record the conversation and save it, and then listen to it to write their research report. Without doubt, conversational skills are very significant between researchers and interviewees. The researcher has to describe very clearly the questions to let the interviewee answer them, leading to more accurate responses.

In addition to this, the conversation is not a general and relaxed interview; it is a part of the research process to express the social phenomena and present the respondent's knowledge and produce findings that can contribute to both the academic and practice areas. Therefore, the interview must be very careful and serious. It is of considerable importance when choosing to use interview surveys that the researcher thinks of his or her research purpose, especially when they want to know more details and gain in-depth answers to analyse from the interviewee.

Gorman and Clayton (2005) referred to the benefits of an interview survey in qualitative research; the interviewees can be encouraged to answer open-ended questions face-to-face and it also can let the interviewees better understand the research topic and context. The interview can also produce very in-depth and directly sympathetic research questions and can prove a very direct method of qualitative research.

Fontana and Frey (edited by Denzin and Lincoln, 2005) declared that an interview includes broad selection methods and a variety of types; the methods include individual, face-to-face vocal transactions, but the interviewing involves face-to-face group exchanges and telephone surveys. Denscombe (1998,p.112-115) stated the different interview types: structured interviews, semi-structured interviews or unstructured interviews, one-to-one interviews, group interviews, and focus groups, as outlined below:

1. Structured interviews: the researcher asks the same questions to the limited response group. In other words, the respondents are given the same questions; there is very little flexibility about which questions are asked or answered in the structured interview (Fontana and Frey edited by Denzin and Lincoln, 2005). Denscombe (1998, p.112) pointed out that structured interviews provide the collection of quantitative data. The reason for this is that the researcher prearranges the questions and answers which allow more control over the wording and the same questions are asked of every interviewee, making it easier to analyse the data. The structured interviews are used with a broad number of respondents to collect the data.

2. Semi-structured interviews: the semi-structured interviews are open-ended answers that let the interviewee be more flexible and develop their ideas and speak

more widely. But the researcher using the same structured interview processes, has to prepare a clear list of questions to be answered.

3. Unstructured interviews: unstructured interviews are more encouraging to allow the interviewees to extend their thoughts. The main difference from the semi-structured interviews is they do not really need a list of questions in advance and allow more in-depth investigation to explore the interviewee's experiences and feelings. The same aim of semi-structured and unstructured interviews is to "discover" their interviewees' thoughts rather than "check" them (Denscombe, 1998, p.113).

4. One-to-one interviews: the ordinary way to conduct semi-structured or unstructured interviews is one-to-one. It is easy to arrange a meeting for the researcher and interviewee. The benefit is to catch very direct thoughts during the interview. In addition, one to one interviews can get more detailed ideas from a few people.

5. Group interviews: some researchers need more numbers to collect their data. The numbers research, such as group interviewing, engages four to six people to do the survey. Nevertheless, it is difficult to gather the people to argue about one topic and collect the different voices at the same time during the interview. Some opinions

may influence the other people in the group interview and one cannot get the original voices from the other people.

6. Focus groups: Denscombe (1998, p.115) said that focus groups interviews have become more popular. The focus groups contain between six and nine people. They are brought together with the researcher acting as a mediator to discover the manner, comprehension and judgment in relation to the research topic. The main point is that they only focus on one subject to discuss. It is more the contribution of the interviewees.

Ultimately, from the above interview types' investigation, the research that focuses on the interview case study has a more flexible process but this still have to be planned. Gorman and Clayton (2005) suggest that the researcher has to get ready a list of questions before the interview but that extra questions are allowed during the interview to reply to the research subjects. When the questions go forward to the interviewing process, if some answers are not very clear, it is necessary to go back to the earlier interviewees to ask the questions. It is very significant to draw out more information for the research subjects to expand the research topic.

Nevertheless, the interviewing case study is a structured process to allow the researcher to ask about their research questions to support what cannot be observed.

The interview case study more deeply explores the research questions from face-to-

face interviews and can also discover other related resources for the research subjects. When the questions are more formal, then the responses will be more correct and effective. The interview case study is based on the two conversations, and the researcher's role is to encourage the interviewee to speak out more about their experience and events. Thus, the interview case study can produce high-quality research to develop the research findings.

4.2.5 The reason for choosing case study

It is very important for researchers to choose the most appropriate methodology for their research. Based on the above discussion, this study will use qualitative research. The main reason is that, this study focuses on supply chain collaboration in order to examine supplier development within supply chain collaboration. In other word words, the theoretical talk about the how to collaborate and what is supplier development within supply chain collaboration. It is suitable for qualitative research as it aspires to focus on “*how*” and “*what*” has been the supplier development. This researcher carried out studies of each organisation in order to design unstructured interviews. It was necessary to list the questions before interviewing the respondents in the organisations. This produced an expression of

each case study that was different and depending on the source of data and the contributors.

There are several reasons for choosing interview case studies: Firstly, the case study allows a mixture of data collection and background information of the organisations to achieve the survey. Secondly, the low number of firms and the available participants are too few to undertake a research survey. Nevertheless the case study can profit well from a small number of research sites. The case study is very flexible, which means the researcher can investigate phenomena as things happen naturally in the company involved. That is why Bryman (1996) said that case study is a well recognised choice for the organisations' research. The last reason for choosing interview case studies in this research is that it is devoted to the study of supply chain collaboration rather than human behaviour, culture and history. Furthermore, the aim of the research is to discuss the phenomenon of supply chain collaboration by Taiwanese companies in China. This method should allow the discovery of evidence on supply chain collaboration and supplier development from the internal and external supply chain collaboration operations processes.

On the other hand, the research's theory development is suited to case studies, and theory development as part of the design phase is essential, whether the ensuing case studies' purpose is to develop or test theory. That is the strategy for case study;

to discover the in-depth information. In addition to this, this research process will be discussed further in the next section.

4.3 The process of the interviews

4.3.1 The preparations for the target companies

With regard to the research methods, the case study approach is more suitable for this work. The question is then how to select the target companies and the relevant research questions in order to investigate supply chain collaboration and supplier development within the internal and external supply chain collaboration operations processes.

The key aim of the research is to examine the phenomenon of supply chain collaboration undertaken by Taiwanese companies in China. Consequently, there are two conditions with regard to selecting the target companies for this case study.

The first requirement is that the target companies need to be undertaking supply chain collaboration, while the second is that they need to be Taiwanese firms operating in China.

This study focuses on such firms because Taiwanese companies are well-known for their strong supply chain teams in high-technology manufacturing, and especially for collaboration among the supply chain partners. Moreover, there are some

specific characteristics of high-technology firms that make them particularly suitable for such research.

As Chen and Wu (2007, p.160) noted, in comparison with traditional companies for high-technology firms, *“often have the characteristics of high-speed innovation (Deeds et al., 2000), a short product life cycle, rapidly changing environment, and are highly dependent on advanced technologies”*. Consequently, it can be seen that such companies need to explore their core competencies to face the challenges of a rapidly changing environment in order to create more innovative products for their highly competitive markets. In addition, Chakrabarti (1991, cited in Huang and Lin 2006, p.968) observed: *“the high-tech industry as an industry that requires an appropriate R&D expenditure and employs a large number of engineers”*, and this is because such companies need to develop their new and existing product all the time. Huang and Lin (2006, p.970) also state *“In high-tech industries, external technical resources generally come from collaboration and technology transfer. Collaboration with research institutes often gives small-and-medium businesses innovation ideas and serves as a good source for new technologies (MacPherson, 1997)”*. They note “collaboration”, and that is match this research focus on the high-technology industry when considering the importance of such relationships and actions within the supply chain.

For all of these reasons, this research chooses to focus on high-technology firms in Taiwanese companies who are undertaking collaboration with their supply chain partners.

The next step is to find the target companies. The author visited Taiwan during the summer of 2005 and tried to find some local high-technology companies to serve as case studies. However, it was very difficult to find suitable firms, as many of them have already moved their manufacturing plants to China and set up branch offices there. Moreover, since one characteristic of Taiwanese high-technology firms is that they like to cluster together in order to build up and maintain their supply chain, if the main company in the chain moves to China, then its smaller, partner firms are likely to follow it.

Consequently, the author decided to make the target companies Taiwanese high-technology firms who have set up branches in China. The research questions were thus developed in order to consider the development and maintenance of relationships between Taiwanese and Chinese firms operating in China, with a particular focus on supply chain collaboration.

The next step was how to select the specific companies used in this research. According to Cassell and Symon (1995,p.216), *“Using contacts in industry, academia and friendship circles can be helpful, first, in establishing what the*

population is of organizations you might draw the case study from, and then how to choose the cases". Such social relationships are known as *guanxi* in Chinese culture, and these connections are important for developing trust and commitment between people, both in business and personal situations. This is also helpful when conducting research, as when somebody knows the researcher they are more likely to answer the questions honestly and in detail. Thus, the author used her relationships with classmates, family, and friends to find the three cases for this study. The author first contacted friends and relative who are working for Taiwanese companies in China, and then explained the research topic, specifically the materials required what kind of questions will they answer, and how much time is needed for the fieldwork. Finally, the boss of each company needed to agree to their firm becoming a case study, and then the fieldwork could begin. Fortunately, the author did not need spend a long time on this process, because the heads of the first three companies approached accepted the idea very quickly.

Hence, the three case study companies are all Taiwanese firms are operating their supply chain collaboration in China, and that further match the other conditions set for the target companies in this research. Specifically, the three target companies are one each from large, middle, and small businesses, as defined by the number of employees. More detailed information about the case study firms is given in the in

next section.

4.3.2 Access to the selected companies

According to Carson *et al.* (2001), the starting point is to choose the companies; they suggest that the number of case studies should fall between two to four cases.

Yin (2003, p.53-54) also states “*multiple-case designs may be preferred over single-case designs*”, as well as “*Having more than two cases will produce an even stronger effect*”. Based on these two scholars’ suggestions, in this research three cases were used. Furthermore, the interview cases needed to be Taiwanese companies which have set up their factories in China.

In the three cases fieldwork studies, the interviewees are from purchase, logistic, and sales departments, as well as from the sales departments of their suppliers’ companies. In addition to this, the reason for choosing the three companies is that the first company has run their supply chain collaboration successfully so it will be possible to find the success factors in this survey; the second company is not very focused on the supply chain collaboration so it may be possible to improve it; the last company may not have a very good collaborative relationship with their suppliers, so one can identify reasons why they may wish to become involved in supply chain collaboration.

The first interview case company is one of Taiwan's top producers of laptop products who have set up their branch plant in China. It manufactures computer laptops and monitor products, as well as communication products. The company was founded in 1984 and is headquartered in Taiwan. The manage mode is BTO/CTO (Build to Order/Configuration to Order) in which the company collaborates with their customers to produce very flexibly and quickly (The company is a supplementary of the worldwide Logistics Group and has worldwide employees of over 20,000). The laptop is composed of more than 2000 parts but they have to produce it within 48 hours after they receive the order. In addition to this, the company has urgent needs to realise an e-procurement solution to maintain its competitive advantage in the global marketplace. To achieve this, the company has to have a good relationship with their suppliers and be able to rely on a high level of technological skill. The above information comes from the company website of company A.

The second company has specialised in the connector and cable assemblies business since 1990 in the electronics industry in Taiwan. The company is headquartered in Taiwan and has manufacturing facilities in Dongguan and Kunshan (China). The company strategy is to bring down the prices for their customers. Based on this circumstance, these connectors have a simple design that is mainly aimed at lower

costs with prices of about half of what the competitors can provide. In other words, the company has to collaborate with their suppliers to provide the lowest prices for their customers. The supply chain collaboration not only works with Taiwanese suppliers but also local suppliers in China. This company information comes from the company website and sales reports provided by the sales manager for company B.

The information for company C is also taken from the company website. The company is an industrial company that was established in 1979 in the automation industry. It is one of the major makers of pneumatic, hydraulic and vacuum related products and serves as a system integrator of fluid power and transmission control fields. It produces and sells products to industrialised countries, such as Japan, America, and the European Union. The company has built their new factory in China. The company collaborates with their suppliers to design high-quality products for their customers all over the world. This collaboration extends into China.

The chosen cases will be analysed to explore their supply chain collaboration and identify their supplier development. The main purpose is to inform Taiwanese buyer companies so that they may better understand their Taiwanese and Chinese suppliers' collaborative motivation and assist Chinese suppliers in responding to their Taiwanese buyer companies. Therefore, from the above description of the

fieldwork companies, the first company is a high-technology company and runs its supply chain more effectively than the other companies. Company B is a technology company and acts as a lower price provider to collaborate their suppliers. Company C is an industrial company but also set up their factory in China and focuses quality and innovative products in association with their suppliers.

From the practical perspective, the research conducts in-depth interviews with the firms' different departmental managers regarding their experience related to this research topic in supply chain collaboration. It is necessary to describe the companies' background and current situation, and then illustrate their suppliers for this research.

4.3.3 The point of the interviews

This research explores the supply chain collaboration in order to identify their supplier development. It then examines how the buyer understands their suppliers' motivation for supply chain collaboration. In addition, it seeks to identify how Taiwanese and Chinese suppliers offer value and respond to their Taiwanese buyer company in China. Additionally, it seek to understand strategic arrangements that assist the suppliers in better understanding the buyers' needs, since it is more significant to understand the buyer's needs rather than their wants. The question

also focuses on how the Taiwanese suppliers can maintain and Chinese suppliers build up their collaborative relationship with their Taiwanese buyers and communicate with them to build trust in each other in order to make more profits in China.

During the interview, it is also necessary to review the buyer-suppliers' collaboration procedures. This is a difficult challenge because the companies prefer to remain anonymous. The face-to-face semi-structured interviews will take more than three months to complete but it is also necessary to collect the companies' data and update them during the research. From these interviews, it is expected that a better understanding of the Taiwanese buyers and their Taiwanese and Chinese suppliers' collaborative relationship will be gained. This should lead to the creation of knowledge that will assist companies in collaborating more effectively in China.

4.3.4 The pre-interview

This research required the use of Chinese language to interview Taiwanese and Chinese respondents in Taiwan and China. The interview questions needed to be translated into Chinese, the pre-interview was done in Scotland in order to confirm that the translation's meaning conformed to the original intention of the research questions.

The pre-interview was held on 2/27/2007 at 2:30 pm in a Taiwanese company that has set up a branch in Glasgow. The company is an electronics company and the main business is Original Equipment Manufacturer (OEM). The respondent is their Taiwanese Logistics manager who handles the business in the Scottish branch. The manager asked to remain anonymous in this pre-interview. They very quickly agreed to this pre-interview because the company policy is to assist Taiwanese students in the UK. The interview questions were asked in Chinese and it took two hours eighteen minutes (not including suggestions). The suggestions took around thirty minutes. The manager knew it was a pre-interview and the research interviews will be in Taiwan and China so he made some suggestions.

The following is the manager main suggestions:

1. Why did you not choose the same type of company?
2. Will you have two interview questionnaires for buyers and suppliers?

In addition to this, the findings and improvement points after this pre-interview were:

This Taiwanese company do supply chain collaboration and run it efficiently already. The main reason for this, is the company used their co-competence concept to select their key suppliers. During the supply chain collaboration, the company monitors and trains their suppliers in order to judge them against the company's

organisations' score card to decide on the most suitable suppliers with whom to continue the contract. Furthermore, the elements of trust, commitment, and sharing the risk within the buyer-supplier relationship constitute the agreements. This Taiwanese company seeks to be a 'local' company and most of employees are Scottish and have a western culture in Scotland. The company invests in their more powerful suppliers in order to create new products, information and markets from the suppliers.

There are five improvement points after this pre-interview:

1. The author needed to revised the pre-interview schedule and questions (see the appendix 1: pre-interview schedule and questions) and add key questions, such as the effect of supply chain collaboration on supplier development, how the agreement is enacted from buyers and suppliers to discuss issues such as trust, power, sharing of risk and solving problems. Putting the key questions at the beginning of the interview will be better because the respondent will not be tired after answering many questions.

2. Regarding three companies: although one is a high-technology company (OEM), another is an electronic company, and the other one is an industrial company; all of them are technology companies. The key point is that all of them are Taiwanese buyers who have set up a branch in China. This point shows that the research

characteristics can to discuss the similar culture and opposed political conditions about how to build up relationship between Taiwanese buyers and their Taiwanese and Chinese suppliers within supply chain collaboration.

3. One interview questionnaire is fine for both buyer and supplier because the research can extend to the respondent supplier's suppliers, and customer's customers. Nevertheless, Taiwanese suppliers go with their Taiwanese buyers to China to set up branches and provide a new supply chain channel in China.

4. The pre-interview was rushed and so the company background was not analysed in any depth. Specifically, the company products should be researched together with their supplier and customer's background before the interview.

5. The author needs to check the recorder again, and limit the interview time to around one hour and thirty minutes.

However, the pre-interview helped the author understand processes in order to conform to the original intention of the research questions.

4.3.5 The interview processes

After the pre-interview is more understood about the processes (Dick 1990 cited in Carson *et al.*, 2001); the resulting interview processes are outlined in this section.

The process of the interviews includes the following steps (Dick, 1990, p.12-14 cited in Carson *et al.*, 2001, p.86):

- 1. Deciding how many people to interview and who to interview*
- 2. Arranging for the interview with the respondent*
- 3. Determining the time and setting of the interview*
- 4. Determining the opening questions*
- 5. Determining special questions for the specific information required*

This fieldwork involved face-to-face semi-structured interviews in Taiwan and China. The reason for this is that the three companies have sales departments' headquarters in Taiwan. Therefore, the interview locations include both countries in order to discover how the different countries undertake supply chain collaboration. Interviews were conducted with the buyer companies in their purchase, logistics, and sales departments, taking 50-90 minutes to answer the semi-structured interview questionnaire. For the supplier companies, interviews will be undertaken with 3-4 companies which have a collaborative relationship with them; both Taiwanese and Chinese companies. The suppliers' interview will take around 50-70 minutes. The author wrote to the CEO (Chief Executive Officer) of companies' in greeting and explained more about the data collection (see appendix 2). After reviewing the letter, three companies asked to remain anonymous for this research.

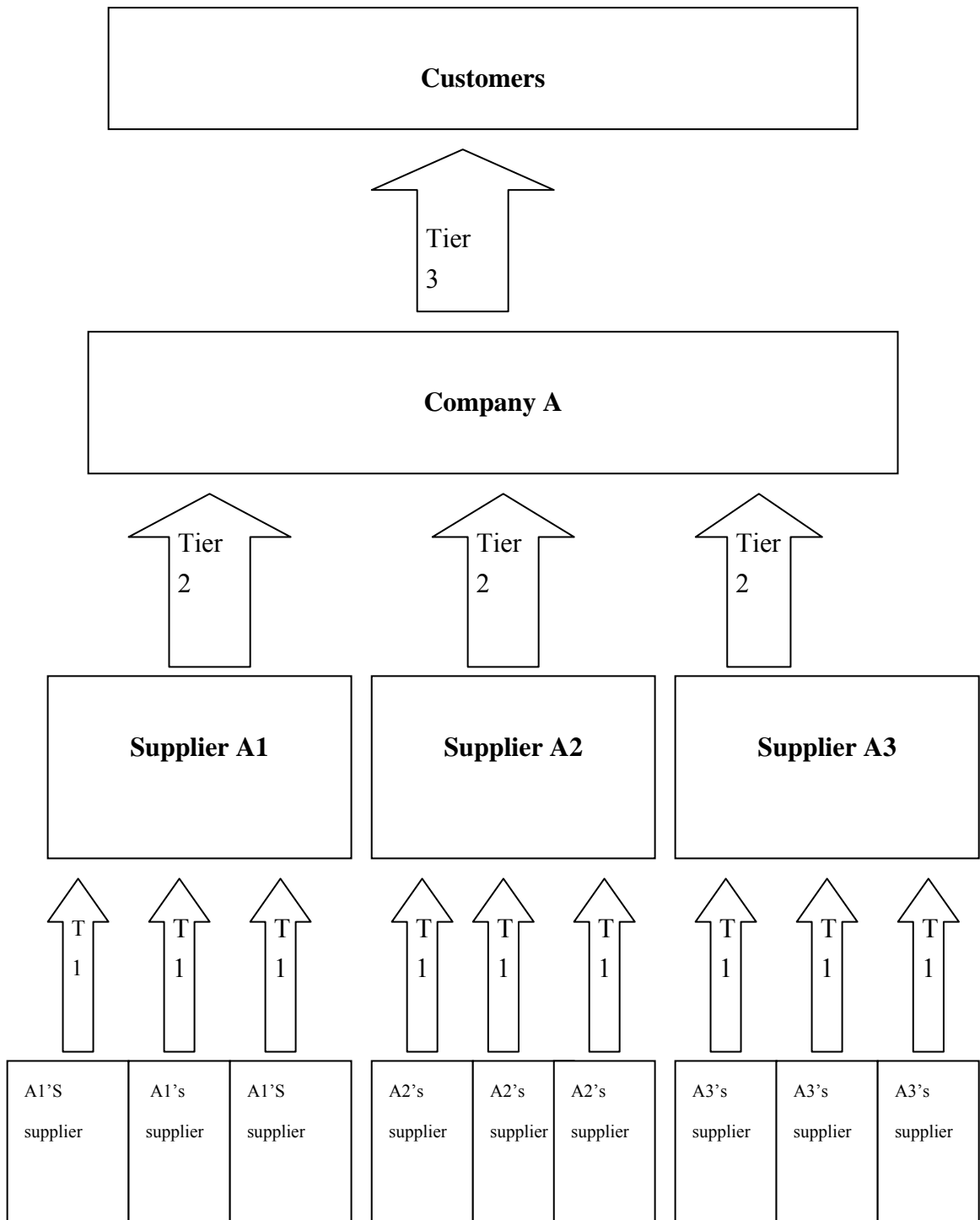
These interview plans are shown in the following tables. From the interview tiers can more understand the interview companies and their suppliers and customers relationship. As like company A is their customers' supplier and their suppliers' customer. The company's suppliers also have their suppliers.

In Company A, this researcher interviewed three suppliers, two managers in the purchase department (one in China and the other in Taiwan), one manager in the logistics department, one employee in the customer services department and one manager who is in the Taiwan import and export department. These interviews took place over three months during April and June 2007 in China and Taiwan. Due to company policy, the researcher could not enter the company to do observational research but could obtain information from magazines and newspapers.

Table 4.3 Case A: Interview plan

Buyer Company A	Interviewee	Interview time	Data and Location
Purchase Department	2	90 minutes	April 2007 China June 2007 Taiwan
Logistics Department	2	70 minutes	April 2007 China
Sales Department	1	50 minutes	April 2007 China
Suppliers	3	70 minutes	April 2007 China

Table 4.4 Case A: Interview tier



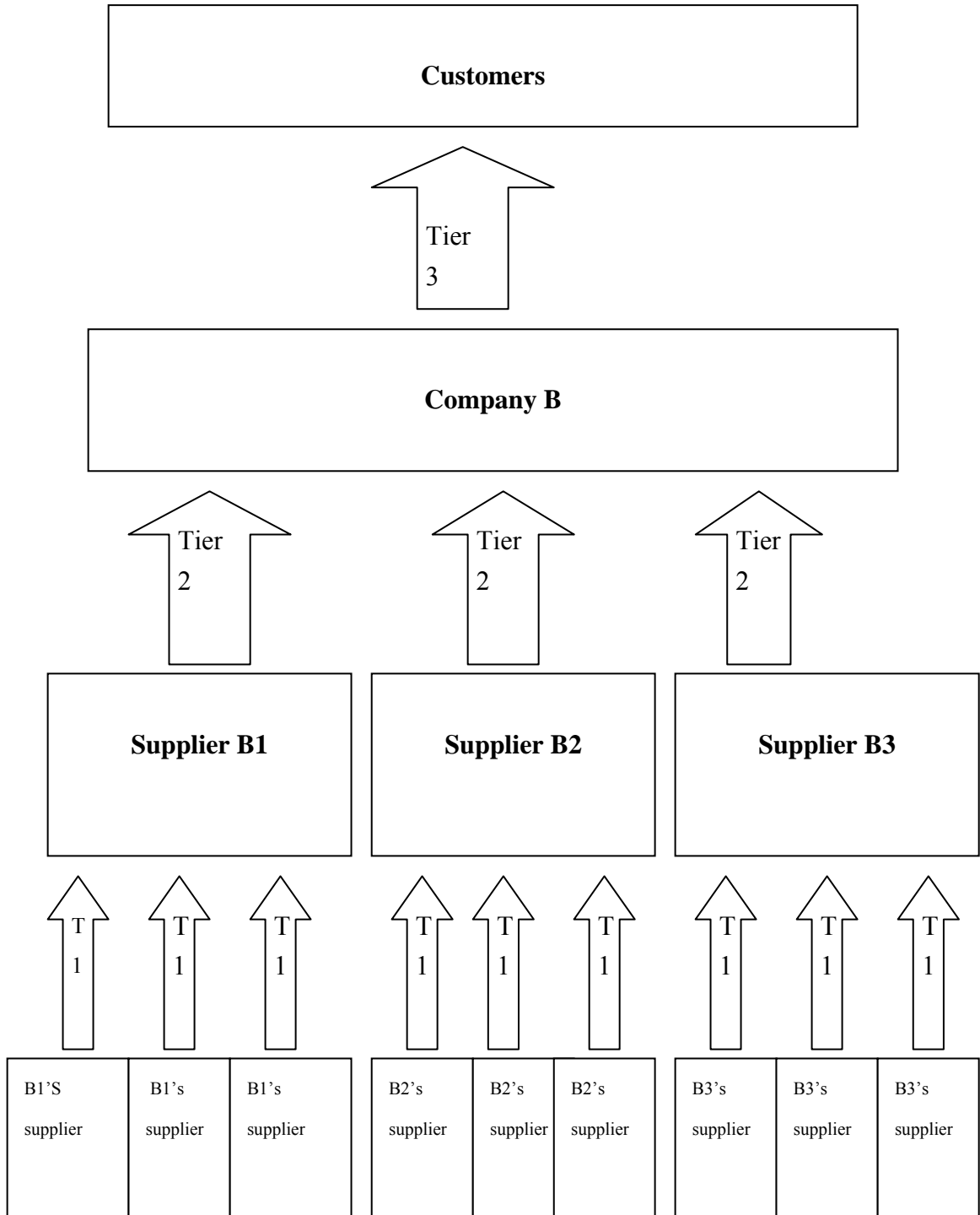
From Company B, three suppliers were interviewed; the president of the company in China, two managers and one employee in the sales department, one manager and

one employee in the production department, one employee in the purchase department, and one engineer employee. These interviews took place over three months during April and June 2007 in China and Taiwan. The author sat in the sales manager's office in order to do the interviews and observe the company's operations. The author went to their product control department to see the suppliers' delivery of goods' situation to understand better the supply chain collaboration operation. The company background and data was obtained from the sales manager, information provided on the company's website and the internet.

Table 4.5 Case B: Interview plan

Buyer Company B	Interviewee	Interview time	Data and Location
Purchase Department	1	50 minutes	April 2007 China
Logistics and Products Department	3	50 minutes	April 2007 China
Sales Department (including the president of company)	4	70 minutes	April 2007 China May, June 2007 Taiwan
Suppliers	3	50 minutes	April 2007 China

Table 4.6 Case B: Interview tier

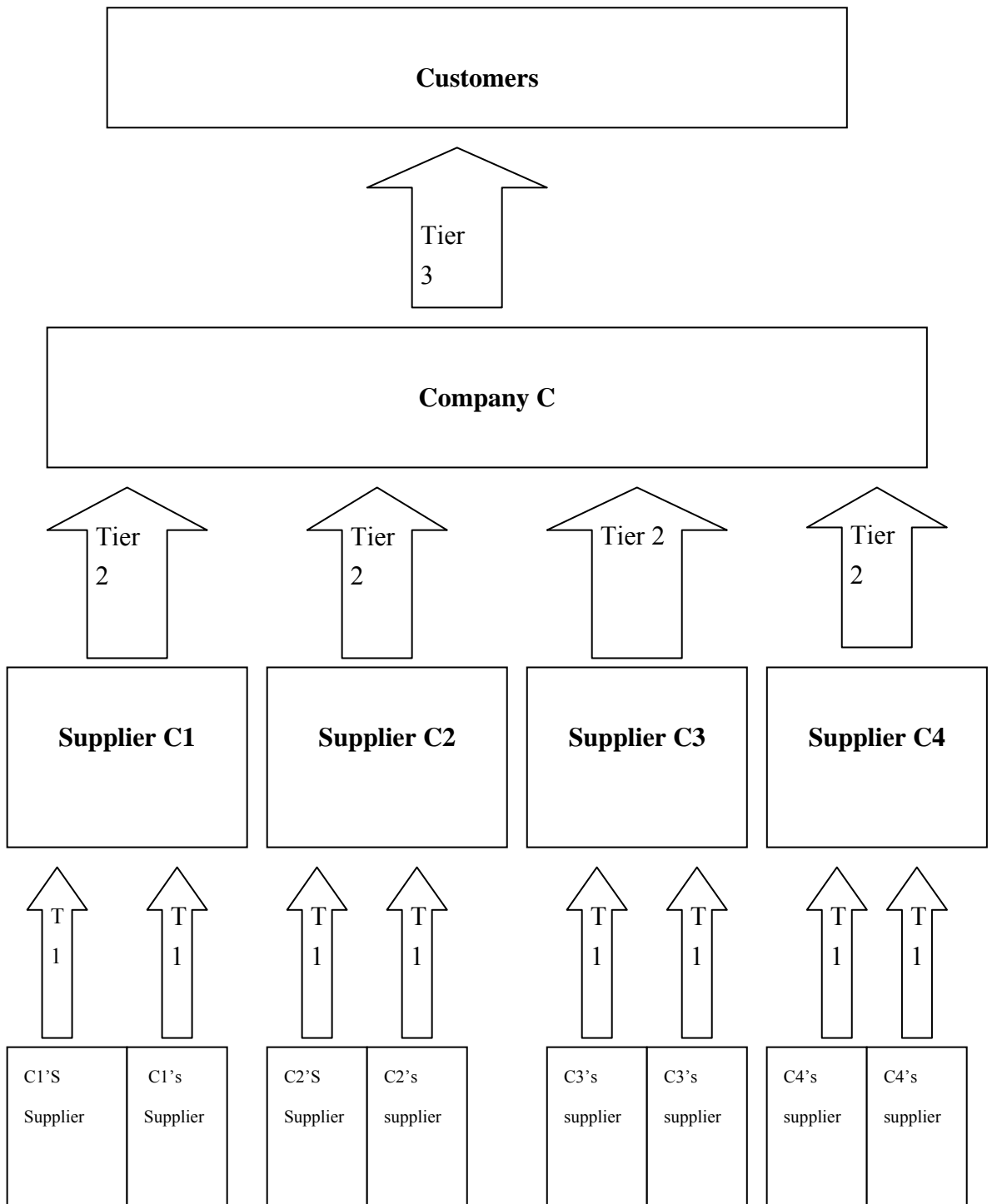


Inside Company C, this research interviewed four suppliers, the president of the company, one sales manager, and one purchase manager in China and Taiwan. These interviews took place over three months during April and June 2007 in China and Taiwan. The author sat in the company's main office to observe the operations within the company and visited the company to understand their supply chain processes. The author accompanied their company driver to their supplier's company in order to understand their delivery condition. The author researched the company's website and information available on the internet.

Table 4.7 Case C: Interview plan

Buyer Company C	Interviewee	Interview time	Data and Location
Purchase Department	1	70 minutes	April 2007 China
Sales Department (including the president of company)	2	70 minutes	April 2007 China June 2007 Taiwan
Suppliers	4	50-70 minutes	April 2007 China

Table 4.8 Case C: Interview tier



The main respondents are the buyer companies' purchase departments. The reason for this is that the purchasers represent the companies who need to make an arrangement with their suppliers. Furthermore, the purchasers have to consider the many factors which influence the arrangement in order to gain benefits from it. The purchaser is a key person who decides on the suppliers and also handles the arrangement to control and monitor the product cost and quality. In the buyer organisation, the logistics and sales departments have to be responsive to the products and market feedback. The salespeople pass the market information to the purchasers and logistics employees, who monitor the products for their manufacturing departments. These semi-structured interviews also need their responses in order to recognise the buyer organisation's behaviour.

4.3.6 The design of the interview schedule

In case study approaches, the interviews are key; therefore the questionnaire must be carefully designed. The interview schedule was developed based on the main questions identified from the literature reviewed and divided into five parts. Regard was taken of the pre-interview's suggestion for improvement. The purpose of dividing into five parts is further explained as follows:

The first part is company background, history and culture. This focuses on the

evidence of entrepreneurial behaviour within the company and the company's perceptions of self within the marketplace. This main point is to find out the company's key skills and competencies. When analysis the three companies' background can assist in gaining a better understanding of their answers. It is the baseline information for the research.

The second part relates to objective one which is to discuss how the supply chain collaboration works for Taiwanese companies in China. The focus is on finding evidence of the main factors within supply chain collaboration relating to suppliers' selection, agreement, and partnership. It seeks to identify the more vital points in choosing suppliers with the focal point on key suppliers who can provide good prices and quality whether or not they are local suppliers. The other point concerns culture and politics which is very important with regard to guanxi for Chinese business networks. The agreement can represent the commitment, trust, risk sharing, and joint problem solving. On the other hand, power is reflected in the partnership within the supply chain collaboration. This section was moved closer to the beginning after the results of the pre-interview.

The third part seeks to respond to the research gap on supplier and supplier collaboration from the suppliers' perspective and relates to research objective two; identifying issues such as the way supplier development relates to supply chain

collaboration and how it links to suppliers' growth when they collaborate with each other. To address this, it is necessary to ask about relationships with buyers and suppliers, collaborative types, supplier management, and supplier-supplier association. Conversely, the collaboration relationship can extend to investment to perceive how close it is. The supplier management starts from monitoring their collaborative partners in order to train them to ensure the quality.

The fourth part is to investigate the internal processes of supply chain collaboration in order to recognise how Chinese suppliers respond to their Taiwanese buyers and suppliers in China. This is simple to see from internal facility processes efficiencies on integration, TQM, and transfer of technology. Yet, more time needs to be spent to identify the measurement and innovation of production. Also whether transaction costs are reduced or not from the supply chain collaboration.

The fifth part examines the outcomes of the supply chain collaboration to assist Taiwanese buyer in understanding their Taiwanese and Chinese suppliers' motivation in China. The result of supply chain collaboration is to increase the competitive capabilities and customer satisfaction. This is a motivation to attract the supply chain partners to collaboration together.

The outline below indicates the content of the five parts:

1. Company background, history and culture

- Evidence of entrepreneurial behaviour within the company

- Perceptions of self within the marketplace
 - Key skills and competencies
2. To provide empirical evidence which help and hamper supply chain collaboration
- Suppliers' selection
 - Key suppliers
 - Environment (Politic and Culture)
 - Agreement
 - Commitment
 - Trust
 - Evidence of risk sharing
 - Evidence of joint problem solving
 - Partnership
 - Power
3. To evaluate the supplier development within supply chain collaboration
- Relationship
 - Investment
 - Supplier types
 - Supplier management
 - Monitor
 - Training
 - Supplier-supplier association
4. To investigate the internal processes of supply chain collaboration
- Internal facility processes
 - Integration
 - TQM
 - Transfer of technology
 - Measurement
 - Innovation of production
 - Transaction cost
5. To examine the outcomes of supply chain collaboration
- External facility processes
 - Co-ordination
 - Competitive capabilities

- Customer satisfaction
- Facts of collaboration value
- Future plans for collaboration

The revised interview schedule devises a table which includes the research objectives in order to incorporate the literature from the main scholars' opinions to locate the interview schedule in table 4.6. Furthermore, the interview schedule and Chinese questions (see appendix 3) also follow this interview schedule.

Table 4.9: The main categories of the interview schedule

Research Objects	Literature quotes	Sources.	Main interview question (It will translated into Chinese)
1.	Company background, history and culture		
Key competencies	Evidence of entrepreneurial behaviour within the company		1. What is the key competency in your company?
2.	To provide empirical evidence on supply chain collaboration		
Suppliers' selection Key suppliers	<i>"Supplier selection is a crucial process that addresses how organizations select strategic suppliers to enhance their competitive advantage."</i>	Hsu <i>et al.</i> (2006, p.214) Section 2.5.2	2. How does your company choose its key supplier within SCC? (price, quality, local suppliers)
	<i>"The criterion is composed of sourcing strategies, evaluation and selection of potential suppliers and motivation of suppliers."</i>	Chin <i>et al.</i> (2006, p.745) Section 2.5.2	3. How can your company motivate them? (What is the difference between Taiwanese and Chinese suppliers)
	<i>"Most of the research in a Chinese context has focused on building and maintaining successful business guanxi."</i>	Pressey <i>et al.</i> (2007, p.108) Section 2.3.2	4. Does your company consider guanxi when choosing Chinese or Taiwanese suppliers?
Environment (Politic & culture)	<i>"The political embeddedness of a business network, as formulated by existing IMP research, can take four forms: political institutions, political actors, the political activates of firms and political resources."</i>	Welch and Wilkinson (2004, p.217) Section 2.3.2	5. Do government polices or cultural factors affect your company and its supply chain collaborative partners? (Which one is most effective? Why?)
	<i>"One of the major supporting elements of collaboration is a collaborative culture, which is made up of a number of</i>	Barratt (2004, p.33) Section	

<p>Agreement</p>	<p><i>elements: trust, mutuality, information exchange and openness and communication.”</i></p> <p><i>“First, the engagement process aim to identify the strategic needs of collaboration, find the right partners with the right capabilities and set mutual agreements concerning performance.”</i></p>	<p>2.3.2</p> <p>Simatupang and Sridharan (2002 , p.19-20) Section 2.4.1.1</p>	<p>6. Does your company have a contract with the SCC? (If yes, how can your company make agreements with your suppliers? If not, why not?) If yes, Please answer the follow questions under the agreements? If no, just answer the follow questions without agreements.</p>
<p>Commitment Trust</p>	<p><i>“The cooperative efforts of channel members should result in greater trust, commitment, channel efficiency and the achievement of goals, thus leading to higher levels of satisfaction”.</i></p>	<p>Jonsson and Zineldin (2003,p.224) Section 2.4.1.2</p>	<p>7. How does your company trust its SCC partners? To what degree does your company trust its SCC partners? 8. How does your company commit to its supply chain collaboration partners?</p>
<p>Risk sharing</p>	<p><i>“Collaboration is a very broad and encompassing term and when it is put in the context of the supply chain it needs yet further clarification. Many authors when talking about collaboration cite mutuality of benefit, rewards and risk sharing together with the exchange of information as the foundation of the collaboration.”</i></p>	<p>Barratt (2004, p.31) Section 2.2.2</p>	<p>9. Does your company share its risks with your SCC partners? (If yes, in what kind of situation does your company share the risk with its SCC partners?</p>
<p>Problem solving</p>	<p><i>“Collaborative partners must also work together to solve supply chain problems.”</i></p>	<p>Min <i>et al.</i> (2005,p.248) Section 2.2.2</p>	<p>10. In what kind of situation does your company solve its problem with its SCC partners?</p>
<p>Partnership</p>	<p><i>“Active collaboration takes place when companies develop mechanisms --- structures processes, and skills—for bridging organizational and interpersonal differences and achieving real value from the partnership.”</i></p> <p><i>“The companies, in order to respond to the new market dynamics, reduce the number of suppliers that collaborate with, and especially those who provide the company with components that have a significant impact on the quality of their final product.”</i></p> <p><i>“a strong leader firm may use its</i></p>	<p>Kanter (1994, p.105-07) Section 2.3.1</p> <p>Theodorakio -glou <i>et al.</i> (2006, p.149) Section 2.5.3</p> <p>Defee and</p>	<p>11. How can your company maintain its partnership with its Chinese suppliers? 12. Do you have any different partnerships between Taiwanese and Chinese suppliers? 13. How does your company maintain its partnerships with SCC partners? 14. How does your company respond to its SCC partners? 15. Does your company think</p>

Power	<i>power to influence, rather than dominate, the supply chain behaviours of other firms; in either case the leader's power will influence the other members of the supply chain, with either a beneficial or injurious effect depending on the power bases used. Positive uses of power tend to lead to stronger supply chain relationships, which in turn lead to improved performance".</i>	Stank (2005, p.34) Section 2.2.2	that its partner's power can affect the supply chain collaboration? (Who? Why? How?)
3.	To evaluate supplier development within supply chain collaboration		
Relationship	<i>"In our understand, the supplier needs to offer value to the customer but also needs to gain benefit from the customer at the same time. For the sake of their won survival, suppliers need to understand how value can be created through relationships with customer."</i>	Walter <i>et al.</i> (2001,p.366) Section 2.2.3	16. How is the relationship between your company and its SCC partners? (From suppliers to buyer to customers)
Investment	<i>"In order to investigate the relationship between supplier adaptation to buyer requirements and ownership type, three measures of adaptation are defined: supplier investments, buyer control and buyer investments."</i>	Millington <i>et al.</i> (2006,p.190) Section 2.2.1	17. Does your company invest in its SCC partners? (If yes, in what kind of situation does your company invests in them?)
Supplier types	<i>"Active collaboration takes place when companies develop mechanisms --- structures processes, and skills—for bridging organizational and interpersonal differences and achieving real value from the partnership. Multiple ties at multiple levels ensure communication, coordination, and control. Deploying more rather than fewer people to relationship activities helps ensure that bother partners' resources are tapped and that both companies' own needs and goals are represented."</i>	Kanter,R.M. (1994,p.105-107) Section 2.3.1	18. With what kind of supplier types does your company usually collaborate? (Why?)
Supplier management Monitor	<i>"The success of collaborative efforts cannot be assured unless performance is properly monitored and measure."</i>	Min <i>et al.</i> (2005,p.249) Section 2.2.2	19. How does your company monitor its SCC partners? Does your company think it is necessary? (Why?)
Training	<i>"measures of training provided to suppliers, supplier's involvement in the buyer's new</i>	Sanchez-Rodriguea <i>et al.</i> (2005, p.	20. Do your company have some training course for your suppliers? (If no, why? If yes,

<p>Supplier- supplier association</p>	<p><i>product design process, sharing of accounting information by the supplier, and sharing of cost and quality information by the supplier”.</i></p> <p><i>“Furthermore, by deliberately trying to foster certain types of supplier-supplier relationships, many buyers suggest that the relationship between suppliers is important.”</i></p>	<p>290) Section 2.5.3</p> <p>Choi <i>et al.</i> (2002,p.119) Section 2.5.4</p>	<p>how to design the course and results)</p> <p>21. Do you think that your company’s suppliers need to associate with each other? (Why? How?)</p> <p>22. Do your Taiwanese and Chinese suppliers share the extent of mutual power, with the trust and commitment between them?</p>
<p>4.</p>	<p>To investigate the internal processes of supply chain collaboration</p>		
<p>Internal facility processes</p> <p>Integration</p> <p>TQM</p> <p>Transfer of Technology (high-technology Firms)</p>	<p><i>“all the activities involved in delivering a product from raw material through to the customer including sourcing raw materials and parts, manufacturing and assembly, warehousing and inventory tracking, order entry and order management, distribution across all channels, delivery to the customer, and the information systems necessary to monitor all of these activities”.</i></p> <p><i>“Vertical integration may also facilitate stabilization of production quality or quantity, and management of the process flow of costly or risky technologies, permitting a more efficient, standardized, and high-volume output”.</i></p> <p><i>“TQM is a management philosophy for continuously improving quality of goods and services delivered through the participation of all organizational members; it is the process of making quality the concern of everyone in the organization.”</i></p> <p><i>“Manufacturing systems in organizations have been enhanced with information technology tools such as enterprise resource planning, distribution requirements planning, electronic commerce, products data management,</i></p>	<p>Lummus and Vokurka (1999,p.11) Section 2.1.2</p> <p>Stonebraker and Liao (2004, p.1037) Section 2.1.3</p> <p>Temtime and Solomon(2002,p191) Section 2.1.4</p> <p>Chandra and Kumar (2000,p.101) Section 2.1.4</p>	<p>23. Does your company operate the supply chain channel efficiently? (If yes, what is the current status of the supply chain channel? If not, What would make it more efficient?)</p> <p>24. Does your company integrate the whole supply chain channel? (If yes, why and what is the benefit of this?)</p> <p>25. What is your opinion of TQM? (If, good, why? If not good, why?)</p> <p>26. How does your company operate TQM to match your customer quality requirements?</p> <p>27. How does your company design its information system? Which parts are the most efficient?</p>

	<p><i>collaborative engineering etc.”</i></p> <p><i>“Many survey participants mentioned automated information exchange via information technology such as electronic data interchange (EDI), database (e.g. Wal-Mart’s shared database called RetailLink), data warehouse and data mining techniques, and the internet to illustrate their communication channels.”</i></p> <p><i>“High-technology markets are characterized by a rapid pace of technology change involves a high degree of uncertainty for buyers. An important source of uncertainty stems from buyers’ lack of experience with product technology.” “Rapid technology changes makes difficult for buyers to evaluate supplier’s performance and predict any likely problems that might arise in the production and the delivery of the product.”</i></p>	<p>Min <i>et al.</i> (2005, p.247) Section 2.2.2</p> <p>Giunipero and Eltantawy (2004, p.703-704) Section 2.4.1.2</p>	<p>28. How does your company get customer information? Do you transfer this to your supply chain collaboration (SCC) partners? What information do you want to transfer to your supply chain collaboration partners?</p> <p>29. Does your company rely on technology change in its SCC partners? (If yes, how? If no, why not?)</p>
Measurement	<p><i>“The result of collaborative SCM is not only the reduction of waste in the supply chain, but increased responsiveness, customer satisfaction, and competitiveness among all members of the partnership.”</i></p>	<p>McLaren <i>et al.</i>(2002,p.3 50) Section 2.2.3</p>	<p>30. What measurement does your company use within SCC? (How? Why?)</p>
Innovation of production	<p><i>“The value to be gained from collaboration is manifested as enhanced business performance as a result.”</i></p>	<p>Aryee <i>et al.</i> (2006, p.947) Section 2.2.1</p>	<p>31. How does your company develop a new market or innovation of production with its SCC partners?</p>
Transaction cost	<p><i>“Transaction costs involve all of the costs associated with conducting exchanges between firms. Transaction costs take many everyday firms--management meetings, conferences, phone conversations, sales calls, bidding rituals, reports, memos--but their underlying economic purpose is always to enable the exchange of goods, services, or ideas”.</i></p>	<p>Dyer (2000,p.91) Section 2.2.1</p>	<p>32. Which transactions parts reduce costs after collaboration in your company?</p>
5.	To examine the outcomes of supply chain collaboration		
External facility processes	<p><i>“It is important to employ cross-channel co-ordination when</i></p>	<p>Chandra and Kumar</p>	<p>33. Does your company co-ordinate with its SCC</p>

Co-ordination	<i>sharing some of the common resources among different supply chains.” “Creating supply chain value is important for Successful co-ordination.”</i>	(2000,p.102) Section 2.1.3	partners? (If not, why not?) 34. In which situations does your company co-ordinate with its SCC partners?
Competitive capabilities	<i>“Supply chain collaboration is often defined as two or more companies working together to create a competitive advantage and higher profits than can be achieved by acting alone.”</i>	Simatupang and Sridharan (2005b,p.259) Section 2.0	35. Do you think that your company gains any competitive advantage from SCC?
Customer satisfaction	<i>“Collaboration enables partners to jointly gain a better understanding of future product demand and implement more realistic programmers to satisfy that demand.”</i>	Sahay (2003,p.77) Section 2.2.3	36. Do you get any feedback from your supply chain collaborative partners?
	<i>“though collaboration is based on a mutual objective, it is a self-interested process in which firms will participate only if it contribute to their own survival, Each member seeks to achieve individual benefits such as eliminating redundant functions, reducing transactions, achieving lower inventory, increasing responsiveness, and so forth. Nevertheless, the focus of a mutual objective should be on the outcome and experience of joint offers to end customers. ”</i>	Simatupang and Sridharan, (2002, p.19) Section 2.2.3	37. How is the feedback from your end customer?
Facts of collaboration value	<i>“Collaboration should result in creation of new and unique value propositions based on a unified approach to value creation”. “Value creation in collaborative organisation should be a win-win-win situation for all parties concerned”.</i>	Bititci (2004, p252-253) Section 2.2.3	38. How satisfied is your company with previous SCC?
Suggestion Future plans for Collaboration	<i>“The advent of supply collaboration creates the need, at the intercom any level, to pay special attention to the understanding of collaboration in order to prepare the chain members to create collaborative efforts successfully”.</i>	Simatupang and Sridharan (2005,p258) Section 2.2.3	39. What kind of problems do you have during the collaborative processes? 40. Does your company have some future plans for SCC?

4.4 Methods of Analysis

4.4.1 The points of data analysis within the interpretation

The data analysis has to relate the theory to the data and explain the dependence relationship event in the research (Carson *et al.*, 2001). On the other hand, if the data analysis is also an argument when identifying the difference between the data collection and theory, then it is critical against the theories from the data collection and conclusion to express the research study. In addition to this, this research needs to observe the difference between dialogue and writing before the analysis process. The main point is that the writing characteristics of the data analysis statements are not too theoretical.

Furthermore, Gillham (2005, p.141-144) referred the ten point process of interview analysis as follows:

1. To ensure the formation paperwork is suited to the transcript. For example, the interview questions and interjection forms have to be separated into different types, using double-spacing to insert the coding references. Each transcript and quotation must be very clearly identified.
2. Taking notice of the highlighting then deciding which one is essential for the transcripts, then being able to write it.

3. Reading the transcripts one after another. It also depends on the length and on not reading two to three transcripts a day. The first reading step is significant in dealing with the transcripts, and then it is possible to progress to the next step.
4. Double reading the transcripts and deleting some redundant reports in order to highlight the significant information.
5. Asking someone to comment and provide a simple reliability check. This can examine the research content but this contribution will assist the researcher's thinking about the process again.
6. It is necessary to make categories for the answers; and go back to the beginning to select the categories. From these categories, it will be possible to find which are insufficient or redundant in order to discover the practical data for analysis.
7. The categories are made from the previous statements and can modify the statements. Those statements are significant and can be written up in a separate section.
8. It is necessary to make an analysis spreadsheet to make the data analysis clearer.
9. The spreadsheet also needs two forms; one is to enter the actual words of the statements, and another one is to enter a tick in each cell in which a statement has been inserted.

10. The final step is to put a reference against the statement on the original transcript.

The interview analysis can also use some meaning during the interview, with short periods of the categorization of meaning, structuring of meaning through narratives, interpretation of meaning, and ad hoc methods for generating meaning (Kvale, 1996). The categorization is short and a few words are quickly written down about the answers during the interview period. Categorization is a code symbol used to decrease and structure the huge transcript into tables or figures. It helps researchers more easily to analyse the respondents' answers. Narrative structuring is focused on the story investigative analysis. Meaning interpretation more deeply describes the whole interview process and results. The methods for generating meaning are to use the computer method to analyse the interview answers in order to produce meaning. The above meanings assist the researchers to record their interview questions, and then discover more effects.

4.4.2 The steps of the analysis

Kvale (1996, p.189-190) referred to six steps of analysis: the first step is the research topic description. The respondent talks about their practical experience relating to the topic in order to assist the researcher to write up the investigation.

The second step is more challenging, to generate new meaning from the interview.

In other words, it builds a new connection between the interviewer and respondent and then discovers the different meanings from their practical works. It can also assist the interviewer and respondent to understand more about their work, especially after identifying the new meanings during the interview questions. The third step is start to describe and feedback the interview. It is necessary to organise the interview questions from the respondents.

The fourth step is to accumulate information the three prior steps, and then start to transcribe the interview developments and results. It is necessary to structure and combine the large interview recordings. Then, the five main meanings move towards the analysis in this step. The fifth step is re-interviewing; depending on the research situation, when the researcher wants to know more about the investigation after they have written the data analysis. The sixth step is to expand the range of the explanations. The interviewer and respondents can work together throughout the research process but only with action research. However, the interviewer needs to listen to repeats and replays the recordings many times in order to transcribe the context.

Nevertheless, from the above data analysis process steps, it is very easy to understand the data interpretation process, and collect and write up the respondent's

answers in order to make more recognisable and demonstrable the research objective phenomenon. However, it is necessary to use intelligence to express the responses to the research questions, even though there are different ways to be acquainted with their dialogue and behaviour. It is very important to state the evidence presented and the real statements of the interview actions are developed.

And then, for the data for the case study analysis, Carson *et al.* (2001) pointed out that one should take important quotations from transcripts and then use codes to make a category for the research questions in order to analyse and compare the data in each case. Furthermore, Yin (2003, p.109) defined five strategies for analysing methods: pattern matching, explanation building, time-series analysis, logic models, and cross-case synthesis. This lead cases analysis offers cross-case analysis, as Carson *et al.* (2001, p.106) said “*in the cross-case analysis, the report emphasizes reasons why differences occur, with an explanation of why a difference was found*”. Furthermore, they suggested using quotations to state the different responses and findings in the cross-case analysis.

4.5 Reliability, Validity and Limitations of the methodology

4.5.1 Reliability and Validity

Before the limitations, a logical reasoned discussion must consider the reliability and validity of the interviews, since these also influence the interview analysis' dependability.

1. Reliability: Reliability is considering whether the research findings are steady. It involves the interview processes, then data analysis in order to transcribe the research findings (Gomm *et al.*, 2000). Hence, every word of the interview must be assessed in relation to the research questions. The interview reliability also assesses the respondents' answers and whether they are referring to the research questions.

Although, transcribing helps determine the research reliability, the findings can also be fed back to the research subject to clarify emphases. Ritchie and Lewis (2003) also said that the reliability of the findings depends on the original data and the methods used. Hence, it is vital to emphasise the requirements from the literature review theoretical approach to the original data (Silverman, 2000). In other words, the research procedures not only focus on reliability but also need validity to prove the findings; then the research themes can be developed.

2. Validity: Qualitative researchers have to verify the internal validity of their question and findings to present the reader with more evidence about the research interpretation (Gomm *et al.*, 2000). Then, within the wider conception of validity, qualitative research is able to construct valid methodical knowledge.

Kvale (1996, p.237) referred to seven stages of validation for research as follows:

1. Thematising. From the literature review, based on theoretic study and logical reflection to develop the research questions.
2. Designing. The research design must be based on valid knowledge in order to produce an ethical point of view and minimise useless findings.
3. Interviewing. During the interviews, it is essential to ensure the questions quality and answer process, and then always check the information for validation.
4. Transcribing. The transcribing takes from oral or written words in addition to engaging in a linguistically valid style.
5. Analysing. The analysis is valid when the questions asked during the interviews are logical in interpretation.
6. Validating. The conclusion is valid when relevant to the research, and it is the validation of research processes after a reasonable discussion on validity has been made.
7. Reporting. The report's content comes from the interview answers and valid findings. It is the role of the researcher to present to the reader how the results were validated.

Validity can establish that truth and knowledge is an advantage of research innovation. That is why Kvale (1996, p.238) stated "*The valid knowledge involves*

the philosophical question of what is truth". Philosophy is the criteria when the correspondence, coherence, and pragmatism of the truth are separated. Correspondence concerns the truth of whether the knowledge relates to the research topic. It is directed towards the regularity and logic of statements. Then, pragmatism is more closely related to the truth of knowledge about practical statements. These three truths need to complete the qualitative research findings and take on observation, conversation, and interaction.

To sum up, validation involves checking, questioning and theorising. The checking of the analysis and findings of qualitative observations and interpretations in order to outline the testing that confirm the qualitative findings. The different questions also have different answers from the respondents. However, validity is not only a method but also generates theoretical questions from the phenomena to be investigated.

Definitely, the validity and reliability of the data judges the research findings and whether they are reasonable and the strongest to describe the data. It is on this basis that the validity and reliability have to be verified in the qualitative research investigative steps and better interpret the research findings.

4.5.2 Limitations

The limitations examine the theory development during the research process, including testing the research conditions, such as the contexts, questions, cases, phenomena, situations and so on (Steinke edited by Flick *et al.*, 2004). Hence, the limitations influence the research results within the negotiable conditions. The point is to make sure that the negotiation is really satisfied with the phenomenon to the theory transpiring.

In other words, the negotiable setting takes a theoretical view to extend the introduction, contexts, and phenomena, and then the negotiable actions include the omission of irrelevancies and filtering out from the research conditions. Furthermore, Steinke (edited by Flick *et al.*, 2004, p.189-190) stated two methods to avoid the limitations influencing the research results. One is contrasting maximally and minimally that the different cases' identified and analysed correspond to the theory. This contrast is to focus on identifying the elements, reasons, and conditions in order to criticise the theoretical phenomenon. It can also test whether the research results are sensible. The other one is very obviously to analyse the finding of the evidence's meaning, and keeping the contrast of as many features as possible and maximally changing aspects in the research. In other words, thinking of different ways of analysing the deviant, negative, and extreme elements during the research process to reduce the limitations.

However, this research uses the case study analysis to do the survey and collect the literature and data. Then, it also has some limitations of methodology due to the lack of resources and references. Nevertheless, the three cases are the main data collection but it is not necessary to observe the process of collaboration between the buyer-suppliers in the companies.

Subsequently, it is also affected by opinions of the respondents and the analysis methods. According to Steinke (edited by Flick *et al.*, 2004) the contrast between as many features as possible can remain and maximally change aspects of the respondents' answers. In addition to this, the analysis process has to tag on logical reasoning so that the investigation is based on qualitative research.

4.6 Summary

The purpose of this chapter was to discuss the methodology suitable for the research questions and to develop the research findings.

It is important to assist the Taiwanese buyer companies and their Taiwanese and Chinese suppliers' collaboration relationship, and then point out the four main research questions. The relative questions are to argue that collaboration arrangement makes a decision agreement with the collaboration partners. Moreover, the supply chain collaboration creates further value and finds motivation from the

suppliers. When the spirit of suppliers' development is definite, then the collaborative partners will become concerned with the collaboration method.

The methodology can be quantitative research or qualitative research. The quantitative research involves the collection of primary data from a large number of individuals and analyse the data. Qualitative research is based on the in-depth interpretation of the participant's experiences and observation. Conversely, the main point in choosing the methodology is based on the research questions to determine the results. As this research seeks to explore supply chain collaboration, qualitative research was chosen to interpret the interviews with the case studies. The research anticipates interviewing the Taiwanese buyers and suppliers' companies and Chinese suppliers to answer the research questions. Furthermore, the revised questions and interview schedule has been designed in order to provide the main references for the fieldwork in China. The steps of data analysis have to be recognisable in this research. Nevertheless, the reliability, validity and the limitations of the methodology have been discussed in this chapter.

The above methodology discussion indicates the way data will be collected, how it will be analysed and the way it will be verified in order address the research questions and contribute to supply chain collaboration in practice and as in the academic field.

Chapter Five

Discussion of findings

5.0 Introduction

This chapter analyses the fieldwork and interviews from the three case studies. It begins by describing the background, history, culture and recent marketing circumstances for each of the three companies under investigation. Although the interviewees requested anonymity, basic data was collected on the companies through sources such as company websites, articles on the companies and information from respondents. This study used pattern-matching structures of analysis to explain the interview answers and discuss the findings of this research. In addition to this, the analysis links to the previous literature review chapters to use the scholars' investigations to analyse the similarities and dissimilarities between academic theory and practice.

Subsequently, this chapter uses cross-case analysis to discuss three cases related to and at variance with each other. The end of this chapter has a discussion of the three cases used in this research.

5.1 Case A: An electronics company

5.1.1 The history and background of the company

Company A is an electronics company and its main product is laptops. The company established its headquarters in 1984 in Taipei. The company is a worldwide logistics group manufacturing laptops, monitors, and communication products. Initially, to be a supplier to the high-technology industry, the company needed to rely on specialised management and a superior research and design (R&D) team. Moreover, the company has been much focussed on the product quality and passed the ISO (International Standards Organisation) 9002.

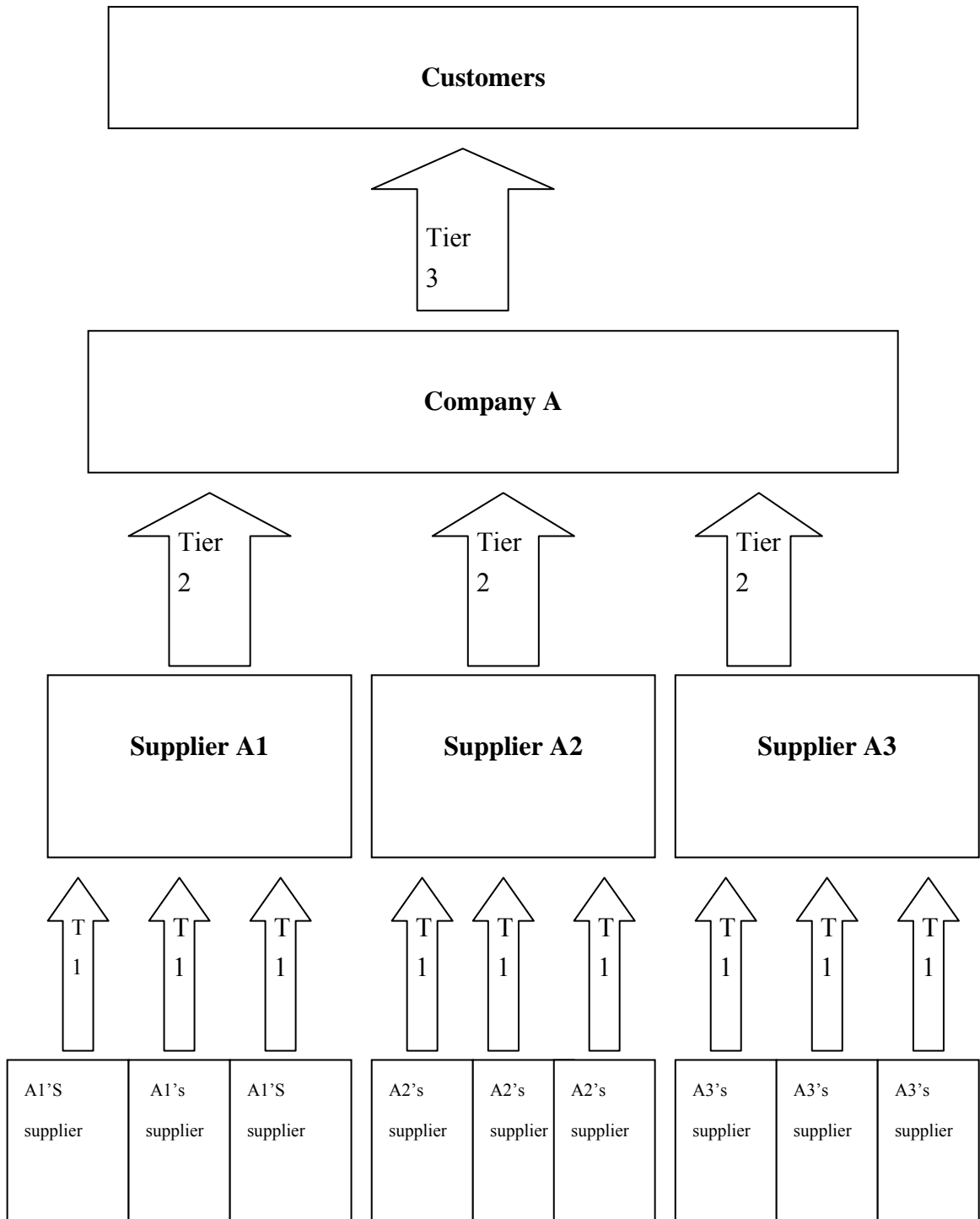
From the above basic information it can be seen that the company uses its professional management and technology to provide high-quality products for their customers all over the world. The company uses their flexible design services to be more competitive in the market and build trust with their customers in order to become one of the top companies in the global high-technology industry. The main point is the company's R&D ability is the key factor in developing customer trust in the high-technology industry.

The company set up their headquarters in Taipei including administrative management, sales and sourcing centres, and R&D departments. The company manufacture and logistic departments are always set up where they can get the lowest labour and cost in overseas countries. In 1998, the company set up their

branch in China and began to invest in China. The company now manufactures its products in two locations; Ping-Cheng factory in Taiwan and Kunshan factory in China. The company started to produce laptops in 2003 and generated about 75-80% of its revenue in China. This increased to 90% by 2004. By 2005, they manufactured 100% of their laptops in China (the source come from company website's sales report page).

The company's website indicates that "*transcendence*", "*diligence*" and "*harmony*" are the company's core values. In addition to this, the company's employees believe their company's key competency is that the company treats and respects employees very well. The company employees like to cooperate, working together to control the costs for their company. They said the company's culture is simpler than that of other companies. In other words, they have a good relationship within the company and their colleagues within the company's good working environment. This information was taken from the company website and news but as the company asked to remain anonymous the sources are not identified here but it is still necessary to know the company background and their international marketplace in order to more understand their supply chain channel layout. In addition to this, the company interview tier (see table 5.1) can more be acquainted with the company and their suppliers and customers' relationship for this case study.

Table 5.1 Company A: Interview tier



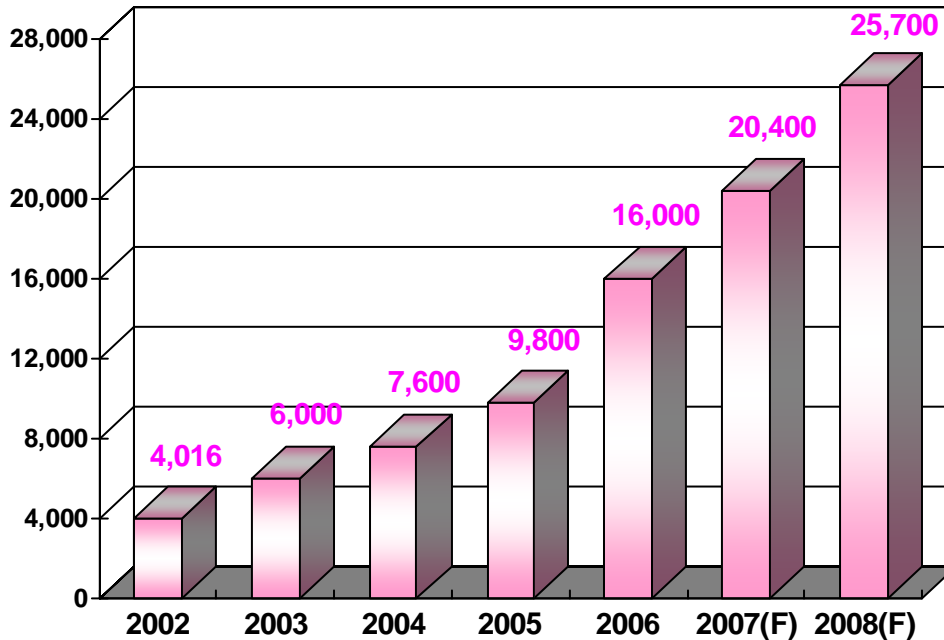
The company has been involved in ODM (Original Design Manufacturer) and OEM (Original Equipment Manufacturer) for many years in Taiwan and China. In 2004, the company's revenue increased by 30% from 2003 to NT\$230 billion. It has a high customer concentration with its revenue mainly originating from laptop PC manufacturing for the world's top five brands (Hsu and Tsai, 2007).

Subsequently, the company revenue in 2006 was NT\$303.0 billion, with a net income of NT\$8.7 billion (resource from company A press release, June 15, 2007).

Further, in July 2007, laptop PCs and display products shipment were 2.1 million and 270 thousand. The company's sale of laptops has become increasingly diversified in recent year (Figure 5.1). From here, it can be seen the company revenue has increased rapidly because they support famous brand laptop companies through design, high-quality manufacturing, and good after customers' services.

Figure 5.1 The Company's laptop Sales & Forecast

Units: K sets



Source: The Company's sales report

5.1.2 Empirical evidence on supply chain collaboration

5.1.2.1 Supplier selection: key suppliers and environment

In terms of supplier selection issues, the purchase manager supposed that their company chose suppliers mainly due to price and quality. The company always chooses more than three suppliers in support of each item of material. The company considers guanxi in choosing their suppliers but also pays attention to the price and quality. They prefer Taiwanese suppliers because they have had a long time relationship with them and their Taiwanese suppliers will also follow them to China.

The company is not concerned about the government policies or cultural differences when choosing suppliers, but the main thoughts are guanxi, which are those with a special relationship, whom the company chooses as its suppliers. In other words, the company relies on guanxi to choose their suppliers but also needs motivated suppliers who have enthusiasm to work together.

From the interview three suppliers of this company were identified: Supplier A1 began doing business in China during 2003. The company's key competencies are focused on service and honesty, and customised products. Supplier A2 followed the company from Taiwan to China to set up their factory. The company's key competencies focus on brand innovation and service. Supplier A2 is concerned with service skills and training their employees on this issue. Supplier A3's situation is the same as supplier A2, who followed the company from Taiwan to China. Supplier A3's technological skills are higher than the other supplier companies. Supplier A3 said when their buyer's material supplier had some problems and could not deliver at that time; they supported their buyer immediately to delivery the required material in only one day. That is why they got that order for the next season. It is very clear to see supplier A3 concentrated on good customer service.

From this, it is can be observed that their suppliers were very concerned about meeting their customers' requests. The customer requests can let suppliers improve

their services and quality. The suppliers' companies think that orders and the sharing of profits can motivate supply chain collaboration.

On the other hand, though the company's key suppliers assist them in supply chain collaboration, how can it motivate their suppliers to work with them? The company's Taiwan purchasing manager said "*the profit will motivate our suppliers to collaborate together but we need to negotiate with the risk sharing*". The first thing the buyer and suppliers need to negotiate is how to share the profit and risk in the supply chain collaboration. The point is, supply chain collaborative partners need to make agreements on the share of profit with supply chain collaboration. However, when the problem happens, how can they solve the problem together and get the solution? This issue is discussed in the next section.

5.1.2.2 Agreement: commitment, trust, risk sharing and problem solving

The research found agreement amongst supply chain collaborative partners on making contracts clear. Most companies have a contract. If they do not have a contract at this moment, they said that they must think about this issue when they need and want to collaborate with their supply chain partners. The opinions are the similar as Simatupang and Sridharan (2002, p.19) said that "*First, the engagement process aim to identify the strategic needs of collaboration, find the right partners*

with the right capabilities and set mutual agreements concerning performance”.

This can answer the question from the end of the last section that profit and risk sharing is able to be formulated with the agreement of the supply chain collaborate partners. The agreement plays a very important role within supply chain collaboration.

Normally, the contract sets the rule on how profit and risk will be shared. The buyer firms dictate the major rules for the contract with their suppliers. When problems happen, company A takes responsibility because the company’s suppliers do not have the ability to take the risk. From here, as can be seen, the major company always likes to be the leader since they can take the risk and be in charge of handing the whole supply chain collaboration. On the other hand, trust and commitment is present within the contract. The commitment explains the increased orders and payment time.

The import and export manager said that *“trust and commitment is dependent on the demand and support; which one is more powerful? Then you can decide the trust and commitment from it”*. The leader company between the buyer and supplier decides whether the demand or support is more powerful even though the supplier and buyer have a long term relationship like a friendship. This is further exemplified when the customer needs special material and only one supplier can provide it. In

this case the supplier will be more powerful than their buyer company because this demand needs this supplier to provide the special material for their customer.

This section has discussed trust, commitment and sharing profit and risk within the contract but how can the supply chain collaboration partners keep their partnerships?

5.1.2.3 Partnership: power

Supplier A1 said that they have good friendships with their suppliers and always contact each other to share information on their current situation and sales' forecast and seller relationship. They also have a good relationship with their Taiwanese suppliers but not the Chinese suppliers; they have more trust in their Taiwanese suppliers. Supplier A1 thinks the partner's power can affect the supply chain collaboration. For example, when the supplier's company needs to balance the collaboration situation, then they would always choose two Taiwanese suppliers compared to one Chinese supplier. Supplier A2 found about 70-80% power can affect the supply chain collaboration. Supplier A3 does not agree with this because they think only the order can affect the supply chain collaboration.

Company A always has social activities to keep the partnerships. The company's purchase managers join the social life of their suppliers sometimes. They think that, when they have a friendship with their suppliers, it can help them negotiate more

easily and know more about their partner's companies' news but they do not have any special relationship with their Chinese suppliers. They reflect that cultural differences are the main reason. The other reason is that the company thinks the Chinese suppliers' technological skills are not very well developed. The Chinese suppliers have an equal share, regardless of the work done. They do not care about the quality and deadlines. This issues have been discussed by Hopkins *et al.* (2004, p.374) "*managers and workers in the PRC (People's Republic of China) do not have as good an understand of modern quality management principles as managers and workers in the ROC (Republic of China, Taiwan)*". That is why company A only offers jobs such as packing papers or other not very important consumable parts to the Chinese suppliers.

On the other hand, the company believes that the more powerful suppliers can affect the supply chain collaboration. Then, the power suppliers depend on who can provide the special good products and lower prices in order to manage the supply more than demand, especially in the high-technology industry. It is very easy to see this situation in company A. For example, company A need to finish their suppliers' in-store products but their suppliers need to keep costs down for company A. In addition to this, the company needs to follow their customers to allocate suppliers because this company is a major OEM company. The high-technology industry's

technology is always changeable so that they need more high-level skills and products to support them to face the market competition. The supplier development within high-technology industry is discussed in the next section.

5.1.3 To evaluate supplier development within supply chain collaboration

5.1.3.1 Relationship: investment

Company A's key suppliers are Taiwanese suppliers and they have supported the company in supplying their main materials for a long time. The company helps their suppliers' development based on the close and long-term relationship they have. This can allow their suppliers to provide better quality products to their buyer's standard. Yet, there is a contrasting view about the suppliers' relationship in China from this company. Chinese suppliers only support consumable parts but Taiwanese suppliers support the company's main materials. That is why the company's Chinese and Taiwanese suppliers cannot affect each other because they perform different functions within the company. In other words, the relationship between suppliers is decided by the buying company's strategy and operations (Gadde and Snehota, 2000).

In regard to the relationship within supply chain collaboration, as supplier A1 said: "*we are in the same boat*". This is not only talking about the relationship between

buyers and suppliers but also can express the value of supply chain collaboration.

When the collaborative partners have the same thoughts, then they are happy to work together so that can create more value for supply chain collaboration. Supplier A3 thinks that the relationship starts from service, when their suppliers provide good service, then they will have a good relationship with them. When the supplier provides good service to their buyer company, then their buyer company has respect for the company and that can build up good relationships. When the buyer company has a new project, then they will consider the supplier who has provided good service for them in the past. The reason is, they trust the suppliers more when they have a good relationship.

The deeper relationships are referred to by Millington *et al.* (2006, p.190), result from three things: “*supplier investments, buyer control and buyer investments*”.

This can be seen from the company’s suppliers’ responses. Supplier A1 said “*when our company wants to extend our business and run a big business and we will invest in our suppliers*”. Supplier A2 said that “*if our company wants to invest the suppliers will focus on raw materials suppliers*”. They think that, if they can invest in the raw materials, they can have more control of the cost and product quality.

On the contrary, the company does not invest in their supplier because they think they do not need to. The main reason is the company is a famous OEM company in

the world. Their suppliers are always in a competitive environment to provide cheaper and high-quality materials for them. That is why the company does not need to invest in their suppliers.

Nevertheless, the relationship between supply chain collaboration is very significant. Subsequently, the next section focuses on the different supplier types in supply chain collaboration, their monitoring and training operations, and the supplier and supplier association for this research.

5.1.3.2 Supplier types

The company has a strategic collaboration type with their suppliers for the reason that the company is an OEM company to produce laptops. It has an explanation from Cousineau *et al.* (2004, p.110) that *“the implementation of SSI involve the OEM working with the suppliers during the design phase. This allows the suppliers opportunity to be involved in the original design discussions and therefore enables them to anticipate production problems that they may encounter later on. It also gives them the opportunity to form relationships with the product engineers who will eventually sign off on the manufacture”*. The company and their suppliers start from the product design so that can more easily understand the problem and know how to solve it. This also lets the buyer and supplier have more opportunity to build

up their good relationship. That is why that when some suppliers cannot support them at this time, they can support them next time because the different types of laptops have different material requests. That is why their suppliers can have a long term relationship with them.

The strategic collaborate type is extended to the company's suppliers. The company's suppliers' collaboration type focuses on strategic collaboration. For example, supplier A2 focuses on developing new products as tactical supply chain collaboration. A tacit understanding between the company and suppliers are the goal to achieve customer requests within an expansion of market.

5.1.3.3 Supplier management: monitor and training

Company A's monitoring on quality management is very good as the Company has a quality control (Q.C.) department. When the products have some problems, the Q.C. department goes into the suppliers' factory to find out the reason and assist them to solve the problems. This company does not have special training course for their suppliers. Yet, when the company's customers have a presentation for the new product, and then the company and their suppliers join the course together. The innovation of production needs monitoring and training of their suppliers. Then they

can check the quality and make sure the supplier's support for the new products for their buyer is the right product.

Supplier A1 said "*they do not have a regulation monitor plan and only have the quality control department to monitor the products*". Supplier A2 does monitor their suppliers and enter their factory to check their quality. Yet, they do not have any training classes for their suppliers.

As can be seen, the company and their suppliers only use quality control method to monitor their suppliers, and from the quality control point to training their suppliers.

Only the company's customers design some training courses for the company.

5.1.3.4 Supplier-supplier association

The company purchase manager, who is in China, had an opinion on this subject of supplier and supplier collaboration. He said that "*if the company collaborates with their suppliers, we may have to think about antitrust law because this collaboration might have an anti-economical benefit, but if this collaboration uses the lowest products, maybe it can keep costs down because of joint purchasing. In fact, I do not agree with suppliers' collaboration*". The manager considers that supplier and supplier collaboration may control the market, and they will not then have any bargaining chance to fix on the material for their company. He said that "*when the*

collaborative partners want to design the lowest price computer at around \$100 for South Africa countries, then they can motivate their collaboration within the main parts". He thinks that the supplier and supplier need to collaborate when the product's costs must be kept down.

The other opinion from Taiwan's purchase manager does agree with. He said "*we do think our suppliers need to collaborate. Because they can follow our orders but need to think how they can share the profit and risk*". He wants to make sure that the orders are not a problem. He thinks that it is a very new concept but needs negotiation about how to share the profit and risk. The profit and risk sharing is a very important factor within the collaboration programme.

The purchase manager, who is in China, said that "*in other words, if the same material suppliers can collaborate then to find their buyer together but they need to divide the profits. When some suppliers think to unbalance this, the profits will cancel out the collaboration*". This is very important when collaborative suppliers can not divide the profit; how can they solve the problem together? Most problems are about quality, when supplier and supplier undertake collaboration and they need to solve a problem together for their main customer. This needs to depend on who has more authority to solve the problems.

Supplier A2 said that they think about the vertical supply chain collaboration and not horizontal supplier and supplier collaboration, which is easier to do. The three suppliers do not think it will be possible.

According to Porter (1990, p.663): “*while antitrust should be tough on horizontal cooperation and mergers, policies that protect inefficient or lagging competitors should be abolished*”. The horizontal supply collaboration may have an antitrust situation but rules or policies can be adjusted. This company and their suppliers do not do supplier and supplier collaboration at this moment but may do it if they need it. At least, they have this concept of supplier and supplier collaboration.

5.1.4 To investigate the internal processes of supply chain collaboration

5.1.4.1 Internal facility processes: integration, TQM, and transfer of technology

Supply chain's efficiency can affect the supply chain collaboration. The supply chain's efficiency includes the delivery time, product quality and costs. In this case, the company has an efficient supply chain channel, only a few Chinese suppliers delay the delivery time. Even when the company does not think that there is a reason to delay; for example, Chinese suppliers said they do not have a product schedule. Yet, the company still uses Chinese suppliers because of the low cost and

as they are only purchases packaging materials or boxes for their products, which does not affect their manufacture line of products very much.

Further, the company has a resourceful supply channel because their suppliers also have a well-organized supply channel. Nevertheless, the supply channel's efficiency is also linked to the company's suppliers' suppliers because of the alignment of the supply chain from upstream and downstream (Lummus *et al.*, 2001).

For example, supplier A1 has a 70-80% efficient supply chain channel and 20-30% inefficient as the purchase manager controlled the lead time very well. Supplier A2 has 95% efficiency within their supply chain channel and only 5% inefficiency because the technology system operation has some problems. Supplier A3 said yes, they have an efficient supply chain channel. From here, only supplier A2 said can see the benefit of integration for their delivery time and speed within the whole supply chain channel. The other two suppliers do not have integration within supply chain channel.

On the other hand, the company's purchase managers said that their suppliers offer the products to their company very efficiently. That is why they said that they do not need integrate their suppliers because they do not know who wishes for integration. In addition to this, the logistics department has an APS (Advance Planning Schedule) system in which the functions between product management

and purchases control the order materials and schedule to manufacture goods. The logistics manager said that system is more efficient in terms of delivery but does not including the Chinese suppliers who only provide their packing stuff.

Total quality management (TQM) is the quality control internally for every employee in the organisation but also from all partners within the supply chain collaboration. Unfortunately, the Company does not use TQM but their company has a quality control department to control the product quality. The company has a 6 σ (six sigma) quality standard to monitor and control materials' quality. Further, the company has three software technology systems to control product quality. They have QA (Quality Assurance) and QAD (Quality Archery Designs) before mass production, and then order management. Internal quality is called QA. Exterior quality is called QAD during the period of developing new products. In addition to this, the company has the quality control for suppliers called SQE (Software Quality Engineering), especially for materials control. This software system is focused on controlling the suppliers' material and order quality in order to manage the suppliers through it.

In addition to this, transfer of technology is a key tool between the high-technology company and their suppliers. Company A has a very efficiency high-technology system. This is can be seen from this company's technology systems as follow:

The purchase process of this company for purchaser managers starts from the APS (Advanced Planning Scheduling) system which one extends from MRP (Material Requirements Planning) and BOM (Bill Of Material) to control and plan materials from the suppliers. This information can advise suppliers about the orders. Then the shipping of parts is more efficient as it can be controlled from Taiwan to China. The company obtains customer information from its customer orders. In addition to this, the company has a matrix system, such as ERP (Enterprise Resource Planning); to link their customers and suppliers at the same time, as in B2B (Business to Business) internet communication, but the company does not transfer their customer information to their suppliers due to their belief in business confidentiality.

According to Lin (2003) to know if the company not only has a software system but also a global supply chain management model there are four stages:

First step: To set up the electronic purchase system. It faces a quick response (QR) from customer requests, and then the company starts to set up the electronic purchase platform and to use the e-mail (electronic mail) to finish the purchase processes. This increased the supplier's operational effectiveness in order to reduce the time and operational costs adding to purchase effectiveness and to take on the global competition. On the other hand, if it sets up the electronic platform instead of the Electronic Data Interchange (EDI) systems it reduces its business transaction

fees and controls the purchase quality. However this recorder only indicates the business practice with this company then links Enterprise Resource Planning (ERP) -to-ERP as B2B electronic business.

Second step: To choose the suite for an enterprise electronic purchase platform. The company has more than 260 suppliers that need to get an Internet operation for their processes. It is very important to choose the electronic purchase platform that is helpful for the company. There are two rules about this: one is that can continue to update and strengthen their application ability. The other one is solving the problems of a globally famous factory together and also the leader in this field.

Third step: To build up the global supply chain management. The company collects its suppliers' data, uses information technology to get the suppliers' information immediately, so that it can increase the value of the enterprise. The other one is to use the ERP system to reduce the supplier's stock and the just in time system to support their suppliers.

The fourth step: E-business. The company uses internet business to manage their suppliers and the virtual relationship to drive their business to business relationship.

They also focus on effective supply chain management to face the global competition. Their supply chain policy is to choose a purchase location in order to reduce the purchase time and control the quality immediately (Lin, 2003). The

company always encourages their suppliers follow them to invest in other countries because they think local purchase can reduce the lead time and control the products. The main point is they can communicate with their Taiwanese suppliers face to face immediately.

On the other hand, from interviewing the company's suppliers, none of them know about TQM (Total quality management). Some of their suppliers' suppliers use an ERP system to design their information system but also use MSN (Windows Live Messenger) and Skype to communicate with their suppliers and customers. In addition to this, supplier A1 can get the customer information from China's portal Internet (china.alibaba.com) website. Supplier A2 provides customers' information to the suppliers. It is easy to understand and make sure of the material quality from their suppliers and make the zero point in order to provide good service to their customers. Supplier A2 is the one who always provides the electronic parts for Taiwanese OEM companies both in Taiwan and China. They always provide high-quality and reasonable prices for this company and have a long-term relationship with them. That is why this company can share their customers' information with their suppliers. It is a kind of business model in their company to service their customers from their suppliers together. Supplier A2 said that "*when our products have some problems, and then we need our suppliers to support their technology*".

In this situation, this supplier's company relies on technological change in their suppliers and needs to discuss with them how to modify the products.

Other than that, the company seldom relies on the technology of their suppliers because they are an OEM Company but they also have two or three technology skills they need to rely on with their I.C. (Integrated Circuit) suppliers and check the lead time from them because some laptop styles have special I.C. demand. The other situation is the suppliers' arrangement for customers, then the company needs to rely on their technology. The customer arranges the suppliers who can provide special material but also need the principal technology skill.

This is very similar to Huang and Lin (2006, p.970), who said that "*in high-tech industries, external technical resources generally come from collaboration and technology transfer*". The most important thing is that they need to have the knowledge because it is "*know-how*", an intangible asset within high-tech industries.

Serve *et al.* (2002) stated that "*intelligence about the customer and what the customer has ordered is transmitted upstream, so that every organization in the supply chain has visibility re the information and can respond accordingly*".

Nevertheless, these technology systems between the company and supplier are efficient. That is to say, the company manages its purchase processes from the information system.

5.1.4.2 Measurement, innovation of production and transaction cost

They are two different responses from the company. The first one is the profit can measure the supply chain collaboration success as business is business. The other one is the measurement of who can provide lower prices, high-quality and on-time delivery. And the company gets customer requests to develop new products with their suppliers. The company is OEM and needs to follow their customer's demand always. Nevertheless, the company is trying to be an ODM company in the future. It is means that the company needs to be closer to their customers in order to know their wants and needs so that they can provide the good design for them. This also needs the company's main suppliers to support them.

In addition to this, this company does not think that it can to reduce the transaction cost from the collaboration. But from the two voices of their suppliers, supplier A1 thinks that supply chain collaboration can reduce the transaction costs such as tax fee, and share human resources cost. Supplier A2 does not agree with this because they think that, during collaboration processes, it is necessary to contact each other and the transaction fee increases. Supplier A3 thinks the supply chain collaboration can not reduce the transaction cost, the same thought as company A. In this case, only supplier A1 thinks the supply chain collaboration can reduce the transaction

costs. It is not difficult to understand for this company answer about the transaction cost. The company is a high-technology company who has the high-technology system to communicate with their suppliers and use it during the processes of supply chain collaboration.

5.1.5 To examine the outcomes of supply chain collaboration

The company needs co-ordinating with their suppliers but not very often. Only when their suppliers can not support their products on time, then they need to adjust their line of manufactured products. Nevertheless, the company think their competitive capabilities are good because their customers are always satisfied with their products and services.

Supplier A2 needs to arrange the co-ordinated suppliers and collaborate with them.

Supplier A3 said they co-ordinate with their suppliers to keep the customers in order to get market competitive ability. Supplier A1 thinks when they collaborate with their suppliers, the advantage is their suppliers' brand name can get more orders.

When supplier A1 uses their famous supplier's company materials and then their customer have more trust in their products' quality. From the supply chain collaboration so far, supplier A1 is satisfied with their suppliers' partners but they need to spend about six years getting to know each other.

To sum up, the supplier and suppliers collaboration need to make rules about risk and profit sharing. Supplier A1 hopes that this kind of collaboration type is not to being tended. Supplier A1 worries about the anti-economies. On the other hand, supplier A2 suggested that supplier and supplier collaboration only focuses on the different materials of the suppliers collaborating together, for example S2 & S3 work together but not S2a and S2b to avoid the same materials suppliers work together to make the anti-economies.

5.1.6 Case A: Summary

From the above discussion table 5.1 presents the main answers for the research question for Company A and their suppliers. The brief findings as follow:

1. The company is a famous OEM company. The company has a very strong suppliers' team which have provided good quality products at a reasonable price for them for a long time in Taiwan. The long term relationship is maintained by an agreement which constructs the trust and commitment. The risk sharing depends on the demand and supply and which one is more powerful. Company A is a powerful buyer so their suppliers follow the company investment in China. The company and their suppliers always solve problems together.

2. It is like a causal relation, when you choose the key suppliers who can support the company, the company gains more competitive ability but also their suppliers can improve from the supply chain collaboration. On the other hand, the suppliers benefit from a closer relationship with the buyer. The company has a strategic collaboration type with their suppliers and the company's suppliers join their innovation of product design. The company fear their supplier and supplier association will have an antitrust problem so they do not encourage their suppliers do it.

3. The company's Chinese suppliers only support them for the package products because they can not trust their quality on the main material products. If the Chinese suppliers take more care of their quality standard and provide evidence to increase the benefit in China the Taiwanese companies may buy more from them.

4. The company from the co-ordination process need to more understand their suppliers better. Nevertheless, the company's brand also motivates their suppliers and they would like to support them all the time. Their suppliers know this company has better competitive capabilities so that when they collaborate with the company, they can get more revenue.

All in all, this company do the supply chain collaboration well because they have some good key supplies and have a very good long-term relationship with them. On

the other hand, their suppliers' development benefits from this company new products training courses. If the Chinese want to collaborate with this company need to take more care of their products' quality. Nevertheless, the company always bring more value for their suppliers. That is why their Taiwanese suppliers always follow them to invest the other countries when they need them.

Research objectives	The factors of research question		A company	A company's suppliers
To provide empirical evidence on supply chain collaboration	Suppliers' selection	Key suppliers	Price and quality	Consider all conditions
		Environment	"guanxi"	"guanxi (renqing)"
	Agreement	Agreement	Contract	Contract
		Commitment	Contract	Contract
		Trust	Contract	Contract
		risk sharing	demand or supply	Contract
		joint problem solving	Quality problems	Contract
	Partnership	Power	Power can affect the SCC	Power 70-80% affect the SCC
To evaluate supplier development within supply chain collaboration	Relationship	Relationship	Long-term relationship	We are in the same boat.
		Investment	No.	No.
	Supplier types		Strategy type	Strategy type
	Supplier management	Monitor	Quality control	Quality control
		Training	New products	No.
	Supplier-supplier association		Antitrust	No.
To investigate the internal processes of supply chain collaboration	Internal facility processes	Internal facility processes	Efficiency	70-95% efficiency
		Integration	No.	No.
		TQM	No.	No.
		Transfer of technology	Intelligence	MSN, Skype, ERP.
	Measurement		Profit and all conditions	No.
	Innovation of production		Customer's order	No.
	Transaction cost		No.	Only one agreed.
	To examine the outcomes of supply chain collaboration	External facility processes	Co-ordination	Suppliers' delivery time.
Competitive capabilities		Yes, good.	The brand	
Customer satisfaction		Satisfaction	Satisfied their suppliers.	

Table 5.2 Company A: The main answers to the research questions

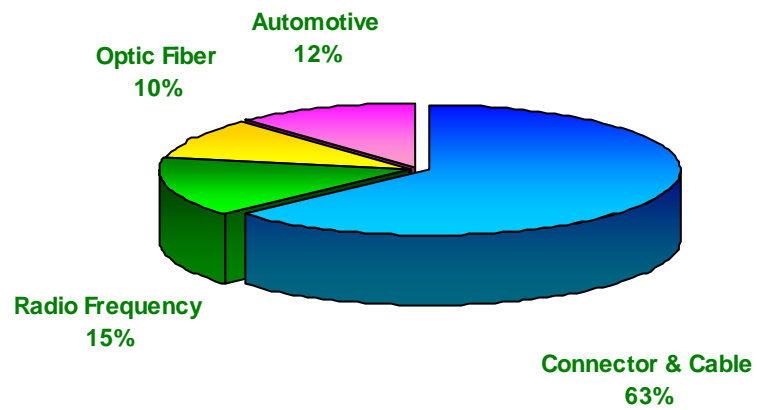
5.2 Case B: A Technology Company

5.2.1 The history and background of the Company

Company B was set up in 1990 in Taiwan, and have established two production factories in China since 1999. The company has a global network base on good customer service based on the shortest delivery time in Asian, Australasia, European, and USA (resources from company B website). A few years after the company invested in China they joined the institute of Taiwanese business companies in Kunshan (China) and have a high-position in this society that assists Taiwanese companies who have just started their business in China.

The company is a manufacturer of professional interconnection devices and the business areas are connectors and wire and cable (Figure 5.2). It produces connectors, flat cables and round cables. From the company's website is very clear to see, the company offer the best products, quality, services and delivery to their customers.

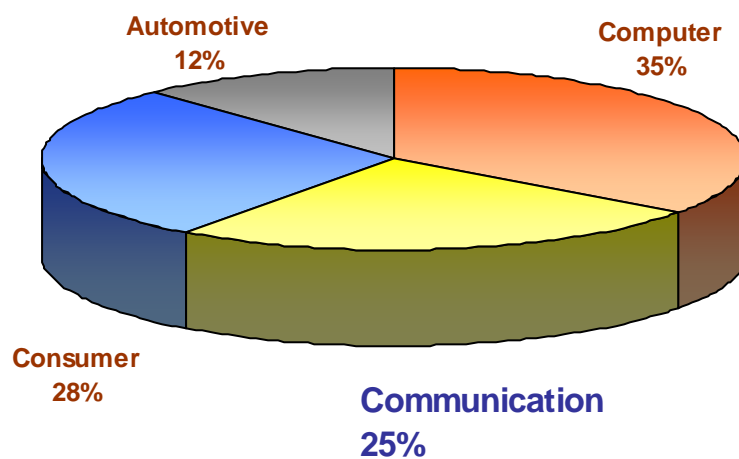
Figure 5.2 Product Segments



Source: company sales report Sep, 2007

The company is one of the biggest manufacturers in the 3Cs—computers, communications and the consumer market. The company also has an automotive communication laboratory used in product development (Figure 5.3).

Figure 5.3 Market Segment



Source: company sales report Sep, 2007

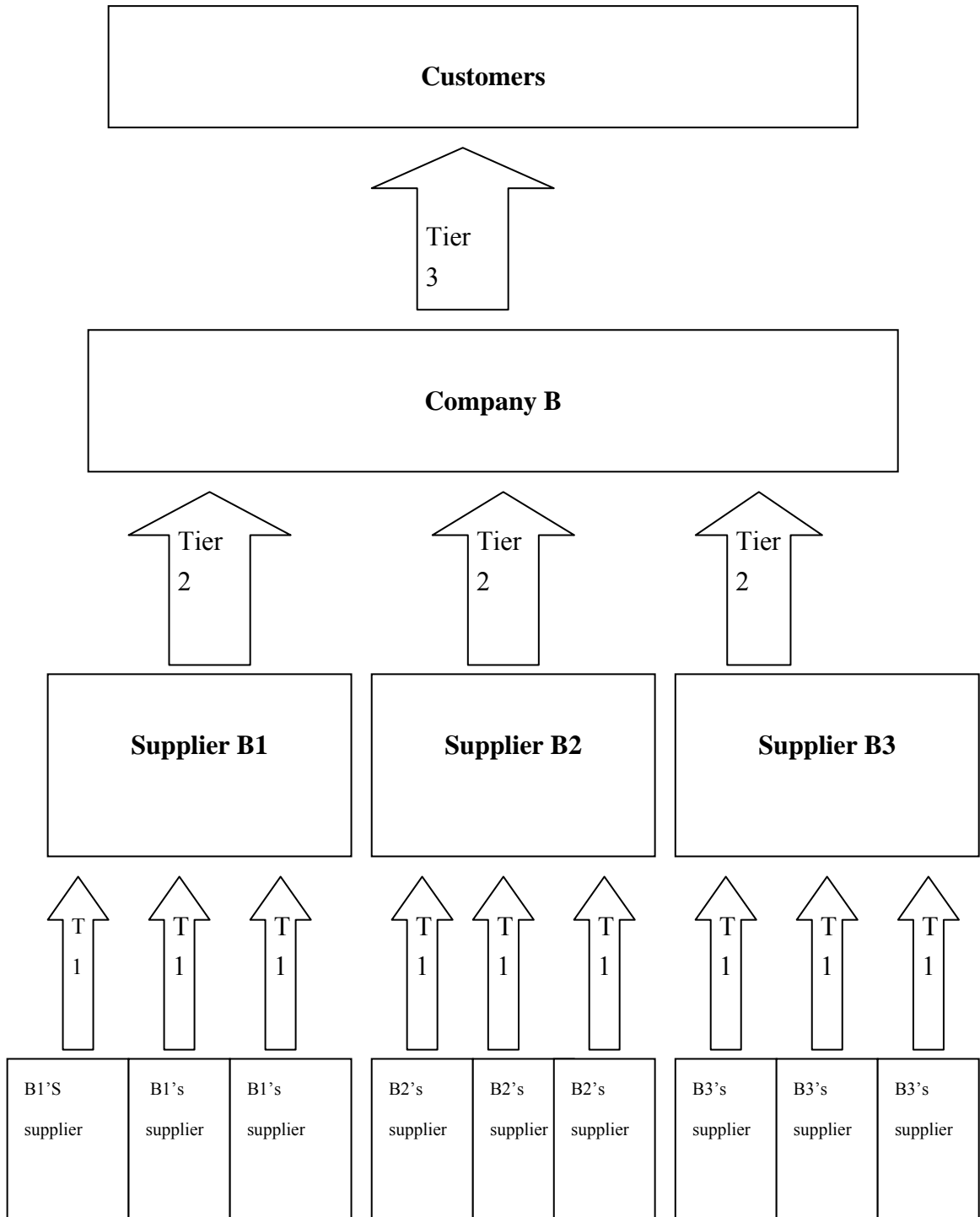
The company's website states that the company's competencies focus on "*Excellence, Innovation, Trustworthiness, and Appreciation*". The company is enthusiastic about good customer service in order to develop trust and a long term relationship with their customers. The company believes their company value comes from providing high-quality products.

The company has an emphasise employee training, as it believes that its growth comes from their staff. On the other hand, their employees think that their company's key competency is having very good communication. The company gives its employees a high salary and a good development environment. The product manager said that "*I treat my work like my business because the company gives me development space*". The other two respondents supposed that the company is more focused on quality, which is the company's competency and vision.

The company has a management system and also focuses on the marketing department and customer relationships. In addition to this, the company's key competency is about quality and cost because the car industry is more focused on product safety for human beings.

For the follow findings, the company interview tier (table 5.3) is easier to understand this company and their suppliers and customers from this interview.

Table 5.3 Company B: Interview tier



5.2.2 Empirical evidence on supply chain collaboration

5.2.2.1 Supplier selection: key suppliers, environment

In company B, the sales department constructs customer service strategies based on their marketing plan and believes that their strategic suppliers are one of their targets (Figure 5.4). In other words, they think the key tactical suppliers can work with the company to produce the most important products on the target industries for their key customers in order to increase revenue for their company.

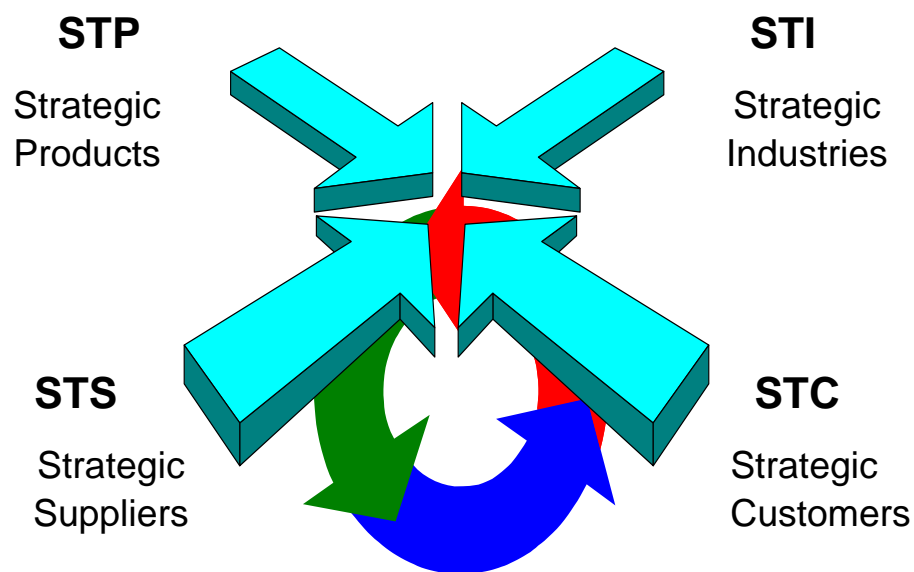


Figure 5.4 Customer Service Strategic
Source: company sales report Sep, 2007

The sales department target for customer service is matched to this section's question on choosing strategic suppliers for this company. The company's plans to

choose suppliers by considering the location, price and quality but also considers Chinese suppliers who are located near the company. The interviewee who works in the purchase department said that *“our company chooses suppliers according to their quality and price but more focus is on price. We have 60-70% Chinese suppliers and the other suppliers are foreign suppliers. And 30% of the suppliers are assigned by our customers”*. The products’ department employee found that the company considers the local suppliers more but their purchasers do not communicate with their suppliers often. This can be seen from mistakes due to their poor communication; errors such as missed-orders or the wrong product items. Nevertheless, they consider local suppliers and some suppliers follow the factory where they set up and continue to support the company. The one main point is the company’s desire to do their business forever in China so that they think the Chinese suppliers are more important.

In addition to this, their suppliers’ companies choose their suppliers based on price and quality, and they also consider local suppliers. Supplier B1 said *“we always buy the high quality products from our suppliers”*. Supplier B2 pointed that their company focuses on quality, speed and efficiency. On-time delivery is also a very important factor for Supplier B3 to choose suppliers.

Walter and Gemunden (2000, p. 89) stated that “*They have to motivate business partners, colleagues, and superiors, to cooperate with them, to solve conflicts, and to take responsibility for the success of a relationship*”. The key point is how to motivate the supply chain collaborative partners. The company thinks that the orders and profit sharing can motivate the partners in the supply chain collaboration. Their suppliers also believe that profit is more important to motivate their collaborative partners and they prefer to work with Taiwanese suppliers because of the high quality.

The company choose Taiwanese suppliers with consideration to guanxi. The reason for this that is the company is a Taiwanese company and their Chinese employees think that is easier to communicate with each other when they have some problems.

The company thinks guanxi is very important when running their business in China.

The company president said that “*most Chinese suppliers cannot do very well*”. He thinks that the reason is that the Chinese suppliers’ technological skills do not have a standard level and they only want to make a profit first.

The company does not consider political or cultural factors to choose the supply chain collaboration partners. They say “*business is business*” and they do not think political or cultural factors relating to the suppliers. Other than this, their Chinese employees in this company think that culture affects their supply chain collaborative

partners. The employee from the purchase department said that, especially in the big cities, are more modern compared with the other countryside cities. The people in the big city are easier to communication. That is why she thinks that supply chain collaboration is more affected by the culture. This can be seen from Barratt's (2004, p33) comment that "*one of the major supporting elements of collaboration is a collaborative culture, which is made up of a number of elements: trust, mutuality, information exchange and openness and communication*". In both practice and academic opinion, organisations do not consider the culture and politics when choosing the suppliers at the beginning, but during the collaborative processes, similar culture makes it easier to communicate in order to achieve the goal of supply chain collaboration.

5.2.2.2 Agreement: commitment, trust, risk sharing and problem solving

After choosing the right partners in support of supply chain collaboration it is necessary to make the strategic agreement (Simatupang and Sridharan, 2002). Company B suppliers do not have a normal contract but only one supplier has a contract with their suppliers and in this contract is written down the rules about sharing the risks. In this company, they have confidential agreements when they collaborate with their suppliers. It makes sure that the "*know-how*" does not move to

other companies. The company also have the contract to make quality standard regulation during the purchase processes. The purchasing, engineering, and quality departments make the contract together. The company thinks that, when the business behaviour happens, then they need the contract to manage the agreements.

What is the trust degree in the suppliers? Supplier B1 thinks they only have a normal business relationship with their suppliers. Supplier B2 supplier said “*we trust our Taiwanese suppliers’ quality more*”. A degree of trust builds up the contract which is also the business agreement. For supplier B2, the commitment and trust is according to the business agreement. In addition to this, company B has the suppliers’ estimate list for six months to test their suppliers then decide whether or not to engage in the collaboration again. The suppliers’ estimate list is includes quality judgement, delivery time and after sale services. The company B thinks the suppliers’ estimate list can to express the degree of trust and commitment from their suppliers and make a decision about whether to cancel the order or not.

The company and some suppliers have a long term relationship and trust each other very much. When the company is more focused on quality, then they have a close relationship with their suppliers. This is because they need to communicate on high-quality product improvements. In other words, trust is related to the supply chain collaboration relationship and can make the partners’ operations on the supply chain

channel closer and more efficient. Nevertheless, the company thinks that a contract will be a commitment to their suppliers. The sales managers said that “*the order is committing*”. He reflects that it is a kind of commitment to respond to their suppliers. Risk sharing is very important in showing the suppliers’ responsibility and knowing who is a good supplier for the company. Supplier B2 said that “*when our customer needs to create new products, our suppliers need to help us in this but we do not let our suppliers know who the customer is*”. In other words, when the firm collaborates with their suppliers to create new products for their customers, this means that they trust their suppliers and during the innovation time they share technological skills.

Furthermore, Supplier B2 said that “*we always need to know who needs to take the risks and who will take it*”. This can identify responsibility. A study by Chandra and Kumar (2000) referred to the fact that problem solving depends on the reason for the problem and how to solve it within the supply chain. This company thinks that the contract has made an agreement to share the risk. When a problem happens, the company needs to know who will deal with the problem and solve it. In addition to this, the company will normally solve the problem and design new products for their customers with their suppliers.

5.2.2.3 Partnership: power

The company has very good friendships with their suppliers. They share the risk and solve the problem with their Taiwanese suppliers. In the contrast, this company has more power than their Chinese suppliers because they always take the risk. From here, the company agrees that the more powerful suppliers can affect the supply chain collaboration, especially in the car industry; powerful suppliers can always affect the supply chain collaboration.

A study by Defee and Stank (2005, p.34) stated that *“a strong leader firm may use its power to influence, rather than dominate, the supply chain behaviours of other firms; in either case the leader’s power will influence the other members of the supply chain, with either a beneficial or injurious effect depending on the power bases used”*. This depends on who can provide more value and be a leader within the supply chain channel. This can see from the company products manager, who said that *“the power defines who the winner is”*. *When the demand is bigger than supply, the demand is the winner. And the opposite is the supplier who can control the supply chain situation”*. In this company, their power is greater than their suppliers.

Regarding the company’s suppliers, supplier B2 and B3 do not have any special partnership with their suppliers and only have a normal business relationship. Only

supplier B1 said they have a close relationship with their Taiwanese suppliers. This can be seen in their company's products always being of a high standard compared with the local (Chinese) company. Supplier B1 is a Chinese company but always collaborates with Taiwanese companies so they pay more attention to the products' quality. In other words, supplier B1 knows why they are different to the other Chinese companies because they learn from the Taiwanese companies and improve their product quality. They completely accept Taiwanese companies' management style for high quality products requests. By doing this, they found that they can do more business with Taiwanese companies or other foreign companies in China.

5.2.3 To evaluate supplier development within supply chain collaboration

5.2.3.1 Relationship: Investment

Company B and their suppliers have a very good relationship, like friendship and they always develop new products together. Yet, when they need to invest in the supplier, they still need to be very careful and make sure it is worthwhile making the investment. Nevertheless, the company invests in some Chinese suppliers if they believe that they can make more profits.

The company's suppliers, who are Taiwanese and Chinese, do not know each other so they cannot share the extent of mutual power, with trust and commitment. In this

company, their suppliers think that “*business is business*” and the relationship only focuses on the business behavior. Supplier B2 said “*we do not have enough capital to invest in our suppliers until now*”. The investment plan relates to the company’s financial function.

In short, investment really needs the business firms to think of many factors even though they have a buyer and supplier relationship. Even though, they have very good friendships, they also need to evaluate the feasibility.

5.2.3.2 Supplier types

The company has a strategic collaborative type to design new products with their suppliers. The company thinks that strategic collaboration is more practical. This type of collaboration is on a project case by case basis. If the collaboration is successful, then they can continue with other projects, if not, they just finish it.

The company prefers to have a strategic collaboration type with their suppliers; to be a leader and arrange their suppliers within supply chain collaboration (Kanter, 1994). In other words, the strategic collaborative partners have the same attitude towards the goal of the corporate strategy in order to achieve the objectives more smoothly.

Their suppliers' collaborative types are more focused on the strategic collaboration type with their suppliers. Basically, the suppliers' companies do not have a special case to collaborate with suppliers; although the strategic collaborate type is a more likely collaboration type for the suppliers.

5.2.3.3 Supplier management: monitor and training

The company's main customer monitor company B every six months for checking the products' quality. If company B's products' quality are not good enough for their standard, the customer will cancel the order and yet the company B does not monitor all their suppliers but only monitors the 10% of suppliers who are the main suppliers. The company monitors their suppliers in order to decide whether or not to purchase their products again. In addition to this, the company has a supplier management system called the 'suppliers balance sheet' in the QC (Quality Control) department. The company focuses on monitoring suppliers' product quality.

They do not have any training courses for their suppliers but the company's main customer has some training courses. Their customer needs to have training courses for this company to introduce new products. The state of affairs related by Sahay (2003a) is that collaboration partners can get information about future demand in order to fill the demand in conjunction with their collaboration partners.

In terms of monitor and training jobs, Supplier B2 said “*they do not monitor their suppliers; just only keep a normal business style*”. They only design technology training course for suppliers.

To sum up, the suppliers management in this company and their suppliers is focused on quality improvement and new products presentation courses.

5.2.3.4 Supplier-supplier association

There are two opinions about the supplier and supplier association within this company. Their Chinese employees reflect that they do not need to associate with suppliers because their suppliers only provide material products for the company. Taiwanese managers in high-level positions think supplier and supplier association is necessary when the company’s customers request new products, and then they can share the research costs with the supplier and suppliers association. This means the company keeps costs down and do not need to employ more engineers. This is corresponds to Choi *et al.* (2002) suggestion that “*many buyers suggest that the relationship between suppliers is important*”. Taiwanese managers consider that when the supplier and supplier association needs to discuss how to share the profit; the other one point is their suppliers purchase departments can collaborate and buy products with the other companies’ suppliers in order to bargain the cost down.

On the other hand, the company worries that the company's "know-how" will be divulged because some of suppliers' association members are not their suppliers and may belong to their competitor companies. Although, the company needs to be careful of the supplier and supplier association, when the customer asks them to associate with their suppliers, then the company has to do it.

The good news for this company is the company's suppliers do not think that a suppliers' association is necessary because their suppliers only provide the material and do not need to collaborate with each other.

5.2.4 To investigate the internal processes of supply chain collaboration

5.2.4.1 Internal facility processes: integration, TQM, and transfer of technology

The company's supply chain channel has 90% efficiency and 10% inefficiency. The inefficiency is caused by personal mistakes and sometimes because their customer has changed their delivery time. The personal mistakes come from their purchasers failing to communicate with the suppliers regularly, resulting in gaps with orders sometimes having information problems. In some special cases, the company integrates their suppliers, resulting in more benefits for the company. This is to say

that when organisations can integrate their suppliers very well, they can get value from it.

The suppliers' supply chain's degree of efficiency involves the company's supply chain management. The company's suppliers think that their internal facility processes are efficient at about 80-90% efficiency. Inefficiency is about 10% and they feel they can communicate with each other via telephone to solve these problems so they do not need to integrate their suppliers.

Their suppliers' companies do not have a TQM system but they have a quality department to control the products' quality in order to match the customers' quality requirements. Company B controls the quality within the whole company's department in order to reach their customers' standard. The sales department controls the customers' information but does not support the customers' information to suppliers. Some customers come from the company's branch or the Taiwanese head company introduces them. Furthermore, the company gets customer information from marketing and exhibitions.

The company uses an ERP system to manage their materials more professionally and process purchases orders more efficiently. The R&D department can demonstrate the new product processes and get feedback from customers. The contrasting situation is that their suppliers do not need to rely on technology from

their suppliers; but when they only want a mock-up, they rely on their supplier's technology. Supplier B3 has an ERP system and they think that their information system is more efficient regarding delivery and they rely on the internet for their customer information. Conversely, the high-technology system can help the company and their suppliers are more efficient in the supply chain channel.

5.2.4.2 Measurement, innovation of production and transaction cost

The company is the leader in controlling the suppliers which develop new products. There are 10% of suppliers who collaborate to develop new markets and products with the company. The company asks their suppliers questions about some materials but they design the products in their own R&D department. The president of this company said "*the collaboration can reduce the R&D costs and let suppliers know what kind of products the company will develop, where the branches are and some will follow the company or support them*". These issues are comparable with some researchers' opinions (McLaren *et al.*, 2002); it is a value of supply chain collaboration from the upstream to downstream to get more customers satisfaction and compatible abilities.

The company has only 20%-30% technological skills, so they rely on their suppliers when they need to develop new products for their customers. In addition to this,

they can benefit from the quality, time of delivery and price to measure their suppliers' benefit. The sales managers said that "*the orders also can measure the supply chain collaboration*". On the other hand, the collaboration has build up "*win-win-win*" states from supplier to buyer and final customers (Bititci *et al.*, 2004). Yet, their suppliers' companies do not develop the new products with suppliers but innovate by themselves.

In addition to this, the company and their suppliers do not think that they can reduce the transactions costs from supply chain collaboration. Only the product's manager in company B thinks they can reduce the R&D cost from the supply chain collaboration. The main reason is this company and their suppliers rely on e-mail to contact with each other frequently. The internet can help them to do research and provide more customer and product information than before.

5.2.5 To examine the outcomes of supply chain collaboration

The company considers co-ordinating with their suppliers when they need to develop new products in partnership but fear their suppliers' companies will not share the profit. From the collaboration process, the company needs to communicate with their suppliers for new products. In other words, when the company wants to develop new products, they also need to co-ordinate with their suppliers. If their

suppliers' companies found the new products can make more profits, they may do it by themselves or find other companies to collaborate with. This must be considered and care must be taken. Co-ordination skill is the key within supply chain collaboration. During the co-ordination process, the company can become more familiar with suppliers' motivation.

The sales manager has a more optimistic view of the situation, "*when the customer needs us to co-ordinate, then we do it*". The company thinks that if they can get the supply chain collaboration advantage of keeping costs down, then they can provide lower priced products for their customers. The sales manager said "*we think that we can gain more competitive advantage from supply chain collaboration*". The reason is their suppliers can provide some professional technical skills in order to improve products' quality and innovation of products for the company. He said "*our customers have 95% satisfaction with our services*", although; the sales department is more focused on customer service.

This view is similar to Sahay (2003a,p.77), who said that "*collaboration enables partners to jointly gain a better understanding of future product demand and implement more realistic programmes to satisfy that demand*". The collaboration can not only improve the processes of the supply chain channel but also create new ideas from the supply chain partners.

Furthermore, the company is satisfied with the supply chain collaboration but, when they are not, they will cancel the orders immediately. The company's only dissatisfaction with their suppliers is due to mistakes that are not amended immediately. When supplier B1 has requirements from their customers, they need to co-ordinate with their suppliers or customer's suppliers together. Supplier B1 thinks that the quality can only improve from supply chain collaboration. The customers' feedback from the company three suppliers' are satisfactory, as the company's customers also satisfied with their company products' quality.

5.2.6 Case B: Summary

The findings are summarised in table 5.2 but the key points regarding company B are:

1. The company prefers to choose local Chinese suppliers as their key suppliers.

Their supply chain collaboration relies on agreement which includes commitment, trust, risk sharing, and problem solving with their collaborative partners.

2. The company would like to invest in their Chinese suppliers and are trying to assist their Chinese suppliers' development, as they wish to be a local company in China rather than treating China as a "world manufactory". To achieve this, they

are building up good relationships and operating in coordination with their Chinese suppliers but also monitoring Chinese suppliers' quality.

3. The company give more orders to their Chinese supplies in order to motivate them to undertake supply chain collaboration. Profit is the measurement for the supply chain collaboration partners.

To sum up, this company do not have big problem in collaborating with their Chinese suppliers. The main point is they have the thought of business continuity in China for a long time. This can be seen; as they promote and trust their Chinese employees and invest their Chinese suppliers. The main point is the company has devoted a lot of time to understanding the Chinese culture and building up long term relationships with their suppliers. They are really open minded in their efforts to accept and assist their partners in supply chain collaboration in China. On the other hand, their Chinese suppliers learn more from them. From here, it is can be seen that the Chinese supplier development is improving in this company's supply chain collaboration.

Research objectives	The factors of research questions		B company	B company' suppliers
To provide empirical evidence on supply chain collaboration	Suppliers' selection	Key suppliers	Local suppliers	Price and Quality
		Environment	Culture	No.
	Agreement	Agreement	Contract	Contract
		Commitment	Orders	Contract
		Trust	Contract	Contract
		risk sharing	Contract	Contract
		joint problem solving	Contract	Contract
	Partnership	Power	Yes.	Yes.
To evaluate supplier development within supply chain collaboration	Relationship	Relationship	Long-term relationship	Business relationship
		Investment	Yes.	No.
	Supplier types		Strategy type	Strategy type
	Supplier management	Monitor	Suppliers' balance sheet	No.
		Training	No.	Technology training courses
	Supplier-supplier association		Some Yes; Some No.	No.
To investigate the internal processes of supply chain collaboration	Internal facility processes	Internal facility processes	90% efficiency	80-90 efficiency
		Integration	Yes.	No.
		TQM	No.	No.
		Transfer of technology	ERP	ERP
	Measurement		Profit	No.
	Innovation of production		With suppliers	No.
	Transaction cost		No.	No.
	To examine the outcomes of supply chain collaboration	External facility processes	Co-ordination	Yes.
Competitive capabilities		Yes.	No.	
Customer satisfaction		95% Satisfaction	Yes.	

Table 5.4 Company B: The main answers to the research questions

5.3 Case C: An industrial company

5.3.1 The history and background of the company

Company C started in 1979 in Taiwan, and then set up a branch in 2003 in China.

The company has been in the automation industry for more than 25 years and now is one of the major manufacturers to producing pneumatic, hydraulic, and vacuum related products to serve as system integrators of fluid power and transmission control fields. The company has the fluid power skill to compete in the market.

After years of product development and quality improvement, the company has been able to produce and sell products to industrialised countries, such as Japan, America, and countries in the European Union by utilizing the capacity of two major facilities in places that are import and export countries for the industry in Taiwan (Table 5.3). One is located in Taiwan and the other is at Wuxi in China and the company has more than 300 employees to provide total solutions for industry automations for all customers.

Table 5.5 Taiwan pneumatic, hydraulic and vacuum products export reports

Unit: %

No.	2003 年	2004 年	2005 年	2006 年	2007 年 1~3 月
1	USA	USA	USA	USA	USA
	33.24	33.53	30.76	32.36	32.05
2	China	China	China	China	China
	16.89	15.77	17.63	14.02	12.14
3	Germany	Germany	Germany	Germany	Germany
	10.06	10.59	9.83	10.63	11.28
4	Malaysia	Japan	Japan	Italy	Italy
	3.69	3.05	3.06	3.03	3.89
5	Italy	Malaysia	Italy	Japan	U.K.
	2.57	2.73	2.89	3.01	2.53
The first five country	66.45	65.67	64.17	63.05	61.89

Sources : Taiwan Institute of Economic Research (June, 2007)

The company always believes that “*quality is number one and continuous innovation of technology*”. Based on this mindset, the company have invited various research institutes and universities in the past to execute R&D and quality improvement projects for guaranteeing the perfection of quality and keeping up with the momentum of technological innovation. To reach the above goals, the company continuously concentrates on the training of human resources and the investment of hardware equipment and software systems.

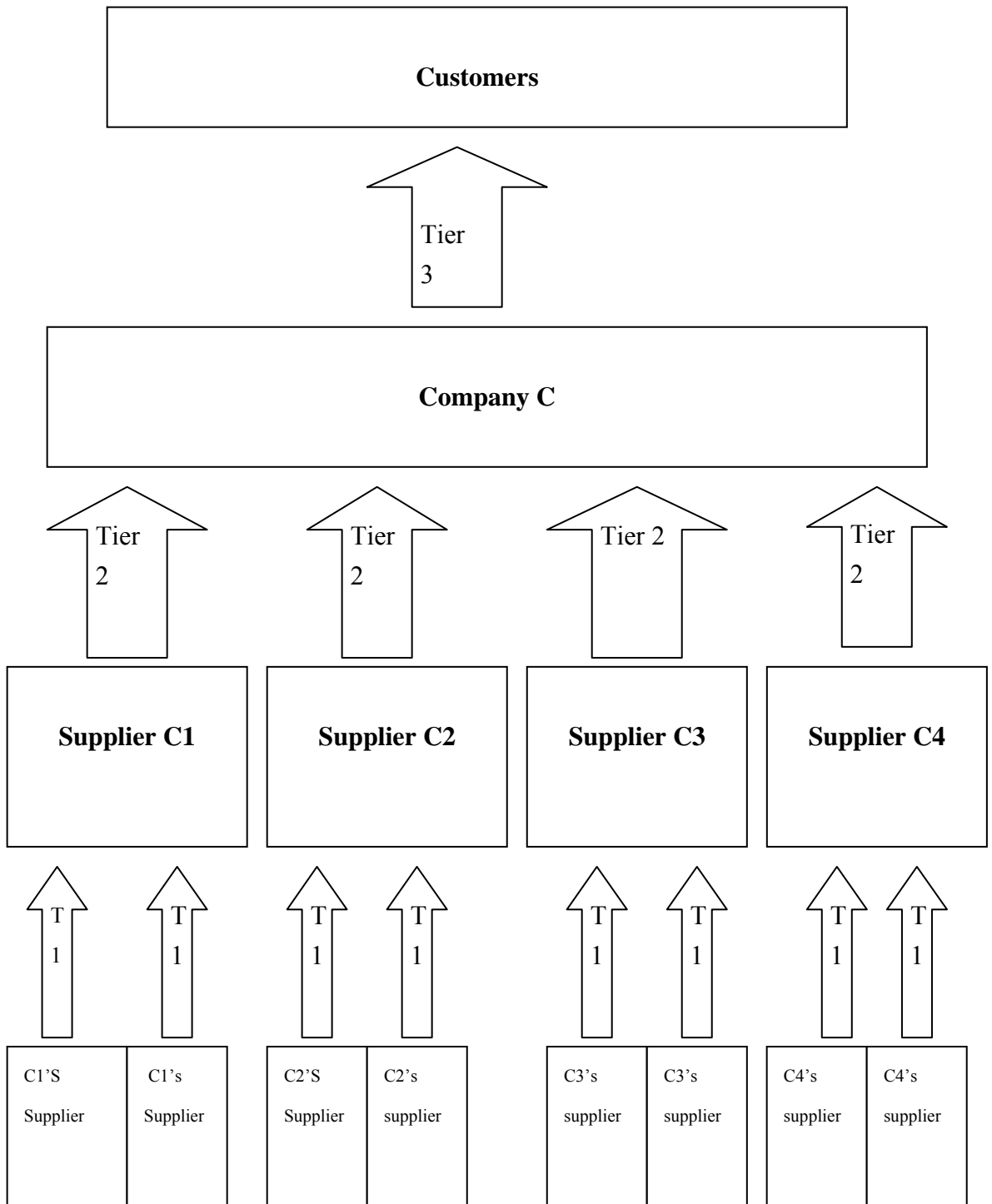
Every employee is required to keep the sincere attitude of “*Honesty and respect is always the basis for serving customers*”. With this positive attitude, the company is

working very hard on building up a long term and strategic partnership with their valuable customers. The company believes that, with the advance of product development, the enhancement of total quality management, and the efficiency of operation management, the company can, together with all of related customers and vendors, share win-win success in the future. The company is devoting all of its efforts to become a “*better quality, better services, reasonable prices, and precise delivery*” company in the 21st century to serve in the Fluid Power and Transmission Control Industry.

The company produces 50 % customised products and 50% standard products. The company is an aristocrat of the automotive industry because the company’s key product is customisation. The company’s culture is focused on quality and service. The service speed is always very quick. It is also pay attention to “time to market” and engineer ability. Their Chinese branch will be based in a manufacturing factory and that is why they have only recently set up their branch in China, compared with other companies. The key competency is efficiency and customer experiences. High quality is trust. Duty is also an important factor for customer choice, such as the after sales service, the high quality and the standard of products. The company’s quality is trust, being the oldest brand and the goodwill that they have accrued.

In addition to this, the company interview tier (see table 5.6) can more be acquainted with the company and their suppliers and customers for the follow findings.

Table 5.6 Company C: Interview tier



5.3.2 Empirical evidence on supply chain collaboration

5.3.2.1 Supplier selection: key suppliers and environment

The company chooses their suppliers based on quality between the Chinese and Taiwanese suppliers. They found that the Chinese suppliers cannot provide a very good service, for example in quality control. The company thinks maybe their Chinese suppliers do not want to run their business forever and the company needs to pay cash to the Chinese suppliers sometimes. Taiwanese suppliers can provide more good service, especially in improving quality and negotiating cost. Most Taiwanese suppliers had a long term relationship with other companies before they came into China but the company also wants to collaborate with their local suppliers. The company chooses suppliers focused on quality and price but only 20% of the Taiwanese suppliers are in China. The company wants to choose more Chinese suppliers for their key materials' suppliers in order to keep costs down for the products and to be a local company. That is why they believe that when the firms have a long-term relationship with their Chinese suppliers; this can also help them to develop.

The company believes that their Taiwanese suppliers are more understanding of the meaning of collaboration. Some suppliers do it by themselves, and then promote it to their buyers. The sales manger thinks that, when their company considers guanxi

then their Chinese or Taiwanese suppliers more like to collaborate with them. In fact, the purchase manager said that “*we do not consider guanxi to choose our suppliers*”, even though the other department thinks that they do. On the other hand, the purchase manager thinks that quality is more important than the guanxi factor when choosing their suppliers.

Four suppliers were interviewed in relation to this company. Supplier C1 is focused on their quality and they think that this is their company’s key competency to face the competitive market. Supplier C1 chooses suppliers focused on after sales service. Supplier C1’s Taiwanese suppliers are fewer than 10% because they are a Chinese company. Supplier C1 said “*there are 95% Taiwanese suppliers who offer the after sales service*”. The main reason is that their Chinese suppliers provide cheaper prices than Taiwanese suppliers.

Supplier C2 was set up in 2001 and transferred their company to an OEM company in 2003. Basically, supplier C2 has an industry foundation and manufacturing experiences. In addition to this, when this supplier chooses their suppliers they do not consider whether they are Taiwanese suppliers, but only consider their customer service. Sometimes, their customers appoint suppliers for them to provide materials and they do not have chance to help their own suppliers to develop. Yet, Supplier

C2 has a big (key) customer who assists the company to satisfy those orders for products and also helps the company's growth.

Supplier C3's key competencies are also focused on quality: the after sales service, and 'on-time' delivery. The third supplier's company select suppliers whom they consider honest. They think that honesty relates to all business activities.

Supplier C4 started in 2003, and their company's key competency is service, quality and delivery time. Supplier C4 said that "*we only consider the professional suppliers*". They think that when they choose the professional suppliers, their service and quality must be very good so there is no need to worry about it. Supplier C4 has 60% Taiwanese suppliers and 40% Chinese suppliers. They prefer to work with Taiwanese more than Chinese suppliers because they are a Taiwanese Company.

Government policies and cultural factors can be defined as the concepts affecting supply chain collaboration. The politics involves a large area but it is one of factors to consider before the company chooses its suppliers. Chinese suppliers have a short-term relationship compared with Taiwanese suppliers who have a long-term relationship with their buyers. The reason is that Chinese suppliers do not want to provide more services and do not care about quality because they do not have the concept of customer service. The sales manager said that "*I think they do not care*

whether we buy". That is why the company still look for the key Chinese suppliers who can really provide good quality and service for their company.

It is without doubt, the government policies and cultural factors may affect the company's supply chain collaborative partners. From the interviewees, supplier C1 said that their European and USA suppliers are better than Taiwanese suppliers. They think that western countries' suppliers are more professional in providing materials for them. Supplier C2 said that they consider key suppliers who have good quality products, lower prices and on time of delivery goods. Supplier C4 said that they do care about politics especially regarding Japan, because some people do not like the Japanese because of the Second World War. The factor of politics affects the collaboration; sometimes it helps but sometimes it is a hindrance between the supply chain partners. For example, Chinese suppliers are local companies who can provide cheaper materials because Taiwanese suppliers need to pay customs taxes to the Chinese government so their prices are higher than Chinese suppliers.

5.3.2.2 Agreement: commitment, trust, risk sharing and problem solving

The company believes that they need to be more careful when making contracts with Chinese suppliers than with Taiwanese suppliers. They have contracted to make agreements following company rules (for example, purchaser list and order).

The contract is only made for their main materials. The contract focuses on the huge amount of money, especially fluctuations in the rate. The contract also includes quality and, specially, order request size. This is close to Simatupang and Sridharan's (2002) suggestion that the first collaboration steps are to make the contract in order to follow the rules between the collaborative partners.

In addition to this, supplier C1 said that 90% of suppliers have a contract but they always believe in xinyong (trust), instead of contracts, based on friendships.

Supplier C2 have an order list to be part of a contract which appoints the delivery time, price, quality and service. Supplier C3 only signs a contract with 50% of suppliers. Supplier C4 signs a purchase contract with around 20% of their suppliers.

Company C like to have contracts with all their suppliers but most of their suppliers do not have contracts with their suppliers.

The company reflects that their commitment is to increase the order amounts but seldom say it may be below 10%. There is about 40% commitment to their suppliers.

The president of the company said "*we make a commitment to the suppliers, such as to developing new products in order to share the plastic material tools*". The inducement to commit is to give their suppliers more orders.

Supplier C1 thinks that the commit is xinyong. Xinyong is Chinese for doing their business symbolically. It is a kind of commitment and trust combined. Chinese

businesspeople follow what they say or the business rules to build up their xinyong. Therefore, as Ordoñez de Pablos (2005, p.441) said “*Good guanxi fosters the development of reliable xinyong*”. On the other hand, xinyong is a kind of working relationship and can favour to their supply chain collaborative partners and motivate them.

Supplier C2 supposes that orders can be a commitment to their supply chain collaboration partners. They think that the orders can to be a commitment for their collaborate partners. Supplier C4 reflects the commitment from market ability. On the other hand, supplier C3 said that “*we do not make a commitment with our collaboration partners*”. Suppliers think they do not to make a commitment with their collaboration partners because “*business is business*”. Everything is simply following the business rules.

Trust and commitment is also very important between supply chain collaborative partners and reflects their relationship quality (Woo and Ennew, 2004). That can be seen in this company. The sales manager of the company said that “*our Taiwanese suppliers are around 70% trust degree. Chinese suppliers are around 40% trust degree*”. That is to say, they do not trust their Chinese suppliers very much.

Overall, the degree of trust can also affect the supply chain collaboration. For supplier C1, their degree of trust depends on their contract. They can see the degree

of trust from the contract; when the contract has many rules that control their suppliers; this means that they do not trust this supplier. Supplier C2 said that their degree of trust is around 80%. The reason is that they always use Taiwanese suppliers because they can more easily communicate, therefore trust each other based on the buyer and supplier relationship. Supplier C3 said that *“the trust degree is about 100% between SCC partners”*. Supplier C4 thinks that their trust degree is around 95%. This can be seen from Jonsson and Zineldin (2003, p.224) said that *“The cooperative efforts of channel members should result in greater trust ,commitment, channel efficiency and the achievement of goals, thus leading to higher levels of satisfaction ”*. When the collaborative partners trust each other, they can keep a long-term relationship more successfully within supply chain collaboration.

The sales manager thinks that their suppliers' relationship was enacted by a contract to accept the risk. The other way is to find out the problems, then decide who has to take the risk. The company develops new products with their suppliers and shares the cost of new equipment. The company does not share the risk but only judges the duty and who needs to take responsibility when the company needs to develop new products and their products are skills and facilities, not qualifications. In addition to this, the purchase managers said that *“we always solve the products' quality with*

our suppliers". This also fits in with Min *et al.* (2005, p.248)'s view that "*collaborative partners must also work together to solve supply chain problems*".

Only supplier C1 does not share the risk with their suppliers. If they share the risk with their suppliers, it is less than 30% of suppliers. Supplier C2 thinks that the risk share is the duty of those whose can accept and take the risk. On the other hand, they share the risk with their supplier on product quality. In addition to this, when the materials have problems, then they solve the problems in conjunction with suppliers. They believe that their supplier knows how to solve this kind of problem. All of the supply chain collaborative partners have to know that the responsibility is not only to share the benefits but also to take the risks and solve problems together.

5.3.2.3 Partnership: power

The purchase manager thinks that making profit is a kind of response to their supply chain collaborate partners. The company consider *renqing* as being like a social relationship in order to maintain the partnership. For example, the company regularly calls their supplier to keep their partnership or visit them informally. And he said "*their company accepts their response when their response is reasonable*".

When their suppliers cannot deliver products on time, the company needs to respond to them about whether or not they will cancel the order. The sales manager

said “*we also talk about the future plan to keep our partnerships*”. And the president of company said “*we always communicate each other*”. The purchase manager said that they have personal partnerships with suppliers and the partnership is like a friendship. The president of the company considers that they need to change their Chinese suppliers’ concept of business management and best way is to improve communication with them.

The company treated Taiwanese suppliers better than Chinese ones. The reason for this is that they are fellow countrymen. Therefore Taiwanese suppliers operate more in coordination. They only have a short-term business relationship and do think of long-term business relationships with their Chinese suppliers. On the other hand, Chinese suppliers think about payment for this order but not the possibility of future orders. This needs to change if their Chinese suppliers are to respond to its collaborative suppliers when they point out the problems and solve them together. Being honest is the best way to solve the problems and engage in risk sharing together.

The company reflects that when the collaborative supplier is more powerful, they need to co-ordinate with them. The powerful suppliers include famous brands, those having specialist ability, and main material suppliers. Powerful suppliers can dictate the style and quality because their brand is more famous. The company can only

follow. Yet, the company purchase manager said *“their company has only 10% power which can affect the suppliers’ collaboration and they do not need to rely on powerful suppliers very much”*. The powerful company builds some rules within the supplier chain collaboration processes and powerful partners can keep strong supply chain relationships to create a better performance (Defee and Stank, 2005).

What is the partnership within suppliers? Supplier C1 maintains their supply chain collaborate partnership is a working relationship. In addition to this, supplier C2 said *“we do not have any special partnership with our supply chain collaboration partners”*. Supplier C3 thinks that *renqing* is linking the supply chain collaborate partnership. Chinese companies focus on *renqing*, as “give face” meaning that you can relate it to any relationship (classmates, friends....). Supplier C4 said *“we always telephoned our suppliers to keep the partnership or visit them not very regularly”*. They treated their partners as friends and always visited them. This is the same as company C’s purchase manager does.

From observation of the Chinese partnership, we can investigate the difference between Taiwanese and Chinese suppliers’ relationship. Three of the suppliers’ companies do think there is a difference. Only supplier C2 said *“we rely on Taiwanese suppliers more than Chinese suppliers because we trust Taiwanese*

suppliers more". He thinks the point is that Taiwanese suppliers are better able to provide high-quality products for this company in order to open up new markets.

The response to the supply chain collaboration partners is profit from supplier C1.

Supplier C2 said "*we accept their response when their response is reasonable*".

Supplier C4 points out the situation when the suppliers cannot deliver products on time and then they need to respond to them to meet the other deadline. From the negotiation period, the company also found a question about power affecting supply chain collaboration. Suppliers C1, C2 and C3 did not think that power can affect supply chain collaboration. The main reason is that they think "business is business".

Only supplier C4 thinks that powerful suppliers can affect the supply chain collaboration on product size and quality.

During the response or negotiation period, the powerful firm can to go round with partners in order to accomplish the goal of supply chain collaboration.

5.3.3 To evaluate supplier development within supply chain collaboration

5.3.3.1 Relationship: investment

The company join their suppliers' party to build up a friendship with Chinese suppliers and the purchase manager keeps the relationship with their suppliers.

Relationship building is very important within the supply chain collaboration partners.

The company considers the issue of capital because the company is relatively new, starting in 2005 in China, but they consider this issue when they are able to invest in suppliers and maybe collaborate with them in the future. Most of the suppliers' companies do not invest in their suppliers. Supplier C2 and C4 said that "*we do not have a special relationship with our suppliers*". They do not have any special relationship, only "*business is business*", but they may make some investment. Concerning investment, supplier C3 hopes that they can have a win-win situation. In the other words, they collaborate with their suppliers based on profits. But supplier C4 said that, when their supplier finds it difficult to run their business, some borrow money from them.

5.3.3.2 Supplier types

The company's collaboration style is strategic because they always develop new products with their suppliers. In addition to this, the company can collaborate over other details, like interpersonal collaboration types with their Taiwanese suppliers because they have a long-term relationship already.

Supplier C1 and C3 said that their collaboration strategic type is focused on designing new products. Supplier C2 thinks their suppliers only provide material and they do not need to collaborate. Supplier C4 found their collaboration type as an interpersonal collaborate type which is more focused on relationships in order to relate to the supply chain channel.

5.3.3.3 Supplier management: monitor and training

Company C does not monitor their suppliers and does not think it is necessary. The main reason is that they do not have enough employees to do this. Yet, they have suppliers' assessment forms to check the suppliers' delivery time and abnormal quality lists. They only check the material quality when their suppliers send the products to the company. When the quality has a problem, then they go to their supplier's factory to find out what the problem is. The company does not have any training courses for their suppliers but they always communicate when they find a problem. Then they train and communicate with them until they solve the problem. Supplier C2 and C4 do not always monitor their suppliers because they have an input goods quality department to check the goods. When the quality has problems, supplier C2 and C4 visit its suppliers to discuss the problems. Supplier C2 has some

training courses for their suppliers but not regular training courses. Supplier C4 said they do not train their suppliers because that they always find professional suppliers.

5.3.3.4 Supplier-supplier association

Company C thinks that their suppliers need to collaborate and exchange information in order to create more new products. Furthermore, they consider business confidentiality and how to share profit. They believe suppliers can collaborate on how to improve product quality. On the other hand, power seldom affects the suppliers' collaboration and they do not share trust and commitment as they do not know each other.

In contrast, supplier C2 introduces their suppliers to each other so that they can share the information because they provide supplier C2 materials and can exchange information in order to improve the product's quality. Supplier C4 thinks that their suppliers need to collaborate but still have some problems that need to be overcome such as the information sharing and so on.

5.3.4 To investigate the internal processes of supply chain collaboration

5.3.4.1 Internal facility processes: integration, TQM, and transfer of technology

The company operates their supply channel inefficiently because half of the products are customised products and cannot always be delivered on time, since they sometimes need more time than standard manufactured goods. The other problem is that the product schedule cannot be efficient because customers regularly have emergency (urgent) orders. The company needs more time to manage the product processes. In the other words, the company integrates their suppliers in order to ensure that operations run more smoothly but efficiency is not very good due to order production, special production and production control.

The next issue is to discover company C's suppliers' internal process within supply chain collaboration. Supplier C1 said that around 10% is not very efficient within their company's supply chain. They only need to confirm the deadline. Supplier C4's supplier chain channel has a 95% efficiently supply chain. There is only 5% inefficiency. Supplier C2 want to try to integrate their suppliers but supplier C3 believes that integration is based on tiny profits and not worth doing. Supplier C4 is only 60% supplier integrated. Nevertheless, effective supply chain integration is a key issue to help supply chain collaboration (McLaren *et al.*, 2002).

Furthermore, the company reflects the TQM is very good but the company does not operate it now. The company does not operate TQM in their company but only product quality control in their quality department. The president of the company

thinks that quality control (QC) is operating well in the company. The purchase manger said that they always collaborate with their customers on quality. Their suppliers do not know about TQM or use it.

The company designed their technology system according to department's requests.

The order management system is more efficient, especially customer information.

The company has an information system to control the process for the sales department to the product department and packaging to the customer. Customer information is most efficient. Nevertheless, customers' data needs to relate to the whole supply chain operations in order to achieve customer satisfaction.

The company gets the customer information from business exhibits, the Taiwanese business society, internet research, and Taiwanese customers' word of mouth. In addition to this, they do not transfer customer information to their suppliers. Their new customers also come from other customers introducing the company. Most customer information is obtained from the sales department, they collect the customer information. The company needs to rely on its suppliers because some manufacturing technology skills need their support and they rely on suppliers' facilities. The purchase manger said "*our company needs to rely on our suppliers' equipments*" so that their company does not need to buy expensive machines.

Supplier C2 uses ERP and their files to categorise them. Supplier C4's sales department said their company's information system is very efficient. Supplier C2's customer information comes from the introduction to friends, meetings, and word of mouth. Supplier C3 gets customer information from the internet and relies on information from their suppliers.

Therefore it seems that the company and their suppliers have very useful information systems in their own company but do not share customer information to with their suppliers to protect their companies' business secrets.

5.3.4.2 Measurement, innovation of production and transaction cost

The supply chain collaboration's measurement can be seen in the service, quality, low costs and profits. As the company depends on the market, it needs to develop new products with their suppliers. The company thinks that this is difficult because their concept of management is different from that of the company and they worry about "*know-how*". The sales manager thinks that supply chain collaboration can reduce some transaction costs, such as fax, phone, and transactions cost. This agrees with the academic research, such as that by Simatupang and Sridharan (2002) that found that supply chain collaboration can reduce the transaction cost or continuing relationship between suppliers and customers. In fact, the purchase manager does

not think that it can reduce transactions cost because they already use e-mail to contact each other.

Supplier C4 thinks the measurement is mass purchasing (orders) ability that leads to higher profits. This is supported by Aryee *et al.* (2006, p.947), who commented that “*the value to be gained from collaboration is manifested as enhanced business performance as a result*”. Supplier C2 agrees by implication that this can reduce some transactions costs within supply chain collaboration.

5.3.5 To examine the outcomes of supply chain collaboration

The company likes to co-ordinate with their suppliers on payment time and the development of new products. The company co-ordinates with their suppliers when they need materials and need to change the company’s product’s schedule. Supplier C2 only co-ordinates on deadlines; supplier C3 co-ordinate with their suppliers of products but only on deadlines and product quality. Nevertheless, the co-ordination involves common product standards and sharing of the logistical operation to improve the whole supply chain channel. Company C thinks it needs to co-ordinate and develop more communication opportunities.

The company thinks that good suppliers know how to increase competitive capability which can support good quality and price. The competitive capability

includes product development, sharing profits and information that can improve the company's technological skills. The company can get some experiences from its collaborative suppliers. Without doubt, two or more firms working together makes it easier to create more competitive advantages (Simatupang and Sridharan, 2002).

In addition to this, there is 95% positive feedback from their customers means that they have provided good quality even though the price is higher than other companies. In order to get customer loyalty and customers who are very satisfied with the company services; which is about 50-60% satisfied of this company's customers. This can be seen in the value of supply chain collaboration for a win-win situation with the collaborative partners (Bititci *et al.*, 2004) from supplier to buyer and to final customers.

The company does not trust their Chinese suppliers so they do not have any plans, but when the company has problems or special requests from customers, it needs to negotiate with them, especially on the delivery time. This issue, as Simatupang and Sridharan said (2005b, p258), "*the advent of supply collaboration creates the need, at the intercom any level, to pay special attention to the understanding of collaboration in order to prepare the chain members to create collaborative efforts successfully*". This also can motivate the company and their suppliers to collaborate

with each other. The company expects they can have a very good long-term relationship with their Chinese suppliers in China.

The company plans to set up a website for their suppliers to collaborate and improve market chances in the future; for example, they can discuss forecast of orders.

Supplier C4 also plans to create a new website for their suppliers to collaborate and make more market chances. The company will use high-technology system for their suppliers and do supply chain collaboration in the future.

5.3.6 Case C: Summary

The table 5.4 presents a summary of the answers for the company C and the main points are discussion as follows:

1. Company C chooses their suppliers with a focus on quality and price but they would like more Chinese suppliers. A key reason for them to invest in China is to access cheaper material and labour. During the interview time, it became apparent that the company is still looking for key Chinese suppliers in China. The company continually communicates with their suppliers on the innovation of products, risk sharing and solving problems.
2. If Chinese suppliers can provide good quality at the right price to this company, they could become key suppliers for this company in china. The company would

like to teach and help their suppliers develop. The company believes that they need to improve communication but the company does not monitor or train their suppliers.

3. The company needs to develop their market in China. After that, when they have more orders their suppliers will have more trust them so that can develop a more efficient supply chain collaboration.

The company believes that their Chinese suppliers need to change their way of thinking. It may be that their Chinese suppliers do not trust company C because they do not know them and only think of them as a new company in China. It may take time to become acquainted with each other before developing supply chain collaborations. The company believes they need to spend more time communicating with their Chinese suppliers in order to collaboration more efficiency. From this point, the author would like to introduce the company B to company C because company B understand their Chinese suppliers better. In fact, company B does help Taiwanese companies who have just start their business in China. It is a kind of Taiwanese business society in China. The problem is the two companies are not in the same city so it is difficult to get together.

When this company and their suppliers develop high-technology systems for supplier chain collaboration, it will be a new supplier chain collaboration in the

future. Until then, this company needs to identify their key suppliers and spend more time communicating to develop a better understand of the goal of supply chain collaboration.

Research objectives	The factors of research questions		C company	C company' suppliers
To provide empirical evidence on supply chain collaboration	Suppliers' selection	Key suppliers	Quality, price	Quality, after sales service
		Environment	Politics	Politics
	Agreement	Agreement	Contract	Contract
		Commitment	New products	Xin Yong
		Trust	70%	Over 80%
		risk sharing	New products	Yes.
		joint problem solving	New products	Yes, especially on the material's quality
	Partnership	Power	Yes.	No.
To evaluate supplier development within supply chain collaboration	Relationship	Relationship	Business relationship	Business relationship
		Investment	No.	No.
	Supplier types		Strategy type	Strategy type
	Supplier management	Monitor	No.	No.
		Training	No.	No.
	Supplier-supplier association		Yes.	Yes.
To investigate the internal processes of supply chain collaboration	Internal facility processes	Internal facility processes	No.	90% efficiency
		Integration	Yes.	No.
		TQM	No.	No.
		Transfer of technology	No.	No.
	Measurement		Service quality, low costs, profit	Orders.
	Innovation of production		No.	No.
	Transaction cost		Some yes; some no.	Only one agreed.
	To examine the outcomes of supply chain collaboration	External facility processes	Co-ordination	Yes.
Competitive capabilities		Yes.	Yes.	
Customer satisfaction		95% Satisfaction	No.	

Table 5.7 Company C: The main answers to the research questions

5.4 Cross-case analysis

5.4.1 The cross-case analysis

In this section, the cross-case method is used to analyse three companies' respondents in order to compare the similarities and contrast differences in the findings between them. This section combines the three tables (tables 5.2, 5.4 and 5.7) of the main responses to the research questions to investigate the patterns and assist in recognising the cross-case findings on tables 5.8 and 5.9.

The main principle is to discuss the three companies' supply chain collaboration and identify the factors that help to improve it. It is also necessary to evaluate the supplier development within supply chain collaboration. Next the study describes the suppliers' opinions to better understand the collaboration. Finally, it is proposed to understand supply chain collaboration of Taiwanese companies in China from investigation of the internal processes that assist the supply chain operations and examine the outcomes of supply chain collaboration.

5.4.2 Empirical evidence on supply chain collaboration

5.4.2.1 Supplier selection: key suppliers and environment

Company A and company C choose their suppliers with price as the first consideration for their key suppliers but company B is more likely to choose their

suppliers from local firms. Company C always believes that “*quality is number one and continuous innovation of technology*”, even though they are still looking for Chinese suppliers in China.

Company B is more like a local Chinese company and has more experience and networks with Chinese business firms in comparison to other Taiwanese companies in China. Furthermore, Company B’s sales department promotes their customer service strategies on strategic suppliers and their market is more focused in China.

This is very similar to Hsu *et al.*’s (2006, p.214) comment that “*supplier selection is a crucial process that addresses how organizations select strategic suppliers to enhance their competitive advantage*”. Company B has set up two factories in China and is developing their market in China and to be a local company. They also use Chinese suppliers for around 70% of their suppliers who can provide high-quality and lower prices. This can be found from their purchase manager’s reply: “*our company chooses suppliers according to their quality and price but more focus on price. We have 60-70% Chinese suppliers and the other suppliers are foreign suppliers. And 30% of the suppliers are assigned by our customers*”. Company B is considering *guanxi* to choose their suppliers. It is without doubt that Chinese business firms depend on *guanxi* to run their business.

It is very similar Lee *et al.*'s (2001, p.54) opinion that “*guanxi is especially important in the early stages of business development in China*”. This can be a model for foreign business firms who want to create their business in China. On the other hand, all of three companies' suppliers consider that the first factor is quality when choosing their suppliers.

In addition to this, firms choose their suppliers not only by considering internal factors but also the external environment, like political and cultural factors, especially for international business there is a need to consider more factors when choosing their suppliers. Taiwanese and Chinese speak the same language and have a similar culture but they do not share the same politics.

During this interview, some respondents always said “*business is business*” because businesspeople are not limited by nations. Company C and their suppliers think that politics is an influence on supply chain collaboration. Companies A and B neglect this issue and only focus on business performance. From this point, company B focuses more on culture where people can more easily communicate. In addition to this, company A and their suppliers are more focused on *guanxi* to choose their suppliers. Nevertheless, *guanxi* is a kind of culture within Chinese business activities (Sheung and Luo, 2001). In China, when you have *guanxi* it means you have business, on the other hand, “*no guanxi no business*”. It can also be seen from

Company B a focus on culture can allow easier communication in order to motivate supply chain collaboration.

5.4.2.2 Agreement: commitment, trust, risk sharing and problem solving

All three companies have established a formal contract to confirm their agreement within supply chain collaboration. Company B uses the agreement to build up trust, risk sharing and joint problem solving but not commitment. Company B thinks the orders can represent commitment because they can bring more profits for their suppliers. This is very different from the other companies; company A thinks that commitment can be made within the contract, but company C thinks that commitment can be seen by creating new products together.

Company A reflects that the contract can express the degree of trust but when they need to take a risk, the company takes it because the company has more ability to solve it. Company A's import and export manager in Taiwan said that "*trust and commitment is dependent on the demand and support; which one is more powerful? Then you can decide the trust and commitment*". Yet, company C always takes the risk and solves the problems with their suppliers so that they have more trust with their suppliers, at around 70%.

On the other hand, the three companies' suppliers have a formal contract to make agreements. Company A and company B's suppliers' contracts include commitment, trust, risk sharing and joint problem solving. This compares with company C' suppliers who have more trust in their suppliers at around 80%. They share the risk and solve the material's quality problems together because they have a commitment based on xinyong. Xinyong gives favours in order to build up trust between the supply chain collaborative partners.

5.4.2.3 Partnership: power

The three companies' have a very good friendship with their suppliers but only company C designates their purchase manger to keep a good partnership with their suppliers because they think that the purchase manager is the first line to contact their suppliers.

All three companies have a very close partnership with their suppliers but they still agree that power can affect the supply chain collaboration. Companies A and B reflect on the fact that more powerful suppliers can affect the supply chain collaboration. Powerful suppliers depend on who can provide good products and lower price. The more powerful suppliers are those who can control the supply more than demand. Company B pointed out that power defines who the winner is. When

the demand is greater, then demand controls the supply chain channel, especially in the car industry, so powerful suppliers can always affect the terms of the supply chain collaboration.

This point is very similar as Defee and Stank's (2005, p.34) point that:

“a strong leader firm may use its power to influence, rather than dominate, the supply chain behaviours of other firms; in either case the leader's power will influence the other members of the supply chain, with either a beneficial or injurious effect depending on the power bases used. Positive uses of power tend to lead to stronger supply chain relationships, which in turn lead to improved performance”.

The supply chain collaboration is very important to follow as the marketing function depends on supply and demand which matches the customers' requests.

Company C thinks that 10% of their suppliers are powerful enough to affect the whole supply chain channel and decide on the products' style and quality because they have a famous brand therefore the company must follow them. Hence, company C agree that powerful partners can influence the supply chain collaboration.

Most of the three companies' suppliers have a good relationship with their suppliers.

Company C's suppliers think that their partnership is like a working relationship but that they should consider renqing as a kind of guanxi to give face for their partners within the supply chain. Furthermore, they do not think that power can affect the supply chain collaboration because *“business is business”*. They always follow

business rules, such as system trust, in their supply chain collaboration. They are still developing their role in the market so they have a simple business relationship with their supply chain partners.

5.4.3 To evaluate supplier development within supply chain collaboration

5.4.3.1 Relationship: investment

Companies A and B have a long-term relationship with their suppliers so they have a very good relationship that allows them to negotiate effortlessly and make decisions together. Company C does not have any special relationship with their suppliers but try to join their social party to develop a better understanding of their suppliers. Company B and C's suppliers only have a business relationship with their suppliers. The supplier of company A thinks they are "*in the same boat*" to keep the relationship with their suppliers.

Company B invests in their suppliers when they need to develop new products but still needs to be very cautious when deciding whether the supplier is worth investing in or not. Company A's suppliers do not invest in their suppliers. Company C started their business in 2005 in China so they need to consider their capital and then may invest in their suppliers in the future.

Basically, their suppliers' companies do not invest their suppliers but when their suppliers need financial support, they will help them. As company A' supplier A1 said "*when our company wants to extend our business and run a big business and we will invest in our suppliers*". This means that the company needs to extend their business in conjunction with their suppliers.

In short, when the company and their suppliers have a good relationship, this may increase the percentage for investment but "*business is business*"; firms always estimate the performances within the supply chain collaboration.

5.4.3.2 Supplier types

All of the firms in this interview focus on the strategic collaborative type. For company A, they choose the strategic type to collaborate with their suppliers; the reason for this is the company is an OEM company and they need strategic suppliers to collaborate on keeping costs down and high-quality products in order to get more competitive advantages. This is very similar to companies B and C who always collaborate with their supplier on new products but company B chooses the project mode only on a case by case basis.

Their suppliers pay more attention to product development; that is why they need the strategic suppliers to create more new products. From this situation, it can be

seen that the firm relies on their suppliers in order to create new products and sometimes they need their suppliers to join in their new products' design project. In addition to this, the firms need their suppliers to support with lower cost materials and to countenance new product creation.

5.4.3.3 Supplier management: monitor and training

As Min *et al.* (2005) stated successful collaboration performance cannot happen without monitoring and measuring to confirm it. In other words, monitoring is a kind of supplier management and ensures the performance of the supply chain collaboration. This can be seen from companies A and B; company A always monitors their suppliers' products' quality in their quality department; company B has the 'supplier balance sheet' to monitor and judge their suppliers. Company C does not have only special quality control and only to checks their suppliers' material quality.

In addition to this, company A's suppliers monitor their suppliers in order to make sure that their product's quality qualifies for their buyers. The other two companies' suppliers do not monitor their suppliers but only check at the first checkpoint, i.e. the materials' quality when the product enters the company. Only company B's suppliers design technology training courses for suppliers; this can improve the

company's suppliers' management. Company A and company C's suppliers do not have any training courses for their suppliers.

Company B and C do not have any training courses for their suppliers; company A has new products training courses for their suppliers. On the other hand, company A and company B's main customers always train them when they have a new product.

The main reason for this is that company A is an OEM company within a high-technology industry and needs to respond quickly to changing markets; company B is a part of the car industry which always needs to take care of passenger safety.

Supplier management is achieved through monitoring and training investment, and it can be seen that the more successful company focuses on supplier monitoring and training. This can also help suppliers' development in order to help evaluate the supply chain collaboration.

5.4.3.4 Supplier-supplier association

The concept of supplier and supplier collaboration is to create new products before customers' anticipation and to take advantage of new markets. For company C, they reflect that their suppliers' need to collaborate in order to exchange information and improve product quality. Some of company B's respondents agree with supplier and

supplier association at high-position managerial level but some of them disagree about how to allocate the profits and risks.

On the other hand, company A's purchase manager said that *"if the company collaborates with their suppliers, we may have to think about antitrust law because this collaboration might have an anti-economical benefit, but if this collaboration uses the lowest products, maybe it can keep costs down because of joint purchasing.*

In fact, I do not agree with suppliers' collaboration". And *"When the collaborative partners want to design the lowest price computer at around \$100 for South Africa counties, then they can motivate their collaboration within the main parts".* He

worries that supplier-supplier collaboration will create antitrust and then threaten their company. Even though he disagrees with this issue, he points out that the opportunity for supplier-supplier collaboration can create the lowest price computers because the suppliers need to collaborate to keep material costs down.

The point is that supplier-supplier association needs to ensure rules are set for profit and risk sharing.

Only company C's suppliers support supplier-supplier collaboration but they also suggest that they need to solve issues relating to profit and risk sharing problems.

The other two company's suppliers do not think supplier-supplier collaboration is needed because the suppliers only provide the high-quality materials which are

necessary. If they need to collaborate, it should not be on an S1a and S1b basis but an S1 and S2 collaboration basis, which is more feasible. The main reason is they do not supply the same materials and are not in competition or have antitrust. The different materials' providers can work together to add more knowledge and create more innovation of products that are more efficient for supply chain collaboration.

5.4.4 To investigate the internal processes of supply chain collaboration

5.4.4.1 Internal facility processes: integration, TQM, and transfer of technology

Most of the interview firms and suppliers said that their supply chain internal facility processes are over 70% efficient. Only company C does not have a very efficient supply chain channel because their products are customise and the product schedule constantly changes to meet customer's special requests. Company B's supply chain channel cannot be 100% efficient because the purchase department does not have very good communication with their suppliers. This is why company B and C need to integrate their suppliers in order to make the supply chain channel operate more smoothly.

In academic study, TQM is said to assist firms in quality management but needs all employees to participate. This research produced very different findings regarding

TQM. All of the interviewed firms and suppliers focused only on product quality control and have a specialised department. Why do the firms only control the product's quality and not transfer in to other parts of the organisation? For company B, if the company used TQM, then the purchase process could be improved by employees and better communication with their suppliers could result in a more efficient supply chain channel. For company C, if they used TQM, then their products control department could manage the products' line and confirm with other departments to allow the supply chain channel to run more smoothly.

The firms use technology very efficiently but they do not transfer their information to their suppliers, in particular company A is very mindful of intelligence because they are a high-technology company. The three companies' suppliers do not transfer customer information to their suppliers. As can be seen, the information transfer is very circumspect within the supply chain partners. This point needs to be addressed within the supply chain collaborations.

5.4.4.2 Measurement, innovation of production and transaction cost

All three companies believe that profit can represent the measurement for supply chain collaboration. Company C is more critical of the measurement containing service, quality and low costs; company A has similar opinions.

Company A follows their customer's orders to innovate on new products. It is in contrast with company B's working with their suppliers to innovate on new products. None of the three companies' suppliers work with their suppliers on the innovation of products.

Company C is the only one which does not work with their customers and suppliers to produce new manufactured goods but some of respondents in the company agree that collaboration can reduce the transaction costs. The collaboration on new products may allow the buyer and supplier firms reduce transactions or maybe the internet can reduce transaction costs.

Companies A and C suppliers agree that supply chain collaboration can reduce the transaction cost on tax and shared employee costs. When they undertake supply chain collaboration, they do not need more employees because collaborate partners share some of the work.

5.4.5 To examine the outcomes of supply chain collaboration

The examination of outcomes for the three firms is very successful. It can be seen that they are co-ordinating very professionally. For example, company A focuses on the suppliers' delivery time, company B pays more attention to new products with their suppliers and customers; and company C co-ordinates the payment time. The

three firms are also flexible in negotiations with their supply chain collaboration partners.

In addition to this, the three companies' complete capabilities are adequate in their market field to satisfy their customers and obtain their loyalty.

Company A's supplier thinks that competitive capabilities come from having a famous brand, but company B's suppliers feel that collaboration only can improve quality not competitive capabilities. Company C's suppliers agree that supply chain collaboration can add to competitive abilities but not customers' satisfaction because they only collaborate with their suppliers. This is very different to companies A and B suppliers because they believe it can bring their customers' satisfaction.

5.4.6 Cross-case: Summary

From the above discussion, three companies and their suppliers have some similarities and differences of opinions (see tables 5.8 and 5.9).

Similar opinions are found in five points:

1. Agreement within supply chain collaboration.
2. The supplier types of supply chain collaboration.

3. There is similarity in all three companies and their suppliers not being familiar with or using TQM but they have separate quality departments to control their production quality.
4. All three companies agree that profit can ensure the measurement of supply chain collaboration.
5. All three companies co-ordinate the supply chain channel.

The first action within supply chain collaboration agreed by the three firms and their suppliers; is to make a contract. In addition to this, they think that power can affect the supply chain collaboration. All of them suppliers' collaboration types are strategic types which focus on developing new products. They are focused on new products creation but their suppliers do not integrate and innovate products with their suppliers. TQM means considering every employee who is in the company to make all of the processes. The companies do not use TQM but follow their customer's requests. The fourth and fifth similarity is that the three companies agree that profit can ensure the measurement of supply chain collaboration and, therefore they co-ordinate the supply chain collaboration. The most important thing is that they agree that supply chain collaboration can increase their competitive capabilities and bring customer satisfaction.

In contrast, there are five key differences in response between three firms:

1. Suppliers' choice. Company A chooses their key suppliers focused on those who can provide the lowest price on high-quality products. They always have more than two suppliers for each material support. Further, this company considers guanxi in deciding their key suppliers and they prefer to choose Taiwanese suppliers. Company B selects suppliers considering the location, price and quality and consider Chinese suppliers who are geographically closer to the company. Company C prefers their suppliers to be professional in terms of quality but still look for Chinese suppliers in China.
2. The second difference is that only Company B invests in their suppliers. Companies A and C do not invest in their suppliers now but may invest in their material suppliers in the future. Yet, these suppliers of three companies do not invest in their suppliers at the moment.
3. The third difference can be seen in the supplier-supplier association. Company B and C would like undertake supply chain collaboration more than company A. Only company's C suppliers think the supplier-supplier collaboration can work.
4. The fourth difference lies in their internal facility processes. Only company A does not integrate as they do not know how to integrate or with whom. The reason is that this company does their supply chain channel very efficiently. Company B is

worse than company C because their purchase employees do not have good communication with their suppliers.

5. The fifth difference is the innovation of production depends on the company; for example, it is not suitable for company A because the company is an OEM company and does not need to create the products but joins in projects with their customers. Company C thinks that transaction costs will be reduced after collaboration but company A and B do not agree with this and think that they need to spend more on transaction costs to communicate with the collaborative partners.

From the comparison, it is found that Taiwanese companies do supply chain collaboration in China. The main motivation to help the supply chain collaboration is agreements. On the other hand, the power can hamper supply chain collaboration. When some firms have more power, this can affect the whole supply chain collaboration operation.

Initially, Taiwanese suppliers may follow their main buyers and invest in China by setting up branches, maintaining good relationships. When Taiwanese companies go to China, they may try to find local suppliers who can provide lower prices but the quality may not be as high. After a period, the buyer company can train their Chinese suppliers to provide lower cost, high-quality products. The other reason is that, when Taiwanese buyer companies go to China they need specially *guanxi* to

extend their business therefore they need to collaborate with Chinese suppliers. Chinese like to use guanxi to maintain friendships with their business partners. Most of Taiwanese friendships have Taiwanese buyer and suppliers with similar cultures. It can be seen that the Chinese suppliers are developing and learning from the Taiwanese business model very quickly as they speak the same language. On the other hand, the Taiwanese suppliers need to face this situation as their main buyer companies may no longer use them after they have started their business in China. Taiwanese suppliers need to find new markets in China and also maintain a good relationship with their supply chain collaboration partners. The material suppliers of high-technology industries think that they need to operate globally but be based in Taiwan. They believe they need to create an international brand and then they can do global marketing.

Supplier development can start from strategy type collaboration because all the firms would like to develop new products with their suppliers. In addition to this, supplier-suppliers association needs to avoid the risk of antitrust and then can operate more efficiently within supply chain collaboration.

From the internal processes of supply chain collaborate investigation, firms do not use TQM but have quality control departments to manage product quality because of the firms' focus on quality. In addition to this, all the firms have a very efficient

technological system in their companies to control the internal facility process. That is to say, all of them have very efficient supply chain channels and profit is their measurement of supply chain collaboration.

The examination of the supplier chain collaboration of the three firms observes that their co-ordination with their suppliers is very well-organised. They agree that supply chain collaboration can increase competitive capabilities and customer satisfaction.

In summary, the three firms do the vertical supply chain collaboration and very efficiently. Furthermore, Companies A and B need to follow their customer's requirements by doing suppliers and suppliers' collaboration but not company C, because their products are customised. On the other hand, all three firms would like to undertake supply chain collaboration with their suppliers but their supplier and supplier association needs to consider the rules between the supply chain collaborative partners. This can answer this research gap about why there is no supplier-suppliers collaboration because the buyer firms worry about antitrust, intelligence, and the need for suppliers' firms to bargain about the profit and risk sharing.

Research objectives	The factors of research questions		A company	B company	C company
To provide empirical evidence on supply chain collaboration	Suppliers' selection	Key suppliers	Price and quality	Local suppliers	Quality, price
		Environment	"guanxi"	Culture	Politics
	Agreement	Agreement	Contract	Contract	Contract
		Commitment	Contract	Orders	New products
		Trust	Contract	Contract	70%
		risk sharing	demand or supply	Contract	New products
		problem solving	Quality problems	Contract	New products
	Partnership	Power	Yes.	Yes.	Yes.
To evaluate supplier development within supply chain collaboration	Relationship	Relationship	Long-term relationship	Long-term relationship	Business relationship
		Investment	No.	Yes.	No.
	Supplier types		Strategy type	Strategy type	Strategy type
	Supplier management	Monitor	Quality control	Suppliers' balance sheet	No.
		Training	New products	No.	No.
	Supplier-supplier association		Antitrust	Some Yes; Some No.	Yes.
To investigate the internal processes of supply chain collaboration	Internal facility processes	Internal facility processes	Efficiency	90% efficiency	No.
		Integration	No.	Yes.	Yes.
		TQM	No.	No.	No.
		Transfer of technology	Intelligence	ERP	No.
	Measurement		Profit and all conditions	Profit	Service quality, low costs, profit
	Innovation of production		Customer's order	With suppliers	No.
	Transaction cost		No.	No.	Some yes; some no.
To examine the outcomes of supply chain collaboration	External facility processes	Co-ordination	Suppliers' delivery time.	Yes.	Yes.
	Competitive capabilities		Yes, good.	Yes.	Yes.
	Customer satisfaction		Satisfaction	95% Satisfaction	95% Satisfaction

Table 5.8 Three Companies: The main answers to the research questions

Research objectives	The factors of research questions		A company' suppliers	B company' suppliers	C company' suppliers
To provide empirical evidence on supply chain collaboration	Suppliers' selection	Key suppliers	Consider all conditions	Price and Quality	Quality , after sales service
		Environment	"guanxi (renqing)"	No.	Politics
	Agreement	Agreement	Contract	Contract	Contract
		Commitment	Contract	Contract	Xin Yong
		Trust	Contract	Contract	Over 80%
		risk sharing	Contract	Contract	Yes.
		problem solving	Contract	Contract	Yes.
	Partnership	Power	Yes.	Yes.	No.
To evaluate supplier development within supply chain collaboration	Relationship	Relationship	In the same boat.	Business relationship	Business relationship
		Investment	No.	No.	No.
	Supplier types		Strategy type	Strategy type	Strategy type
	Supplier management	Monitor	Quality control	No.	No.
		Training	No.	Technology training courses	No.
	Supplier-supplier association		No.	No.	Yes.
To investigate the internal processes of supply chain collaboration	Internal facility processes	Internal facility processes	70-95% efficiency	80-90 efficiency	90% efficiency
		Integration	No.	No.	No.
		TQM	No.	No.	No.
		Transfer of technology	MSN, Skype, ERP.	ERP	No.
	Measurement		No.	No.	Orders
	Innovation of production		No.	No.	No.
	Transaction cost		Only one agreed.	No.	Only one agreed
	To examine the outcomes of supply chain collaboration	External facility processes	Co-ordination	Arrange their suppliers coordination	Yes.
Competitive capabilities		The brand	No.	Yes.	
Customer satisfaction		Satisfied their suppliers.	Yes.	No.	

Table 5.9 Three Companies' suppliers: The main answers to the research questions

5.5 The discussion

Taiwanese companies are always very optimistic about setting up their branches in China. Yet, they need to regard some of social issues facing them in China; for example, personal safety, uncertain enterprise operation time, and Chinese employee loyalty. Chinese social relationships are based on guanxi. When Taiwanese people run their business or apply for documents, they need the guanxi all the time. Perhaps they need to have a dinner with their Taiwanese and Chinese suppliers together or find some special relationship to link their guanxi in order to make their business simpler.

Taiwanese companies manufacture high-technology products, which are OEM, and then export them from China. The Chinese government has policies in force to guard their own enterprises and change the rules all the time. They often have preferential regulations to attract Taiwanese companies to come to China at first. Then the Chinese government may change its import and export policy, which deeply affects Taiwanese business. This is because Taiwanese companies' manufacturing style is OEM, and they tend to import material to China to produce goods and then export the final products to their customers all over the world.

On the other hand, Chinese companies manage their invest environment for their local high-technology companies and Chinese high-technology companies also want

to learn “*know-how*” from Taiwanese companies in order to improve themselves very quickly. Conversely, “*business is business*”, Taiwanese OEM companies look for the next investment country --- Vietnam --- to set up a branch and have a good manufacturing environment to be competitive in the global markets (resource come from company A). The Taiwanese laptop companies’ (like company A) suppliers need to go with them and export and import components, which not only delays the suppliers’ delivery time but also complicates the buyers’ supply chain management project. This can shorten the lead time and integrate its suppliers into the companies’ organisation.

Unfortunately, the production network of Taiwanese laptop companies and Chinese suppliers cannot collaborate very well because the poor quality and the weak financial strength of the Chinese suppliers leave them unable to share risks with other network members. Besides, the process and product upgrading in less developed countries, with a governance system of global production networks may be an adverse element in widening participation in global economic activities for companies. For local suppliers in less developed countries to participate in global production networks, there are not only technological but financial issues.

The other variable factors result from Chinese people’s belief and educational level, in particular the different cultural and social concepts, even though the

infrastructure construction is quicker than softer development. The infrastructure construction such as the Chinese government builds their highways and public services very rapidly but the softer developments in their people cannot keep up with this development, for example the standard of living and education. For instance, Chinese employees treat their jobs only as a job but Taiwanese employees treat their jobs like their own business. Chinese employees change their job frequently considering only which company can give them the highest salary. This phenomenon also causes the Taiwanese companies management problems. The Chinese government encourage foreign companies to invest in their factories, from the big cities to the countryside in order to develop other areas in China. From here, the president of company B point out that, in the future, the 'one child' policy will influence the labour area. Since there is only one child for each family, when the children marry, they need to stay at home to take care of both of their partners. This is also affects Taiwanese companies' factories because they tend to set up branches in coastal towns (for example, Shanghai). Their employees often come from the countryside to the city to work but the 'one child' policy means that there will not be enough employees in a few years.

It is without doubt that Taiwan has been drawn in to the 'China dream', offering a market of over ten hundred million customers but Taiwan has been disappointed. As

the president of company C said that Taiwan is more dependent on understanding this dream because Taiwan's home market is very small and this has inhibited the development of globally competitive Taiwanese brands. In comparison, China is the logical 'home' market for the Taiwanese business firms to develop. In fact, for the 'China dream' it is more critical for the Taiwanese companies to capture the home market in China because it is a new market for Taiwanese business firms and needs to be developed (Fuller, 2007). It is not as easy a task as the Taiwanese had thought. All in all, Taiwanese companies need to consider the limitations and overcome them in order to run successful businesses in China.

Chapter Six

Conclusions

6.0 Introduction

This chapter concludes this study by reviewing the previous chapters and discussing the results of this research within this thesis. It briefly provides the aim and objectives of the thesis, and then reviews supply chain collaboration and supplier development from the literature. The research questions from the fieldwork are also identified, answered, and summarised. Finally, the implications of the study are presented. This chapter will demonstrate the contribution of the knowledge to theory and practice. The limitations of this study are identified before recommendations are made.

6.1 Conclusion of the study

6.1.1 Overview of thesis

This thesis was concerned with finding a framework for theoretical developments within supply chain collaboration. This practical framework is based on the consequence of literature review on supply chain collaboration and how current Taiwanese companies operate their supply chain collaboration in China.

The aim of this research is to understand the supply chain collaboration of Taiwanese companies in China. In the thesis, it was necessary to discuss the elements of supply chain collaboration to address the research objectives as the key points for this study. From here, the research objectives are divided into four parts: empirical evidence of supply chain collaboration, estimations of supplier development with supply chain collaboration, internal processes, and outcomes of supply chain collaboration. Primary research sought to answer the research questions.

The research should help Taiwanese companies do their supply chain collaboration in China. In addition, the thesis makes a contribution to both academic and management understanding of the topic.

6.1.2 Supply chain collaboration

The literature view begins from the background of logistics to supply chain management. The logistical operations had focussed on cost since the 1970s as business firms reacted to the rising activity costs in the competitive environment (Waters, 2003). Until the late 1980s and early 1990s global business firms needed not only to take care of cost reduction but also adding more value in the supply

chain channel (Wagner *et al.*, 2002). The cost reduction was the main mission within early supply chain management.

After that, the definition of supply chain management recognised the most important participants, who are the customers. The whole supply chain channel has more opportunity to be multi-functional in providing low-cost, high-quality and on time delivery of products for their customer to give good customer service. In other words, the focal point moved from cost to customer service within supply chain management. This change can be seen from the integration of supply chain management linking suppliers and buyers more closely and increasing the product offerings in the market. These supply chain networks are more complex than traditional supply chain channels.

Based on the integration of supply chain channel, academic scholars and business firms found that collaborative supply chain management can assist the supply chain partners in keeping costs down and improving customer service for supply chain management. The supply chain collaboration can not only meet the goal of supply chain management of meeting the needs of customers by supplying the right product at the right place, time and price but also develop closer relationships between buyers and suppliers. That is why the industrial companies would like to develop the supply chain collaborations.

In this study, the main factors to support the supply chain collaboration are as follows:

As Chandra and Kumar (2000) stated the first step of supply chain collaboration is to have mutual agreement from partners. When partners from different background and cultures have strong collaborations intention on product skills, they need more communication and trust to take risks and solve problems together. This is very similar to this research where the firms always make the agreement the first step of supply chain collaboration with their collaborative partners.

Binder and Clegg (2006) state that transaction cost economics (TCE) is a management construct for supply relationships. It is a guide for suppliers to offer to manage supplier and buyer relationships based on transaction cost economics (TCE). This is not matched to findings from this fieldwork because of the internet. Firms want to reduce transaction costs but not from the supply chain collaboration because the internet can save on transactions for them. Yet, reducing the material cost can be an advantage gained from the supply chain collaboration.

The other mission concerns customer service, efficient supply chain channels reduce materials costs allowing the supply chain to flow smoothly and increase customer satisfaction. Therefore, the joint relationship and sharing of feedback from customers allow both buyers and suppliers to make improvements.

These factors are the main motivation for supply chain collaboration. In today's more complex and competitive business environment, collaboration is the driving force behind an effective supply chain. Without doubt, choosing the right partner in the beginning is key to effective supply chain collaboration.

The SCC types then are decided to fit the organisations' needs for a collaborative style and to have a good collaborative relationship to accomplish their goals of high-quality. On the other hand, the strategic partnerships are strategy collaborative types when firms face competition in the industry. After the supply chain makes a strategy decision, they need the power structure to be in place between the collaboration members. Mason *et al.* (2007, p.188) said "*the concept of collaboration is developed to illustrate how it has evolved both as an important building block in integrating the supply chain through vertical collaboration to reduce costs and to improve service levels as well as horizontally with industry partners to better utilise assets and hence to further reduce costs*". From the results of the research, this did not seem to be the case. It was found that the business firms did not believe it was important which type of collaboration was developed as any collaboration type can reduce costs; it not only reduced transaction costs but also reduced material costs that are more attract them in supply chain collaboration that allows them to have good service from their buyers.

Long term supply chain collaboration builds up effectiveness between buyers and suppliers so that they can share the risk and benefits. If the collaborative firms are to maintain long-term relationships, then they need to have regular monitoring and training of their partners but they also need to modify their management methods. Companies must consider local government policies and culture for the trading business of their supply chain collaborative partners.

Taking the example of Taiwanese companies in China; due to the limitation of geography, Taiwanese companies need to trade all over the world. When they invest in China, they treat it as not only a 'big market' but also a 'world manufactory' for them. Under the government policies of the two countries and the Chinese culture on *guanxi* they must create special supply chain collaborative forms in China. In other words, Taiwanese and Chinese seek *guanxi* to open their business in Chinese society.

The benefits of supply chain collaboration are based on speedy technology to face the global competitive business. Consequently, during the supply chain collaboration processes, the suppliers require to better understand the customers' requirement for new products. This is a critical issue; suppliers need to be sure of the responsibility and position of their supply chain collaborative partners. This demonstrates how important the supplier's position is within supply chain

collaborations. On the other hand, it can be seen from the supplier development how it relates to maturity within supply chain collaborations.

6.1.3 Supplier development

While in the close relationship with buyers in the supply chain collaboration, the suppliers need to improve in order to achieve the standards requested by their partners, if not, they may not be able to continue the collaborative relationship. In other words, the supply chain collaboration can let the suppliers develop when they work with their partners and learn from them.

Current supplier management is focussed on the suppliers who can innovate on products, reduce costs and improve performance in their provision of raw materials.

Furthermore, after buyers choose their strategic key suppliers, they would like to train and monitor them on quality. During this process, they build up trust and communication. The suppliers can also improve customer service when they have a better understanding of their buyers. This can be seen from Taiwanese buyer and suppliers' collaboration model. The partnership is based on good friends and family groups within high-technology industrial companies.

Before they can develop commercial value, the firms need to understand buying behaviour; which is the best way to get more value from suppliers and how the

buyer can motivate their suppliers. This relates to suppliers' development, how the buyers develop their suppliers or how suppliers can develop by themselves from the supply chain collaboration. The suppliers' development starts from their quality, cost and delivery processes and then their technology skills.

Buyers want to know which suppliers can provide new materials to manufacture new products for allowing them to deliver to their final customers. The point is how to fill the gap between supply and demand comes from the suppliers exchanging and examining their sources. Then, if the suppliers can be involved in the process of manufacturing, it can enhance the performance of products. The aim of the supplier is to know the customer requirements and provide the products and services to meet these requirements. This is totally different to suppliers who only provide materials.

The movement towards supplier development involves a discussion on supplier and supplier collaboration. The collaboration involves strategic decisions in the supply chain beginning with the product design, fixing the price, production and distribution to join the whole supply chain channel process, then discuss with their buyers on how to maximize profits. The suppliers who are in the original chain in the supply chain management, if they perform well can really influence on whole supply chain channel. Then, why do they not collaborate?

The critical argument is they are better not collaborating with similar materials' providers to avoid accusations of antitrust. In other words, providers of different materials can work together to improve knowledge and create different collaborations that are more efficient.

Basically, the literature review was focused on the principles of supply chain management in order to understand the history and development supply chain management. From here, the importance of supply chain collaboration within supply chain management was drawn out. This developed a better understanding of the internal and external processes and outcomes for the final evaluation of supply chain collaboration. The supply chain collaboration can let supplier's development obtain improvement. The academic study in relation to both of buyer and supplier firms' operations and processes within supply chain collaboration can help to understand the suppliers' organisations and how to respond to their buyers and how the buyers can respond to their suppliers. In addition to this, the research gap found the type of supply chain collaboration is different in thought and motivation on suppliers and suppliers' horizontal collaboration.

Subsequently, the research problem is presented from the perspective of both the buyer and supplier firms. This identified the gap between them indicating that they need to understand each other better for successful collaboration.

6.1.4 Data generation

The methodology chapter argued which method is best suited for this study. The case study method was chosen as it can more deeply investigate the research questions. A pre-interview with a Taiwanese company that set up a branch in Glasgow was conducted to confirm that the translation's meaning from English to Chinese conformed to the original intention of the research questions. The pre-interview helped the author to revise the interview schedule, study the fieldwork companies' backgrounds and learn to control the interview time before doing fieldwork.

The fieldwork took six months in 2007 across two countries; Taiwan and China. The main purpose was to discover the gap between buyer and supplier different considerations and motivations for supply chain collaboration. Particularly due to the opportunities that have arisen in Chinese market for the foreign firms who want to invest in China. The target companies had to be Taiwanese companies that set up their branch companies in China.

Two types of research data were collected at the same time. The first one was primary research based on interviews with companies and reports company supplied by them. The corresponding documents were e-mailed to three key interviewees in

each company to explain the fieldwork schedule before going to their companies in Taiwan and China. The emails also included, summarising procedures of data collection, proposed design of case studies relating to suppliers' collaboration, and data collection methods. The second process was secondary research data about three companies' backgrounds, histories, cultures, and key competencies. The information was collected from the companies' websites, business magazines and newspapers, and government reports. Most of the data was written in Chinese, with very little English. There were problems finding articles and validating data in a short period of time. Hence, the data collection only went through the period of the fieldwork in Taiwan and China.

Two of the companies allowed visits to their offices and were very supportive of this research. They allowed not only the interviews but also to join their meetings and visit their companies. However, even though, the author could not visit one company, the respondents in that company were really open and tried to assist the author in her research. This really let the researcher find more from both of academic theory and practice in industry.

The findings transcribed the responses of Taiwanese and Chinese respondents from Chinese to English. The discussion of findings used pattern-matching structures of analysis to explain and discuss the interview responses for each company. The

pattern-matching structure was used to examine similarities and differences of the companies. The analysis linked to the literature review chapter to compare academic theory and practice. The discussion of findings examined the three cases to find out how they connected or indicated discrepancies with each other.

6.2 The results of the study

This section answers the four main research questions. In addition to this, supplier development between Taiwanese and Chinese suppliers within supply chain collaboration (SCC) in China and the communication and responses of Taiwanese buyers and their Taiwanese and Chinese suppliers within supply chain collaboration are illustrated.

6.2.1 The supplier chain collaboration work for Taiwanese companies in China

There are two ways for Taiwanese companies to run their supply chain collaboration in China. One way is where their Taiwanese suppliers' follow them to invest in China. This model brings Taiwanese high-technology buyer and supplier collaboration style into China. Some Chinese companies join this collaboration to provide the less critical materials. The other way is for Taiwanese companies to seek Chinese suppliers for their main suppliers in China. At the beginning, they may

not be able to find good Chinese suppliers and so they still work with their Taiwanese suppliers. In time they will be a local business company and when they have a better understanding of their Chinese suppliers, they develop similar Taiwanese style supply chain collaboration in China.

From the two ways of supply chain collaboration, the research recognises Taiwanese business firms supply chain collaboration style as follows:

Taiwanese business firms in supply chain collaboration are dependent on agreements. The agreement is the main factor in assisting the supply chain collaboration to become successful. The business firms believe when they have a contractual agreement, they can trust their collaboration partners. It is a kind of protection that gives the supply chain collaborative partners more confidence in their partners. When they have more trust in their collaborative partners, then can be more committed to their partners. This allows the supply chain collaborative partners to take risks and solve problems together. When the business firms make a contract it includes trust, commitment, risk sharing and problem solving. It is an agreement which affects the whole operation in supply chain collaboration. That is why the agreement is more helpful for Taiwanese business firms undertaking their supply chain collaboration in China. The agreement can offer a sense of security for

Taiwanese business firms and ensure their suppliers can work with them, in particular the Chinese suppliers.

The second factor is about suppliers' selection with supply chain collaboration. From an academic perspective, scholars (Hsu *et al.*, 2006; Chin *et al.*, 2006) point out that supplier choice is key for supply chain management. This is reflected in the three companies in this research, they believed that choosing their key supplier should focus on price and quality. It can be seen that the business firms are concerned about ensuring they have suppliers who can deliver on the budget for materials' cost and quality control. This assists supply chain collaboration.

Powerful partners may hamper supply chain collaboration. All three companies agree that powerful partners can affect the operation of the supply chain collaboration, if they do not care about their partners in the supply chain collaboration. The supply chain partners may listen to them the first time or second time but may not follow their business methods all the time because the marketing environment is always changeable. The other supply chains partners need to survive and extend their business and can not always follow their powerful business partners as they need to take care of other customers or suppliers.

It is without doubt that Taiwanese buyers have the affectivity of revolution with their Taiwanese suppliers in high-technology industry. They are working very hard

together so that they can take a place with laptop manufacturers all over the world. That is why Taiwanese buyers and suppliers work together and invest in factories in the other countries together. The contrasting situation with Taiwanese business firms has been the different frame of mind when in supply chain collaboration in China. Taiwanese companies are still looking for the key Chinese suppliers who can help them do the supply chain collaboration. For Taiwanese business firms, China is their ‘world manufactory’ which can help them to create more markets all over the world.

6.2.2 The supplier development between Taiwanese and Chinese suppliers within supply chain collaboration in China

From Taiwanese supply chain collaboration style, Taiwanese suppliers’ development can easily be seen. Taiwanese suppliers have a closer relationship with their Taiwanese buyers and rely more on their buyer firms. That is why the Taiwanese suppliers followed their Taiwanese buyers into China. In other words, the supply chain collaboration is very good for supplier development, especially the suppliers who already have a long-term relationship.

Initially for supply chain collaboration, buyers’ firms focus on quality. Due to this, their suppliers must take more care of quality control and improve their products’

quality. Then, when buyers need to innovate on products; they may take some ideas from suppliers and consult on material's information from their suppliers.

All three companies' supply chain collaboration is focussed on strategy types. The business firms like to have strategy types because they can follow the buyer's strategy plan to develop their business. When they have long-term relationships with their buyer, then the buyer would like to teach them more. This study found, when firms work on supply chain collaboration well, then they will wish to spend more time monitoring and training their suppliers on quality control and new products. This is the way that buyers and suppliers collaborate but the supplier and supplier collaborations may be different.

Most of the interview companies would like to have supplier and supplier collaboration. Even though they do not do it now, they think it is a good concept.

The argument is they fear that supplier and supplier collaboration will be antitrust and the products' cost will increase. This may reduce their ability to buy and negotiate on the price of materials. This is an opposing view from the original thoughts on supplier and supplier collaboration. At the beginning, the supplier and supplier collaboration try to advance and further customer services to develop more innovation of products and services for buyer firms (Giunipero *et al.*, 2006). Yet, if the supplier and supplier collaboration ensure good policies or rules when they

collaborate, they could eliminate buyers' misgivings on the antitrust phenomena.

This also can respond to this research gap on horizontal ways for supplier and supplier collaboration. That is can say the supplier and supplier collaboration could be a new partners' group within supply chain collaboration in order to create more efficiency in the supply chain management.

6.2.3 Chinese suppliers' organisations respond to Taiwanese buyers and suppliers in China

Recently, Chinese suppliers have been developing and learning from the Taiwanese business model very quickly. The main improvement is improving the Chinese suppliers' quality control. During the supply chain collaboration processes, Chinese suppliers become acquainted with the high-quality products for Taiwanese companies. This is due to their Taiwanese buyers insisting on quality control on products. It can be seen that Chinese suppliers now know how to respond to their Taiwanese buyers and the result they must follow.

In fact, some Chinese suppliers rely on their Taiwanese buyer firms for technology skills or marketing planning. The purpose is to develop a long-term relationship. It is without doubt that Chinese suppliers understand that the target of Taiwanese companies is to enter China to extend their market. Therefore the Chinese suppliers

would like to collaborate with them and accept their training courses and requests to do business in China.

Yet, “*water can either float or turn over a boat*”, the Chinese suppliers’ firms must understand the cultural differences and pay more attention to communication even though both the Taiwanese buyers and suppliers speak the same language. It may be that you can understand their words but not necessarily understand their meaning.

Communication between Chinese suppliers and Taiwanese buyers and suppliers is very important for both. Chinese suppliers need to spend more time with Taiwanese business partners. This can help Chinese suppliers to understand the way of Taiwanese business management.

Furthermore, although new partners, who are local Chinese suppliers in China, may provide cheaper materials for Taiwanese buyers, they must also improve their quality and this relates to suppliers’ development. The first step is to undertake suppliers’ management, then the suppliers’ products’ quality can be monitored and employees can be trained. The Chinese suppliers also want to learn about the technology skill and customer services from their Taiwanese buyers or suppliers firms.

6.2.4 Taiwanese organisations as buyers understand the Taiwanese and Chinese suppliers' motivation in China

From this research, it is clear to see that Taiwanese buyer firms need to better understand Chinese suppliers in order to collaborate together. Profit is the key motivator for working with their Taiwanese and Chinese suppliers.

Taiwanese buyers need to do decide who the key suppliers are when they go to China; one is the Taiwanese suppliers who have already built up a long-term relationship with them and are more stable in the supply chain channel, the other one is Chinese suppliers who can provide cheaper materials and help them to create the market and performance better in China.

It is possible that in the future the Taiwanese buyers may set up in other countries, if they have trained their Chinese suppliers, the Chinese suppliers may follow them or support again in a similar way to the Taiwanese suppliers who followed them into China. If the Taiwanese buyer needs the Chinese suppliers to assist them in occupying the Chinese market, they can motivate their Taiwanese suppliers to find more Chinese suppliers to work with and collaborate with or invest in them.

Conversely, it is really easy for Taiwanese and Chinese business firms because they utilize the guanxi and know how to do it. This is can create new supply chain

networks in China. Yet, Taiwanese suppliers are very careful as they may be replaced by Chinese suppliers one day in China.

6.3 Implications of the study

As Wolf (2008) posted in the Financial Times, *“the world is changing China. But China is also changing the world. It is the world’s fastest growing country and the biggest capital exporter; it possesses the largest foreign currency reserves and is already the world’s third-largest trading entity; it is the largest consumer of metals and the biggest emitter of carbon dioxide; and, quite soon, it will also be the world’s largest consumer of primary energy”*. The motivation for Taiwanese firms to invest in China is to get the materials more conveniently and local labour to allow them to occupy the Chinese market. In addition to this, the real reason Taiwanese buyers want to collaborate with Chinese suppliers should be reflected on. This can help in understanding the difference between Taiwanese and Chinese supplier development. Moreover, what has been the Chinese and Taiwanese suppliers’ development since the Taiwanese companies entered China.

From this study, we can have a better understanding of the supply chain collaboration operations within Taiwanese business firms. By identifying what happens behind Taiwanese buyers firms who invest in China we can appreciate that

Taiwanese buyer and Chinese suppliers' collaboration model, including the Taiwanese suppliers who have a long-term relationship with their Taiwanese buyer firms.

To respond the research questions from this study, Taiwanese companies undertake supply chain collaboration in China. The agreement and key suppliers are main areas for Taiwanese companies in their supply chain collaboration in China. On the other hand, having powerful partners may hamper the collaboration within supply chain management. Yet, if the powerful partners can consider their partners' business view they may be able to change the phenomenon, for example to help their suppliers' development. The reason is suppliers' development is a key way of incentivising suppliers and encouraging them to collaborate; this should result in more loyalty from suppliers.

From Chinese suppliers' expectations, it can see that they really want to collaborate with Taiwanese buyers and suppliers but need more time to communicate with each other. In other word, all need to develop more trust each other in order to collaborate with each other. Some of Chinese suppliers must to change their thinking first and treat their work is more seriously. Nevertheless, when both of them can be very efficient, the supply chain collaboration can be more successful.

It is without doubt, the aim of supply chain collaboration is develop more competitive capabilities and customer satisfaction. Profit is a key driver for Taiwanese buyers to understand in their Taiwanese and Chinese suppliers' motivation. It is also a final goal for supply chain collaboration.

In Chinese words explanation, '合作' (hezuo) means two more people working together for their objective; the point is their interaction with each other's organisations. This can explain their relationship in the supply chain collaboration.

It can influence each other and help the partners in the team. It is the meaning of supply chain collaboration.

6.4 Contribution to knowledge

6.4.1 Contribution to theory

The contribution to theory is reflected in the support for supply chain collaboration.

There are three points that contribute to academia from this research as follows:

The first one, to assure the members of supply chain collaboration, is agreement.

The agreement must include trust, commitment, risk sharing and problem solving.

In other words, the agreement is a formal commitment in order to share responsibility for risk; if problems happen who needs to solve them. The agreement is a kind of contract and very practical for the buyer and suppliers who collaborate

for the first time. This can allow both of them to eliminate misgivings, especially the buyer firms.

Secondly, the ambitions of supply chain collaboration are to reduce cost and improve service. Both can be examined from the internal processes to the external outcome for supply chain collaboration. The supply chain collaboration is still focussed on cost and service as in previous logistic and supply chain management theories. The collaboration in supply chains is targeted on reducing product cost and improving customer services. In other words, when the supply chain collaboration can reduce costs and improve customer satisfaction, it is able to acquire more competitive capabilities and markets. The profit increase is the measure of success for the supply chain collaboration partners.

The third one is supply development. The key supplier choice is also very important in supply chain collaboration. When the firms plan strategically it is easier to find their vital suppliers because they have a very clear purpose and can instruct them more effectively. The supply chain collaboration is more efficient after the firms find their vital suppliers. Initially, the buyer firms only ask for high-quality from their suppliers. Yet, when the buyer firms need to innovate production and extend their marketing, then they also need their suppliers to support them. This is similar as Howard and Squire (2007, p.1204) said “*the shift in responsibility from OEM to*

suppliers, provides opportunities for joint investigations into new technologies and parallel development of product and process innovation". From this point it can be observed that the suppliers really play a very important role within supply chain collaboration. This is evident from this research into Taiwanese suppliers in the high-technology industry companies. Taiwanese suppliers have a very good long-term relationship with their buyers followed them to invest in China. Why did they follow them? The reason is not only they can gain advantages from investing China but also the supply chain collaboration is very powerful for their companies. Taiwanese suppliers are not only focussed on quality improvement but also wish to grow with their buyers. The main point is when the suppliers' firms do well in the supply chain collaboration then they can gain development opportunities.

All in all, the agreement can assist the supply chain collaboration in being more successful. Examining the internal and external processes reduction in cost and good customer services is the clearly a goal for the supply chain collaboration partners in order to increase profits. The suppliers' development is to derive benefits from the supply chain collaboration. This confirms what previous research has shown.

6.4.2 Contribution to practice

In terms of contribution to industry, this study discusses the practice of supply chain collaboration for Taiwanese companies and their Chinese suppliers in China. From the industries thoughts, collaboration means the business firms begin to bargain between buyers and suppliers.

In the high-technology industry, the competition is very fierce so that price is a significant issue between competitors. The point evolved from supply chain management in choosing the suppliers who can provide the lowest price on high-quality products in order confront the changed rapidly markets all over the world.

The meaning of collaboration for Taiwanese and Chinese business firms is to increase profits by methods including the reducing cost, the innovation of products and the creation of more markets as they believe "*business is business*". That is can say firms (organisations) always look for competitive advantage and what is best for them.

When Taiwanese companies entered to China initially, Chinese and Taiwanese suppliers relied on contract until *guanxi* was developed and trust was built. Then they not longer require the signing of contractual agreements. It should not be surprising that the firms do not want to sign contracts as Chinese people attach importance to *guanxi*. Therefore, they prefer to use social activities to maintain relationships and gain a better understanding of their business partners.

Unfortunately, Chinese and Taiwanese firms in this study seldom joined in social activities.

For the three companies, similarities in culture can help the supply chain collaboration, especially the use of guanxi in order to create renqing. Chinese businesspeople use guanxi to develop their supply chain collaboration networks. Chinese suppliers are learning how to do it but need to spend money and time on it, and perhaps also develop techniques and skills to do it.

On the other hand, buyers can educate their suppliers and help their supplier development with supply chain collaboration. If Chinese suppliers want supplier development, they need to learn from the Taiwanese firms. From the suppliers' management perspective, if the Taiwanese buyer firms can begin with suppliers' management, focussing on quality control, they can train their Chinese suppliers in technology skills to assist their suppliers' development. This can also increase the success of the supply chain collaboration.

There may be a big issue regarding intellectual property leaking to Chinese suppliers in supply chain collaboration and this, in the long run, could be a problem for Taiwanese suppliers. However, this is balanced against the need for progress.

From this research of both buyers and suppliers, two firms joined dyadic social activities in order to increase their understanding of each other and to create

agreement within the supply chain collaboration. This is an example for business firms from other countries. Taiwanese buyer and suppliers need to spend more time with Chinese suppliers in order to improve communication and improve their relationship.

Briefly, when the firms would like to do their business in China, guanxi is the key starting point. For the foreign companies who want to do business in China is essential to seek guanxi. Guanxi comes from many kinds of relationships. The foreign companies can join Chinese business society activities such as dinner parties in order to get guanxi from it. Chinese suppliers will be more willing to participate in supply chain collaboration with the foreign firms if they have more trust in them. In addition to this, the Chinese business is more open minded and accept other foreign business now. They are improving their product quality and skills because they have improved their management ability and ways of thinking from Taiwanese companies. It is very hopeful to see not only successful supply chain collaboration models for Taiwanese companies but also with other foreign business firms in China.

6.5 Limitations of the study

The main limitations of this research are due to a limited research budget and time.

The research time only allowed three case studies with one month in China and two months in Taiwan spent undertaking the main fieldwork. Due to the limited research budget, the researcher spent six months between China and Taiwan; another three months were spent collecting data on the three companies from magazines and newspapers in Taiwan. This was not very effectual as some of the companies are not very famous, and therefore there was limited data available from these sources.

The first reason for three cases restraint was on the interview time available, making it difficult for the researcher to observe the whole process of supply chain collaboration. Therefore the findings lack more detailed discussion of operations with the supply chain collaboration. The other reason is that processes of supply chain collaboration are confidential and the three companies wished to remain anonymous. This meant having some limitations on the data and references presented in the findings chapter.

Secondly, some respondents interviewed could not answer the all questions fully and so some aspects are not covered. One of the problems was that some of the interviewees do not really have contact with the suppliers and customers. Their work is related the internal and external aspects of supply chain collaboration operations. The other problem was not being allowed entry to their suppliers'

companies to interview them. Some suppliers' interviews used the buyer company's office and were concerned about giving some answers in front of their buyer's company employees.

The third one is the lack of agreement on theory and fieldwork generalisations from the findings. The problem is the three companies are Taiwanese companies undertaking supply chain collaboration only in the Chinese domain. From here, the fieldwork has a specific context so that it may not be suitable to generalise the findings to the field of supply chain collaboration in other parts of the world. The presentation of these findings is expected to be of benefit to business firms who wish to invest or do the business in China. On the other hand, the results may have limited value for other countries, as it is indicative of how Taiwanese companies undertake supply chain collaboration in China.

6.6 Recommendations of future research

There are a number of recommendations for future research from the findings of this research. Supply chain collaboration can not only start from buyers and suppliers collaboration but also from supplier and supplier collaboration. Although this research indicates that antitrust for the horizontal supply chain collaboration is a problem, it may be possible to make the regulations to overcome issues of antitrust.

The big companies but may have concerns but if antitrust issues can be addresses, their suppliers could be encouraged to do horizontal supply chain collaboration. Possibly future research could find methods to solve issues and more critical collaborative types will be generated. Then, the originator of the supply chain channel can undertake more functions for the supply chain collaboration.

In addition to this, suppliers may need to think about how to be a key supplier for their buyer. Suppliers could give more thought to suppliers' management. Suppliers could develop strategic plans in order to develop long-term relationship with collaborative partners. This can be done with suppliers, as well as buyers. The suppliers' development needs more attention from academic and practical perspectives to rewrite the supply chain collaboration projects within supply chain management.

6.7 Conclusions

In conclusion, at the start of this research the aim was to study supply chain management theory and learn more about the supply chain collaboration. High-quality academic writing was required, especially with regard to more critical thought to make a contribution to knowledge in the field of supply chain collaboration.

The outcomes of this thesis, based on the study of Taiwanese companies in China, are of particular importance at this time as the ‘China dream’ is one shared by many countries. Many global companies wish to operate in China; therefore an appreciation of how supply chain collaboration may work in this context is important to expand academic theory in this field and to give guidance to practitioners.

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APPENDICES

Appendix 1 Pre-interview schedules and questions

Pre-interview schedule and questions

Research object / questions	Literature quotes	Sources.	Main Interview question (It will translated into Chinese)
1.	Preparing supply chain collaboration (SSC)		
Internal process	<i>“A stylized supply chain usually involves (integrate) five stages of activity: creation of raw materials, manufactures of parts and components, assembly of finished goods, distribution of goods and services, and customer services. ”</i>	Stonebraker and Liao (2004,p1004)	Does your company operate the supply chain channel efficiently? (If yes, what is the current status of the supply chain channel? If not, What would make it more efficient?)
Integration	<i>“ effective integration of suppliers into product value/supply chains will be a key factor for some manufacturers in achieving the improvements necessary to remain competitive”</i>	Ragatz <i>et al.</i> (1997 cited in Zailani <i>et al.</i> , 2005, p.380)	Does your company integrate the whole supply chain channel? (If yes, why and what is the benefit of this?)
TQM	<i>“ Not successful reason “one important reason is that companies do not understand that TQM should also incorporate the integrated quality management activities of other members in the supply chain.”</i>	Kanji and Asher (1993) ; Youseff <i>et al.</i> ,(1996) (cited in Wong 2002)	What is your opinion of TQM?
	<i>“TQM is a management philosophy for continuously improving quality of goods and services delivered through the participation of all organizational members; it is the process of making quality the concern of everyone in the organization.” ”</i>	Temtime <i>et al.</i> (2002.p191)	How does your company operate TQM to match your customer quality requirements?
Transfer of technology	<i>“Manufacturing systems in organizations have been enhanced with information technology tools such as enterprise resource planning, distribution requirements planning, electronic commerce, products data management, collaborative engineering etc. ”</i>	Chandra and Kumar (2000,p.101)	How does your company design its information system? Which parts are the most efficient?
	<i>“ Many survey participants mentioned automated information exchange via information technology</i>	Min <i>et al.</i> (2005,p.247)	How does your company get customer information?

	<i>such as electronic data interchange (EDI), database (e.g. Wal-Mart's shared database called RetailLink), data warehouse and data mining techniques, and the internet to illustrate their communication channels. "</i>		Do you transfer this to your supply chain collaboration (SCC) partners? What information do you want to transfer to your supply chain collaboration partners?
External process Co-ordination	<i>"It is important to employ cross-channel co-ordination when sharing some of the common resources among different supply chains." "Creating supply chain value is important for successful co-ordination."</i>	Chandra and Kumar (2000,p.102)	Does your company coordinate with its SCC partners? (If not, why not?) In which situations does your company coordinate with its SCC partners?
2.	To investigate the motivations for supply chain collaboration		
Competitive capabilities	<i>" Collaborating firms share responsibilities and benefits by establishing a degree of cooperation with their upstream and downstream partners in order to create competitive advantage "</i> <i>"Supply chain collaboration is often defined as two or more companies working together to create a competitive advantage and higher profits than can be achieved by acting alone. "</i>	Spekman <i>et al.</i> (1998,p.57) Simatupang and Sridharan (2005,p.259)	Do you think that your company gains any competitive advantage from SCC?
Customer satisfaction	<i>"Collaboration enables partners to jointly gain a better understanding of future product demand and implement more realistic programmes to satisfy that demand."</i> <i>"though collaboration is based on a mutual objective, it is a self-interested process in which firms will participate only if it contribute to their own survival, Each member seeks to achieve individual benefits such as eliminating redundant functions, reducing transactions, achieving lower inventory, increasing responsiveness, and so forth. Nevertheless, the focus of a mutual objective should be on the</i>	Sahay (2003,p.77) Simatupang and Sridharan (2002, p.19)	Do you get any feedback from your supply chain collaborative partners? How is the feedback from your end customer?

	<i>outcome and experience of joint offers to end customers. ”</i>		
To develop a new market (Innovation of production)	<i>“The value to be gained from collaboration is manifested as enhanced business performance as a result.”</i>	Aryee <i>et al.</i> (2006,p.947)	How does your company develop a new market or innovation of production with its SCC partners?
Transaction costs	<i>“transaction cost is including all of the cost connected with conducting exchanges between firms; Transaction cost take many everyday firms – management meetings, conferences, Phone conversations, sales, calls; bidding rituals, reports, memos—but their underlying economic purpose is always to enable the exchange of goods, services, or ideas.”</i>	Dyer (2000,p.91)	Which transactions parts reduce costs after collaboration in your company?
Keep the partnership	<i>“ Active collaboration takes place when companies develop mechanisms --- structures processes, and skills—for bridging organizational and interpersonal differences and achieving real value from the partnership.”</i>	Kanter (1994, p.105-07)	How does your company maintain its partnerships?
	<i>“It is important to establish strategic partnerships with suppliers for a successful supply chain. Corporations have started to limit the number of suppliers they do business with by implementing vendor review programs.”</i>	Chandra and Kumar (2000,p.104)	How does your company choose its key supplier within SCC?
3.	To evaluate the impact of supply chain collaboration		
Trust and commitment	<i>“There is a substantial body of literature focusing on the factors necessary for effective collaborative supplier relationships such as trust and commitment”.</i>	Kerr and Huatuco (2006, p.995)	To what degree does your company trust its SCC partners?
	<i>“ it can be argued that institutionalization/co-operation in a business to business relationship is a behavioural manifestation of the element of trust and commitment which are seen as key elements in relationship quality”</i>	Woo and Ennew (2004, p.1255)	How does your company trust its SCC partners? How does your company commit to its supply chain collaboration partners?

	<p><i>“It is important to have a trusting relationship between supply chain partners, where each party has mutual confidence in the other members’ capabilities and actions.”</i></p> <p><i>“Trust is the degree to which partners perceive each others as credible and benevolent and is expected to have a positive effect on the degree of collaboration in supply-chain relationships ”</i></p>	<p>Sahay (2003,p.77)</p> <p>Myhr and Spekman (2005,p.182)</p>	
Power	<p><i>“assuming that customers value what we provide for them ---we would be in a situation of power over all others in our supply chain relationships ”</i></p> <p><i>“Power within the channel is based on the interdependence that exists between its members to obtain the scarce resources made available by the others (e.g. high-demand products and access to target markets), together with the performance of specialised marketing functions (Stern and Reve, 1980).</i></p>	<p>Cox (1999, p.171)</p> <p>Bigne et al. (2004,9.176)</p>	<p>Does your company think that its partner’s power can affect the supply chain collaboration? (Who? Why? How?)</p>
Measurement	<p><i>“The result of collaborative SCM is not only the reduction of waste in the supply chain, but increased responsiveness, customer satisfaction, and competitiveness among all members of the partnership.”</i></p> <p><i>“The success of collaborative efforts cannot be assured unless performance is properly monitored and measure. ”</i></p>	<p>McLaren et al, (2002,p.350)</p> <p>Min et al . (2005,p.249)</p>	<p>What measurement does your company use within SCC?</p> <p>How does your company monitor its SCC partners?</p> <p>Does your company think it is necessary? (Why?)</p>
Evidence of risk sharing	<p><i>“Collaboration is a very broad and encompassing term and when it is put in the context of the supply chain it needs yet further clarification. Many authors when talking about collaboration cite mutuality of benefit, rewards and risk sharing together with the exchange of information as the foundation of the collaboration (Stank et al., 1999a; Barratt and Oliveira, 2001).”</i></p>	<p>Barratt (2004, p.31)</p>	<p>Does your company share its risks with your SCC partners? (If yes, in what kind of situation does your company share the risk with its SCC partners?)</p>
4.	To provide empirical evidence of		

	the processes which help and hamper supply chain collaboration		
Relationship	<p><i>“In our understand, the supplier needs to offer value to the customer but also needs to gain benefit from the customer at the same time. For the sake of their won survival, suppliers need to understand how value can be created through relationships with customer.”</i></p> <p><i>“The IMP Group (e.g. Ford, 1990) suggested that research should move from a dyadic business relationships approach, to business networks, regarded as sets of connected firms (Miles and Snow,1992) or , sets of connected relationships between firm (e.g. Hakansson and Johanson,1992)”</i></p> <p><i>“Collaboration has also attracted the attention of the IMP Group ”</i></p>	<p>Walter Achim <i>et al.</i> (2001,p.366)</p> <p>Veludo and Macbeth (2004, p.144)</p>	How is the relationship between your company and its SCC partners?
Investment	<p><i>“ In order to investigate the relationship between supplier adaptation to buyer requirements and ownership type, three measures of adaptation are defined: supplier investments, buyer control and buyer investments.”</i></p>	<p>Millington <i>et al.</i> (2006,p.190)</p>	Does your company invest in its SCC partners? (If yes, in what kind of situation does your company invests in them?)
Supplier development Key suppliers	<p><i>“The companies ,in order to respond to the new market dynamics, reduce the number of suppliers that collaborate with, and especially those who provide the company with components that have a significant impact on the quality of their final product.”</i></p>	<p>Theodorakio glou <i>et al.</i> (2006, p.149)</p>	How does your company respond to its SCC partners?
Supplier-supplier association	<p><i>“Furthermore, by deliberately trying to foster certain types of supplier-supplier relationships, many buyers suggest that the relationship between suppliers is important. ”</i></p>	<p>Choi <i>et al.</i> (2002,p.119)</p>	Do you think that your company’s suppliers need to associate with each other? (Why? How?)
High-technology firms	<p><i>“ High-technology markets are characterized by a rapid pace of technology change involves a high degree of uncertainty for buyers. An important source of uncertainty stems from buyers’ lack of experience with</i></p>	<p>Giunipero and Eltantawy (2004,p.702)</p>	Does your company rely on technology change in its SCC partners? (If yes, how? If no, why not?)

	<p><i>product technology. ” “ Rapid technology changes makes difficult for buyers to evaluate supplier’s performance and predict any likely problems that might arise in the production and the delivery of the product.”</i></p> <p><i>“ The relational approach to structuring supply relationships is characterised by fewer and better relationships with a decreasing number of suppliers and investments in relation-specific assets; substantial knowledge exchange; and the combining of complementary, but scarce, resources or capabilities (Dyer and Singh, 1998) ”</i></p>	Simpson and power(2006, p.66)	
Environment (Politics and Culture)	<p><i>“The political embedded ness of a business network, as formulated by existing IMP research, can take four forms: political institutions, political actors, the political activates of firms and political resources.”</i></p> <p><i>“One of the major supporting elements of collaboration is a collaborative culture, which is made up of a number of elements: trust, mutuality, information exchange and openness and communication.”</i></p>	Welch and Wilkinson (2004, p.217) Barratt (2004, p33)	Do government polices or cultural factors affect your company and its supply chain collaborative partners? (Which one is most effective? Why)
5.	To examine the outcomes of supply chain collaboration		
Evidence of joint problem solving	<i>“Collaborative partners must also work together to solve supply chain problems.”</i>	Min <i>et al.</i> (2005,p.248)	In what kind of situation does your company solve its problem with its SCC partners?
Facts of collaboration value	<i>“Collaboration should result in creation of new and unique value propositions based on a unified approach to value creation”. “Value creation in collaborative organisation should be a win-win-win situation for all parties concerned”.</i>	Bititci (2004, p252-.253)	How satisfied is your company with previous SCC?
Future plans for collaboration	<i>“The advent of supply collaboration creates the need, at the intercom any level, to pay special attention to the understanding of collaboration in order to prepare the chain members</i>	Simatupang and Sridharan (2005,p258)	Does your company have some future plans for SCC?

	<i>to create collaborative efforts successfully”.</i>		
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Appendix 2 Correspondence letter to companies

Dear Sir,

My name is Ya Ling Tsai, a Taiwanese student studying in the United Kingdom. I am studying on a doctoral programme in supply chain management under the supervision of Professor Leigh Sparks and Dr. Beverly Wagner, the Department of Marketing, Faculty of Management, at the University of Stirling in Scotland. I am currently pursuing research on supply chain collaboration in supply chain management. The purpose of this research is to explore and understand the difficulties related to supply chain collaboration in order to recognise the motives and processes, and help the collaboration team to work together more effectively. I plan to construct three case studies of Taiwanese companies which have established their factories in mainland China and their suppliers which collaborate together, based on the information obtained. If necessary, the identity of interview companies will be kept confidential.

Recently, I contacted Mr. Andrew Chu (Jacky Hsieh; Robert Chen) to seek help regarding my data collection. I received a kind reply to help me to interview the suppliers' companies. I write to you in order to seek more help from your company according to the suggestions make by the Taiwanese companies' association.

Further to deciding the useful direction of my research, I need to gather the following information:

1. Your advice on the best possible time to visit you and your company for the discussion and interview for my project.
2. Please advice on the best possible time for your suppliers who collaborate with you to have an interview for my project.
3. If possible, I would like to visit the company headquarters in Taiwan.
4. If you need a copy of the final reports, please inform me.

Thank you very much indeed for your future co-operation. I hope that the research programme will help your company and suppliers to collaborate very efficiently. I hope to hear from you soon.

Yours Sincerely,

Ya Ling Tsai

The summarised procedure of data collection

1. March 2007 --- June 2007 Contact the company's representative
2. Conduct the interview with buyer managers in the sales, purchase, and logistics departments.
3. In addition, interview their suppliers' collaboration member managers.
4. Begin the data collection through face-to-face interviews, observation and the analysis of the archival records
5. Construct a case report
6. Analyse the interview questionnaire data
7. Make stronger the report and leave the place

Proposed design of case studies relating to suppliers' collaboration

The data collection for the three case studies will be via interviews with them and their suppliers who are doing the collaboration. I hope to be allowed the use of a desk that I can work on for my project and I can interview the other suppliers in the buyer company during the time I visit the company. The construction of the cases will be done at the same time as the collection of the data. The duration of the data collection period will be prearranged with the company. This may require at least two or three weeks.

Data Collection methods

There are three main methods that will be used to collect the data to construct the case study. The methods include interviews, observation and document analysis. The interview should supply an overview of the company's activities related to the research topics and questions. The first stage of the interview is to ask the main three case studies companies about their supply chain collaboration. In addition to this, the second stage is asking for the collaborative suppliers' questions relating to the key research subject.

In addition to this, the observations will obtain permission from the companies for direct observation of activities within the companies from formal meetings to training. Next, the analysis of the documents and records will be done intensively to support the interviews and build the case studies. The documents and records can

better understand and details of the company's activities, including the news, internal letters and so on. Those documents and records can help to improve the research. It is possible that more documents and records will be requested from the other interviewees during the interview.

However, the schedule of the interviews and observation will be discussed in the analysis of the interview. Then, the documents and records will be collected depending on the analysis of the interview. The progress of constructing the case studies should be a very important factor before deciding to leave the companies.

Appendix 3 The interview schedule and Chinese questions



**University of Stirling
Department of Marketing**

The aim of this interview is to collect information from Taiwanese companies which have established their factories in China regarding Taiwanese and Chinese suppliers' collaboration motives and processes. All information is only to be the data for academic survey.

1. Company background, history and culture

- Evidence of entrepreneurial behaviour within the company
- Perceptions of self within the marketplace
- Key skills and competencies

2. To provide empirical evidence which help and hamper supply chain collaboration

- Supplier selection
 - Key suppliers
 - Environment (Politic and Culture)
- Agreement
 - Commitment
 - Trust
 - Evidence of risk sharing
 - Evidence of joint problem solving
- Partnership
 - Power

3. To evaluate the supplier development within supply chain collaboration

- Relationship
 - Investment
- Supplier types
- Supplier management
 - Monitor
 - Training
- Supplier-supplier association

4. To investigate the internal processes of supply chain collaboration

- Internal facility processes
 - Integration
 - TQM

Transfer of technology (high-technology firms)

- Measurement
- Innovation of production
- Transaction cost

5. To examine the outcomes of supply chain collaboration

- External facility processes
Co-ordination
- Competitive capabilities
- Customer satisfaction
- Facts of collaboration value
- What kind of problems do you have during the collaborative processes?
- Future plans for collaboration

Company: _____ Buyer supplier Location: Taiwan Shanghai

Respondent department: _____ Respondent position: _____ Date: _____

Research Object	Main interview question (It will translated into Chinese)	Respondent Answer:
1.	Company background, history and culture	
Key competencies	1. What is the key competency in your company? 請問貴公司的核心價值是什麼呢?	
2.	To provide empirical evidence on supply chain collaboration	
Supplier selection Key suppliers	2. How does your company choose its key supplier within SCC? (price, quality, local suppliers) 貴公司如何去考量和選擇主要的合作供應商? (價格? 品質? 在地廠商?) What is supplier development? 供應商的發展情形? 3. How can your company motivate them? (What is the difference between Taiwanese and Chinese suppliers) 如何啓發供應商的合作動機呢?(台商和中國供應商會不會有所不同) 4. Does your company consider guanxi when choosing Chinese or Taiwanese suppliers?	

<p>Environment (Politic & culture)</p>	<p>貴公司選擇中國或是台商供應商會考慮到關係嗎?</p> <p>5. Do government polices or cultural factors affect your company and its supply chain collaborative partners? (Which one is most effective? Why?) 貴公司與供應商合作時有因為政治和文化的因素而影響到嗎?(哪個部分比較會受到影響到?為什麼呢?)</p>	
<p>Agreement</p>	<p>6. Does your company have a contract with the SCC? (If yes, how can your company make agreements with your suppliers? If not, why not?) If yes, Please answer the follow questions under the agreements? If no, just answer the follow questions without agreements. 貴公司有和合作的供應商簽合約嗎?有如何制定呢?無的話為什麼不制定合約呢? 若有的話 請針對合約來回答以下問題? 若無為什麼沒有呢?</p>	
<p>Commitment</p> <p>Trust</p>	<p>7. How does your company trust its SCC partners? To what degree does your company trust its SCC partners? 貴公司與合作的供應商信任程度?</p>	
<p>Risk sharing</p>	<p>8. How does your company commit to its supply chain collaboration partners? 如何給合作的廠商承諾呢? (怎麼承諾? 要承諾什麼?)</p>	
<p>Problem solving</p>	<p>9. Does your company share its risks with your SCC partners? (If yes, in what kind of situation does your company share the risk with its SCC partners? 貴公司會與合作的供應商共同承擔風險嗎? 什麼的情況下呢?</p> <p>10. In what kind of situation does your company solve its problem with its SCC partners?</p>	

<p>Supplier types</p> <p>Supplier management Monitor</p> <p>Training</p> <p>Supplier- supplier association</p>	<p>18. With what kind of supplier types does your company usually collaborate? (Strategic, Tactical, Operational, Interpersonal, Cutlrural, politic, why?) 貴公司與合作供應商類型? (策略聯盟, 操作上, 個人關係, 文化政治, 爲什麼?)</p> <p>19. How does your company monitor its SCC partners? Does your company think it is necessary? (Why?) 怎麼去監督貴公司的合作供應商呢? 貴公司覺得需要監督他們嗎?爲什麼?</p> <p>20. Do your company have some training course for your suppliers? (If no, why? If yes, how to design the course and results) 貴公司有特別爲供應商的訓練課程? (若無, 爲什麼? 有的話, 怎麼去設計這些訓練課程 成效如何呢?)</p> <p>21. Do you think that your company's suppliers need to associate with each other? (Why? How?) 您覺得貴公司的供應商彼此應該要合作嗎?爲什麼呢?如何去合作呢?</p> <p>22. Do your Taiwanese and Chinese suppliers share the extent of mutual power, with the trust and commitment between them? 貴公司的中國和台灣廠商會分享影響力及互相信任和承諾對方嗎?</p>	
<p>4.</p>	<p>To investigate the internal processes of supply chain collaboration</p>	
<p>Internal facility processes</p>	<p>23. Does your company operate the supply chain channel efficiently? (If yes, what is the current status of the supply chain channel?)</p>	

<p>Integration</p> <p>TQM</p> <p>Transfer of Technology (high-technology Firms)</p> <p>Measurement</p>	<p>If not, What would make it more efficient?) 貴公司供應鏈運作情況流暢嗎? (順暢的話目前的供應鏈情形呢? 不順暢的話怎麼讓它更流暢呢?)</p> <p>24. Does your company integrate the whole supply chain channel? (If yes, why and what is the benefit of this?) 貴公司有在整合供應商嗎? 有的話可看到哪些成效? 沒的話有想要整合嗎?</p> <p>25. What is your opinion of TQM? (If, good, why? If not good, why?) 您對 TQM 的評價如何? (好與不好的理由在哪呢?)</p> <p>26. How does your company operate TQM to match your customer quality requirements? 貴公司如何將 TQM 配合到顧客的品質要求?</p> <p>27. How does your company design its information system? Which parts are the most efficient? 貴公司如何設計資訊系統?哪個部分效率最高?</p> <p>28. How does your company get customer information? Do you transfer this to your supply chain collaboration (SCC) partners? If yes, What information do you want to transfer to your supply chain collaboration partners? 貴公司如何得到顧客資訊? 貴公司會將顧客資訊給合作的供應商嗎? 會的話,貴公司會提供哪些資料給合作供應商呢?</p> <p>29. Does your company rely on technology change in its SCC partners? (If yes, how? If no, why not?) 貴公司會因為技術的關係去依賴合作的供應商嗎?(會的話?為什麼呢? 不會的話? 為什麼呢?)</p> <p>30. What measurement does your company use within SCC? (How? Why?) 怎麼去衡量與供應商的合作利益</p>	
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<p>Innovation of production</p> <p>Transaction cost</p>	<p>呢?</p> <p>31. How does your company develop a new market or innovation of production with its SCC partners? 貴公司如何和合作的供應商去發展新的市場和產品呢?</p> <p>32. Which transactions parts reduce costs after collaboration in your company? 與供應商合作後貴公司有減少一些交易成本嗎?</p>	
<p>5.</p>	<p>To examine the outcomes of supply chain collaboration</p>	
<p>External facility processes Co-ordination</p> <p>Competitive capabilities</p> <p>Customer satisfaction</p> <p>Facts of collaboration value</p>	<p>33. Does your company co-ordinate with its SCC partners? (If not, why not?) 貴公司會與合作的供應商配合嗎? 不會的話? 為什麼呢?</p> <p>34. In which situations does your company co-ordinate with its SCC partners? 什麼的情況下會去配合合作的供應商?</p> <p>35. Do you think that your company gains any competitive advantage from SCC? (competitive capabilities) 你認為貴公司可以和供應商合作而得到哪些利益呢?(例如競爭力的提升)</p> <p>36. Do you get any feedback from your supply chain collaborative partners? 你有從合作的供應商哪裏得到一些回應嗎?</p> <p>37. How is the feedback from your end customer? (How can they do the feedback?) 貴公司的顧客回應如何呢?(顧客怎麼回應貴公司)</p> <p>38. How satisfied is your company with previous SCC? 貴公司與目前合作的供應商滿意程度</p>	

	度如何呢?	
Future plans for Collaboration	<p>39. What kind of problems do you have during the collaborative processes? 在合作的過程中會有什麼樣的問題呢?</p> <p>40. Does your company have some future plans for SCC? 貴公司與合作的供應商有沒有一些未來的合作計畫呢?</p>	
Suggestion		