Research on MNCs' Supply Chain Implementation in China. Contents, problems and Recommendations.

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RESEARCH ON MNC'S SUPPLY CHAIN IMPLEMENTATION IN CHINA— CONTENTS, PROBLEMS AND RECOMMENDATIONS

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Abstract

With economic activities of all the enterprises continued to expand globally, the enterprise's management is no longer regarded as a single enterprise management, but began to introduce the concept of the supply chain. A large number of enterprises seek to survive and development under the rapidly changing new economic order, international purchasing has become a major strategy. Supply chain management became key part in real competition between enterprises; any business will get chance to upgrade their product in linking with international production and procurement chain. Globalization enables the production, sale, distribution and activities as well as labor, technical and financial resources pass across borders in the world to find a better configuration, that start integration of business activities around the world. With the indepth development of global economic integration and improvement of the global market, the globalization of market has accelerated, the major multinational companies, business groups have set new strategies toward the low cost resources areas.

The global manufacturing has moved to Asia, in particular, to China, China has a vital part in multinational’s procurement chain. With China's accession to the WTO, economic globalization and global sourcing came into the Chinese market. Now China has become the world's processing plant, which is an irrefutable fact. Foreign investment in China has increased year by year, Chinese enterprises has become an important node of entire world supply chain. China is one of the countries in the world that can produce all categories of goods; none foreign companies do not value the sales and purchases of Chinese market, which has become the consensus. Many global buyers consider China as a major source of global sourcing. China is becoming the world's "manufacturing center", China has become a supplier of components and finished products of many multinational companies, some of them have directly moved their global procurement center to China, and imported a variety of products from China, many multinational companies accompany with supply chain strategy. Global procurement and supply chain integration activities in the performance of

China's market have been more and more frequently: large multinational companies and procurement network of international purchasing organizations are extending to the Chinese market; some of China's economically developed cities and regions became the international procurement centers. Statistics show that: multinational corporations purchases in China, accounting for over 10% of our total exports; in 2002, multinational purchasing centers have procured more than 30 billion dollars from China; over 50 billion dollars in 2005, and more than 100 billion U.S. dollars in 2006.

Many multinational retail giants include Wal-Mart, Carrefour, Metro, Tasco, Ito-Yokado, Auchan are targeting the Chinese market for purchases. According to statistics, by the end of 2002, around 20 global procurement and distribution centers were set up in Shenzhen, and over 45 were set up in Shanghai, most of which are from famous international enterprises. Manufacturing companies are also interested in sourcing from China. Many of these manufacturers are the leaders in the industry, with advanced management ideas and experience, reflected all aspects of enterprise development, including the maintenance of the entire supply chain. Presently, Ford purchases about 90 billion U.S. dollars of auto parts globally each year, $ 200 million of it from China. China has become the main country for spare parts procurement by Ford; Motorola's procurement in China in 2004 amounted to 23 billion yuan RMB, in 2005, it reached 30 billion yuan, accounting for more than 60% of Motorola's global procurement; Sony Ericsson purchased 5 billion yuan RMB and 10.5 billion value of parts from China in 2003 and 2004, Sony Ericsson, through its Beijing procurement center, bought 22 billion yuan worth (2.7 billion U.S. dollars) of mobile phone parts in 2005, and its sourcing from China reached 4.5 billion U.S. dollars in the following years; GE (China) decided to "buy more" in China; DuPont in China has also enlarged the procurement of goods from raw materials and ancillary products parts, to construction of plants involved in the local building materials.

Manufacturers and retailers around the world have long been willing to cooperate with Chinese enterprises, because China has a consumer market of 1.3 billion populations, with cheap labor resources, raw materials resources and the necessary

technology. With the improvement of economy scale, cross-border purchases in China presented an unprecedented scale and momentum. However, for multinational companies, doing business with China is not an easy thing, some problems were appeared in the development. Although the reform and opening up started in 70's of 20th century, China's situation, the policy procedures of different departments still has some conflict with some of foreign business model, foreign investors are subject to different restrictions in some areas.

The theoretical foundation of this research draws from the theory of supply-chain management, and it limits its focus on existing MNCs' supply chain in China. Relative literatures are reviewed to construct a conceptual framework and formulate propositions linking important components to supply-chain management implementation of MNCs in China. It tries to analyze the activities of the MNCs' supply chain management in China, examine the influences that may influence its implementation, find problems existed in MNCs' supply chain practice in China with possible suggestions and provide managers of multinational companies and researchers with a framework for investigating and effectively managing organizational supply-chain networks in lie with conditions prevalent in China. It will also recommend directions to be taken in SCM-related research so that knowledge can be acquired to aid professionals and companies in the adoption of this practice.

A qualitative approach is used in this study, since the main research problem of this thesis involves lots of data that cannot be quantified. Regarding the nature of it, case study is treated as the methodology to explore and delineate actual supply chain practices of MNCs in China. The primary data of the study is got from interview of the target MNCs' supply chain management officers and observation of their practices. The secondary data consists of books, journals, research papers, articles, and company reports collected from the library, target companies and through Internet.

This research is separated into 8 chapters namely: 1. Introduction, 2. Supply chain, 3. Supply chain management, 4. Research framework, 5. Methodology, 6. Case study, 7. In-depth analysis on MNCs' supply chain in China, 8. Conclusion.

Chapter 1 introduction gives the background of the research, states the purpose

of it, describes the idea, steps and structure, makes known the inadequate of the research.

Chapter 2 and chapter 3 are the theoretical foundation part, in this part the theory of supply chain and supply chain management is reviewed, a development trend supply chain and supply chain management theory is then unfolded to give strong theoretical support to the research.

Chapter 4 and chapter 5 are the second part, chapter 4 constitutes the research conceptual framework and methodology, the elements of the research framework are come from the reviewed literatures and interviewer advices, the structure of the framework and the elements are explained accordingly. Chapter 5 justifies the use of case study in this research; it makes the statements and procedure of the methodology.

The third part contains chapter 6 and chapter 7, the study of four cases is in chapter 6, the four cases are selected from different industries with different business scale and from different country, the study of these cases are strictly according to the research framework and in the same procedure. Chapter 7 provides a further analysis of the phenomenon gathered from former chapter, which reflects the in-depth situation of the MNCs supply chain implement in China, the possible problems are then revealed.

Chapter 8 makes conclusion of the whole research, it clarifies the research results, put forwards the recommendations for both practitioner of MNCs on their management of supply chain in China, and the researchers on future research directions in the field.

China's accession to WTO not only provides a good opportunity for the Chinese enterprises to participate in the global supply chain, but also brings challenges. This study tells that there do existing problems for Multinational corporations to implement their supply chain in China: most of the Chinese enterprise's own supply system is still quite backward; the concept of supply chain management for a few enterprises are still in the infancy due to the traditional philosophy, business model and the overall economic environment constraints; inadequate infrastructure, regulations and culture with Chinese characteristics; quality of staff, information and technology, the

domestic logistics industry, transport costs, storage environment, geographical imbalance, domestic barriers to trade; etc.

Foreign companies came to China, indicating that China being the identity of the global production and processing base has been integrated into the global supply chain system in the past. This means that China's status in the global supply chain system as the production and processing base has been enhanced; and joining the implementation of supply chain management gives the chance for Chinese enterprises to improve their competitiveness. At this stage, the Chinese government has showed supportive on foreign investment in China, and the provincial governments are actively formulating policies to attract foreign investment in their areas and make local industries more competitive. This series of measures including: encourage MNCs to set up purchasing centers in China, solve problems in customs, foreign exchange, taxation and other issues; support domestic enterprises in technological innovation, improve quality, performance and packaging of local products to meet requirements for international market; organize "International Procurement Fair" and other activities to provide conditions for the establishment of direct trade relations for foreign enterprises and domestic producers; establish by law the protection of the social responsibility system; provide necessary information; the integrity of the whole society and create an atmosphere to encourage a good credit base and credit expectations on local producers; support the public services; construct logistics centers to support various modes of transport and storage capabilities.

We may believe that with the support of government, more MNCs will enlarge their cooperation with Chinese companies, and so the Chinese companies will become developed by learning from MNCs for their technology, management, and services.

Key words: MNC Supply chain Supply chain implementation

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Thanks also to all my friends, all the managers and officers I interviewed in my case study for their kindness cooperation. My sincere thanks will also go to Ms. Marie-christine Ulryche, Miss. Yi-miao Wang and Miss. Shu-jiao zhao for their help in preparing my defense.

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Author

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1.0 Introduction

1.1 . Background

China is now one of the countries that absorb most of the foreign direct investment in the world and becoming an important production base, procurement base, and R & D base for transnational corporations. With China's accession to the

World Trade Organization, and active participation in economic globalization, China's domestic market has been transformed into a global market, According to statistics of China Entrepreneurs Association, by the end of 2006, among the world's top 500 enterprises about 480 have invested in China, of which more than 30 multinational companies have set up regional headquarters in China.

The FDI is very important to the promotion of China's economic growth and strengthens the development and utilization of human capital and increase the surplus of china's international payments balance. The development of the FDI made by multi-national corporations in China can be divided into three periods:

-- From 1979 to 1992. During this period multi-national corporations' main activities in china are commodity trade and technical trade;

-- From 1992 to 2001, multi-national corporations made massive direct investment, but just in some special fields;

-- From 2001 to now, just after china's entering WTO, Chinese government opened more industries such as finance industry, communication industry, traffic industry, retail industry which foreign corporations were not permitted to enter before. There has been a new situation for the MNCs to entry into china.

Since the 90's of 20th century, the world's leading multinational companies began to invest in China, which has far-reaching consequences to the China's economy. Especially after China's accession to the WTO and with the further development of economic globalization, transnational corporations have come to invest and build factories, they brought about not only relatively advanced technology and equipment, but also global business strategy, international business as well as advanced management concepts and methods. These management ideas and methods are of synchronization with the other subsidiaries under the jurisdiction of their parent company in the world, represents the advanced modern enterprise management ideas and trends are of far-reaching to the China's economy.

More than half of the world's largest 50 auto parts manufacturers have established joint venture in China, to pre-occupy this huge market. Motorola, Nokia and Ericsson entered the Chinese market earlier bringing complete machine into

China, supporting the development of a large number of enterprises, both state-owned enterprises and foreign-invested enterprises to establish joint ventures. Nokia China has become the world's second largest market for Nokia's major global production bases. Its goal is that all major products can be produced in China. Ericsson has 24 offices in China, nine joint ventures and four wholly-owned enterprises. China has become the world's top four suppliers base for Ericsson, the two joint venture companies in Nanjing and Beijing provide products not only to the Chinese market, but also available to customers in Asia and the rest of the world.

At first these entrants were required to achieve a high level of domestic content within a specified period (typically, 70% within 3 years). For some of the new entrants, this was seen as an unreasonable target, as domestic suppliers could not meet the price and quality requirements of multinational firms. But this became one of the key drivers of industrial development for China to lie in the integration of local firms into global supply chains. Because the 70% target required the MNCs to switch rapidly from reliance on imported components to sourcing from local vendors; and this in turn gave the MNCs a strong incentive to work closely with local suppliers, to ensure that the quality standards were met within an acceptable price. Chinese companies have begun to play a major role in its extension from then on.

MNCs of the world have invested in many fields in China such as mechanism industry, electric industry, chemical industry, architecture material, communication industry, medicine industry, food and so on. And the geographic regions spread from coastal cities like Shanghai, Guangdong, Fujian to the middle and western inland gradually. The investments of Multi-national corporations now have a new trend of paying more attention to strategic objects, to industrial structure, to serial production and to correlative industry and extensive field. Globalization offers opportunities to developing country producers and exporters.

Before 1998, the main investment mode of MNCs in China was joint venture and cooperative enterprise. However, with the permission from Chinese government for the MNCs to establish wholly foreign owned enterprise since 1997, many MNCs started to exploit china market in the way of wholly foreign owned enterprises. In

1998, the proportion of wholly foreign owned enterprises in china was 36.82%, exceeding the proportion of joint-venture (29.26%) for the first time. Till 2002, the investment of joint venture was US$14.992 billion, 28% of total FDI, while the wholly foreign owned enterprise was US$31.725 billion, 60% of the total. Wholly foreign owned enterprises have increased well. To take the advantages of abundant labor resource of china, MNCs not only transfer their manufacturing center to china rapidly, but also transfer several cores of their global operating network to china and processed the indigenization at production, R&D, management, purchase as well as brands. Currently, the multi-national corporations' investment in china appears to be more indigenized. The comprehensive advantages of china assure the MNCs began to carry out all-around strategy of indigenization operating rooted in china. MNCs treat china as an important manufacturing base in a long-term strategy such as reducing costs, enhancing international competitiveness and keeping market shares.

On the basis of the transfer of manufacture industry, the MNCs are speeding up strategic adjustment of R&D localization and set up R&D center in china. There are almost 400 R&D centers established by foreign investors at present. The activities of R&D are not merely focusing on technical development but also on how to best carry out global production in china's special environment. This will enhance china's position in MNCs' global operation.

In the last two decades, competition has changed dramatically with the opening up of trade barriers regionally and globally. The competition between enterprises now is not only the competition of technology, cost and management, it is also the competition of their global supply chain. Local companies in both developing and developed countries are being now exposed to increased competition from a new set of competitors that can exploit the comparative advantage of several countries simultaneously. Firms have begun to implement two strategies in order to remain competitive: (i) by seeking supplies and productions on a global scale, and (ii) reducing value-added operations in-house via outsourcing and strategic alliances. By sourcing internationally multinationals can take advantage of the unique conditions existing in the countries, such as low wages, raw material availability, and proximity

to markets (Grunwald and Flamm, 1985). In addition, this distributed system now gives firms the flexibility to react to the increased volatility in technology and marketplace. It requires transformation of the organization and proper management of supply chains to be successful (Hobbs et al, 1998).

In the past years, the world manufacturing center moved from Europe to North America, then to South America and Southeast Asia countries. Since 90's, China became the manufacturing center gradually, this happened especially after 2001 when China entered WTO, more and more MNCs established their supply chain in China hoping to reduce the cost and close to the costumers. Multinational companies have been purchased in China for several years, because China is the world's fastest-growing economy, with the development of economic globalization and the implementation of supply chain management, more and more multinational companies began extending their global procurement network to China.

Nowadays, more and more multinational companies target purchasing in China, multinational companies in China have been increasing the size of procurement. Before 2000 procurement of multinational corporations in china was less than 10 billion dollars and in 2003 it reached 55 billion US dollars, accounts for 13 per cent of China's total export volume. According to the statistics of China Commerce Ministry, the procurement agency of multinational corporations and international organizations in China has reached about 500, the annual procurement value in China reached 100 billion U.S. dollars. Today, multinational companies can buy almost everything in China. Multinational companies have astonishing growth of sourcing in China, for example, the world's largest automotive part supplier Bosch Group's procurement in China in 2004 amounted to 600 million U.S. dollars, by the end of 2006 has doubled to 1.2 billion dollars in size（www.ce.cn）.

Motorola's procurement was of 7.5 billion yuan in China in 2000, this year will reach 12 billion yuan. Motorola's parts products procurement reached the ratio of 65% with 700 suppliers in China. GE's investment in China is up to nearly 1.5 billion US dollars involve in aircraft engines, appliances and industrial systems, medical systems, power systems, and many other areas of the market and actively get involved in

China's procurement operations. From 2000 to 2002, Hewlett-Packard (HP) made procurement in China over 10 billion US dollars, accounting for 30% of HP's global procurement. Since 2003 Hewlett-Packard had its new projector, laptop computers and other products made in China. In 2004, 20% of Hewlett-Packard parts procurement was completed in China, the purchase of the year had reached 10 billion US dollars.

In order to strengthen competitiveness in the world and lower the cost of purchase, many MNCs began to set up global purchase center in china, some upgraded their former regional procurement centers the global procurement, to combine china's good-quality but less expensive commodities, raw materials and parts with powerful global sales network of MNCs.

Among the big companies in the global procurement, transnational retail groups procurement growth trend are very prominent. They have moved their local headquarters, purchase center and distribution center into China. Beginning in 2002, Wal-Mart China's total procurement of goods were on the yearly growth pace of 3 billion, in 2004 the total amount of purchase up to 180 billion dollars, and accounted for 15% of China's total exports of goods to the United States, China has become Wal-Mart the world's seventh largest commodity procurement countries of origin. Although other transnational retail groups have big gap with Wal-Mart, the procurement volume in China was also very impressive. In 2003 Carrefour's procurement was 3 billion dollars, Metro 3 billion dollars, Teshike 2 billion US dollars, Tsui Fung Group 1.5 billion US dollars. Purchase of IKEA, the Swedish company, in China in 2001 accounted for its 14% share of global procurement, 15% in 2002, up to 18% in 2003, more than 20% in 2004.

The producers are capitalizing on opportunities by entering into the global chain. Cross-border supply chains are incontrovertibly a vehicle by which new forms of production, technologies, labor processes and organizational relations and networks are introduced. With the transfer of global manufacturing enterprises to the low-cost region, major manufacturing enterprises are moving to the Asia-Pacific region, especially to China increasingly. China is becoming the world manufacturing center,

Chinese manufacturing enterprises play an increasing important role in the supply chain of multinational corporations. Many major manufacturing companies in the world set up their factories, global procurement center in China to strengthen their supply chain network. The move of the supply base, by the other hand is part of the strategy management of many MNCs too, they are gaining profits from the low cost of China. Many industries in China like steel, coal, electrical appliance, cement, PC, electronic product, toy, telecommunication equipment, chemical product and so on are now the production center of the world, provides most of the world products.

Chinese enterprises are beginning in the process of integrating into multinational corporations' global procurement system, they are building stable supply and marketing relations with transnational corporations, providing products in accordance with the rules of the international market , which enable Chinese enterprises to understand the operating rules of the international market, and promote enterprises to speed up the adjustment of their products and technical innovation, improve their product quality and competitiveness. MNCs' global procurement activities and global supply chain integration assist competitive Chinese products to enter into international market.

In August 2002, the Great Wall Enterprise Institute for Strategic Studies published a report: "science and technology innovation and made in China", scanning the landscape of China's manufacturing industry. The report pointed out that China has become the world's fourth largest producer, more than 100 kinds of products manufactured in China have the highest output in the world. Yet the rapid development of China's manufacturing industry today can not be separated from the effect of foreign direct investment in the Chinese economy. Multinational companies increase the intensity of direct investment in China, while their global supply chain extends to China too.

At present, China's enterprises are entering into multinational global supply chain with the identity of main suppliers and producers. Because of the importance of manufacturing status, in 2000 many experts and scholars at home and abroad continued to propose to build China into a manufacturing centre and international

procurement centers. Although China's manufacturing industry has great disparities with the manufacturing centers of the world in the past, this does not affect them to become an important link of multinational global supply chain. China's manufacturing industry with its unique advantage has attracted the attention of many large multinational corporations, and China's manufacturing enterprises have become transnational corporations examined objectives in the supply chain cooperation.

1.2．Purpose of the Study

The purpose of this study is to provide managers of multinational companies and researchers with a framework for investigating and effectively managing organizational supply-chain networks in lie of conditions prevalent in China.

Multinational enterprises are expanding their global reach, carrying their products and brands to ever more remote corners of the world. They encounter business environments that vary not only from their country of origin, but also vary greatly amongst each other. Thus foreign investors have to adapt their strategies, most notably their marketing and acquisition strategies, to the local context. As many MNCs would like to expand their purchase in China, their supply chain in China will be of importance.

Supply chain management as an important strategy to achieve the rapid development for the multinational corporations, receives increasingly concern of the business community and academia in China. They shift production to China, mainly to benefit from cheap labor. But at the same time, they found that while lower the labor costs, they are facing with the real situations as less mature IT infrastructure and low awareness of employees, high inland transport expenses, etc. Supply chain management of these companies in China, has experienced a lot, some are successful, some in distress, and even been out of the market with failure.

At present, Chinese suppliers maintain cooperative relations with the MNCs, but owing to the weak foundation for the supply chain technology applications support, it is difficult for them to reach the supply chain management objectives of the overall chain. Chinese small and medium-sized enterprises are still maintaining simple trade

relation contractors in international procurement in the manufacturing sector, rather than the supplier manufacturer relationship under the sense of supply chain management. Many of Chinese enterprises lack of understanding of supply chain management, and are still using the old mode of operation and management. Compare to the trading companies, the manufacturers have the low level of internal information system, which can not form the environment support to supply chain management. A small number of medium-sized manufacturing enterprises have just begun to enter the applications of IT management system, and in addition to a very small number of well-known large companies, is almost rare for local enterprises that truly under the application of supply chain management.

This research is to extend the streams of research by examining the influences that may influence the supply chain of foreign investors in China. And will attempt to evaluate the role of host country experience in the post-entry expansion. Then recommend directions to be taken in SCM-related research so that knowledge can be acquired to aid professionals and companies in the adoption of this practice.

Towards this objective, in this research, I will outline the supply chain management of MNCs in China (an emerging economy), and will provide conceptual frameworks that may aid investors to adapt their strategies to the Chinese market. I will examine the expansion of the foreign firm's suppliers in China, find problems existed in MNCs' supply chain practice in China. Discuss the influences of the supply chain management implementation by MNCs in China and the implications for developing sustainable long-term supply chain relationships.

1.3．Research question

Establishing supply chain in China not only promotes MNCs to carry out global resource distribution but also expands china's export. As the MNCs expend their supply chain in China, situations of both the MNCs and the local Chinese suppliers have changed. To know about the real status of them, understand the influences in MNCs' local supply chain implementation, and solve the problems they are facing is beneficial for a win-win case. To this extent, the following questions are put forward:

1）What could be the main contents in MNCs' supply chain management implementation in China?

From a managerial perspective it is important to identify the way of supply chain management by MNCs' in China and the factors that may have influences.

The supply chain management concerns about the whole process in the implementation. This study tries to find out the process the MNCs use in their supply chain establishing and managing, look for the basic components contributing to the process of supply chain management both inside and outside of the specific MNC. Based on this, it is helpful to understand the strategic thought of MNCs to establish their supply chain in China, the selection of Chinese suppliers and management to them daily, the environment they involve, the influences from the environment which may lead to the finding of adaptation of MNCs' supply chain management implementation in China.

2）What are the possible problems in MNCs' supply chains implementation in China?

In the 90s of last century, the investment of MNCs in China was mainly focused in the manufacturing because of low cost and not of market reasons. At that time, they brought parts and elements from all over the world and resemble them in China to take the advantage of labour cost, so they left most of their supply chain out side of China. On entering the 21 century, more and more MNCs think of China not only as a place of manufacture but also an emerging and potential market. This makes them thinking of adjusting strategies in China.

MNCs recognized from their experiences that without a competitive marketing system and supply system, by only manufacture it is difficult for them to compete in the Chinese market. The competition of manufacture in China now is far more a question of manufacture itself; it became a competition of the value chain. Aware of this the MNCs in China are trying not only to enlarge their investment in manufacture but to extend their value chain to China. We can see them beginning to bring their R&D department to China and looking for local suppliers as well to be able to adapt

Chinese market. But when the MNCs really establish their supply chain in China they feel some troubles in implementing it. For those big MNCs, they have a widely known image, a scaled production, they have different condition in establishing their supply chains compare with the SMNCs. What could be the real situations of their supply chain in China and what are the possible problems?

3）What could be the possible strategies that both Chinese firms and MNCs may have in the supply chain management?

Whichever strategy MNCs pursue to China, they need access to local assets and networks. Thus they have to design a locally adapted strategy that establishes a basis to help them develop their local position. To reach this objective, MNCs must know how to focus on the long-term potential of their entry strategy, and continuously readjust their supply chain implementation to the changing environment, which may include increased resource commitment at later stages.

China is now a "world manufacture place", the MNCs are now paying more and more attention to China when they outsourcing. However, what could the Chinese firms be facing in this opportunity? The strategies for Chinese firms should not only be the low labour cost, then what else and how? May be they need some trade ladders like technology other than equipments, trust and reputations, brands, language and culture commitment, understanding of international trade regulation, after all they need to adapt to the market and meet the needs to of MNCs.

1.4．Scope of the Study

This research draws from the theory of supply chain and supply-chain management, and organizational behavior literature to construct a framework and formulate propositions linking important components to supply-chain management implementation of MNCs in China.

The research will limit its focus on existing MNCs' supply chain in China and examine the factors that influence the success of supply chain partnership and the

potential benefits and risks associated with partnerships.

1.5．Methodology

Given the exploratory nature of this study, a qualitative approach was regarded as most appropriate，since the main research problem of this thesis involves lots of data that cannot be quantified. Also, the nature of it, analyzing international logistics activities with regard to strategic performance, has made the use of quantitative investigation not necessary. A qualitative study is exploratory, inductive and emphasizes process rather than goal or result (Holme & Solving 1991). This study will begin with a qualitative investigation to explore and delineate actual supply chain practices.

The primary data of the study is got from interview of the target MNCs' supply chain management officers and observation of their practices.

The secondary data consists of books, journals, research papers, articles, and company reports. They are collected from the library, target companies and through Internet.

The utilized qualitative investigation techniques including literature review, observation of existing practices, focus groups, and in-depth interviews. The qualitative investigation is designed to identify potential variables function the outcomes of successful supply chain management.

Literature Review, Observation, and Interviews will be the main techniques. This study as exploratory in nature will consists of three primary components: (1) study of published research findings and literature on inter- and intra-organizational relationships and supply chain management practices, (2) observation of actual supply chain management practices in business and industry, and (3) interviews with supply chain managers or senior staff.

The archive of materials assembled for the initial qualitative investigation included relevant items will get from principal publications and sources such as:

• International Journal of Physical Distribution and Logistics

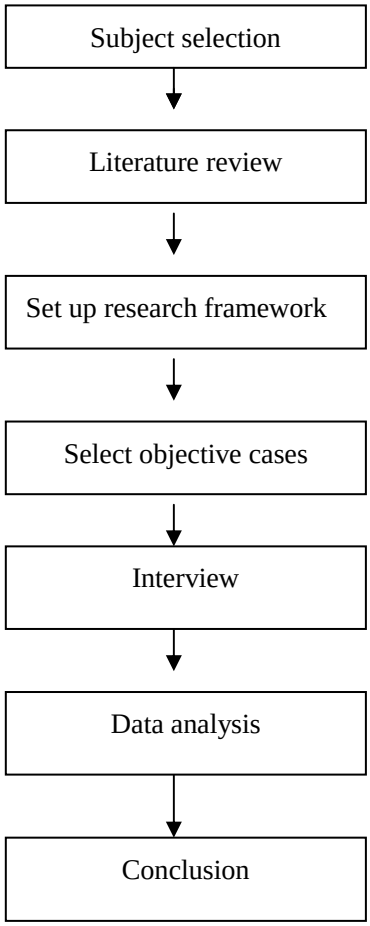
• Journal of Business Logistics

• Supply Chain Management

• Industrial Marketing Management

• Supply Chain Management Review

The procedure of the research can be described as:



1.6．Findings and originality

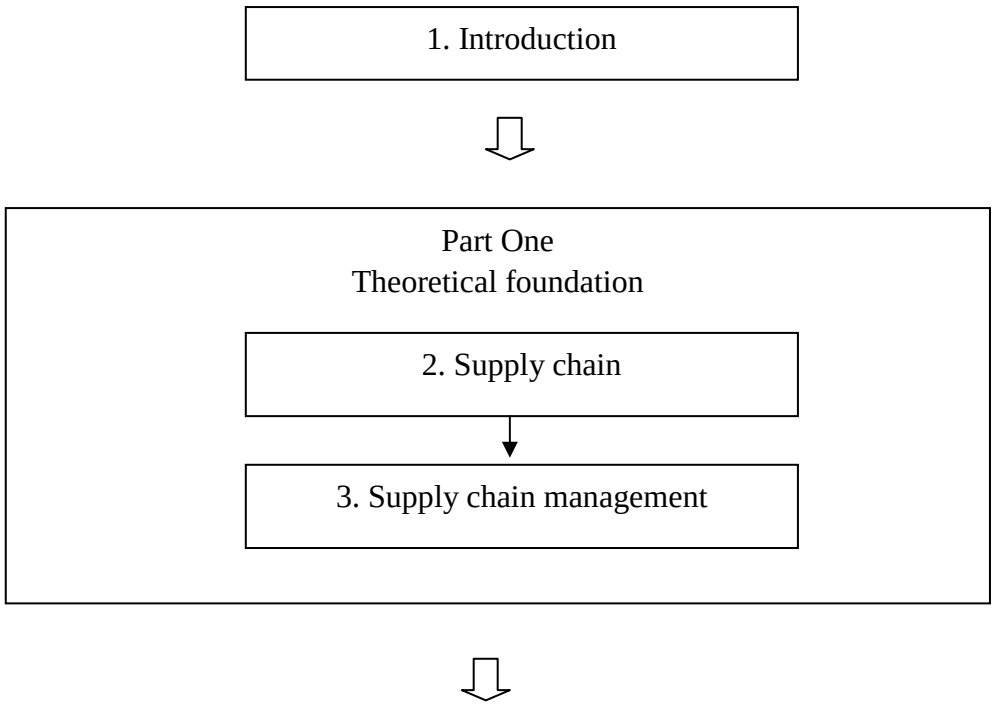
This research tries to set the study that links with MNCs' investment strategy and the reflection of Chinese companies, by looking for the components that influence the MNCs to establish supply chain in China and the useful strategic relationship suitable to both MNCs and Chinese companies.

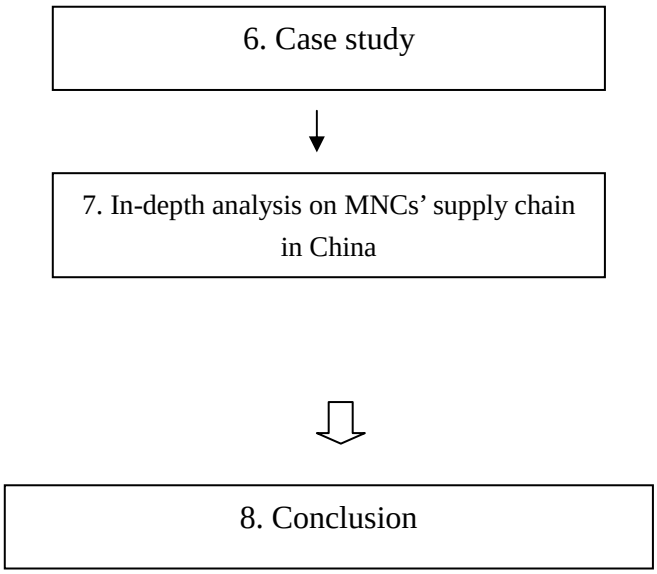
The paper reviews the literatures, develops a useful framework, formulates propositions, and provides important managerial insights for supply-chain management in developing countries.

Currently, the literatures did not provide managers of MNCs and researchers a

framework for investigating and effectively managing key organizational components affecting supply-chain networks in lie of conditions prevalent in China (developing countries). This paper attempts to fill this gap. Propositions developed in this paper can serve as a foundation for future empirical research needed to support the development of theory in this area.

The structure of the dissertation is arranged as:





1.7 Research limitations

Supply-chain management is a broad construct. The method used in this research is qualitative mainly descriptive and exploratory. The data collection and data analysis will appear uneasy, and the result might be some what subjective as seen in other qualitative research. Future research might need to isolate and examine the potential effects of organizational variables on more narrowly supply-chain outcomes.

The modeled framework can help managers of Multinational Corporations (MNCs) better understand and manage important organizational variables in ways that render their supply chains in China (developing countries) more effective.

Part one Theoretical foundation

Introduction

The previous chapter presented an introduction to the research topic. It made the justification for the research and stated the research three questions. The previous chapter also gave the outline of both the methodology and the overall arrangement. This part continues the knowledge building theme by presenting an appraisal of relevant literature concerning supply chain concept, supply chain management concept and related issues.

2.0 Supply chain

The background of the supply chain is the gradually changing environment of manufacturing, such as the rising cost of production, the reduction of resources, shortening of product life cycles and formation of global economic market, shortage of financial resources, the supply chain concept began to receive public attention. The business competition today is competition between supply chains rather than between enterprises as it used to be.

2.1 Supply chain concept

Most of the earlier definitions consider that supply chain is a wider range of enterprise structure model, which includes all the node enterprises, from raw material suppliers to end-users; it is concerned with two distinct flows (material and information) through the organization. Afterwards, the concept of supply chain is connected with relations to other enterprises and the external environment. Supply chain has now been known to many people through various ways and is being understood further day by day.

The concept of supply chain was first raised by Michael Porter in his book "competitive advantage". Started from the manufacturing point of view, Porter originally pointed the supply chain as a series of continuous activities from raw materials into final products to complete a process of value-added（Hou Fang-miao，2004）.

G.C. Stevens(US) took the definition by stating in his 1989 book, 'Integrating the Supply Chain', in that the supply chain was "a connected series of activities concerned with planning, coordinating and controlling materials, parts and finished goods from supplier to customer. Stevens believes: "a supply chain is a flow controlled through the increment process and the distribution channel from suppliers to consumers, which begins at the supplying source, and ends in the consuming end".

In 1992, Martin Christopher, professor of marketing and logistics at Cranfield

University, put forward the concept of supply chain as a whole process from suppliers to final consumers through manufacture procedures and distribution channels.

In 1994 James Womack and Daniel Jones described it in the Harvard Business Review as an extended enterprise consisting of a number of businesses through which orders flow upstream from the marketplace to the raw material supplier.

Beamon, (1998); Tanetal, (1998); Palevieh, (1999) believe that the so-called "supply chain" is basically an integration of production process, changing original materials into final goods, and then sent to the hands of customers. There are a number of different enterprises in supply chain, such as: suppliers, manufacturers, logistics, and retailers, aiming at combing the enterprises in upstream and downstream to form a chain structured supply mode, and to play the effectiveness of integration.
In 1998, Balsmeier and Woisin pointed out that the characteristic of the supply chain is that it includes the positive way of delivering materials from upstream to downstream and the reverse way of transmitting information flow from downstream to upstream transmission.

Sunil Chopra and Peter Meindl (US) (2001) believe that supply chain involves all sections direct and indirect to meet consumers' needs, including not only suppliers and manufacturers but also transporters, warehouse managers, retailers and customers.

Chen Qishen(China,1998) from Machinery Industry Design and Research Institute thinks that the translation of "Supply Chain" is more precise to be "Supply and Demand Chain". He believes that the "supply chain" will only make people think of one-way supply process of logistics, storage, transportation, and other materials, while "Supply and Demand Chain" has meaning of both supply and demand.

Tsinghua University Professor Lan Boxiong(China,2000) believes: the so-called supply chain is a value-added chain composed of raw material suppliers, manufacturers, distributors, transport operators and other enterprises. Through every enterprise in the chain the raw materials and components are gradually turned into products, and delivered to end users. The series of activities constitute all activities of a complete supply chain (from the supplier's supplier to the customer's customer).

Stevens (U.S. 1989) believes: "Supply chain is the flow from supplier's supplier to the user's user through controlling value-added process and distribution channel, which begins at supply and ends at consumption." This concept stressed the external environment of the supply chain.

Injazz J. Chen., Antony Paulraj.(2004)believed that the origin of the supply chain concept has been inspired in many areas (include: (1) the quality revolution, (2) materials management and integrated logistics concept, (3) growing interest in industrial markets and network systems, (4) the growth of central concept, and (5) highly influential study of the specific industry.

With the progress of economic globalization, the supply chain expanded to a network structure around the core businesses, through control of logistics, information flow, capital flow, from the beginning of the procurement of raw materials into intermediate products and final products, and by the sales network to the consumer hands. And so many scholars agree that a typical supply chain is a material, information and services, process and supply, exchange, needs to combine the characteristics of a network.

The network concept of supply chain pay more attention to relationships of enterprises around the core enterprises, such as the relations of core business with suppliers, vendors and even higher levels of supplier's supplier to the relations to the users, and the user's user.

According to this concept the supply chain is an organizational network of connections of upstream and downstream involved in activities providing final consumers products and service. It is of upstream and downstream relationships with suppliers and customers that deliver superior customer value at less cost to the supply chain as a whole. For example, a shirt factory is a part of supply chain, the upstream of the supply chain is weaver of the cotton manufactory and the downstream is distributor and retail merchant facing the final customer.

Ganeshan and Harrison(1998) believe that supply chain is a network structure from purchase raw materials, manufacture materials into intermediate products and final products, and then sell the products to customers.

Shihua Ma (China, 2000) and other scholars also defined the supply chain. They believe that, "the supply chain has a functional network structure which around the core enterprise through controlling of information flow, logistics and financial flow, that delivers products from purchasing raw materials to intermediate products and then final products to consumers by sales network, it combines suppliers, distributors, retailers and final consumers". This definition of supply chain activities is more comprehensive, involving the concepts of supply chain management, emphasizing the network relationships around the core enterprise, and stressing the role of the enterprise. In fact, each of the supply chain has a core enterprise; supply chain is usually led along and established around the core enterprise. Core enterprise is very important according to this definition, which provides the basis for analyzing value chain or distribution of profits of the supply chain, and is more close to reality.

The China national standards (GB/T18354-2001 in logistics term) defined supply chain as: A network structure formed in the production and distribution process, involving upstream and downstream enterprises providing products or services to end users. This concept of supply chain pays more attention to network links around core enterprises that is the forward relationship between core enterprise and suppliers, and supplier's supplier, and the backward relationship between users, and user's user.

The new concept of supply chain emphasis more on strategic partnership between node enterprises of supply chain, through the establishment of strategic partnership, suppliers and customers may work more effectively. And supply chain management refers to planning, coordination, operation and optimization of the various activities and processes throughout the supply chain systems, and its goal is to build the integrated and benefit-sharing of Supply Chain Alliance of core enterprises with suppliers, retailers until end users under the modern network information technology and logistics support system. Through the integrated management model to lead to the purpose of in-time production, shorten the time from product idea concept to the hands of user, reduce logistics costs, to meet the diversify needs of users.

Croom S, Romano P, Giannakis M (2000) summed up a large number of research literature of the general supply chain, and some well-known best practices, found that they are mainly distributed in strategic management, relationship or partnership, marketing, logistics, best practices and organizational behavior, etc.

Table 2-1 Major constitution of supply chain literature

Strategic management	Relationship or partnership	Marketing	Logistics	Best practices	Organizational behavior
-Strategic network	-Relationship development	-Relationship marketing	-Integration of material flow and information flow	-JIT 、 MRP and MRP II	-Communica-tion
-Control in supply chain	-Supplier development	-Internet supply chain		-Continuous improvement	-HRM
-Timing strategic	-Strategic supplier selection	-Customer relation management	-JIT, MRP, waste elimination and VMI	-Supplier partnership	-Employee relationship
-Strategic sourcing	-Vertical split	-Effective customer response	-Physical distribution	-Supplier association (kyoryoku kai)	-Organization structure
-Sourcing or making decision	-Partner obtaining	-Effective replenishment	-Transshipment	-Advantage learning network	-Power in relationship
-Core competitiveness	-Supplier including	-After sell service	-logistics delay	-QR or time compression	-Organization culture
-Supply network design	-Supply or distribution base integration		-Production capability plan	-Process plan and waste elimination	-Organization learning
-Strategic alliance	-Supplier evaluation		-Forecast information management	-Physical efficiency and market facing supply chain	-Technology transfer
-Strategic	-Concept of		-Distribution management		-Knowledge

supplier segmentation -Global strategy -Capacity development	customer projects -Manufacture design -Co-sourcing and investment -Contract verification, trust and commitment -Relationship Marketing		-Plan and control of material flow		migration

（ Source：Croom et al，2000）

It is seen from Table 2.1, scholars have made some summary and reviews concerning the main contents of the production and distribution, supply chain design and analysis, supply chain modeling and optimization, relationship between supply chain members, the bullwhip effect, supply chain performance evaluation and supply chain management.

As can be summed up from the literature: the supply chain is the production and distribution processes network of supply and demand that composed of raw material suppliers, manufacturers, wholesalers, retailers and consumers, that is from materials acquisition, materials processing, and the finished product delivered to the hands of users. In this process, enterprises and their departments compose a network that ensure the process of products from raw materials and parts procurement, transportation, processing, manufacturing, distribution to the final customer in the hands.

2.2 Structure of supply chain

The supply chain structure is the configuration of companies within the supply

chain (Cooper et al., 1997). To achieve effective supply chain management, first thing is to know about supply chain structure. Choi et al（2001），Lamming et al（2000），Stuart et al （1998）also covered supply chain structure and its principle early in their research on the supply network.

The structure of the supply chain is related to the development of the supply chain concept and classified in different ways:

2.2.1 Linear structure of supply chain

A typical supply chain has a linear structure with links connecting one constituent to the next. Raw materials are procured and products are made at one or more plant location. This represents a traditional brick-and-mortar supply chain (R. Meenakshi. Sundaram and Sameer. G Mehta, 2002). Depending on the market demand, the products are shipped either to distributors or retailer directly. Thus a linkage of supplier, manufacturers, distribution centers and retailers was formed to communicate for the manufacture and distribution of products in a supply chain.

Viswanadham and Srinivasa (2000) pointed that the liner is the most simple supply chain structure, a liner supply chain structure can be divided into some main sectors, including: suppliers, manufacturers or plants, and distribution network. The suppliers provide various products, raw materials or services to the manufacturer responsible for producing or assembling. Through specified production procedures, the manufacturer or plant transforms various elements the supplier provided into final products or services. The manufacturer could include Fabrication Plants, Subassembly Plants and Final Assembly Plants, and so on. And the distribution network is to deliver the final products or services to end-customers to meet their needs, it includes Distribution Centers, Retailers and End Customers, and so on.

Therefore, this kind of supply chain can be regarded as a group of enterprises (including raw material suppliers, manufacturers, distributors, retailers and customers), through the process of manufacturing, assembling, distributing of different enterprises in the chain, by organizational planning of different types of members, including the direct link of products flow, services flow, financial flow, information flow, to provide

customers with products and services (Choi 2001, Lamming 2000, Stuart 1998).

The supply chain was then the linkage chain of enterprises from the procurement of raw materials and spare parts, the transportation, processing and manufacturing, until distribution to the hands customers. As a dynamic system supply chain includes continuing flow of information, products and capital among different segments, each segment implements different procedure and influences other segments. They emphasize that customer is an integral part of the supply chain, which is intended to meet customer demand and make profits during the process (Lambert, Cooper, 2000).

Under such circumstances, a supply chain needs an integrator or administrator to exert the overall advantages of the supply chain. Among the chain the enterprise which has independent core competencies or core competitiveness will be the dominant. This dominant should be able to unite all members in the surrounding, and has the ability to maintain long-term and stable dominance. This enterprise may be manufacturer, having core advantage in technology; may be assembly enterprise, having brand or marketing advantages. The mode of supply chain depends on the characteristics of the core enterprises.

The core enterprise of different nature has different position in the supply chain. According to Zhang, et al (2002) the nature of supply chain core enterprises can be manufacture, retailer and logistics, they formed up different mode of supply chain.

（1）Manufacturing enterprise-oriented supply chain

In this model, the strength of manufacturer is relatively strong and its internal resources have relatively small space, and difficult to control the sales channels and products itself. To effectively control and manage variety of cost savings for the product, many manufacturers began to establish their own sales channels or to strictly control the members of the original channels to form a manufacturing-oriented supply chain. This supply chain is appeared under the production-oriented background, which is a more traditional supply chain model.

（2）Retailer-oriented supply chain mode

This mode was appeared in the demand-driven background in the last decade. In this mode, the powerful retailers, through their advantages (such as the brand), set

themselves as the center of a supply chain.

As the market changed from a seller's market into a buyer's market, consumers has increasingly power force. The retailers based on customer relationship management, one-to-one marketing and other advanced information systems and information technology and other advanced methods of technology, keeping a close watch on the explicit needs of consumers and constantly to meet them, while also continue to find the potential demand of consumers or to create new demand, thus to accumulate a certain amount of loyalty from customers, even the customers like to enjoy a strong brand. This raised the status of retailers in the supply chain, the existing power relations changes in the supply chain, the dominance of retailers has been established.

（3）Third-party logistics companies-oriented supply chain

The supply chain management under assets or non-asset-based third-party logistics companies is a significant development of the situation and is the future of new model of supply chain management. In such supply chain, the third-party logistics companies will be fully responsible for the logistics of the whole chain.

The liner supply chain can also be described in other ways, from the relationship between various sectors of supply chain, according to competitive position every enterprise in the supply chain. The supply chain can be as:

-- Centralized Supply Chain

David Aquino and Lucie Draper (2008)'s research shows organizations tending to increase the level of centralization within their respective supply chains.

In this kind of supply chain, one enterprise is powerful enough to control the entire supply chain, and other enterprises only play roles of followers, the relationship between them is relatively simple;

-- Decentralized Supply Chain

Yu, et al, (2001) found in a supply chain, the participants may belong to different organizations, each member has its own decision rights to make control policies at its spot and acts as a single decision maker to optimize its costs or benefits .As most of the raw materials in production environment , Production, assembly, distribution will

be operated by different enterprises in different places, so in fact each member of the supply chain co-exist in a relationship of inter-dependence or complementation, through cooperation or alliance to integrate production planning, including logistics, financial flow, information flow.

Jeff Ashcroft (2007) gave the classification from the relation of the chain member, it can be:

-- Internal Supply Chain

This supply chain is an internal link of the manufacturing enterprise, a process that transmits raw material and spare parts the enterprise purchased, through production transformation and sales activities and so on, to the retailers and users. In the internal supply chain, the customer can be thought of as the department or group receiving something from a supplying department or group. A simple example is when the warehouse receives finished goods from manufacturing. However, this could also be true of the relationship between the shipping department and the billing department: when a shipment is sent to a customer, notification must be given to the accounting department to invoice the customer for the goods that were shipped.

-- External supply chain

The external supply chain is a network of supply and demand composed by raw material suppliers, manufacturers, transporters, retailers and ultimate consumers involved in the course of production and circulation of products outside the enterprise. In the external supply chain, the customer is the company who purchases, and the supplier is the company who sells to the customer. A company purchasing raw materials takes these goods from a supplier in exchange for (a typically monetary) payment.

The internal and external supply chain together formed a supply chain of enterprise delivering products from raw materials to final products then to consumers. And so we can say that the internal supply chain is the miniature of the external supply chain. The only difference between them is that the external supply chain covers more broad scope, and involves many enterprises, and thus coordination is more difficult.

2.2.2 Network structure of supply chain

The term "network" came into use – predominantly because firms were generally part of a number of supply chains – they had several customers and alternative suppliers. The relatively recent incorporation of the term ``network" into supply chain management research represents an attempt to make the concept wider and more strategic by harnessing the resource potential of the network in a more effective manner. Harland (1996) defined supply networks as sets of supply chains, describing the flow of goods and services from original sources to end customers. The proposition is that networks compete with networks, rather than simply firms with firms (Cunningham, 1990). It followed by the thought that supply networks encompass not only the ``upstream" network of suppliers but also the ``downstream" network of distributors and customers. A supply chain network consists of a series of activities that an organization uses to deliver value, either in the form of a product, service, or a combination of both, to its customers (Lin and Shaw, 1998). They further considered that supply chain structure is not only the type of decision on the level of the supply chain, the number of nodes, and members of the geographical distribution, but also the consideration of the operation mode, the difference between property and business objectives, the main manufacturing process, the main business objectives, product differentiation, the number of product modules, the assembly process, the product life cycle and the main types of inventory.

From 1998 to 2000, Lambert, Cooper, and Pagh proposed the model of the supply chain network structure, which set the foundation for the study of Supply chain structure theory. Bantham et al. (2003) defined a supply chain network as an interdependent system of firms and suggest that this interdependency influences the way relationships are managed within the network. There are autonomous or semiautonomous business entities involved, through upstream and downstream links, in different business processes and activities that produce physical goods or services to customers.

Many efforts from the academic as well as from the commercial side have been

directed towards seeking ways to increase the competitiveness of the supply chain network as a whole, rather than simply reducing the costs or increasing the profits of the network (Romano and Vinelli, 2001). Thus supply chain collaborative networks refers to an integrated network of entities that associate with each other in a business environment, where the entities can be suppliers, manufacturers, distributors, retailers, and customers. A supply chain network incorporates all of the value-adding stakeholders involved in activities such as the development, production and commercialization of a product or service (Hakansson and Snehota, 1989; Nagurney et al., 2005).

Wang shengguang, Ma shihua (1999) put forwarded the topology supply chain model, the mesh model and the graphite model from the perspective of enterprise relationship. The mesh model developed the Cooper model from the multi-manufacturer perspective.

Wang feng, Li jianhua, and Huang peiqing (2001) believed that the framework of supply chain systems of different type enterprises is different. They analyzed different supply chain network systems, and summed up three kinds of supply chain network structure named: V- structure (divergent network structure), A - structure (converged network structure), T - structure, and the shape of three different networks of enterprises and control of supply chain management were discussed. Archie Lockamy III (2008) further cleared that:

V-networks contain a limited number of suppliers and manufacturers that support multiple distributors and retailers.

A-networks contain multiple suppliers and manufacturers that support a few retailers and distributors.

T-networks exhibit a linear flow among suppliers, manufacturers, and distributors that support multiple retailers.

Hagelaar and vander Vorst (2002) divided supply chain network structure into four types based on the complexity of supply chain members and supply chain connections between members of different structures:

(1) Ring structure, ring structure is the simplest structure. There are reference

structures between members of the supply chain, the members have a decisive influence on the decision-making process of the focused single business functions (such as transport), and all other business functions and management functions of their own has nothing to do with the other members;

(2) Multi-focus simple structure, multi-focus structure is very close to the level of simple structure, each of these departments have a smaller scope of the decision-making, some members participate together in several functions of the decision-making process, the inside decision-making of each entity adjustments as the joint decision-making;

(3) Decentralized structure

Decentralized structure has the limited number of functions included in the members, however, the nature of these functions requires a high degree of difference between the reference structure, and can be cooperated and adjusted between members horizontally and vertically;

(4) Multi- focus network structure

The multi-focus network structure is used in highly differentiated horizontal and vertical situation, when the chain functions as well as a number of members have been involved in the adoption of the decision-making process. This structure established the mechanism including single function joint team, shared facilities, cross-functional interface, whole supply chain management control mechanisms, as well as the centralized and decentralized decision-making based on problem decomposition.

Some supply chains may not necessarily includes all the above sections, such as Dell adopting direct sales approach, whose supply chain is lack of retailers, wholesalers and distributors.

No matter what kind of supply chain it is, its ultimate goal is to meet the needs of customers or consumers, to sell products and make profits for enterprises, and win in the fierce competition. Based on analysis of the above concept comprehensively, the Supply Chain Council of America gave the following definition of supply chain in 1998, "supply chain is an activity procedure related to production and distribution of products from suppliers to customers". All the related activity procedure can be

divided to four basic functional modules: Plan, Source, Make, Deliver. The basic procedure of it contained management of basic supply and demand, purchase of raw materials, manufacture and assembling, storage and inventory tracking, order entry and order management and overall distribution of the supply chain, and other related activities.

2.3. Supply Chain Strategy

Supply chain strategy contains the plan in the large of the supply chain of an enterprise from its corporate strategy and the ways and characteristics of its raw materials acquisition and transportation; its product process and service provide; its product and after sell service delivery. It pays attention to the competitive advantages created for the enterprises from the market value brought by the movement of products and services in the enterprise and the whole supply chain rather than the competitive advantages got from the products and services themselves give to the customers.

Although a number of classification schemes have been proposed in the literature to guide the choice of supply chain strategy (Fisher, 1997; Childerhouse, 2002), there are no SC strategies that are applicable to all types of products and markets and needs to be tailored to match the specific demand characteristics of a product, product family or market (Christopher et al., 2006). Consequently, it is not enough to employ a traditional "one-size-fits-all" SC strategy, that is, to use either a lean, agile or hybrid SC strategy when offering a wide range of products in various types of markets (Hilletofth, 2008).

With the temptation to create more "efficiency" supply chains than "effectiveness" supply chains, the typical supply chain strategy is likely to be aimed at achieving a smooth flow at minimum cost (Harrington, 1991; Scott and Westbrook, 1991). However, SCs emphasizing efficiency creates a risk that production does not meet customer demand, while SCs emphasizing effectiveness creates risk of low-production efficiency.

Fisher (1997) divided the product into two kinds according to the demand mode,

they are: functional products and innovative products. Functional products includes main commodities buy from retail shops, these products meet the primary demand with stable and predictable demand, and have long life cycles. But the stability means higher competition and lower profit; Innovative products are products made for the special demand, the enterprise made creation for the special demand in the product style or technology. Then he divided the supply chain strategy into two kinds according to the products: The Efficient Supply Chain Strategy and The Responsive Supply Chain Strategy.

-- Efficient Supply Chain is used for functional products with a stable supply process.

The characteristic of this kind of supply chain is to follow the principle of fine profit, pursuit for economic of scale, make full use of production and distribution capacity by applying the best technology, attach importance to effective and accurate information communication with other parties of the supply chain. The typical example is Toyota Motor.

-- The Responding Supply Chain is used for innovative products with a stable supply process.

Innovative products have higher profits but unpredictable demand because of the novelty and the short life cycle. This type of supply chain has to meet the diverse and changing customer needs quickly and flexibly. Enterprises achieve rapid response by producing according to orders or mass customization. The concept of delay, coupled with modular design is commonly used methods.

This type of supply chain responds quickly and flexibly to customer demand, and avoids risks by sharing inventory or other resources of ability. Indeed, the origins of agility as a business concept lie in flexible manufacturing systems. Later this idea of manufacturing flexibility was extended into the wider business context (Nagel and Dove, 1991) and the concept of agility as a supply chain philosophy was born.

Agility is concerned primarily with responsiveness. It is about the ability to match supply and demand in turbulent and unpredictable markets. In essence, it is about being demand-driven rather than forecast-driven.

More recently, Christopher et al. (2006) developed a classification model for the

choice of SC consisting of the following three parameters:

(1) Type of products (standard or special);

(2) Type of demand (stable or volatile); and

(3) Replenishment lead-times (short or long).

The matrix (figure 2-1) suggests that there are four possible generic SC strategies. Firstly, when demand is predictable and replenishment lead-times are short, a lean continuous replenishment strategy is appropriate. In contrast, when demand is unpredictable and replenishment lead-times are long, a leagile SC strategy is appropriate. Postponement is one way to realize leagile SC strategies and this topic is further elaborated below. Moreover, when lead-times are long and demand is predictable, a lean SC strategy is appropriate, for example, make and source ahead of demand in the most efficient way. Finally, when demand is unpredictable and lead-times are short, an agile SC strategy, based on rapid response, is required.

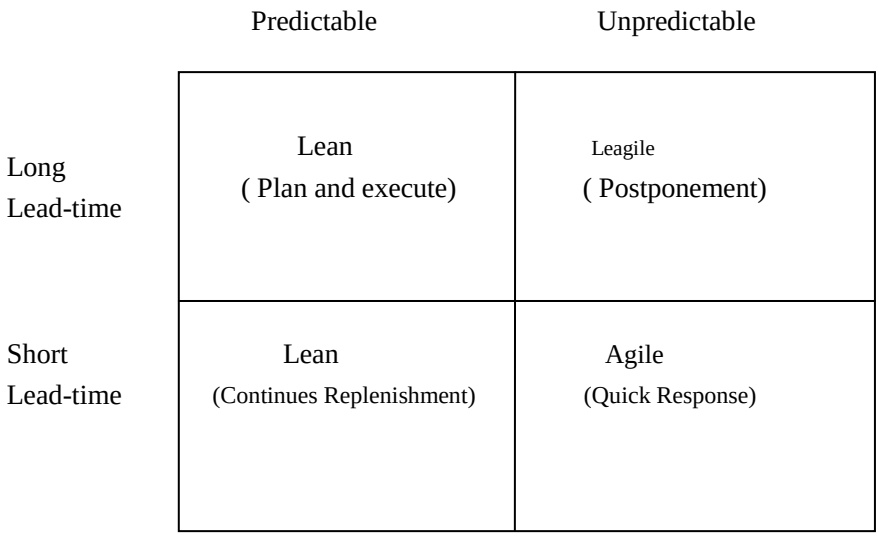


Figure 2-1 General supply chain strategy matrix
Source: Christopher *et al.* (2006)

The three SC paradigms of interest: lean, agile, and leagile are described in more detail below.

-- Lean supply chains

Lean thinking, or leanness, from a SC perspective means "developing a value stream to eliminate all waste, including time, and to enable a level schedule" (Naylor et al., 1999). It has been suggested that lean principles are applicable in markets where demand is relatively stable and therefore predictable and where variety is low (Christopher, 2000).

-- Agile supply chains

Agility is primarily concerned with responsiveness, and the ability to match supply and demand in volatile and unpredictable markets (Agarwal et al., 2007). Essentially, it is about being demand-driven rather than forecast-driven.

-- Leagile supply chains

Numerous researchers have suggested that the lean and agile approach can be integrated in a variety of ways to create so-called "leagile" strategies (e.g. Childerhouse and Towill, 2000; Christopher and Towill, 2001; Stratton and Warburton, 2003; Mistry, 2005).

There is an essential difference between lean SCs that focus primarily on efficiency (i.e. costs and productivity) and agile SCs that focus primarily on responsiveness (Fearne and Fowler, 2006). And the two approaches are often discussed as opposing paradigms, but they share a common objective: meeting customer demands at the least total cost (Goldsby et al., 2006). In reality the two approaches can complement each other, and in many cases there is a requirement for a "hybrid" lean/agile strategy to be adopted (Christopher and Towill, 2000). In some cases, the two ideas of lean and agile can be brought together as a hybrid "leagile" solution (Naylor et al., 1999). Leagile SC systems have several advantages. Numerous European industrial companies are currently implementing leagile SC systems (van Hoek, 2001).

3.0 Supply chain management

3.1 The SCM-Concept

The notion of supply chain management has been defined and developed by several major writers in logistics and purchasing. The concept of supply chain management became popular in the 1980s; the phrase "Supply chain management" first appeared in Oliver and Webber's (1982) study discussing potential interests of integrating procurement, manufacturing, sales, distribution, and other enterprises internal dynamic capacity.

According to the definition in the dictionary compiled by American Production and Inventory Control Society (APICS) of the ninth edition: "Supply chain management is the entire business process including planning, organization and control from the initial raw materials to final products and their consumption, these processes link all enterprises from suppliers to customers. Supply chain includes value chain formed by internal and external functional departments of enterprises manufacturing products and providing services for consumers."

Stevens (1989) put forward the concept of supply chain management, which is an integrated thinking, including the enterprise internal integration and external integration. During this period, the corporation between relevant enterprises (departments) in the supply chain is very important.

Supply chain management is an important inter-enterprise process integration and management, including management of raw materials, services, and information from upstream suppliers to downstream customers, mainly used to increase the value of customers, the whole package of programs contains: obtain of raw materials and procurement, production scheduling, order processing, inventory management, distribution, warehousing, and customer service, etc. (Thomas & Griffin, 1996: Palevieh, 1999; Lambert & Cooper 2000).

Lambert , Cooper and Pagh (1998) put forward the viewpoint that the supply chain management system is of three major elements: (1) "network structure":

understanding important members of the supply chain connected with; (2) " Business Process ": all activities from production completed to delivery of products to customers, including customer relationship management, customer service management process, demand management process, order achievement management process, production process management, raw material procurement process, product development and customization process, recovery process management; (3)"management component": it refers to technology and management of entities in business process, including planning and control, work structure, organization structure, structure of product production process, structure of information process, management methods, rights and leadership structure, risk and profit structure, culture and attitude, and so on.

Gattorna and Walters (1996) thought that as a concept, 'supply chain management' suggests that the firm would extend its emphasis beyond its own performance to a more holistic inter-organizational focus, i.e., the supply chain is defined in terms of the organization strategic intent.

Handfields and Nichols (1999) define Supply chain management as the integration of these activities through improved supply chain relationships, to achieve

a sustainable competitive advantage.

Lambert et al (1998), define supply chain management more broadly, embracing not only the logistics processes but also other key business processes and the interaction between the participants involved in these processes. They suggest that supply chain management is the integration of key business processes from end user to original suppliers that provide products & services and information that add value to customers and other stakeholders.

Supply chain management has been characterized as a strategic management concept, which can contribute to the competitiveness and profitability of the individual firm as well as the entire supply chain (Boon Khiang Bay, et al, 2004 . The nature of a supply chain is comprehensive so that membership is not limited to a supplier, a manufacturer, and a distributor, but opened to any firm that performs various flow-related services (Mentzer et al. 2001). It is argued to be a holistic concept in the sense that it focuses on the end customer and considers the entire supply chain. By building up close and long term relationships between the actors involved in the supply chain, an open and mutual information exchange can be created, and thereby make it possible to ensure the necessary coordination of the activities among the participants.

Bechtel and Jayaram (1997) concluded all the views of scholars, and divide the definition of supply chain management into five schools, which are as follows:

1) The Functional Chain Awareness School: mainly believe that the supply chain is the material flow between final customers and suppliers, with special emphasis on efficiency of functional operation on material flow.

2) The Linkage / Logistics School: focus on linkage of functional operations such as supply, production, distribution, particularly the logistics and transportation function, stressing eliminating inventory pressure on material flow by linkage of functional operations.

3) The Information School: focus on the control of information among members in supply chain, stressing the importance of information in supply chain, paying particular attention to haul around transmission of information.

4) The Integration / Process School: focus on integration of various functions of supply chain, stressing integrating functional departments of supply chain into a system, to become a comprehensive program of systematic operations to enhance customer satisfaction.

5) The Future School: point out that the future development of supply chain is mainly towards the establishment of "effective cooperation relations" and the development of "Seamless Demand Pipeline ". Emphasize that the function of pathway will depend on customer's needs, and have to be operated in a highly cooperative relationship. So the future development of supply chain management mainly lies on development of partnership among members, strategic alliance and cooperation relationship and so on, stressing on the relations among members rather than transaction factors, creating more value added by active management.

Balsmeier and Voisin (1996) pointed out that supply chain management is not the old wine of "supplier management" poured into a colorful bottle. Instead, supply chain management is a fresh, potent approach that integrates a network of operating entities into a delivery system that enhances customer value and satisfaction and that protects the competitiveness of the entire supply chain (Lummus and Vokurka, 1999).

3.2 Essentials in the supply chain management

Supply chain management manages the movement from raw materials to the movement of finished goods out of the organization toward the end-consumer of an organization; it is a cross-function approach. It might be seen as a business philosophy that strives to integrate the dependent activities, actors, and resources between the different levels of the points of origin and consumption in channels (Svensson et al, 2007). This means that SCM comprises different kinds of dependencies in, between and across companies in channels from manufacturers/suppliers to customers/consumers.

3.2.1 Supplier management

Over last two decades, the evolution of the competitive environment has made company competitiveness and survival depend more and more on their suppliers (De Boer et al., 2001). And so supplier management has attracted the interest of researchers, also practitioners have recognized that suppliers play a vital role in improving manufacturing performance (Monczka et al., 1998) and leads to higher quality (Burt, 1989; Larson, 1994) of products, which lead to competitive advantage (Monczka et al., 1993) to the supply chain. Effective supplier management reduces costs (Asmus and Griffin, 1993; Christopher, 1997; Davies, 1993). Other benefits include better delivery performance (Christopher, 1998) and support for new product development (Ragatz et al., 1997).

From a review of the literature, supplier management has been defined 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). Some areas were identified as essential in supplier management like:

(1) supplier selection and;

(2) supplier evaluation;

(3) relationships with suppliers;

In supplier managing, the early work focused on assisting firms with supplier rating, evaluation, and selection (Muralidharan et al., 2002).

1) Supplier selection

Supplier selection is very important in the SCM, supplier selection is an issue that is relevant to both practitioners and researchers (Pearson and Ellram, 1995). Gadde and Snehota (2000) pointed out that suppliers can do much more than deliver reasonable priced items on request, since suppliers have a large and direct impact on the cost, quality, technology, and time-to-market of new products (Handfield et al., 1999).

The selection of suppliers is critical for several reasons: the "just-in-time" manufacturing practices; the need for greater interaction between the buyer and the

supplier; the involvement of suppliers in the early planning process (Pearson and Ellram, 1995, Trent and Monczka, 1998).

-- Criteria for supplier

The criteria used to choose suppliers are a fundamental part of supplier selection. Traditional approaches have prioritized at price, quality and delivery (Smith et al., 1963), Dickson (1966) also identified quality, cost and delivery performance history as the three most important criteria in supplier selection. According to a review of 74 articles discussing supplier selection criteria, quality was perceived to be the most important, followed by delivery performance and cost (Weber, et al, 1991).

The current thinking proposes a wider set of criteria (Lamming, 1993). Vokurka et al. (1996) stated that the selection process "requires substantial judgement to assess the wide range of present, to recognize all the alternatives available and to make a decision which balances both the short-term and long-term needs of an organization". Some other researchers have identified various new criteria, including the design capabilities of suppliers (Pearson and Ellram, 1995).

It is indicated that the supplier selection criteria is changing with the new challenge to select suppliers who can add long-term value to the manufacturer (Lemke et al., 2000). The shift in emphasis is from quantitative criteria (e.g. price) to include qualitative criteria that the buyer's judgement becomes of paramount importance and that any decision is likely to be based upon criteria compromises (Min, 1994). Manufacturers are using "soft" criteria such as the perceived quality of relationships and not just "hard" criteria such as delivery performance (Choi and Hartley, 1996). Carter et al. (2000) forecasted that supplier selection will increasingly be based on strategic contribution to the supply chain and will extend beyond first-tier suppliers. Bhutta and Huq (2002) stated that in the past, price, quality and capacity may have formed key selection criteria, flexibility and service become fundamental in the new market context. Gunasekaran et al. (2004) also concluded that high performing organizations tend to place less importance on unit price as a selection and evaluation criterion; they select and evaluate suppliers on the basis of good quality, delivery reliability and product performance.

-- Approaches of supplier selection

Dickson (1966) presented 23 supplier selection criteria in his earlier study on the decision making process. Later, Wind and Robinson (1968) reported a multiple criteria in vendor selection decisions. Since then, several articles have been published for supplier selection. Verma and Pullman (1998) stated that supplier selection literature is rich in terms of conceptual and empirical works and decision support methods for purchasing managers as well. Akbari Jokar et al. (2001) presented a multiple criteria approach for strategic supplier selection and proposed a mathematical model maximizing the total utility of the supplier with respect to supplier and buyer constraints (Ferhan et,al, 2003).

Many researchers have contributed supplier selection approaches with the aim of properly assessing the potential suppliers. The multi-objective programming, artificial intelligence models, total cost of ownership (TCO) were used for supplier selection and data envelopment analysis (Guido J.L Micheli, (2008); Ghodsypour and O'Brien (2001) proposed a mixed integer non-linear programming model to solve the multiple sourcing problem with multiple criteria and suppliers capacity. Chen (2001) presented a multiple-criteria decision-making model based on fuzzy-set theory for supplier selection.

These approaches mainly used descriptive criteria for assessing suppliers (e.g. delivery time or price variations) and focused on supplier ability to deliver. During supplier selection, trade-off decisions are necessary as some suppliers will have high performance on certain criteria but lower performance on others. Studies in this area have largely been conceptual. For example, Min (1994) and Barbarosoblu and Yazgac (1997) developed models for making trade-off decisions. However, Katsikeas and Leonidou (1996) think that empirical supported models are still lacking in general.

2) Supplier performance evaluation

In general, SCM seeks to improve the performance through elimination of waste and better leveraging of internal and external supplier capabilities and technologies (Morgan and Monczka, 1996). And so the performance of chosen suppliers must be regularly evaluated. When evaluating suppliers it is important to identify parameters

and metrics that are objective and relevant to the organization at all levels. For these metrics to be truly effective they must be separate from personalities and aligned to core processes (Cormican, et,al, 2007). Normally the criteria used for monitoring supplier performance are related to the selection criteria (Pearson and Ellram, 1995; Weber et al., 1998).

Supplier performance measurement tools can be developed to measure and manage potential preferred suppliers against a set of defined performance criteria such as on time delivery (OTD), quality and the cost of doing business(Cormican, et,al, 2007).

3) Supplier relationships

Each supplier adds value for a customer—the more value-adding suppliers you have, the more satisfied customers you are likely to have. The added value comes from innovative and efficient suppliers. Many firms have realized that treating all suppliers according to the antagonism model in purchasing predominantly leads to short-term savings (Matthyssens and Van de Bulte 1994). Existing research often emphasizes that both partners tend to have an increasing long-term perspective, that firms cooperate more intensively and that cooperation gets less antagonistic (Biemans and Brand 1995). Many benefits are lauded to accrue to organizations that develop close relationships with a small number of critical suppliers aim to develop and maintain long-term strategic alliances with those suppliers (Anderson and Lee, 1999; Talluri and Narasimhan, 2003). . They select preferred suppliers in an attempt to meet system wide goals as opposed to minimizing piece price (Degrave and Roodhoft, 1999).

To build more effective relationship with suppliers, organizations are using supplier selection criteria to strengthen the selection process (Vonderembse, et al., 1999). Managing supplier relationship is the process of engaging in activities of setting up, developing, stabilizing and dissolving relationships with in-suppliers as well as the observation of out-suppliers to create and enhance value within relationships. (Moeller, Fassnacht, and Klose, 2006).

Supplier management strategy is the strategy used by manufacturers to improve

their supplier's performance and capabilities to meet the manufacturers' short-term and/or long-term supply needs. This strategy allows the manufacturer to bridge the gaps, after the supplier selection process, between its suppliers' capabilities and its own expectation. keeping effective communication channels with suppliers (Ellram, 1990), providing assistance to suppliers (Flynn et al., 1995; Forker and Stannack, 2000; Gonza´lez-Benito and Dale, 2001), involving suppliers in product and process developments (Caddick and Dale, 1998; Flynn et al., 1994; Monczka et al., 1998; Shin et al., 2000), and establishing long-term corporative relationships (Flynn et al., 1994; Monczka et al., 1998) are the main contents of such strategy.

Researchers gave positive statements on supplier involvements. Some of them belived well managed supplier involvement can lead to better supplier performance, increased inventory turns, improved manufacturing, and product and process advancements that in turn enhance customer satisfaction and organizational performance (Shin et al., 2000). Make efforts to involve suppliers in product development activities, so that suppliers will learn about customer requirements, culture, and decision-making patterns and the manufacturer's expectation (Cocks, 1996; Epatko, 1994; Leenders, 1994; Minahan, 1996; Morgan and Monczka, 1996; Towler, 1996, Ronan McIvor, 2006, van Echtelt, et al, 2007,).

Early involvement of suppliers in product design, allows manufacturers to develop alternative solutions; to select the best and most affordable components, materials, and technologies; and to receive help in design assessment (Nelson, et al, 2005). These strategies help organizations enhance communication, share knowledge, improve decision-making, and upgrade supplier and manufacturer's performance. Vonderembse and Tracey (1999) found that although both the supplier selection criteria and the supplier involvement are positively correlated with manufacturing performance, the supplier involvement in product design activities and continuous improvement efforts is much lower than the use of supplier selection criteria.

Supplier involvement has an even greater benefit, a shortening of design cycle time, which means faster launch flexibility. Supplier involvement in product and process design and continuous improvement activities has been shown to have a

positive impact on competitive advantage and performance (Vonderembse and Tracey, 1999). So they involve their key suppliers in the decision-making process and supplier performance evaluation successfully and involve them in continuous improvement programmes (Tracey and Tan, 2001).

3.2.2 Purchasing and logistics management

Purchasing or acquisition of materials has a rich historical background as a business support function in industry (Fearon, 1989). Purchasing management is concerned with the acquisition of suppliers' goods and resources, in order to contribute to the administrative and strategic objectives of the organization. Early definitions of purchasing emphasized the tactical and clerical decisions involved in the purchasing of products and supplies. Baily (1987) defined purchasing in terms of the process: from origination to the fulfilment of needs.

The traditional view is that purchasing is primarily a cost reduction function, affecting directly a firm's profit and return-on-asset and hence its competitive position in industry（Patrick Fung, 1999）. During the 1990s, purchasing was viewed as part of procurement. Burt and Pinkerton (2003) defined it "the systematic process of deciding what, when, and how much to purchase; and the process of ensuring that the required is received on time in the quantity and quality specified". Literatures show that almost all contributions dealing with supply chain issues were made after 1994, emphasizing the broadening and integration of purchasing into supply management and supply chain management from "managing the supply" of materials, services, and information focus on internal efficiency to other long-term outcomes such as collaborative learning, reductions in cycle time, and new product development cycle (Gregory, 2006).

Researchers began to realize the importance of coordinating the supply of products, services, and information rather than merely focus on buying the least expensive materials with the beginning of the 2000s (Gregory, 2006). Carter and Ellram (2003) reported several changes that reflect the evolution from purchasing to supply management. This emphasis extended into the use of the internet and

technology developments and examining team driven decision-making, which fostered collaborative activities with suppliers aimed at meeting the goals of the firm (Giunipero and Handfield, 2004).

The purchasing function is a vital component of a firm's supply chain management. It involves the satisfaction of individual firms' requirements. The operating objectives of purchasing are to buy materials of the right quality, at competitive prices, in economic quantities, at the required time, and from reliable sources (Fung, 1999). This also mirrors the general recognition of the supply chain concept by purchasing professionals and scholars (Carter and Ellram, 2003). They explore the most efficient approaches to performing purchasing responsibilities in relation to: direct or strategic materials needed to produce the company's products, and indirect or MRO (maintenance, repair, and operations) products consumed by the company as part of its daily operations (Poirier, 1999).

The term logistics have evolved from military's need of separate supply, but is now widely accepted to include activities like purchasing, transport, warehousing, organizing and planning of these activities.

Prior to the 1980s, logistics in supply chain was primarily concerned with the outbound flow of finished goods and services, with an emphasis on physical distribution and warehouse management. During the 1980s, industry globalization and transportation deregulation led to the expansion of logistics include recognition of materials management and physical distribution as important elements (Gregory, 2006).

In 1986, the CLM (Council of Logistics Management) defined logistics as: "the process of planning, implementing, and controlling the efficient, cost-effective flow and storage of raw materials, in-process inventory, finished goods, and related information flow from point of origin to point of consumption for the purpose of conforming to customer requirements"(Salvendy G，2001).

During the 1990s, market changes due to shrinking product lifecycles, demand for customization, responsiveness to demand, and increased reliance on information technology led to the change of logistics definition (Gregory, 2006). Christopher

(1998) defined the logistic as "the process of strategically managing the procurement, movement and storage of materials, parts and finished inventory and related information flow through the organization and its marketing channels".

The most recent definition of logistics from CLM (now the Council of Supply Chain Management Professionals –CSCMP), in 2003 is: "that part of supply chain management plans, implements and controls the efficient, effective forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers' requirements". Many academic books and articles in the logistics discipline typically adopt this definition of logistics and logistics management. Some more recent examples provide an alternative, albeit related definition – for example that "logistics refers to the responsibility to design and administer systems to control movement and geographical positioning of raw materials, work-in process, and finished inventories at the lowest total cost" (Bowersox et al., 2006).

3.2.3 Demand management

Management of demand is increasingly recognized as a key issue in the improving the efficiency of supply chain operations (Croxton et al., 2001). Because the implementation of the supply chain need to accurately grasp the needs of customers, or there would be a lot of inventory, or short supply. However, to reasonably implement Supply Chain Management, calls for demand uncertainty identification, accurately grasp customer demand features, use of a variety of forecast technology to respond positively to market change, to achieve balance between supply chain ability and supply chain total cost reasonably.

The importance of demand management is being increasingly recognized in the wider operations management and supply chain management literature. A number of authors treat demand management as an activity essentially carried out by individual firms. Enterprises rely on demand management to match capacity to the demand as the goal, through improved production planning, demand reduction and postpone delivery, increase productive capacity to manage demand. Christopher(1998)

increased a market-driven dimension to the supply chain, he noted: supply chain management should be referred to as demand chain management, because the whole chain should be market driven, not supplier-driven.

Smaros et al. (2000) also think the demand-supply chain is a representation scheme originally developed to support economic organizing in the consumer goods supply chain.

Langabeer and Rose (2001) gave demand chain a separate concept, they distinguished the supply chain, demand chain; demand management and demand chain management. They defined demand chain as: to help companies understand, manage and ultimately create consumer demand for complex business processes and activities network. They pointed out that demand chain management is to analyze and understand the market demand within current and potential products in the enterprise, while supply chain management is to emphasize the effectiveness of the operation.

Croxton et al. (2002) discussed how a good demand management process can enable a company to be more proactive in anticipating demand, and more reactive to unanticipated demand. They emphasize that an important component of demand management is finding ways to reduce demand variability and improve operational flexibility, in order to facilitate consistent planning and cost reduction. Heikkila¨ (2001) also shows how reliable demand information flows contribute to higher operational efficiency. Vollman et al. (2004) identify demand management as key interface between a company's manufacturing, planning and control systems and the market place.

Some researchers define the scope of demand management as including activities range from forecasting, through converting customer orders to promised delivery dates and as the mechanism for balancing supply and demand. It has been used to support economic organizing in project delivery (Collin, 2003) and to identify missing supplier capabilities in spare parts delivery (Auramo et al., 2004).

Mentzer (2006) argued the role of demand management across the supply chain and thought that marketing should create demand opportunities for various products.

Mentzer also suggested the role of demand management in the relationship management aspects of supply chain management. He suggested that demand management is well suited to working with both downstream partners to agree performance measures (and rewards) also to coordinate a matching process in which inter-organizational capabilities and capacities are coordinated in an attempt at achieving optimal market and financial performance.

Zhang wen-zhi and Chen gui-sheng (China，2007）considered that demand management is the active collaborative management to maintain the supply and demand match for the entire supply chain process. In short, it is to coordinate a demand stream throughout the supply chain. It contains rich management content and is the breakthrough management thinking to the limit of the management optimization of existing enterprises.

David Walters（2008）believed that demand defines the supply chain target, while supply-side capabilities support, shape and sustain demand. Demand chain management changes the emphasis towards "customization", responding to product and service opportunities offered by specific customers or customer groups sharing particular characteristics.

It is becoming increasingly apparent that supply chain coordination is not efficient without an adequate understanding of demand, because the demand chain analysis and management helps to improve an organization's processes by aligning the organization around a common plan, improves coordination within the supply chain by using forecasts and plans, and exploits the commercial processes by understanding consumer demand and by selecting those markets that best meet organizations' skills and resources (David Walters，2008).

3.2.4 Supply chain integration and collaboration

Christopher (1998) and Olavarrieta and Ellinger (1997) pointed out that commercial competition is gradually shifted to competition among supply chains from confrontation among enterprises. In a customer-demand-oriented age, how to produce in a more flexible way to satisfy customers has become the main factor to decide the

survival of enterprises. It also makes enterprises to realize that competition of the future will no longer be competition among enterprises. Therefore, the key to success for current enterprises lies on how to integrate the relevant technology and resources to reduce uncertainty of the external environment and provide customers with products and services of suitable quality and quantity to suitable places in suitable time (Maloni and Benton, 1997).

As supply chain research progressed from an intra-firm to an inter-firm orientation (Ballou et al. 2000), the supply chain management rested on "integration" and "coordination" (Cooper et al. 1997, It is how to manage supply chain effectively to absorb each other's advantages and respond to customer demand as soon as possible, solve the problem with an overall approach, to achieve maximum efficiency.

Simchi-levi D et al (2000) defined SCM as ''a set of approaches utilized to efficiently integrate suppliers, manufacturers, warehouses, and stores, so that merchandise is produced and distributed in the right quantities, to the right locations, and at the right time, in order to minimize system-wide costs while satisfying service level requirements''.

The integration of the flow of materials, information and money should enable the delivery of the right product to the customer on right time, in right place, for the right price and with the lowest cost possible for the entire supply chain. The flow is completed by integrating all components of the process from obtaining raw materials to delivery of the product to the end user.

According to Morash and Clinton (1997), there are three forms of integration in a supply chain: inter-functional or intra-organizational process integration, inter-organizational collaborative integration, and inter-organizational operational integration. The ideal supply chain model is to highly integrate the product flow and information flow, let them flow in the supply chain timely. Therefore, the basic supply chain management should include integration of the procedures: production planning and inventory control, distribution and logistics programs, which means enterprises using supply chain management, can respond to rapid change of demand with no surplus of inventory.

Simch-Levi et al (2000) also pointed out that the emphasis of supply chain management is the effective integration with the external partners, however, the external supply chain integration includes a wide range of facilities and conflicting business goals, such integration is rather difficult. Despite the difficulties, the external supply chain integration will provide unique competitive advantages for enterprise.

Hutt, Stafford, Walker & Reingen (2000) believed that cooperation between the manufacturers can help get the new competitive capabilities, save resources and spread risks, access to markets faster, create an attractive option for future investment.

Shin, Collier and Wilson (2000) also pointed out that through the supply chain integration, enterprise can provide products and service with better quality, and receive efficient access performance.

Seuring (2004); Krajewski ve Ritzman, (2005) thought Supply Chain Management can be described as integration of all components of production and supply processes in the process from obtaining raw materials to delivery of the product to the end user.

So, supply chain integration, including integration of internal corporate functions and the external integration of upstream and downstream suppliers, customers and other relevant organizations of the supply chain. It mainly rest with the development and maintenance of a common ideological framework of suppliers and customers. Including the confirmation of the role of enterprises, establishment of leadership process; responsibility of particular enterprise, but the jointly established guidelines to promote cooperation between enterprises, the effective usage of resources and solutions to conflict, the sharing and exchanging for the key technical, financial, operational and strategic information by both sides; the sharing of interests and risks, benefits and losses of both sides (Msuscbrt, 1999).

Supply chain integration becomes an optional process to improve the overall supply chain network of internal and external enterprises, so that all links can be improved significantly in terms of cost, quality or efficiency, drives enterprises to establish their own supply system, to consider how to integrate the external members,

to expect to form a collaborative integration network through integrating the supply chain partners, to respond to customer needs in shortest time and gain lasting competitive advantages.

The effective supply chain integration can decentralize risks of assets and market, enhance the response ability of enterprises, and improve the access service quality and customer satisfaction, enables enterprises to gain a competitiveness advantage by enhancing the efficiency and effectiveness. So the integration and application of the supply chain has become another focus of supply chain management study.

Other researchers studied supply chain management from collaboration perspective. Cooper and Ellram, (1993); Ganeshan, Magazine, Stephens (1998), Quinn (1998) considered that supply chain management is a collaborative, cross-enterprise operating strategy that aligns the flow of incoming materials, manufacturing, and downstream distribution in a manner responsive to changes in customer demand without creating surplus inventory.

Lockamy et al. (2000) concluded that the purpose of supply chain management is to strengthen competitiveness by close coordination and cooperation of all the members of the supply chain through the smoothly, timely flow of information. Managing supply chain effectively will make procurement, production and distribution smoother, so that customers can get the products and after-sales service, and manufacturers can make profits and grow healthily.

Kuglin, F. (1998) defines supply chain management as: "collaboration between manufacturers and their suppliers, distributors and users - that is, collaboration among all the sections of entire extension enterprises, providing a common product and service for a market that our customers want and are willing to pay. As an extension of the enterprise, this organization composed by many enterprises, can make maximize use of shared resources (personnel, process, technology and performance evaluation) to operate collaboratively, and result in products and services of high quality, low cost, rapid access to the market and customer satisfaction."

Simchi-Levi et al. (2000) pointed that there are complex interactions in the supply chain involving multiple companies and relevant resources, the activities of the

supply chain members should be efficiently coordinated to reduce the total cost and increase the customer service level, in which coordination is the main objective of SCM.

Karuna Jain and Ashish Dubey (2005) gave collaboration definition as a broader term that includes alliances and partnerships. They claimed that collaborative supply chain is one in which two or more independent companies work collectively to manage their combined operations, including the identification and solving of problems that go beyond the ability of individual supply members to address.

3.2.5 Supply chain partnership

The supply chain partnership has an indication of importance which can be regarded as active engagement of enterprise in its partnership relations, including a complete planning of strategy, a clear thinking about partnership, and the adjustment to the strategic objectives, with the aim of clarifying the strategic role of the partnership to improve the competitive position in the supply chain.

The traditional relationship with suppliers bearing four characteristic: (1) to maintain the multiply choices of markets, the manufacturer contacts with several suppliers in the manner of bidding; (2) under new market trading opportunities or the existing opportunities of choice, the manufacturer may turn to choose other suppliers;(3)the supply relationship between the manufacturer and the suppliers is here today and gone tomorrow(short).; (4) the price is the prime focus of choosing suppliers (Toni and Nassimbeni, 1999).

A supply chain partnership refers to a kind of relationship maintained by two independent individuals in the supply chain in order to reach a particular target and profit, these two individuals are usually supplier and buyer or customer, the two sides have agreed to share each other's information and risk in a certain period, lower costs, reduce inventory to increase their financial or operational performance. Deutsche (1980) put forward theory of cooperation and competition under the background of British and American enterprises. He believed that the most direct objective of establishing supply chain partnership is to conduct cooperation between enterprises;

the recognition of pertinence of the objective is the important variable influencing interactions of enterprises.

Hahn et al (1990) presented that the traditional mode chose suppliers in the way of bidding which would boost the total cost in the long term, and if enterprises only regarded the price as the solely rule to choose suppliers, the suppliers would sacrifice the customers' requirements in the aspect of quality for their own interest, and the enterprises may have to replace the suppliers frequently which increases the cost on the other hand. The traditional hostile relationship between manufacturers and suppliers is replaced by the mutually depending cooperation relations increasingly due to rapid change of environment (Angeles and Nath, 2001; Hoyt and Huq, 2000; Lambert, Emmelhainz and Gardner, 1996; Larson and Rogers, 1998).

Some researchers believed enterprises have no longer been the enclosed entities, the close partnership among enterprises, will be an important strategic asset of enterprises (Scannell, Vickery & Droge, 2000，Ellram, 1991). Brewer and Speh(2000) pointed in study that the key point of the supply-chain management was partnership and cooperation, and if not the two, there would be no effect of integration.

Watts et al (1992) pointed out that as the competition between the enterprises getting severer, to advance the competitiveness, great changes had happened in the relationship among enterprises and their suppliers and their customers, which has transformed from the traditional hostile relations of competition to the mutual-benefit and cooperating partnership.

Anderson, Hakansson and Johanson (1994) found in the supply chain network, regardless of the system input or output sector, partnership is the core of the supply chain integration. And it emphasizes on promoting mutual communication, mutual trust, information exchange, sharing of benefits and risks through direct and long-term cooperation relations to bring down the total production costs and enhance customer satisfaction, which will reflect on improvement in logistics and financial performance.

The benefits brought by partnership may be summed up as:

1) Improving competitive advantage

As the supply chain partnership can improve operational process inside the enterprise as well as the overall supply chain network among enterprises, all aspects of the supply chain in terms of cost, quality or efficiency can be greatly improved. In the supply chain network, either the input or output sector of the system, partnership is the core of supply chain management (Anderson, Hakansson & Johanson, 1994).

Stuart (1993) agreed the establishment of supply chain partnership can improve productivity of enterprises and gain competitive advantage, the former refers to reduce inventory, lower costs and so on, whereas the latter is to increase market share and speed up new product development and quality improvement;

Stuart and Muller (1994) pointed out that partnership will continue to improve the quality.

Lambert et al., (1996); Anderson and Weitz, (1992) have pointed out that the fine supply chain partnership can bring many marginal benefits, and the partnership is seen as the best weapon to lower costs, improve service, and gain competitive advantages.

Su Xiongyi (2003, Taiwan)also proposed that, common interests, determination, openness, mutual support, clear expectations, leadership, trust, sharing, advanced science and technology, human and long-term perspective are factors promoting the supply chain cooperative partnership. In supply chain management mode, he stressed interaction of supply chain partners in order to reduce transaction costs, and save costs because of economies of scale, therefore, qualified supply chain partners become an important prerequisite for the success of enterprise operation.

2) Extended usage of resources

Lambert et al. (1996) pointed out that the development of partnership among enterprises intensely affected the performance of supply-chain.

Maloni and Benton (1997) presented that the soul of supply-chain management lied in the birth of the holistic interest after the establishment of the partnership between members. They thought the consistency of assessment of satisfaction by partners mean the demand in capability and negotiation coordination as well as the common objective and good understanding, problem solving privities, such common awareness would help raise operational performance of both parties.

Johnson and Lawrence (1988), Larson(1994) agreed that the integration of supply chains of enterprises and their supply chain partners will bring the value that individual enterprises can not separately create, from the perspective of individual enterprises in the partnership, the important issues of supply chain integration is enterprises' strategic thinking about the partnership and its management, such as mutual sharing of resources, cost savings, technology and process innovation, shortened product development lead time, and potential benefits of logistics management, joint promotional activities.

Landeros and Monczka (1989) studied benefits to partnership under different strategies such as cost leading, differentiated products, market concerns, found that organizations ask for different partnership under different strategy, proper partnership leads to better cooperate performance. Special competitive advantage gain from partnership is always prior to the traditional advantage of price.

Scott and Westbrook (1991) put forward a number of benefits brought to manufacture process by cooperative partnership, such as saving time for preparation and improving the process-oriented design, better product design, high-efficiency of data access, information exchange, integration of goals , conflict resolution, reduced opportunism and external risk, and so on.

MacBeth and Ferguson (1994) believed that partnerships can provide the benefits of vertical integration without change in ownership and the effort to establish barriers. With a good partnership, suppliers will benefit from economies of scale, lower transaction costs， management and conversion costs, integrate the process, cooperate during the process and have quantity discount, while buyers will have high-quality goods in time, if the supply and demand of the two sides is stable, their relationship will be consolidated.

Hamel et al (1994) analyzed the partnership between an enterprise and its suppliers from another aspect---competitive relations between them. He believed that many resources which cannot be controlled by enterprises are not at the hand of enterprises, and because of the uncontrollable external variables, it is important for the enterprises to apply value networks and to combine other enterprises' resources and

enhance the partnership with suppliers in considering customers and the core strategy. Therefore, an enterprise enjoy the optimum relations or certain rights with upstream suppliers in its supply chain is a way to consolidate competitive advantages, by maintaining the good relations, an enterprise can regard suppliers' resources and networks as its own exogenous resources and relatively expand scope and relations of its value network. Gary Hamel advanced some ideas about the value network which an enterprise should consider.

The involvement of suppliers is a vertical partnership between manufacturers and suppliers, it is more elastic than the vertical integration and is more efficient than the traditional business relations (Pelton et al.,1997), and integrates suppliers systematically into production and design procedures that makes suppliers directly participate in the design and communication in the primary phase to promote the formulation of a series of routines, which helps to propel knowledge share between organizations, and to encourage suppliers to use their technology and creativity and the concerned equipment and information as well as the advice about the new products; relatively, customers can also provide the concerned market information and know-how for suppliers(Bonaccorsi and Lippaini,1994; Liker et al.,1996; Dyer and Nobeoka,2000), and of course, suppliers must also take on suitable responsibility on the design of the complete system or the subsidiary system, the R&D and production for the demand parts (Bonaeeorsi and Lippaini,1994; Liker et al.,1996; Wynstra and pierick,2000).

3) Long-term relationship between members

Webster (1992) pointed out that enterprises should strive to maintain the relationship with their suppliers and customers, and make the best use of their corporate partnership, to help identify factors affecting cooperative partnership development and management, through close cooperation of supply chain members to create enterprise's competitive advantages.

Spekman et al (1998) believed that supply chain partners can establish long-term cooperative relations through trust, commitment and information to share the future perspective. Vokurka, (1998), Maloni and Benton, (1997) similarly defined

partnership as a relationship built on interdependence, enhancing cooperation, improving market position, to reach the common goal, share benefits and risks. Bidualtetal(1998) held the view that partnership among suppliers is a conception of extent, and the closer the relation, the stronger the responsibility of the supplier will have to the complete system or subsidiary system, parts and the subsidiary assembly.

Ziggers & Trienekens（1999) studied the supply chain partnership from the viewpoint of transaction, cooperation and relationship satisfaction. They found partnership is a system for both transaction and collaboration with the purpose of mutual objectives and best profits.

Philip and Wendell (1996) believe that the strategic partnership in supply chain is very important; by establishing strategic partnership enterprise can work efficiently with important suppliers and users.

Maloni and Benton, (1997); Cooper and Gardner (1993); Christopher, (1992) pointed that investment in supply chain partnership can be regarded as long-term investment, which make profits in mutual cooperation and make larger profits when enterprises adapt and match each other. Therefore, the establishment of partnership will become the strong support of company's strategy.

The involvement of suppliers will contribute to the development of new products and improvement of product quality (Handfield et al., 1999; Dyer and Nobeoka, 2000).

In generating strategy, companies should take consideration of overall relations, Wynstra, et al's (2001) study indicated that, supplier partnerships can bring short-term and long-term benefits for manufacturers. Other enterprises will also through the network reach business objectives and gain competitive advantages.

In "Partnering through Cooperative Goals in Supply Chain Relationship" Wong (1999) draw the following conclusion: the cooperative goal of supply chain will help achieve good partnership, and good partnership can bring benefits to customers and suppliers in the supply chain.

However, the majority of the members of the supply chain are relatively independent economic entities, and they have the incentive to maximize their own

interests in decision-making, therefore, the cooperation among members of supply chain is sometimes threatened, and improper handling could affect efficiency or even success of the entire supply chain.

Leavy (1994) pointed out that companies may overestimate the benefits of partnership, and neglect the potential disadvantages. These risks include: excessive reliance on a certain member, if the member can't fully perform, it will bring significant impacts; the specialization in labor division may bring down the ability to control the cooperative partnership, and result in decline of competitiveness. If the supply chain members all consider their own interests, there will be impact on the cost, quality and efficiency, and cause both tangible and intangible losses to enterprises (Maloni and Benton, 1997: Christopher, 1992). Therefore, to develop and maintain a solid partnership with suppliers has already become an important subject of enterprises.

Graham et al (1994) believed that the advantages of partnership may have to wait three years to appear after establishment of the supply chain. Partnership may also bring risks.

Boddy Cahill, Charles, Fraser-kraus and Macbeth (1998) in their studies also presented that the partnership in the supply-chain management system would suffer the following six barriers: underestimate the change of the supply-chain range, underestimate the motivation of the partners, neglect the recessive conflicts, too much attention to personal relations, as well as costs and benefits, the value-added pattern was not defined, incomplete concentration on the long-term development. These barriers will bring negative influences to the partnership on the performance of the supply-chain management.

3.3 New focuses of Supply Chain Management

A lot of consensus has been going around regarding the future of SCM. Future of supply chain can be envisioned by focusing on supply chain management aspects. These aspects have been enumerated as follows:

3.3.1 Globalization

Today's market place is characterized by heightened global competition often against a backdrop of an excess of supply over demand (Christopher, 2006). Globalization may enable increased revenue generation through entry to new markets and may provide access to suppliers that can provide materials and inputs more efficiently than domestic sources. There has also been an increasing trend for firms to shift operations from the host country to lower cost geographies to reduce manufacturing costs (Diane et al, 2009)

Cohen and Mallik, (1997) pointed out global supply chain management (GSCM) allows firms to make full use of intellectual capital and knowledge base for research and development, engineering and market research. In addition, GSCM allows corporations to take advantage of diversity in the international environment by recognizing and exploiting regional differences, i.e., in the level of product and process technology expertise, labor force capabilities, input factor costs, local tax rates, and the capabilities of offshore vendors.

Gunjan Soni and Rambabu Kodali, (2009) agreed the formation of global supply chain management, allows the logistics, information and capital to flow more openly, it not only increase the overall efficiency of the whole supply chain, but also enable the single enterprise to take advantage in the competition and have more right of speech with the integration of the supply chain.

Manuj and Mentzer, (2008); Schmidt and Wilhelm, (2000) and Christopher, (2005) gave the idea that the globalization of supply chains involves dimensions such as offshoring of production, inventories, suppliers and customers, and differences in economies, infrastructures, cultures, and politics in the competitive environment.

Yang, et al (2003) found many multi-national companies started to recognize that certain resource pools existed throughout the world. Some were intellectually based, some skills based and some provided labour cost advantages. There were attempts by some progressive multi-national organizations to create value-chain between their various offshore companies.

Manuj and Mentzer (2008) also found that firms have restructured their supply chains to "operate on a global basis to take advantage of the international product, factor, and capital markets".

However, global supply chain management can present several challenges, including differences in economic, cultural, and regulatory environments (Diane et al, 2009).

Blevins (2003) thought global also means multiple cultures, cultures that communicate and interact differently. So understanding the cultures of global partners is important to get alignment and synchronization with them. Mixing of culture and races affecting market profiles will change supply chain plans.

Yang, et al (2003) agreed formation of the global supply chain will lead to a longer period of time for procurement and transportation, and thus the time delay (the total time for the products from the customer orders to the user) will be even longer. At the same time, globalization has made more foreign enterprises to enter the local market competition, more intense competition appear in the market share, as more economic entity participate in the supply chain, the integration and coordination become increasingly important in the supply chain.

3.3.2 Agility

Agility of the supply chain was concerned in the mid last century. With market volatility increase, time to launch new business and products will decrease, leading to requirement of high agility. The agility of supply emphasis on the throughout the supply chain perspective for the comprehensive consideration, decision-making and performance evaluation, so that the manufacturer reduce the market price of the product with partners and be able to quickly understand the market demand changes from targeting customers, organize rapidly production to meet the customer demand and accelerate the implementation of the logistics process and improving the marginal benefit of the supply chain and achieve benefit-sharing under win-win goal (Sharifi, 1998).

The meaning of agility in supply chains has been the source of considerable

debate and academic discussion. The concept of agility as a business strategy was presented by Dove (1996) as the enterprise's ability to thrive in a continuously changing and unpredictable business environment. An agile enterprise has designed its organization, processes and products in such a way that it can respond to changes appropriately within a useful time frame.

This concept refined by Naylor, et al. (1999) provided the distinction between lean and agile supply chains by defining "agility" as using market knowledge and a virtual corporation to explore profitable opportunities in a volatile marketplace and "lean" as developing a value stream that eliminates all waste within the supply chain**.**

Christopher, (2000) and Yang, et al (2003) defined agility as the ability of an organization to respond rapidly to changes in demand, both in terms of volume and variety. And so it is the way to enhance the ability of enterprises to adapt the vagaries demand-oriented market, and use the rapid re-engineering of dynamic alliance to support the rapid supply chain alliance, optimize the smooth operation (Yang, et al 2003).

Christopher (2000) has also extended the definition of agility into a wider business context by addressing the characteristics of an agile supply chain. In his work, agility in supply chains relates to both the enterprises' processes and the interfaces between those processes and the market. Companies that focus on agility are market sensitive and will profit by exploiting their supply chains to rapidly and cost effectively respond to unpredictable changes.

Power et al., (2001); Katayama and Bennett, (1999) believed agility is a business-wide capability that embraces organizational structures, information systems, logistics processes and in particular, mindsets. The agile supply chain is a measure of how well the relationships involved in the processes to enhance objectives of agile manufacturing.

Lee (2004) also specifies the main objectives of supply chain agility are to respond to short-term changes in demand or supply quickly and to handle external disruptions smoothly.

Shu, et al, (2006）thought agility is an inevitable trend for science-oriented

manufacturing activities of supply chain management and agile manufacturing is a 21st century manufacturing strategy and modern modes of production. It is not only a manifestation of competitive advantage; it is also an important component of agile supply chain. With the agility extended outside to the borders of individual enterprises, Business-to-Business transactions will be more coordinated with the aid of technology and better business processes, hence more agility in the system can be realized (Gunjan Soni and Rambabu Kodali . 2009).

3.3.3 Environmental Concerns

Lamming and Hampson (1996) emphasized that parallels exist between environmental management practices (such as life cycle analysis, waste management and product stewardship) and SCM practices (such as vendor assessment, total quality management, lean supply, and collaborative practices); that is, in addition to traditional performance dimensions of cost, quality, delivery and technology. Lloyd (1994) claimed that environmental pressures will increase in the future and social, economic, business, financial and legal measures are going to force companies to set up environmental management systems. Richard Lamming and Jon Hampson (1996) predicted the challenge for managers is to recognize environmental supply chain issues as key factors in business success and to adapt current ways of working and attitudes to meet them successfully. Persistent pressure to replenish natural resources by improving design and technology will need modifications in manufacturing and supplier base. Green supply chain and green manufacturing is the active subject of study in recent years（Hou xianrong, Guo sujin 2004）。

The literature now contains many variations on the definition of environmental supply chain management (ESCM). Five Winds International stated that "at its most developed, environment supply chain management (ESCM) involves identifying the most significant environmental improvement opportunities by considering the entire product system and working cooperatively with suppliers to reduce environmental impact."

The early example of supply chain co-operation regarding environmental issues

was provided by the case of S.C. Johnson Wax which, in 1991, convened an environmental symposium with 57 of its largest world wide suppliers, to assess the potential barriers to making environmental improvements throughout the supply base. This identified such areas as environmental 'illiteracy', inconsistent scientific opinion and the slow down in the advancement of environmental put forward included: improving the environmental value of products in formulation, packaging, application and disposal, to reduce emissions and to recycle wherever possible.

The suppliers stressed expectations of progress, but not necessarily of perfection. Michigan State University of United States conducted an "environmental responsible manufacturing (ERM)" study and put forward the concept of green supply chain in 1996. In 1997, ISO14001 and ISO14040 were proposed with a great shock, the implementation of green manufacturing has become an irresistible trend. Dove （1996）suggested the Green Manufacturing includes three parts: the manufacturing problems of the whole process of product life cycle; the issue of environmental impact; and the issue of resource optimization. Green manufacturing concept is the cross-cutting and integration of the contents. It is the achievement of sustainable manufacturing and green manufacturing is an important means to make the whole supply chain to have the smallest negative impact on the environment, with the most efficient use of resources. Comprehensive consideration of environmental impact and optimally use the resources in the manufacturing is the green supply chain. The green manufacturing is the important means in achievement for sustainable manufacturing and green manufacturing.

Many researchers gave the opinion that supply chain managers must consider the impact of their decisions on the environment (Jacqueline et al. 1995, Zsidisin and Siferd 2001, Boons 2002, Geoffrey et al. 2002, Sharratt and Choong 2002, Kumar and Malegeant 2006, Tsoulfas and Pappis 2006). GSCM is a broad term describing a variety of approaches through which companies work with their suppliers to improve the environmental performance of the products or manufacturing processes of suppliers and customers (Hart 1997, Bettac et al. 1999, Linton 1999, Mulder et al. 1999, Nagel et al. 1999, van Hoek 1999).

Gunjan Soni and Rambabu Kodali (2009) thought the environment problem with uncertainty. They believed the nature of environmental problems is uncertain in the future, and the focus of future legislation unclear, intra-value chain co-operation would appear to be a fundamental element of any environmental element of any environmental strategy. For example, Regulatory norms on recycling impacts supply chain design for reverse logistics. And reverse logistics become indispensable in supply chain decisions which involve issues such as product disassembly for reuse, remanufacturing, product traceability. The demand to reduce dependence on natural resources makes supply chains more stable and sustainable. Constant increase in pressure on supply chains to use environment-friendly materials in production, distribution, usage and disposal, will affect production technologies and hence, the partners.

3.3.4 Computerization

The emergence of business on the Internet brings a new set of challenges to coordinating supply chain activities. Recent technological developments in information systems and information technologies have the potential to facilitate coordination and allow the virtual integration of the entire supply chain. E-supply chain is a new concept in supply chain management and is the combination of e-commerce and supply chain management.

E-commerce refers to all electronic means of doing business and e-procurement, a sub-set of this, refers to all technology based purchasing solutions to simplify transactions within and between organizations (Timmers, 1999; Van Weele, 2002).
It has brought change for supply chain management. It is a modern business practice, through electronic means to complete the business process and transaction activities, to increase productivity, reduce costs and optimize the service, its emergence and development is the results of economic globalization and the network technology and the economic innovation.

The evolution of the internet allowed information to be readily accessed. Firms began using networks to communicate order, inventory, and delivery schedules

(Humphreys et al., 2001). As technology has advanced, firms soon began to realize the possibilities of integrated management, using software and applications like ERP systems (Kulkarni, 2001). E-supply chain management (E-SCM) has become an increasingly important topic to businesses (Lancaster, et al 2006).

The rapid development of internet and e-commerce has provided facility for e-supply chain, the Internet only calls upon both parties to access to the Internet public information channels with relatively low cost and high security (Sunil Chopra, Peter Meindl, 2001), through the Internet the global network standards, to achieve the docking of information system for the relevant parties will create a seamless, automatic, overall operation e-supply chain for business partners (Zha xianjin, 2003). The new patterns of supply chain management the e-supply chain management came to emerge. By implementation of e-commerce, the integration of information and business processes may eliminate information island reduce the overall cost of production of the vertical industry value chain and realize the entire business process from Production areas to the circulation (Su xuanliang, et al, 2006).

It has been argued in the literature that greater benefits of e-commerce can be obtained when applied and integrated throughout a supply chain (Currie, 2000). Susan (2002) thought firms conducting business electronically may have a significant impact on managing relationships in the supply chain. Christopher (2000), Croom (2001), Cagliano et al (2005) and Power (2005) agreed that E-commerce can also support supply chain integration. It could benefit competitiveness if taking the perspective that supply chains compete instead of firms (Christopher, 1999; Cousins and Spekman, 2003). E-supply chain provides the seamless integration of information systems through the Internet to achieve the efficiency and improve accuracy of information delivery between the various units. It sets the core business as the central node, the supply chain enterprises and end-customers may exchange information directly centered by the core business, thereby enhance the forecasting accuracy and adaptability for various aspects in the supply chain (Zhao, et al, 2002).

Despite the potential benefits of e-commerce solutions, organizations in the private and public sectors are still cautious (Cox et al., 2000; Zheng et al., 2004). Some e-commerce initiatives

also still seem to fail to derive the predicted benefits (O'Brien, 2004). Though many difficulties and challenges, e-supply chain management has unparalleled advantages in information sharing, team work and management compare to traditional supply chain management, with the solution for technology, security, and financial settlement, the e-supply chain management will become the main mode of operation and management .

3.3.5 Social Aspect

The businesses that very easily and eagerly call themselves socially responsible are already in the arena. Ethical behavior is like other policies within the organization that need to be supported by upper management. Enterprises will not only target the interests of the shareholders to maximize profits. In the pursuit of the same time, enterprises must bear the corresponding social responsibilities. The practice of corporate social responsibility has become a measure of the level of competitiveness of enterprises in the world.

Corporate social responsibility (CSR) initiatives have experienced unprecedented growth in the last few years (Barone et al., 2000). Companies are engaged in many types of social responsibility activities, such as acts of responsibility towards the environment, treating employees fairly or contributions to art and cultural programs in the community (Barone et al., 2000).

There are different points of view for people's awareness of corporate social responsibility in different historical periods.

Griffin (1997) believes that corporate social responsibility means to enhance the protection and promotion of the social welfare responsibilities when improve their profits. Griffin had divided the periods into three stages: before 1930, the corporate believed social responsibility was to maximize profits; during the great economy depression, the believe was that business and community were partnerships and should be survival to work together; since the 60 of 20th century, the business began to be interested to subordinate to and serve for the interests of the community, " what good for all of society, is good for business" is the most typical point of view of the period.

Bowen (1953) defined social responsibility as the ‘‘obligations (of businessmen) to pursue those policies, to make those decisions or to follow those lines of action which are desirable in terms of the objectives and values of our society.’’

Bell (1973) thought the idea of social responsibility of business is based upon the concept that business is something more than a purely economic institution. ‘‘The idea of social responsibility is that the decision-makers are obliged to take actions which protect and improve the welfare of society as a whole along with their own interests. It builds a better quality of life, thus harmonizing organizational actions with society's wants’’ (Davis and Blomstrom, 1975). According to Koontz and O'Donnell (1977), the definition of social responsibility is: "The personal obligation of the people as they act in their own interests to assure that the rights and legitimate interests of others are not infringed.’’

McWilliams and Siegel (2001) define CSR as, "actions that appear to further some social good, beyond the interests of firm and that which is required by law," and note that the diverse stakeholders of a firm (including customers) may be forcing firms to devote resources to CSR activities.

Kotler and Lee (2005) felt corporate social responsibility is a commitment to improve community well-being through discretionary business practices and contributions of corporate resources.

Business for Social Responsibility (BSR, 2004) defines CSR as, "achieving commercial success in ways that honor ethical values and respect people, communities, and the natural environment." BSR further states that, "CSR is viewed as a comprehensive set of policies, practices and programs that are integrated into business operations, supply chains, and decision-making processes throughout the company – wherever the company does business."

Social responsibility can be a ‘‘win-win’’ proposition; both society and the socially responsible organization can benefit in the long run (Kurschner, 1996). The thought is that the businessman acts in a manner that will accomplish social benefits along with the traditional economic gains which the firm seeks. If any corporate sector has introduced social responsibility, they can enjoy so many long-run benefits

like retention of highly skilled employees, improved community living standards for employees, swaying public opinion against government intervention, attracting socially conscious investors, repetitive customer base, increase creditworthiness in the financial market, confident suppliers support, increase public image etc. (Kreitner, 2001).

Gao fenglian (2006) stated that corporate social responsibility is an integrated responsibility which include economic responsibility, legal responsibility and moral responsibility. The ethical responsibilities in practice involves two levels of meaning: First, it is the moral responsibility not harm others for benefitting oneself in fulfillment of economic tasks; Second, in addition to economic tasks, it should contribute to promote social welfare, social charity, and public welfare, etc. . Enterprises in the supply chain not only have to bear own social responsibility, but also to fulfill their social responsibilities in collaboration with other companies in the supply chain, or to encourage others to fulfill their social responsibilities, to realized the practice of corporate social responsibility throughout its supply chain management.

Lu lan, et al (2007) admitted that bearing social responsibility in all sectors of the supply chain, enterprises must also pay attention to the integration of social responsibility and management for the whole supply chain too. Make clear the respective responsibilities of businesses, the whole supply chain should be clear of the attitude and interests of all partners to strengthen cooperation between enterprises.

Summary

This part reviewed both the literatures of supply chain and supply chain management. In the supply chain chapter, the supply chain concept was given and the summary of different concept was made at the same time, followed by a comparison and analysis of different strategy and structure of the supply chain. In the supply chain management chapter, the supply chain management concept was presented in all round and mentioned that supply chain management as a concept has progressed from

the notion of single-entity competition to that of supply chains competing against other supply chains. The main issues in supply chain management were also pointed out in order to understand its implementation.

A literature review was conducted on both the parent discipline of supply chain management and the immediate discipline of the integration of supply chain logistics processes. This review was conducted electronically using search methods of on-line databases and journals. The main journals interrogated were: (i) Journal of Operations Management, (ii) Production and Operations Management, (iv) International Journal of Operations and Production Management, (v) International Journal of Production Economics, (vi) International Journal of Production Research, (vii) International Journal of Agile Management Systems.

The next chapter will consider the detail of the methodology of this study. That is, the methods of case study, data collection. Also included in the methodology chapter are the ethical considerations.

Part two Research framework and methodology

Introduction

The previous part presented a review of the literature relevant to the topic of this thesis. The development of supply chain and supply chain management as a discipline was explained. Within that discipline, the relative issues of supply chain management implementation were considered. This coverage lead to the description of the theoretical frameworks, this chapter therefore, continue to find the necessary theoretical support for the establishing of conceptual framework for this study, and a description of the methodology to be used is followed including justification for the methodology, details of the methodology itself, ethical considerations for the research.

4.0 Research framework

4.1 Review of research on SCM

The development of SCM research gives a picture of the knowledge of the components and influence elements for the supply chain management implementation. Like with all new things, people's understanding of supply chain has also experienced a process from shallow to deep. In the development process of supply chain management, experts and scholars have put forth a lot of definitions, which are proposed in a certain context, and also the results of different development stages.

4.1.1 Review of research emphasis on SCM

The defining of the current state of SCM began with logistics and its inter-organizational processes as a focus of study (Lambert, Robeson and Stock 1978) and has been expanding rapidly. The major reasons identified in the literature and by companies for supply chain management are 1) to reduce inventory investment in the

chain, 2) to increase customer service, and 3) to help build a competitive advantage for the channel (Cooper, 1993). The research can be broadly divided into three phrases:

1) Emphasize on logistics management

Professor Ma Shihua (China, 2000) believes that the study on supply chain management first started from logistics management. Logistics is an important component of supply chain management (Stank et al., 2005). So the early view refers the supply chain as a process of delivering raw materials procured and spare parts received to the users, through production conversion and sales activities.

In the 1980s, companies tried to reduce total costs and strengthen their competitive power with innovative manufacturing strategies such as Just-In-Time (JIT), Kanban, Lean manufacturing, Total Quality Management (TQM), and others. Many companies introduced such strategies and made huge investments in their implementation, resulting in significant cost reductions. Therefore, the supply chain was then regarded as a logistics process within the enterprises. It was mainly involved in functional coordination problems of various departments like materials procurement, inventory, production and distribution, with the ultimate goal to optimize their internal business processes and reduce logistics costs, thereby enhancing operational efficiency. The logistics are the coordination of the logistics operations of firms in the value chain (Tan, 1998).

In 2007, The Council of Supply Chain Management Professionals defines logistics management as "that part of Supply Chain Management that plans, implements, and controls the efficient, effective forward and reverses flow and storage of goods, services and related information between the point of origin and the point of consumption in order to meet customers' requirements." Both Stank et al. (2002) and Lin (2006) describe the importance of integrating the logistics processes of all supply chain partners to better serve the needs of ultimate customers.

Later, people adopted the group technology, flexible manufacturing systems; computer integrated manufacturing systems and other management model. The logistics service providers help internet sellers integrate with the myriad of available

logistics firms to fulfill customer orders more effectively and efficiently (Rabinovich and Knemeyer 2006). Rodrigues et al. (2005) agreed that logistics as "one of the largest costs involved in international trade." logistics service providers that support internet supply chains.

2) Emphasize on value added chain

In the 1990s, many companies recognized that productivity improvement at the individual company level was approaching its limit, with the changes in industry environment and growing importance of mutual coordination between enterprises, people's understanding about the importance of the supply chain gradually extended from the individual enterprise to inter-enterprise, thus, the suppliers were included in the supply chain. Womack and Jones (1994) pointed that the SCM is responsible for both the information and material pipelines throughout the chain, which by its very nature would cover all functions throughout organizations, from marketing and production to procurement.

It is not only a material chain, information chain, capital chain linking suppliers and users, but also a value-added chain, after processes of processing; packaging and transporting the value of materials are added, thus bringing profits to relevant enterprises, such as all the forward relationship between core enterprise and suppliers, and supplier's supplier and all the backward relationship between core enterprise and users, and user's user. The integration of supply chains has been described by as attempting to elevate the linkages within each component of the chain, to facilitate better decision making to get all the pieces of the chain to interact in a more efficient way and thus create supply chain visibility and identify bottlenecks (Putzger, 1998).

The definition on SCM is then denotes that added value is the basic characteristic of supply chain; an effective supply chain must be a value-added chain. In other words, no mater what activities every entity in supply chain engages in, the added value of product conversion process must transcend costs. People's understanding of the supply chain involved the whole production process of a certain product from raw materials to a final product. Such supply chain strategies focus on how both internal and external business processes can be integrated and coordinated throughout the

supply chain to better serve ultimate customers and consumers while enhancing the performance of the individual supply chain members (Cohen and Roussel, 2005). So the core issue is to enhance all-round cooperation with suppliers and improve the operation speed.

Evans (1994) believes: "Through the feed-forward of information flow and feedback of material and information flow, the supply chain management combines suppliers, manufacturers, distributors, retailers and end-users to a united of management model."

SCM is therefore the management and coordination of all the functions within the linked organizations. It improved the operational capability of other value added activities in the enterprise, such as product development, requires shifting perspective from the supply chain to the value chain (Sherer, 2005).

SCM is the philosophy of management that involves the management and integration of a set of selected key business processes from end user through original suppliers that provides products, services, and information that add value for customers and other stakeholders through the collaborative efforts of supply chain members (Ho et al., 2002). In supply chain, material flows refer to the material and product flow from suppliers to the hands of customers. Information flows include information of product demand, orders transfer, delivery status and inventory. Financial flows include credit terms, terms of payment, entrust and covenant for title, and so on. These flows are usually cross-sector, inter-enterprise, cross-property rights or even cross-industries. Both information and material flows require strategic management if the efficiency improvements available through SCM are to be gained.

3) Emphasize on "network"

After the 1990s, SCM gradually became an important way for enterprise to enhance their competitiveness, mainly in order to reduce costs and create a certain profit. With the change of the time, "supply chain management" is receiving growing attention. Christopher (1992) gave the point that “supply chain is the network of organizations that are involved through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and

services in the hands of the ultimate consumer". In this regard, there has been a convergence in the views of strategic management and SCM that a firm's supply chain is often a key source of competitive advantage (Christopher 1998; Gulati 1998). On this basis, the supply chain management becomes a part of corporate strategy, enterprises must integrate the supply chain, and engage in strategic alliance with upstream and downstream partners to effectively overcome entry barriers and gain competitive advantages.

With the development of information technology and increasing uncertainty of industry, the trend of relationship among today's enterprises is apparently toward network. The concept of supply chain is different from the traditional distribution chain, which crossover the boundary of enterprises, firms adopt appropriate information technology infrastructure to design complementary work processes (Purvis, Sambamurthy, and Zmud 2001).

Supply-Chain Council gave the definition of supply chain in 2005: Supply chain is a term "now commonly used internationally – to encompass every effort involved in producing and delivering a final product or service, from the supplier's supplier to the customer's customer" (www.supply-chain.org). At the same time, people's understanding of supply chain also changes from the linear "single-linkage" to non-linear "network linkage". In fact, this network is the result of many linkage of "single-chain". The supply chain management is now at the stage of building partnerships and coordination. The concept of supply chain of this stage pays more attention to strategic cooperative relations around core enterprise. An insightful study of Toyota's supplier network provides evidence that effective relationship management of supply chain partners can both enhance knowledge creation and also mitigate the risk of leakage (Dyer and Nobeoka 2000).

The development concerns and characteristics of SCM based on the different emphasis stages are in the Table 4-1.

Table 4-1 Concerns of SCM in different stages

	Definition of Supply Chain	Definition of Supply Chain Management	Characteristics	Main concerns
Stage Emphasizing on Logistics Management	A process of delivering raw materials procured and spare parts received to users through production conversion and sales activities and so on	To manage, plan and coordinate the logistics in the chain composed of suppliers, manufacturers, retailers and customers	The structure of the supply chain is simple. It is not closely connected with external supply chain members, even conflicts with them	Internal operations of the enterprise and its own goal of interests
Stage emphasizing on value added chain	The supply and demand network composed by raw material suppliers, producers, wholesalers and final consumers involved in production and circulation process	Use of management functions like planning, organizing, superintending, coordinating, controlling and motivating to regulate the product and material flow, information flow, financial flow, value flow and business flow during processes of circulation to achieve the greatest combination, play maximum efficiency and provide the clients with maximum added value at a minimum cost	A relative integrated system with harmonious between the nodes	The added value, reduced costs and supply chain coordination

		rapidly		
Stage emphasizing on "linked network"	a functional network model which crossover the core enterprise through controlling of information flow, logistics and financial flow, deliver products from raw materials into intermediate products and then final products to consumers by sales network, to combine suppliers, distributors, retailers and final consumers	an integrated management thought and method. An integrated management process of planning, coordinating, and controlling material flow, information flow, financial flow, value-added flow and business flow in supply chain	Forms the core node, the structure is complicated and tight	Strategic partnership and the strategic structure of rapid response

Source: collection of literatures by this research

4.1.2 Review of research dimensions on SCM

The study of SCM covers various subject areas such as purchasing and supply, logistics and transportation, marketing, organizational behavior, network, strategic management, management information systems and operations management have contributed to the explosion of SCM literature(Chen and Paulraj, 2004). Some of the researches had been concentrated on the supply chain management applications: the supply chain modeling, the network design methods, system simulation methods, approximate methods, and the supply chain management techniques.

Powell (1990) committed the means of establishing relationship is the

communication used to establish and maintain the relationships; the methods of conflict solving; the norms of reciprocity; the degree of flexibility attained, which should be from average to high; the level of commitment, which should be high; the organizational environment, which should be open with mutual benefits; the presence of interdependence; and, finally, the forms adopted in the different levels of partnerships.

From the mid-1990s, academics in the fields of logistics, marketing, and operations management have attempted to describe supply chain management.

In 1994, The Global Supply Chain Forum (GSCF) developed a definition of supply chain management. The GSCF framework includes the management components that support the processes (Cooper, Lambert, and Pagh 1997) of: planning and control, work structure, organization structure, product flow facility structure, information flow, management methods, power and leadership structure, risk and reward structure, and culture and attitude. These components are involved in eight supply chain management processes of the GSCF framework following:

• Customer Relationship Management - develop and maintain relationships with customers.

• Customer Service Management - administer the product service for customers.

• Demand Management - balance the customers' requirements with supply chain capabilities.

• Order Fulfillment - define customer requirements, design a network, and meet customer requests in minimum total delivered cost.

• Manufacturing Flow Management - obtain, implement and manage manufacturing flexibility and move products through the plants.

• Supplier Relationship Management - develop and maintain relationships with suppliers.

• Product Development and Commercialization - develop and bring to market new products jointly with customers and suppliers.

• Returns Management - activities related to returns, reverse logistics, gate-keeping, and avoidance.

In customer relationship management and supplier relationship management, Morgan and Shelby (1994) contributed with: trust, commitment, high leadership to be the main motivational force, communication, conflict solving, persistence and time to become mature, information exchange, investment, reputation, shared values, clear objectives and results expectations, rules. All of these conditions together with the values of honesty, fairness, responsibility, and competence.

Roger, et al (1996) believed that the most important way to evaluate the overall performance of supply chain is customers' comments on services. Also in1996, The Supply-Chain Council (SCC) developed the Supply-Chain Operations References (SCOR) framework. The SCOR included business components of: plan, source, make, and deliver, return (added in 2001) which are to be implemented within the firm and across firms in the supply chain. The business processes involved in are reengineering, benchmarking, and best practices analysis (Supply-Chain Council 2003). The components in the framework are given clear explanations:

• Plan - balance the demand and supply, develop a course of action to meet sourcing, production, and delivery requirements.

• Source - activities related to procuring goods and services to meet planned and actual demand.

• Make - activities related to production to meet planned or actual demand.

• Deliver - provide finished goods and services to meet planned or actual demand, involve order management, transportation management, and distribution management.

• Return - deal with returning or receiving returned products for any reason and extends into post-delivery customer support.

SCOR defines common supply chain management processes and matches these with best practice, benchmarked performance measures and use of software. The purpose is to provide a generic framework for measuring supply chain performance and identifying areas for improvement (Allnoch, 1997). It created a business model for supply chain management that can be used worldwide regardless of industry or geographical location. It supposed to give organizations a common language to discuss supply-chain issues, develop benchmarking measurements and give direction

to the development of supply-chain management software (Saccomano, 1998, p. 27).

Some research covers the dimension of supply chain management environment. Gunasekaran, et al (2004) believe that the increasing importance of SCM is related not only with the requirements within the enterprise but also with increasing globalization movements, reduction of restrictions in international trade, environmental conditions, computer assisted production programs and government practices. Premkumar et al.(1997) stated that competition environment in the industry, especially the global competition, the industrial concentration trend, and change of business mode had great influence to the establishment and adjustment of the organizational strategy. Robert son and Gatignon (1998) found that uncertain environment made enterprises look for collaboration. Ahmad and Schroeder (2001) stated further that under uncertain environment, establishing quick information system between cooperated enterprises may response to the influences caused by the environment exchange duly. Binshan et al. (2001) and P. W. Stonebraker and Liao (2006) discussed several analytic models currently evaluated in environmentally conscious business practices. The authors contended that the process of environmentally conscious business practice should be studied as a multidimensional issue.

Meanwhile, some researchers studied the supply chain management framework. In 1998, Lambert, Cooper and Pagh developed a SCM framework encompassing the combination of three closely inter-related elements: the structure of the supply chain, the supply chain business processes, and the supply chain management components. They believe that the combination of these three elements captures the essence of SCM. In their framework, the supply chain structure is the network of members and the links between members of the supply chain; business processes are the activities that produce a specific output of value to the customers; the management components are the managerial variables by which the business processes are integrated and managed across the supply chain. They imply the implementation of SCM involves identifying the supply chain members, with whom it is critical to link, the processes needed to be linked with each of these key members, and the type/level of integration

applied to each process link. Lummus, et al (1998) also cited four evaluation indexes of the supply chain performance, including supply, conversion, delivery and demand management, every aspect includes three indicators of ideal, objective and present.

Caddy and Helou, (1999) indicate that supply chains change with time. With the state of information technology, supply chains are operated differently in the way they were operated some time ago. The nature of the relationship(s) among organizations within the supply chain would also be expected to develop over time. The Generic Supply Chain Model was then developed for the purpose of providing a deeper understanding of supply chains in terms of their development, operation and management. The generic model allows for the diversity of real world situations, it incorporated into the model among three dimensions: organization strategy/structure, information technology and human factors. These three factors can, in fact, be considered as dynamic sub-systems participating and interacting within the supply chain system. Each of the dimensions provides a separate as well as a related conjoint contribution. The Generic Supply Chain Model addresses the possible application and managerial contributions of general systems theory to supply chains for the development of a greater understanding of their design, implementation and management. Different outcomes are generated given the nature of the type and level of interaction. In addition, the type and level of interactions would also be contingent upon organizational culture, the environment in which the organization operates, and the characteristics of the supply chains utilized in the exchanges that occur among organizations.

Srivastava, Shervani, and Fahey (1999) developed a framework which includes three business processes: customer relationship management, product development management, and supply chain management. They explained that the customer relationship management includes many activities that are traditionally performed by the marketing and sales functions; the product development management process needs for cross-functional interfaces and includes a sub-process called "identifying and managing internal functional/departmental relationships"; the supply chain management process focuses on the product flow from acquisition of materials from

suppliers to manufacturing, to order processing, to distribution to customer service management. This framework includes many of the activities that are part of the Council of Logistics Management's definition of logistics and focused more on the role of the marketing function in the three processes and not on the role of other corporate functions.

Bowersox, Closs, and Stank (1999) published a supply chain management framework based on three "contexts": operation, planning and control, and behavioral. This framework was further developed to include eight business processes: plan, acquire, make, deliver, product design/redesign, capacity management, process design/redesign, and measurement (Melnyk, Stank, and Closs 2000). The definitions of the four business processes (plan, acquire, make, and deliver) resemble those included in the SCOR framework (plan, source, make, and deliver, respectively).

Handfield and Nichols (1999) explain that a whole 'Logistics Renaissance' era has arrived. Characterized by time-reducing information technologies and logistics networks, it aims at meeting the challenges of globalization of markets, stabilization of political economies, and rapid growth in the domestic and international competitive environment. They offered the definitions of supply chain and supply chain management. They thought a supply chain encompassing all activities associated with the flow and transformation of goods from the raw materials stage (extraction), through to the end user, as well as the associated information flows. Materials and information flow both up and down the supply chain and the supply chain management was the integration of these activities through improved supply chain relationships, to achieve a sustainable competitive advantage. They explained further that the supply chain management includes the management of information systems, sourcing and procurement, production, scheduling, order processing, inventory management, warehousing, customer service, and disposition of packaging and materials. On the other hand, the supplier network consists of all organizations that provide inputs, either directly or indirectly, to the focal firm.

Douglas M. Lambert (2000) and other researchers' study suggested that there are nine main elements in supply chain management, they are: planning and control, job

structure, organizational structure, product flow facility structure, information agencies, management methods, power and leadership structure, risk and benefit, culture and orientation.

Spekman, Spear and Kamauff (2002) proposed that the supply chain relationships should be: based on trust and on commitment; transfer information through efficient communications means; have more informality in the relationship for improving the learning process; adopt flexible and adaptable styles of decision making which can offer opportunities for interaction; an organizational culture characterized by trust and openness and finally, total win-win orientation as a way to minimize opportunist behaviors.

Mentzer (2004) and his colleagues presented a supply chain management framework that focuses on the cross-functional interaction within a firm and on the relationships developed with other supply chain members. But they did not give details for the implementation of it.

Injazz J. Chen. and Antony Paulraj (2004) gave a supply chain management research framework after analyzed and studied more than 400 papers, which joined together the practical valuable results on environmental problems. It seemed that whether a simple organization or a complex group, the uncertain environment have become a major problem in terms of supply chain management, this problem is the first thing to consider. Because the strategy, structure and performance is the key to success of supply chain management, and the change of external environment has the impact on the supply chain strategy and structure, and the supply chain strategy, structure and performance influence each other, so the quality of supply chain is judged by the final performance indicators, and the results of evaluation in turn will re-examine the strategy and structure.

Ming-Hon Hwang, and Hsin Rau (2006) built up a process of strategic supply chain management (SSCM) that comprises three stages: planning, execution and control. The planning stage involves the forming of supply chain and pursuing members to the future achievements; this stage mainly consists of environmental scanning and strategy formulation. The execution stage involves supply chain

members using various functional strategies and methods to efficiently complete the competitive strategy and the objectives set at the planning stage. The control stage involves comparing the objectives set at the planning stage with the results during the execution stage. If any difference is found, the feedback should be given and some adjustments should be made. The major action occurs at the control stage, the supply chain performance measurement phase and supply chain feedback phase.

Siddharth Varma, et al. (2006) suggested a broad framework for implementing SCM in a firm. It consists of strategy formulation, identification of areas for improving material flow, and finally performance evaluation in order to determine how well the supply chain initiative has been implemented. The guideline for SCM implementation is also recommended.

Riikka et al. (2006) presented a framework for supply chain decision making. A data analysis of the quality of plans for demand and supply was generated in decision making point by collecting planning and actual data of two products. The results show that planning accuracy varies between the parties in the supply chain.

The Supply Chain Consortium's Supply Chain Best Practices Framework (2008) provides a resource similar to the SCOR model. This model provides a supply chain mapping ability for managers to understand the various flows (product service flow, market accommodation flow, information flow, and financial or cash flow) that are critical to SCM.

Newman, et al (2009) proposed a new strategic framework to classify SCM initiatives. They used four SCM capability domains. These domains reflect the ways in which supply chain initiatives affect supply chain processes. The four domains are coordination, understanding, improvement, and design. The coordination is defined as responding to or adjusting operational output of one entity to meet the demand requirements of other entities in the supply chain. The understanding is defined as an entity's shared awareness of the requirements, capacities, capabilities, and limitations of other entities in the supply chain. The improvement is defined as an entity involved in enhancing the processes or value-adding systems of one or more entities in the supply chain. The design of the product-service bundle is defined as an entity jointly

involved in the design of the product-service bundle with one or more other entities in the supply chain in the role of either a customer or a supplier.

4.2 Review of research on MNCs' supply chain in China

Outsourcing from China and other low-cost countries is common among European and North American companies today (Anna Fredriksson and Patrik Jonsson, 2009). With the low-cost advantage in manpower, resources and production, China has become a global manufacturing center, multinational companies have begun moving their manufacturing and sourcing center to China. China's acceptance into the WTO is an endorsement of its entry into the global economy. It implies that laws governing international business operations will become effective in China. This lowers both the financial and operational risks faced by foreign firms and it encourages their participation in the Chinese economy. As multinational companies established and developed their supply chain in China, the study of it began to be concerned about, but the existing research is still limited, and only some aspects of the research were reached, the systematic study was not rich yet.

The strategic concern of MNCs' supply chain in China was made by some of the studies. Bin Jiang and Edmund Prater (2002) pointed out that in order to keep competitive position in the globalization age, MNCs relocate their manufacturing locations for three strategic targets: cost-saving, natural resource-securing, and market-securing. They believe that China provides a low-cost export platform for foreign companies, as well as a very large and growing market. The inland-focused supply chains are the backbone for MNCs' long-term business success in China. This supply chain not only allows the foreign companies to produce locally, but also helps them to be closer to the market, respond faster to customer demand and provide more effective on-site consultation and services. This includes pre-sales consultancy, engineering, installation and training, maintenance, repairs and servicing.

Liu wei-lin(2005), found that in recent years, multinational companies have constructed increasingly their supply chain system in China under a variety of strategies, especially with the commitments to WTO being honored, multinational

companies using outsourcing and alliances strategies in the supply chain development. Some multinational companies because of its low ability to control the supply chain, or unimportant status of logistics in the overall strategy, they often opt for a third-party logistics when they expand their supply chain into China, to outsource the logistics task to a more good storage and transportation companies. Through the contract logistics to select the logistics partners have become the first choice of the logistics decision-making for many of today's multinational companies in China. Some multinational companies extended their supply chain to China, and established a strategic alliance with other multinational companies or domestic enterprises, just like building an outside network for the company. Supply Chain Alliance has now become an important strategic alliance for multinationals, based on the overall objective of supply chain integration to form a long-term network for mutual complementary of advantages, sharing of resources and benefit, sharing of risk through a variety of commitments, agreements, contracts and joint manners.

K. H. Lau and Zhang's (2006) findings indicated that economic, strategic, and environmental factors are the main motivation of organizations in China to engage in outsourcing when they explored the key drivers of outsourcing and the main obstacles or problems faced by organizations in China had explored the key drivers of outsourcing and the main obstacles or problems faced by organizations in China. They believed "cost reduction" or "cost saving" is the primary reason for outsourcing of the companies. Successful outsourcing in China helps the companies achieve various objectives resulting in cost saving or efficiency improvement which ultimately leads to a competitive advantage. The findings also show that organizations in China have taken some strategic considerations when making outsourcing decisions. These include the use of outsourcing to accelerate re-engineering benefits, to focus on core competence, and to increase flexibility. They also revealed that environment factors, such as IT development and capability of supplier, can influence organizations' decisions to outsource in China, which is similar to the situation in developed countries. They further demonstrated that on the other hand, capability of service supplier in terms of service quality, availability of extensive domestic transportation

network, financial strength, reputation, reliability, use of latest technology, price, and relationship with client, etc. are regarded as the most important considerations when it comes to the selection of a service provider.

Some of the researchers have made studies on the infrastructure situation to the logistics in China. B. Jiang and E. Prater (2002) thought the participation of MNCs increases the scale of China's business service market, and encourages more international supply chain service providers to recognize China as a key market. They agreed that distribution is widely regarded as one of the most critical determinants of business success in China today. Both foreign and domestic firms face similar difficulties. These include China's overburdened, underdeveloped physical infrastructure; inexpert, underfunded state-owned distribution companies; Information flows, spurred by e-commerce, should bring pressure on current distribution systems in China. The strong demands of distribution and logistics services should lure greater investments into the distribution and logistics sector.

Trunick (2003), K. H. Lau and Zhang (2006) pointed out too that despite the favorable factors, China's 3PL industry is still in its early stage of development. In recent years, the Chinese Government has designated logistics as a strategic industry and invested heavily in improving infrastructure such as nationwide multi-modal transportation networks and large-scale modernized logistics and distribution centers.

Lapiedra et al., (2004) discovered, in the Chinese context, that the value of information can not be over-emphasized in all aspects of business growth, because building an effective information infrastructure requires an invisible relationship network more than the related physical supplier network.

Handfield and McCormack (2005) found there are bottlenecks and congestion in Chinese transportation structure at present not only due to capacity constraints and equipment performance but also due to politics and a low level of logistics planning. They also concluded some developed regions of China have other problems like worsening pollution, overheated infrastructure and power bottlenecks. Less reliable communication infrastructure and more time-consuming transports increase lead times and decrease delivery dependability.

Song et al., (2007) put forwarded in their research that telecommunications and transportation infrastructure in China differs between regions and the more developed regions with functioning infrastructures also have higher labour costs.

Culture difference is another inevitable topic in the study of MNCs' supply chain in China. Standiford and Marshall (2000) pointed that, in China, the right guanxi or connections will increase the odds or business success. While Western businesses may not see this as necessarily cost effective, it does have advantages. Once you have built guanxi, it can be used in different situations since guanxi is dynamic and certain social guanxi is transferable (Tsang,1998). By marking the right connections an organization minimizes the risks, frustrations and disappointments of doing business in China (Jiang and Prater, 2002). China is a relationship-focused culture compared to European cultures which are more individualistic in nature (Song et al., 2007).

Handfield and McCormack's (2005) study show that cultural differences between China and Europe are exacerbated by language difficulties hindering effective communication. So, developing business relationships and integrating processes may be especially difficult with Chinese and other low-cost suppliers. Chinese people expect to see their suppliers and partners in person much more than Europeans do (Song et al., 2007). But it takes time to build trust in a business relationship with a Chinese company, and there is a need to meet socially before talking business, which means negotiations take longer time (Handfield and McCormack, 2005; Song et al., 2007).

The required level of trust and commitment for effective information sharing in the Chinese context takes time. K. Liao and P. Hong (2007) proposed that if global firms in China aim to succeed in China, they need to demonstrate through their actions that they mean to stay in the Chinese market and work with the Chinese community. The required level of trust and commitment for effective information sharing in the Chinese context takes time. Reputation is crucial to long-term success in China, as are access to vital information that can come from the goodwill and support of the Chinese government and other business entities (Lewis and Talalayevsky, 2004).

Studies also show that policies and regulations influence the supply chain implementation in many aspects in China. Multinational corporations (MNCs) entering and operating in China have been significantly changing their dominant strategies over the past two decades to cope with China's shifting competitive and regulatory environments. The new strategies have resulted in a status shift such that MNCs are no longer merely "foreign investors"; they have become "strategic insiders" who view their large-scale China operations as key to their overall corporate success (Luo, 2007).

Countries with rapid social change increase the risk of participants nullifying or changing contracts (Schniederjans and Zuckweiler, 2004). There are also cultural differences in the interpretation of contracts and how they should be used in society and in legal proceedings (Schniederjans and Zuckweiler, 2004; Handfield and McCormack, 2005). Companies sourcing from China should also pay attention to humanitarian and environmental issues and to the working conditions at plants; this applies not just to first-tier suppliers, but also to second and third-tier suppliers (Handfield and McCormack, 2005).

Intellectual property rights protection and legal systems in some low-cost countries, including China, are less mature than in Western countries (Song et al., 2007). There is a risk of copying or suppliers using the companies' products or drawings when supplying another customer with goods, which decreases sourcing companies' willingness to share information (Handfield and McCormack, 2005; Song et al., 2007).

Regional protectionism is another phenomenon MNCs met in China. Beyond the geographic size and unbalanced development, the political/legal barriers are the most powerful forces that separate China's distribution market. The biggest impact of political/legal barriers on distribution markets is regional protectionism. Provinces and municipalities have erected tariff and non-tariff barriers to keep out one another's products. As soon as you move across provincial borders in China, there are barriers, and the current focus of logistics is provincial. As political and administrative overhead has decreased, many companies have found themselves doing fine without

government subsidies. However, government guanxi is of great important when dealing with local government officials (Jiang and Prater, 2002).

Supplier management is often the hot subject. In the early research, Markides and Berg (1988) found that training suppliers to produce a company's products takes time and can be costly, and their inexperience makes it less likely that parts meet specifications, affecting the cost of product quality. If product quality focus and knowledge is not embedded within a supplier's organizations, there is a greater risk of product quality failure. This means that when sourcing from low-cost countries there is a risk that product quality could become more variable, which may increase inventory levels (Caddick and Bale, 1987; Zsidisin et al., 2000).

Lewis and Talalayevsky （2004) studied the situation of how global enterprises' effective response to Chinese government policy constraints, localization mandates, and cooperation with local suppliers proposed that global firms need to take a strategic approach in order to position themselves competitively over the long term. At the same time information sharing play an important role in planning, implementing and evaluating supplier network management.

Graf and Mudambi (2005) found that lack of human capital and skilled labour may have a negative impact on sourcing in low-cost countries. As the majority of current factory workers are the floating population coming from rural areas to the cities to look for work. There is high employee turnover, which can be a problem for manufacturers that rely on trained and skilled workers, and in more developed regions of China there is a shortage of available labour (Handfield and McCormack, 2005).

Handfield and McCormack (2005) concluded that many Chinese suppliers lack knowledge of supply chain management, which can result in little planning and high inventory levels. One consequence of this is that many Chinese suppliers struggle to increase volumes quickly; another consequence may be less understanding for process integration and business relationship development.

Some studies tried to find obstacles or difficulties of MNCs' supply chain implementation in China. Zhang and Goffin (2001) in their early research pointed out that JVs in China faced with difficulties in trying to reduce costs through purchasing a

significant percentage of their materials and components locally. Because of the level of incoming quality and delivery problems that IJVs suffer, even after years of operating with their Chinese suppliers. They also need to take a proactive approach to developing both technological and management expertise in their local suppliers.

The studies of Lau and Zhang (2006) revealed that organizations in China have encountered some obstacles and problems in the outsourcing process, of which lack of capable service providers, loss of control, poor transportation and IT infrastructure, local protection regulations, and lack of overall post-outsourcing measurement are the major ones. All these pose challenges to companies planning to outsource. To a certain extent, these challenges limit the scope of outsourcing and its pace of development in China.

Some researchers agreed that multinational companies shifted their production to China, mainly in order to benefit from China's cheap labor. At the same time, they found that other costs rise sharply. The problems regarding logistics seems to be relevant (Carter et al., 1997; Daly and Cui, 2003; Lancioni et al., 2003), the infrastructural system is not homogeneous in China and it is inadequate in several areas. Unsophisticated IT infrastructure, low awareness of employees, expensive inland transportation, rise of the land prices for the buildings, all these caused these companies shrinking their expect a significant cost reduction. So，in the implementing global supply chain, foreign firms in China face complex business challenges, including multiple performance requirements, environmental regulations and cultural differences (Agarwal and Wu, 2003; Nolan and Zhang, 2002; Nolan and Zhang, 2003;).

In the study of Chinese suppliers and distributors, Song (et al, 2009) found channel members in China focus on physical distribution flexibility rather than demand management flexibility, which led to the neglecting brands, customer relationship, customer satisfaction and other strategic problems. The flexibility in activities such as packaging, warehousing and outgoing transportation is not sufficient in achieving competitive advantage, the goal of achieving overall economic capability is weakened by the lack of customer responsiveness in terms of the distributors. So

they proposed that in order to adapt to the external environment including uncertainties of customer demand, Chinese enterprises should focus on not only maintaining self-flexibility but also establishing mechanisms to effectively diagnose, adjust till co-alignment based on the mutual relationship.

Recently some new focus of research on MNCs' supply chain in China has appeared. Zhu et al, (2005) discovered that Chinese enterprises have increased their environmental awareness due to regulatory, competitive, and marketing pressures. The Chinese government has stipulated new policies to promote GSCM and other corporate environmental practices primarily to export more products and to attract more foreign investments. Chinese enterprises highlight their exporting philosophies by pursuing such international organizational standards as ISO9000 serial and ISO14001 certification

Luo et al (2009) studied the practices of the multinational companies' supply chain management in the areas of social responsibility, summed up the implementation of multinational companies' supply chain management on social responsibility in China, they found the requirements of MNCs for the social responsibility of Chinese suppliers completed through four steps, namely:

(A) Factory inspection

The audits for supply chain responsibility, known as "factory inspection" means the regular checks of MNCs on the contract factories in China, MNCs develop a set of production and management activities guidelines and social responsibility standards for their Chinese suppliers. If the test is fail, multinational companies will cancel their order. Almost all multinational companies procured in China have carried out plant inspection by their own.

(B) Implement the SA8000 Standard

The SA8000 is the Social Account, ability 8000 International Standard, multinational corporations demand products supportive enterprises and cooperative enterprises to comply with this standard, China as the manufacturing base of many multinational companies has become the focus area of the implementation of the standard.

(C) Quality and environmental management authentication

MNCs established a set of comprehensive evaluation index system in selecting suppliers, these index mainly including corporate performance, business structure and production capacity, quality systems, business environment and technological innovation capability, etc..

Suppliers are required to achieve ISO9000 quality management system standard, or ISO14000 environmental management system standard. In addition, exports to the EU also need CE certification, exports to German need GS certification, exports to the United States need FDA and UL certification.

(D) ICTI authentication

ICTI (International Council of Toy Industries) is the Code of Practice advocated by the International Toy Association. The ICTI certification requires a third party from the six independent audit agencies designated by the International Play Association to take strict examination including check of local laws, inspection of conduct field, interview of workers.

4.3 Framework Establishing

4.3.1 Framework foundation

From the literature above, Supply chain management is an integrated cross-enterprise management between the core enterprises in all levels of their upstream suppliers and downstream vendors up to end-users in the supply chain under the support of modern information technology network. It encompasses planning, manufacturing and operations management necessary to bring a product to the market place, from the sourcing of materials to the delivery of the completed product. It extends production activities from both direction, through a series of activities implemented: the plan, obtain, storage, distribution, and service, to form a kind of convergence between customers and suppliers, enable companies to meet internal and external customer needs. The aim is to improve and optimize the speed and certainty of all the process through cooperation between enterprises, and to maximize the net

value-added of all the relevant processes, and improve the organization's operational efficiency and effectiveness ultimately.

As can be seen from the literature review, Some of these research outcomes were explicitly consider the role of integration, both internal integration across functions and external integration between firms, as a predictor of successfully managing those same critical flows (Stank et al. 2001); some studies categorize SCM initiatives based on the functional problem addressed, such as total quality management practices, logistics integration, strategic purchasing, etc. (Chen and Paulraj 2004); and others focus on the various functional aspects of SCM initiatives (Li, Rao, Ragu-Nathan, and Ragu-Nathan 2005). Models of supply chain seem to concentrate on only one particular aspect or dimension of the supply chain (MM Helou, 2006). Each of these dimensions is considered crucial in its own right, but each factor by itself does not provide a complete and comprehensive view of supply chains and their management. And so the frameworks and models reveal that there is not an already developed and generally accepted comprehensive model of supply chain (Caddy and Helou, 1999).

Most of the existing frameworks typically provide only a partial view of SCM practice due to a functional or industry specific orientation. But these efforts advanced our knowledge of SCM. As we can see the levels of the SCM identified by the researchers above involve both the internal part of supply chain and the external part of supply chain.

-- The internal influences

The internal part of supply chain concerning business functions involved in the flow of materials and information from inbound to outbound ends of the business. Many factors inside organization may influence the implementation of supply chain management. The organization factors (organization scale, organizational structure of power, organization performance, organization culture, and other factors of the organization), supply chain structure, the relationships involving the management of immediate suppliers and customers, other internal factors are product features, as functional production and innovational products may demand differently in implementation of supply chain strategy; products life cycle; and products process etc;

-- The external influences

The external part of supply chain concerning the management of a chain of business including supplier's suppliers, and customer's customers and also the related environment. The inter-business network embracing the management of a network of interconnected business involved in the ultimate provision product and service packages required by end customers. The main factors related in the environment include: macro economy, political and regulatory environment, social and technology evolution, market exchange and competition aggravating.

So, it can be concluded by now, the SCM related elements from the research literatures may be listed as:

-- implementation strategy

-- delivery

-- procurement/source

-- cost control

-- commitment

-- customer relationship

-- customer service

-- demand

-- order fulfillment

-- supplier relationship

-- product development

-- information system

-- organization structure

-- environmental problem

-- culture

All these elements reveal the management components that across the business processes and members of supply chain, they are critical and fundamental for successful SCM implementation. And the environmental elements have influences on the implementation.

4.3.2 Conceptual framework development

Regardless of the different conceptualizations of SCM by different authors, the objective of SCM is to maximize competitiveness and profitability for the company and the whole supply chain network including the end-customer, the supply chain initiatives should be aimed at boosting total process efficiency and effectiveness across members of the supply chain.

Based on the literature review, this research tries to summarize the already discussed components in supply chain management, and then combined with supply chain management practice issues, to find out the elements and key issues of MNCs' supply chain in China. It also tries to give a comprehensive research framework on MNCs' activities, processes and relationships which fall under the supply chain contents and Chinese environment. The research framework of this study is established based on the integration of relevant theoretical research basis and the interview and discussion with practitioners (shown in Figure 4-1). This framework is developed to guide research efforts and provide insights for managerial practice. It can provide for researchers and practitioners the future thought on implementation of supply chain management.

The major assumption behind this conceptual framework is that the whole supply chain management process usually contains three key areas: the procurement, the operation and the customer relationship management. It is generally believed that the most critical problem in the procurement is the supplier management; the most important task in supplier management is the supplier evaluation, supplier certification, and strategic partnerships. The operation area includes demand management, production planning, logistics management and quality management. The customer relationship management, include conducting customer hierarchical management, the use of advanced CRM system to complete the process and add value to existing customers. All this includes companies and enterprises of supply, production, distribution and sale that before product reach the hands of customers. So the whole process is just the cooperation of the upstream providers (supply activities),

intermediate producers (manufacturing activities) and transport operators (for storage and transportation activities), as well as downstream consumers (distribution activity).

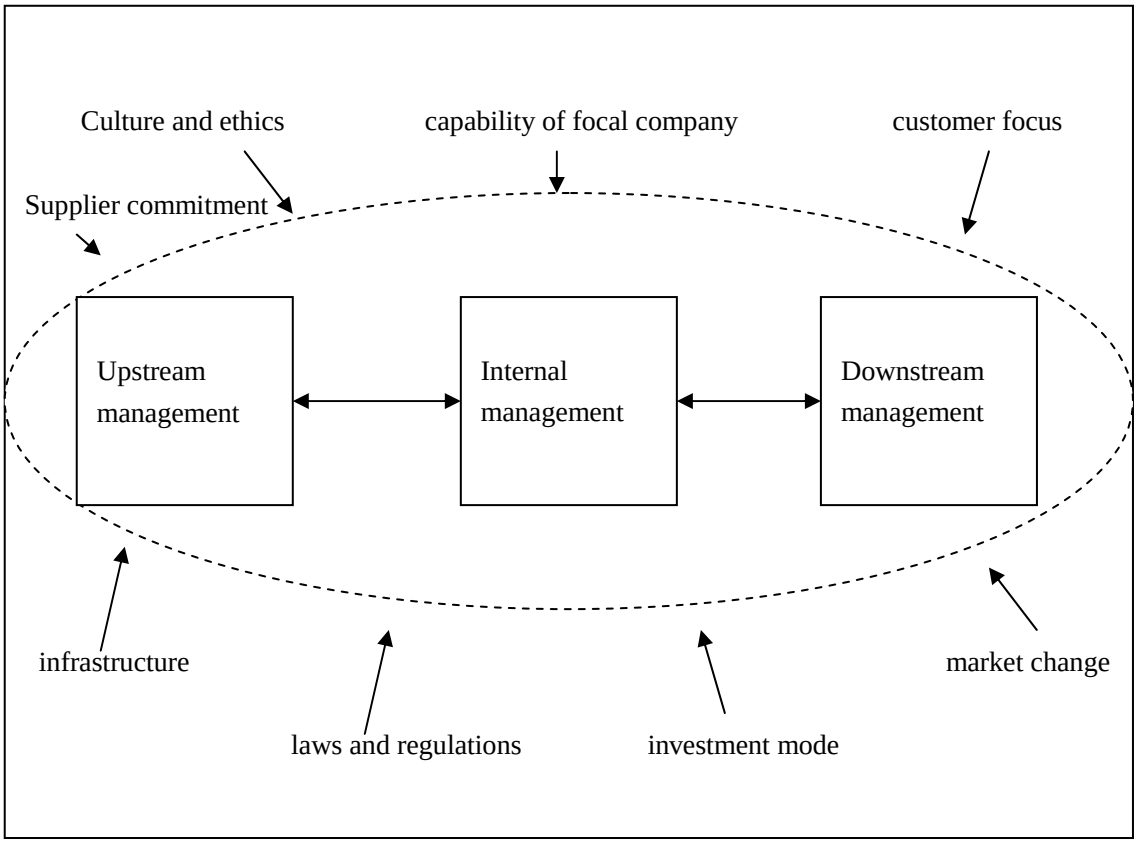


Figure 4-1 SCM components and implement constrains

The theoretical support for the framework is able to be traced from the literatures. According to the Supply Chain Council (2003), the supply chain encompasses every effort involved in producing and delivering a final product or service, from the supplier's supplier to the customer's customer and supply chain management includes managing supply and demand, sourcing raw materials and parts, manufacturing and assembly, warehousing and inventory tracking, order entry and order management, distribution across all channels, and delivery to the customer.

Handfield and Nichols', (1999) paradigm of a firm's supply chain consists of three major parts: internal functions, upstream suppliers, and downstream customers.

Quinn (1997) similarly views the supply chain as a set of processes. He sees the supply chain as all of those activities associated with moving goods from the raw-materials stage through to the end user. This includes sourcing and procurement, production scheduling, order processing, inventory management, transportation,

warehousing and customer service. Importantly, it also embodies the information systems which are necessary to monitor all of those activities.

Christopher (1998) also defines the supply chain as the network of organizations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services in the hands of the ultimate customer.

Yahia Zare Mehrjerdi (2009), give more detailed components thinking that the process covered customer relationship management, customer service management, demand management, order fulfillment, manufacturing flow management, procurement, product development commercialization.

My research framework gives a conceptualization of SCM in three aspects: internal management, upstream management and downstream management, every management part contain certain critical components. It also considers the implementation influences under China reality.

The internal part includes all the different processes that are used to transform raw materials to finished products, the coordination and scheduling of the processes is essential. The upstream part ensures that the right material is received at the right time and to the right location. The focus lies on the selecting of good suppliers and maintaining a good relationship with them. The downstream part emphasizes on satisfaction of customers, the understanding of demand and service providing are critical. In other words, a supply chain consists of multiple firms, both upstream (i.e., supply) and downstream (i.e., distribution), and the ultimate consumer.

Table (4-2) shows the principal components of the three parts.

Table 4-2 Components of three management parts

Upstream management	Internal management	Downstream management
● Supplier selection ● Quality and on-time control ● Relationship management (supplier side)	● Strategy ● Purchasing management ● Cost management ● Distribution management	● Demand management ● Service management ● Relationship management (customer side)

On the other hand, the elements of culture and ethics, supplier commitment, policy, infrastructure; organization structure, investment mode; customer focus, market trend, laws and regulations are considered as the implementation constrains (Table 4-3). Because these elements relevant to the environmental uncertainty, customer focus, and information technology are the key external driving forces instrumental to the development of the notion of SCM. According to Davis (1993), the uncertainty include: supplier uncertainty (on-time performance, average lateness, and degree of inconsistency); manufacturing uncertainty (process performance, machine breakdown, supply chain performance; customer/demand uncertainty (forecasting errors, irregular orders, etc.). Under conditions of increased uncertainty and the lack of other alternatives, organizations in the value chain are more likely to engage in collective actions in order to stabilize their environment.

Table 4-3 Influence elements in SCM implementation

● culture and ethics, ● supplier commitment, ● law and regulations, ● infrastructure	● capability of focal company, ● investment mode ● customer focus, ● market change,

4.3.3 Framework explanation

The framework in figure 4-1 tries to explain the point of view that managing of the supply chain for a company composes three phrases: the internal management, the upstream management and the downstream management. The critical management components in every phrase are the major process to implement, and constrains in the implement environment should be considered.

1) Internal components

Internal management is the basis of supply chain management. It realized the integration of various business and information functions within the enterprise, and the formation of an internal integrated supply chain. Internal supply chain management integrates the internal information system to create information

management for business processes and information consistent. The internal supply chain management of the enterprise deploys the resources inside the enterprise to achieve a variety of highly integrated business and information sharing, control, management and operation coordination, it eliminates the ineffective operational factors, the internal link and business processes to reduce the inventory of enterprises and effectively integrate business processes for the major planning and business decisions within the supply chain. The core of this management is the internal integrated supply chain management efficiency. The main consideration is to optimize resources based on the lowest cost and fastest speed for varieties of products or the provision of a variety of services to meet the needs of users quickly, and to improve business responsiveness and efficiency.

- Strategy

Strategic issues can be understood in many aspects. From the managerial level, it involves understanding the dynamics of the chain and development of objectives for the whole chain, which are handled by managers; it also includes the determination of opportunities that can enhance the competitiveness of the organization as a part of the supply chain or the network of supply chains.

From the operational level, it is the design of the supply chain structure, the location decision of spots and the objectives of the design (Arntzen,et al., 1995; Berry and Naim, 1996; Mourits and Evers, !995; Revelle and Laporte, 1996; Towill et al., 1992). It also involves the development of relations with business partners and the analysis of how various goals support the needs of the organization and it is definitely the responsibility of the upper management. The design of the chain should be able to integrate various elements of the chain and should strive for the optimization of the chain rather than the entities or group of entities.

- Purchasing management

The purchasing function is a vital component of a firm's supply chain management effort (Larry C. Giunipero and Richard R. Brand, 1996).

Purchasing interact primarily the upstream with suppliers while logistics and marketing have traditionally concentrated on the downstream aspects with customers

and third party providers.

There are three basic tasks for the procurement management, first, it is necessary to ensure that enterprises need a variety of supply; second is to acquire a variety of information from the resource market supporting the procurement and decision-making for the enterprise; third, establish friendly and effective relations for enterprises with the suppliers to create a relaxed and effective resource environment. The first task is the most important and basic task.

Procurement management elements include: 1) an integral part of basic procurement management in order to improve complex range of corporate procurement management, it needs for a rational management mechanism and a lean organization, and also some talented managers and operational staff. 2) the demand analysis to figure out what company need to purchase and the species, the number, and the time it is required.

- Cost management

The cost of an enterprise supply chain contains the materials cost, labor cost, transportation cost and equipment cost that happened for the support of supply-chain operations for procurement, production and sales process. The supply chain cost management can be said as a means of approach of the cost management across companies, it is a new idea to effectively manage the supply chain. Its vision is beyond the enterprise, it extends the cost implications to the enterprises of entire supply chain on the operating costs and transaction costs among them, the objective is to optimize and reduce the total cost throughout the supply chain.

A supply chain management approach of cost management implies a channel-wide evaluation of cost to identify total cost advantages. The ability to control the costs in a term environment appears to be the area of major focus under SCM.

It is the cost-management behavior of enterprises in accordance with certain pre-established cost management objectives. And cost-control process takes a series of preventive and regulatory measures to the various affecting factors and conditions to ensure that management objectives be achieved. Cost control process is the process

that use systems engineering principles for enterprise to calculate, regulate and supervise various cost that occur in the business processes, also to find the weak link, and the internal potential, to try all possible ways to reduce the cost of the process.

The key areas for analysis are lowest labor rates, most effective processes, lowest cost of capital, lowest tax rate, most capital available, most advantageous logistics costs, and most depreciation or other tax advantages. To implement cost control scientifically can promote the enterprises to improve their management, change management mechanism, and comprehensively help the enterprises to survive, develop and growth in market competition environment.

- Distribution management

In the context of changing environments, resources are dispersed worldwide and the distances between production facilities have increased. When enterprises are integrated in the supply chain, the supply chain competition naturally reflected in the distribution, distribution is king of the high summation for business, distribution management capabilities are enhanced nowadays. The effective logistics planning with respect to warehouse location and choice of vehicle routings will guarantee organizations to respond quickly in business. Once the product has been ready it is very important that there should be an adequate structure to distribute it to the customers.

Sales management, distribution management, customer relationship management play a role for many companies, while the supply chain management aimed more directly at distribution management. Hongze and Reggie (2005) proposed the use of an iterative approach for designing distribution chain in an agile virtual environment and proved that quick adaptation to changing market situation and automation of SCM processes are essential.

Borade and Bansod (2008) gave the thought that the strategic model should determine the number of distributors and the location of distributors and then, based on the output of the strategic model, the tactical model determined the inventory planning at each node and vehicle routing between different nodes of the chain.

2) Upstream components

Upstream and downstream management is the extended result of enterprise's internal supply chain management to suppliers and customers, its essence is the management of supply and demand. Supply and demand in the supply chain management is both a contradiction, and a unified community.

Every enterprise is not isolated in the social and market environment, its suppliers, the upstream provider, is its supply-side; and its customers, the downstream business demander, is its demand side. Every business has its upstream and downstream sides; they are synthesized to become a complete upstream and downstream businesses chain. Thus, an enterprise does business with its upstream and downstream supply chain members at the same time, the demand of downstream members pulls its business; and its business boosts the business of upstream members. In the enterprise upstream supply chain management, the "win-win" business philosophy is the guiding ideology to form long-term, stable partnership with suppliers, gain strategic resources at the lowest cost within the shortest possible time, and integrate suppliers technology, knowledge and innovative capabilities into their business processes, share information with suppliers, collaborate operation to enable them quickly and efficiently respond to their needs, thereby saving costs, shorten process time to market and enhance product and service innovation capabilities and their ability to respond to the market and customers and win in the market with profitability.

- Supplier selection

Supplier selection is the important process in the upstream. Some criteria such as cost, quality, delivery, and resources are available to meet the demand in the supplier selection. However, supplier selection process should not merely focus on the tangible elements of the supplier's proposal; it should also focus on less tangible considerations that nonetheless make a considerable impact on the success of the supply relationship. These are demands of business places on suppliers in order to meet its sales promises to customers and to gain competitive advantage in the marketplace.

It is essential in selecting suppliers to choose those can not only offer the best

prices, but also the best service. A list of criteria which a supplier must meet before purchasing from them is often used for many companies. Qualifications of some standards like ISO series are often acceptable, companies with these qualifications are seen as the quality symbol of a 'qualified' company.

- Quality and on-time control

Supply chain management executives from suppliers to end-users, it involves a broader scope, but the quality management thought should go throughout implementation. The quality assurance interlocks from raw material purchasing to after-sales service process, so that the establishment of mutual trust between cooperative enterprises of the supply chain became the foundation.

The core enterprise is the organizer and sponsor in supply chain, and also the main body of quality management of the supply chain. The process the core enterprise organizes and builds on the supply chain is also the process to build a "supply chain quality assurance system". The supply chain quality management is the process management for the product quality in the process, formation and realization right distribution within the scope of the entire supply chain, so that to achieve product quality control and quality assurance under the supply chain environment. Building a complete and effective supply chain quality assurance system to ensure a continuing and stable supply chain quality assurance capability is essential of response to market demand for products and services quality.

In different stages of the supply chain, time is a very important factor. The change pace of the technology of many industries has accelerated, and the product life cycle is very short now. Enterprise delivers products to the hands of customers in a timely manner is the first step, take timely measures to customer feedback is more important to maximize customer value. This is the way to keep abreast of market dynamics.

- Relationship management

Supplier relationship management provides the structure for how relationships with suppliers are developed and maintained. Supplier relationship management is used to improve the supplier relationship in the supply chain, it is a commitment to

establish and maintain long-term close partnerships with suppliers, and a management mechanism aimed at improving the relationship between enterprises and their suppliers. It integrates the resources and competitive advantages on both sides to co-develop new markets, expanding market demand and market share, reduce the high cost of early products and achieve win-win situation.

Organizations that identify and map out critical supply chain relationships across and down the supply chain will have greater control over performance and quality. Supplier development is often a cross-functional responsibility, Cross-functional teams tailor product and service agreements with key suppliers (Croxton et al. 2001). Supply communication, sourcing relationships, and supplier development are the glue that holds the supply chain together.

3) Downstream components

The pressure of companies over the past decades has been rooted in customers' demand for a greater variety of reliable products with short lead-time. The more attention a company pays to researching its customer base to identify customer needs, the more rewarding the exchange transaction in supply chain will be for the company (Carson et al. 1998). Since customer expectations are dynamic in nature, an organization needs to reassess them regularly to align and refine their customer focus and adjust its supply chain strategy accordingly (Takeuchi and Quelch 1983, Shepetuk 1991).

- Demand management

Demand Management refers to the understanding and management of all demand for the product, demand management is to ascertain customer needs, the objective for demand management is to establish a common understanding of needs with customers, so as to clarify the best way to meet customer requirements. Demand Management provides the structure for balancing the customers' requirements with supply chain capabilities, including reducing demand variability and increasing supply chain flexibility (Croxton et al. 2002). Conduct forecasting; plan promotions; plan projects; plan sales campaigns; collect and analyze point of sale (POS) data and actual customer orders; promote products; price products; measure customer satisfaction;

execute efficient customer response (ECR).

Demand management includes forecasting and customer order management. It is part of the planning process. Demand forecasts for the enterprise give the demand expectation for its products in the coming period, and for the business planning and control decisions-making. The operation aim of the organization is to provide products or services to the community, its decision-making will no doubt to a large extent influenced by the demand forecast. Demand forecasting plays closest the relationship to the operation activities. Customer orders are the starting point for business planning, sales and operation planning, and production schedule. Order management is an effective extension of customer relationship management, it better enables to bring personalized, differentiated service in an organic integration of management to the client, and promote economic efficiency and customer satisfaction improvement.

Supply by orders is designed to enable customers to freely choose the brand, supply arrangements to be achieved openly and transparently, the product can adapt and meet consumer needs properly. Order Fulfillment includes all activities necessary to define customer requirements, design a network, design the logistics network, and fill customer orders, and enable the firm to meet customer requests while minimizing the total delivered cost (Croxton 2003, Bolumole, Knemeyer and Lambert 2003).

- Service management

In the enterprise downstream supply chain management, "customer satisfaction" is a strategic focal point, grasp customer needs and changes through information integration and sharing timely, make full use of the resources of their own through collaborative functioning, and even integrate other local resources to achieve maximum quality and timely services for the customer to expand its customer base, increase sales and profits. Customer service management provides the firm's face to the customer, and a single source of customer information, and the key point of contact for administering the product service agreements (Bolumole, Knemeyer, and Lambert 2003).

The well-managed customer service management process includes efficiently

utilizing on-line information systems with current and consistent information to serve the customer. When effectively managed, this process can allow a company to be more proactive to service requests, and more responsive to service problems. (Croxton，et al 2001)

An important component of customer service management is to work with the order fulfillment process actively to address customer inquires and orders. Another key component is planning how the commitments made in product and service agreements. The goals of customer service management are to develop the necessary infrastructure and coordination for implementing the service management and to provide a key point of contact to the customer.

- Relationship management

Since the nineties of 20th century, the goods entered the mature stage, customers focused on the goods not only in terms of quality, but more on the purchase accompanied services. As customer dominates the enterprise's production and sales activities, the customer is now the main market driving force. Customer needs, buying behaviors, and potential consumer preferences are all important resources that companies seek for the competitive advantage to compete. And the customer as an important element in the supply chain, in the buyer's market, the center of the supply chain should also tilt from producers to consumers.

In order to close to the customers, and maximize the satisfaction of the needs of customers, enterprises under the increasingly fierce competition, emphasis more on customer service to enhance their competitiveness and to maintain long-term advantage. So, the change of enterprises management is going to become increasingly prominent and important, the functions of management is shift from product management to customer management and from transaction management to relationship management. Customer management becomes an important part of supply chain management.

Customer relationship management provides the structure for how relationships with customers are developed and maintained. Cross-functional customer teams tailor product and service agreements are used to meet the needs of key accounts, and

segments of other customers (Croxton et al. 2001). In the enterprise downstream supply chain, customer relationship is the most important supply chain membership. Therefore, customer relationship management is the relationship management focus in the members of the downstream supply chain.

The integration of CRM and SCM promotes information sharing and further helps companies manage and service a customer profitably, ensuring that the insights gained from customers in the front end of the business planning process are transformed into profits through planning efficiencies in the supply chain(Z.Zeng A., and K.Pathak B., 2003). The establishment of CRM, sets up the marketing idea of client information sharing first inside the marketing staff, the information exists as the shared resource among enterprises, employees, and the operation process, it has become the development elements of enterprises management activities around the "Customer Guidelines". Effective customer relationship management play a strong guiding role for the entire supply chain, it can lead to better communication and information delivery among members of downstream supply chains, make more accurate demand forecasts and bring larger market demand for internal supply chain and the upper reaches of the external supply chain, and reduce the demand variability, so that the whole supply chain members can have quick responses.

4）Influence elements

The influence elements in the framework are environment related factors that may have impact on the supply chain implementation:

- culture and ethics,

The implementation of supply chain management is a cultural change in any organization and needs dedicated efforts from the upper management (Davis, 1993; Fuller et al., 1993).

During the process of cooperation for the members of supply chain, different corporate cultures collided, mutual absorption and transformation, culminating in the difference of corporate culture will form a consistent supply chain culture at last. This process is essentially a process of cultural synergy, which refers to the recognition of cultural differences between each member (including the corporate culture, and social

cultural differences), based on that the creation and formation of new culture of the organization, and cultural synergy determine whether they have the foundation to form common goal, common value and benefit.

A strategy matched supply chain culture is a powerful tool for the successful implementation of supply chain strategy, and it will be very difficult to successfully implement the strategy when the two are inconsistent. Successful supply chain management should create supply chain culture to support the supply chain strategy, which is the culture rebuilt. Management psychologist Adler (1980) developed three kinds of programs to solve differences in corporate culture: "force, compromise and collaboration." As collaborative program means a member company does not have to use forced programs in recognition of cultural differences between companies, nor for non-voluntary compromise, but only makes appropriate amendments to the corporate culture. Co-ordination is able to facilitate bilateral cooperation, and it is the program of the lowest costs and risks in the three.

The establishing of accepted "soft constraints" culture moral of self-restraint is very important to the members of the enterprises. So that enterprises subject to supply-chain cooperation norms from the moral with consciousness, and a strong binding is formed to the behavior betray the moral.

While the culture of the supply chain was formed in the interaction between member enterprises, it also affected by social relations (social cultural) impact. There are social adjustment in supply chain culture, the economic activity and economic relations of supply chain members is embedded in certain social relationship, and is impacted by these social relations (Jones, et al, 1997) to a certain extent. The current supply chain is still a contractual-based governance mechanism with the growing environment of opportunism, so higher self-binding nature of morality is required due to the common goal of member firms. Mutual trust relationship and same values can help enterprises to reach tacit agreements and also will help businesses to comply with contracts and coordinate transactions. On the contrary, discord and poor social relations and traditions will prevent the establishment and development of inter-firm cooperation between the members, increasing the market risk and moral hazard costs.

- Supplier commitment,

Commitment is the agreement on the vision and focus for serving customers, mutually sharing information, mutually sharing risks and rewards, cooperation, integration of processes, building and maintaining long-term relationships. Managing a supply chain requires each firm in a supply chain to be supply chain oriented inside the firm and, at the same time, perform a specific set of collective managerial actions across the firms within the supply chain (Min and Mentzer，2004)

The key components of SCM are collective efforts to manage supply chains as a whole, there should be an agreement on the vision and focus for serving customers for SCM (Ellram and Cooper 1990; Cooper and Ellram 1993).

Mutually sharing information among the supply chain members is required, especially for planning and control processes. Effective SCM also requires mutually sharing risks and rewards that generate a competitive advantage (Ellram and Cooper 1990).

- Laws and regulations

The supply chain activities are related to political and legal environment, different political and legal environment will have different effects on the operation of the supply chain. Political environment is the external political situation and conditions under which enterprises take their marketing activities. The political environment can be divided into the domestic political environment and international political environment, the domestic political environment consists of a country's political situation, economic system and macro-policies and local government policies.

Each nation has its own unique political environment, it is not immutable. Political environment is a combination of different factors, such as domestic crises, acts of terrorism against the business, as well as special areas of conflict between countries. Each nation has its own unique political environment, it is not immutable. Political environment is a combination of different factors, such as domestic crises, acts of terrorism against the business, as well as special areas of conflict between countries.

The political situation is the stability of the domestic political situation as well as the international political climate of business marketing. Political stability is an important issue, unstable political environment will increase the business risk, such as violence, expropriation, operational restrictions, restrictions on capital and profit remittances. There is a great political risk to invest in a politically unstable area, therefore, It is extremely important of knowing how to evaluate the national or regional political situation of the investment area.

The analysis of legal environment of marketing mainly refers to the enactment of various laws and regulations, decrees, regulations, and methods of the state, government departments and local government (such as provinces, municipalities and autonomous regions) and so on. Companies need to understand the law, familiar with the legal environment to ensure that the enterprises themselves not only strictly in accordance with the laws and do not violate the laws and regulations, standardize enterprise behavior of their own, but also be able to use legal means to protect the enterprises for their own interests. When enterprises is in the international market, they need particular attention to studying the factors affecting the legal environment, otherwise, the corporate marketing activities would be subject to setbacks, or even unable to move.

- Infrastructure

The infrastructures that affect the operation of the supply chain include the logistics capabilities and transportation infrastructure, the distribution system, and the application of information and technology.

Modern logistics service system is comprised of three components: transportation systems, delivery systems (including loading and unloading handling, packaging, storage transmission, distribution processing) and information service system. No matter what kind of industry, in today's highly competitive market situation, manufacturers and distributors have tried their best, in their familiar core business, to take all feasible measures to reduce costs within the framework of manufacturing and selling (including raw materials, manufacturing plant facilities, wages energy, advertising costs, including design fees, sales commissions, finished

goods quality inspection and packaging, etc.), the remaining possible improvement is the outside transportation, warehousing and distribution activities. Properly control logistics activities will not only reduce direct costs, such as import and export taxes, wages and packaging fees, but also significantly reduce the variety of indirect and intangible costs, such as ballast, expiration, shortage, theft, wrong delivery and non-normal wear and tear and so on. Logistics costs are usually considered as the highest cost of operations, second only to the manufacturing process of the material cost or the wholesale and retail product costs, and so logistic capabilities is critical to the success of enterprise development.

More than ever before, today's information technology is permitting the supply chain at every point, transforming the way exchange-related activities are performed and the nature of the linkages between them (Palmer and Griffith 1998). Information technology as an effective means of promoting collaboration between collections of firms, such as groups of suppliers and customers organized into networks. Information sharing and its control play a vital role in integration of different elements of the chain and require highly coordinated efforts of both engineers and managers.

- Capability of focal company

The supply chain focal company is the core of the entire supply chain and plays a driving role in the operation. The ability of strategic integrate, organizational coordination, process control, learning, and innovation capacity of focal company and even size of the company are the ability to achieve co-operative behaviour at the heart of SCM. These powers are precondition to induce any increases in co-operation. It is unlikely that a "small" actor in a supply chain will be effective in starting a comprehensive SCM program. This view is supported by Cooper and Ellram (1993), who assume causality between the relative size of a firm and its ability to seize the advantages of SCM which the larger the company, the more advantage it can take of SCM.

- Investment mode

There are different modes for the MNCs' investment to the host country:

1）Establishing new company or by merger and acquisition

Establishing new companies benefits the transfer of advanced technology and management experience, but the cost is relatively large; merger and acquisition will help to reform the existing equipment and plant, put into production quickly, saving time for entry, easy enter local the market, but it is difficult to get a controllable equity and often has difficulties in negotiation.

2) Wholly owned and joint ventures

Wholly owned mode of entry mainly used in the establishment of subsidiaries and branches and so on. Wholly owned mode favors multinational corporations to maintain technology and management advantages, but vulnerable to the exclusion of local businesses and government; joint venture mode enters the market with ease by virtue of technology, capital, management, R & D and brand, but because of the control requirement proportionality of host country, it is difficult to get control of the joint venture companies for the MNCs.

Due to different enter modes, multinational corporations have different strategies to establish supply chain in host countries, new and wholly owned companies can select new suppliers and establish new supply chain; merger and acquisition companies or joint ventures need to digest the original supplier, restructuring the supply chain .

- Customer focus,

Supply chain management is a complete change in philosophy, manufacturers or traders must be customer-centered, pursuit the overall efficiency of their production and circulation, deploy the best plants at best place; compress delivery time , reduce the size of orders for quick response to market demand, integrate processes, complete order with the least cost. Consumer demand determines how organizations set their expectations and justify adaptation of their operations.

The customer-focused strategy for a company requires high inventory and significant costs for customer interaction; it is very much different from a cost-minimizing model. As customer demand close to the customized merchandise, companies must take the large or completely customize to respond to the market. Products strategy must also turn from the early large quantities of small varieties to

the current tailor-made for customers.

Customer focus objectives is to enable the supply chain to provide products or services be quickly and accurately sent to the user's hands, and to maximize customer satisfaction, analyze and manage customer information, develop appropriate marketing strategies, and continuously expand market share, provide information for the supply chain planning.

- Market change,

The success and failure of supply chains are ultimately determined in the marketplace by the end consumer (R.M. Jones, 2000). Corporate survival environment has changed dramatically under the economic globalization trend. Market complexity and uncertainty has increased, the hierarchy of customer needs is upgrading and the structure of demand is diversifying, product life cycle becomes shorter and shorter, and competition becomes increasingly fierce. Because of these, market segmentation has been more complex, the products more diversified, which makes supply chain management, forecasting and demand planning for the decision-making to be more difficult. These changes demand compete ability highly to the business, the original management thought can no longer meet the new competitive situation. Current market environment requires quick response ability to user's needs, and to achieve this purpose the company with only its available resources is not enough.

Respond quickly to customer needs is based on existing SCM system. When the whole supply chain network has a good coordination and refinement capacity, enterprises can quickly respond to customer demand on the market. This rapid response capability also often determines the survival of an enterprise, therefore, the enterprise deployment of SCM is one of the most important goals. This adaptability means that the SCM should be able to adapt to the change in the mode according to the quick market change, rather than tear down to rebuild the entire system. And this flexibility directly determines the company's ability to quickly respond to the customer needs.

5.0 Methodology

This study was conducted to be able to understand how multinational companies manage their supply chain in China, the main purpose was to explore the impact of the internal components and external environment on multinational's supply chain management. The methodological approach used in this research is case study.

The core methods of this research used was qualitative and the case study method was adopted to study the related issues. The theoretical background of the

case study is based on the conceptual framework made in the previous chapter, which aims to understand various phenomena and affecting factors of the current supply chain management of multinational corporations in China. The expectation of this research is try to truly reveal the real phenomenon of multinationals' supply chain management in China, so that a deeper, opener, and elaborated procedure to be used to increase the depth and fineness of the information, and enhance the understanding of case studies and scenarios. This method is characterized by active participation in formulating and analyzing organizational change.

Yin (1989) and Eisenhardt (1989) agree that case studies can be used to accomplish various aims: to provide description, test theory or generate theory; exploratory and explanatory. They also stress that case studies can involve qualitative data only, quantitative only, or both (moreover, the combination of data types can be highly synergistic). This paper focuses on qualitative research, the essence of which, according to Van Maanen et al.(1982), consists of two conditions: the use of close-up, detailed observation of the natural; and the attempt to avoid prior commitment to any theoretical model.

5.1 Reason for use case study

The research methodology for social science includes: Experiment, Surveys, Analysis of Archival Information, Histories and Case Study。Yin（1994）pointed out that each of the methodology has its advantages and disadvantages, and researchers need to consider the following conditions in deciding of choosing them:

1) Type of research questions

2) The control of the whole issue by the researcher

3) Research focus on the present issue not history

According to the three situations, Yin（1994）concluded five research methods with the three situations：

Table 5-1 The research methodology for social science

Methodology	Type of research question	Control of the issue or not	Focus on the current issue or not

Experiment	How、Why	Yes	Yes
Surveys	Who、What、Where、How many 、 How much	No	Yes
Analysis of Archival Information	Who、What、Where、How many 、 How much	No	Yes/ No
Histories	How 、Why	No	No
Case Study	How 、Why	No	Yes

Source：Yin，1994

In accordance with this classification, case study method is more applicable to the type of question like "How" or "Why", and when the focus of research is the current situation, researchers at this time has low control of the incidence.

Compared to other social science research methods, case study has its own special characteristics and limitations, it is mainly used for "present" phenomenon, to explore the reasons for its formation (Why) and the way it happens (How), it stressed that the phenomenon of cross-relationship in between. However, the researchers have low degree of control for the phenomenon. M Scapens (1990) pointed out that the case study is often thought as an approach that lack of comprehensive and rigorous, but is still used by many social science researchers. So, there is still importance for the case study method.

Yin (1994) defines case study as "an empirical investigation into contemporary phenomenon operating in a real-life context". It is particularly valuable where the kind of control present in a laboratory is not feasible and not even ethically justifiable (Yin, 1994; Remenyi et al., 1998; Miles and Huberman, 1984). There is no obvious boundary between the research phenomena and real life background, such kind of research need to use many aspects of the source of evidence.

Generally speaking, case study appropriated to study the research questions with the characteristics of current and relatively new, not widely researched and without a strong theoretical foundation. The research on multinational corporations' supply chain management in China is not seen much in the country would be more suitable for case study done in depth. By using case study method, researchers can find the answers for the "how" and the "why" questions (Yin, 1994), and track future research

variable basis through the case study design.

The case study is a research strategy which focuses on understanding the dynamics present within single settings. The nature of this research at this stage meant that intensive research methods were preferred and so case study being selected as the main research strategy. The approach of the case studies involves theory building and verification rather than testing. Case studies provide the ideal strategic choice when researching issues is of social action; especially in organizational settings (Yin, 1994). This suitability of the case study method for examining the 'decisions associated with complex social action' is also recognized by Schramm (1971).

The observed phenomenon in case studies is naturally occurring event, not involving controlled testing and manipulating, all the information were gathered through multiple means, it focused more on one or a few samples or individuals (Yin, 1994), so researchers can observe the natural phenomena through case studies on the actual process occurred, and authenticate research mode from the actual situation. When the observation of the issues studied has many variables in the real situation, it is most suitable for case studies (Yin, 1994), and focusing on current issues as its properties.

Case study is a surveillance used for single individual, group or community. Although its main purpose is to describe, you can also try to explain. Based on Yin's view (Yin, 1994), case study method has no restrictions in the observation of the actual phenomenon. According to different research objectives, case studies can be divided into three kinds: Descriptive, Exploratory and Explanatory. Descriptive case studies are designed primarily then there is lack of relevant theoretical basis for research themes, it is trying to make a complete "description" to the practical complex phenomenon that occurred, as a foundation of the follow-up study or the theory building, when the whole observed phenomenon is of complexity, descriptive case studies will help to clarify the appropriate relationship between the complex phenomenon; exploratory case study mainly objected to be used in the absence of theoretical foundation, to explore the phenomenon of the causes and ways to define the questions and hypothesis for the follow-up study, help researchers to clarify the

scope and direction of research topics, and establish the assumptions; explanatory case study was designed to reference a different theoretical perspective to explain the relationship of a phenomenon.

Table 5-2 Type of research objectives

research objective	description
Descriptive	l. The main purpose is to "description", when the study lacks of relevant theoretical basis, it will be practical to complete a description of the occurrence of a complex phenomenon. 2. When the whole phenomenon is very complex and difficult to predict or intend to use causal explanation, descriptive research could help clarify the complex relationship phenomenon.
Exploratory	1.Applied when the researchers lack of clear definition to the problem. 2. The main purpose is to find the reasons and direction for the occurrence of various phenomena to define research question and the hypothesis for the follow-up study, and provide research methods further further.
Explanatory	Reference different theoretical perspective to explain causal relationship of a phenomenon.

Source: Yin，l994;

A case study may be characterized as a detailed examination of an event (or series of related events) which the analyst believes exhibits (or exhibit) the operation of some identified general theoretical principle (Mitchell, 1983). A very important advantage of the case material lies in the richness of its detailed understanding of reality. Zonabend (1992) states that case study research is done by giving special attention to complexities in observation, reconstruction, and analysis of the cases

under study and is done in such a way that it incorporates the views of the ``actors'' in the case under study.

The case study methodology is a common feature in Supply Chain Management (SCM) research (Bhattacharya et al., 1995, 1996; Goffin et al., 1997) and it can be used to review both intra- and inter-organizational interactions and relations (Yin, 1989). Handfield and Melynk (1998) illustrated the link between research purpose, question and typical research method. They suggested that a longitudinal case study is suitable for exploring research questions such as: What is happening and what are the key issues? The purpose of this research project is to explore the factors influence the supply chain management (SCM) of MNCs' in China, and to explain the key issues by applying an implementation framework. Gunasekaran et al. (2000) suggested that a good case study ought to contain information that readers can use in replicating the experiences gained and lessons learnt in future under similar settings.

The main arguments for choosing case studies for this research strategy were the descriptive nature of the research (not requiring control of behavioral events but rather documenting them) and the dominance of "how" (and exploratory "what") questions. As this study is to explore the impact of the implementation factors and related issues of supply chain management of multinational corporations in China, it does not lie in seeking the unique nature of it, so it is designed to use the case study with multiple cases.

The wish of this research is to "gain insight elements in supply chain management systems" of MNCs' in China, with the internal of organization and the environmental related to the contribution to be continuously meeting internal and external demands implies a very comprehensive research design, with a multi-disciplinary character and a large number of factors to be considered, which could be seen as arguments for qualitative research.

5.2 Case study design

Case studies can be done with one case or multiple cases. Multiple cases strengthen the results by replicating the pattern matching, thus increasing confidence

in the robustness of the theory. Single case study can be used to confirm or challenge a theory, and can also be used to propose a unique or extreme case. The feature of the multi-case study is that it includes two analysis phase: within-case analysis and cross-case analysis. The former is to separate each case and conduct a comprehensive analysis independently, the later is to make unified abstraction and induction on the basis of the former cases, and then give a more insightful description and more powerful explanation.

Yin (1989) established case study pattern as: case study design; preparing for data collection; conducting case studies; analyzing data; and finally reporting. According to Yin (1989), five components of a research design are especially relevant: study questions; its propositions (if any); its unit of analysis; the logic of linking the data to the propositions; and the criteria for interpreting the findings. The work of such, as Bettenhausen and Murnighan (1985) on conversion of theory testing research into theory building research, Denzin (1984) on triangulation of data types, and Eisenhardt (1989) on building theories from case study research, have provided additional pieces for a framework of building theory from case study research. Yin (1994) also has described the design of case study research, he developed a typology of case study designs, and described the ``replication" logic, which is essential to multiple case analysis.

Yin (1994) confirmed that a case study design consists of two levels of classification, the number of cases and the unit of analysis (Figure 5-1). The design of the analysis unit is determined by the issue to be explored, its focus is to explore the "personal", "Departmental", "information unit" or "the whole Company", different analysis unit needs different research design and data collection strategies (Yin, 1994).

Case studies design can be divided into four types according to different analysis units and the number of the cases studied: Type 1, a single case with a single analysis unit; type 2, a single case with multiple analysis units; type 3, multiple cases with single analysis unit; type 4, multiple cases with multiple analysis units. A single case study is usually applied to the initial exploration, and later used to negate a theory; and multiple cases designs is used in comparative case study for derivative or

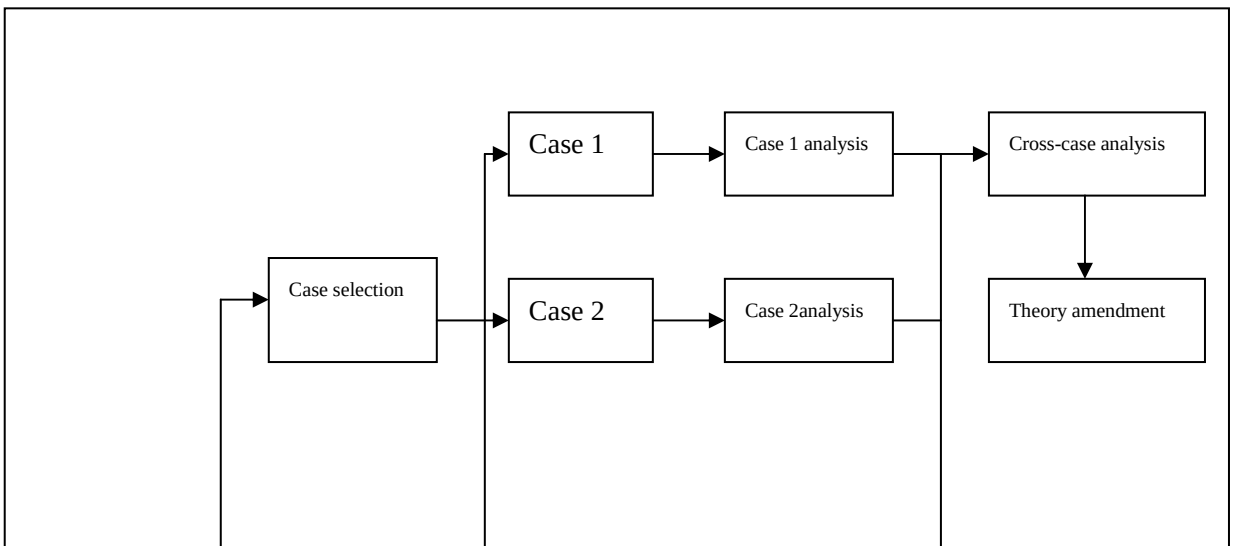
extension of the theory (Yin, 1994). Yin (1994) also pointed out that the evidence obtained by a number of cases is usually considered to be more strong and powerful. Single case and multiple cases have different adaptability, multiple cases seek for generality by cross-case analysis, and single case is mainly used for holism of the case. Multiple-case designs allow for cross-case analysis and the extension of theory. Of course, multiple cases yield more general research results (Izak Benbasat, 1987).

Analysis units	Holistic (single analysis unit)	□	□
	Detail (multi analysis units)	□	□
		Single case	Multi case
		Number of case	

Figure 5-1 Basic type of case study design
Source: Yin 1994

In terms of specific case study designs I again refer to Yin (1989), who distinguishes the evidence from multiple cases as one would consider multiple experiments-that is, to follow a "replication logic" (Yin, 1989).

Yin (1994) also pointed out that a Multi-Case Study Method has its procedure (Figure 5-2): Define and design, prepare, analyze and collect, analyze and conclude. By repeat compression, constantly revise the theory and select the appropriate case is the reason for the reliability with multi cases.



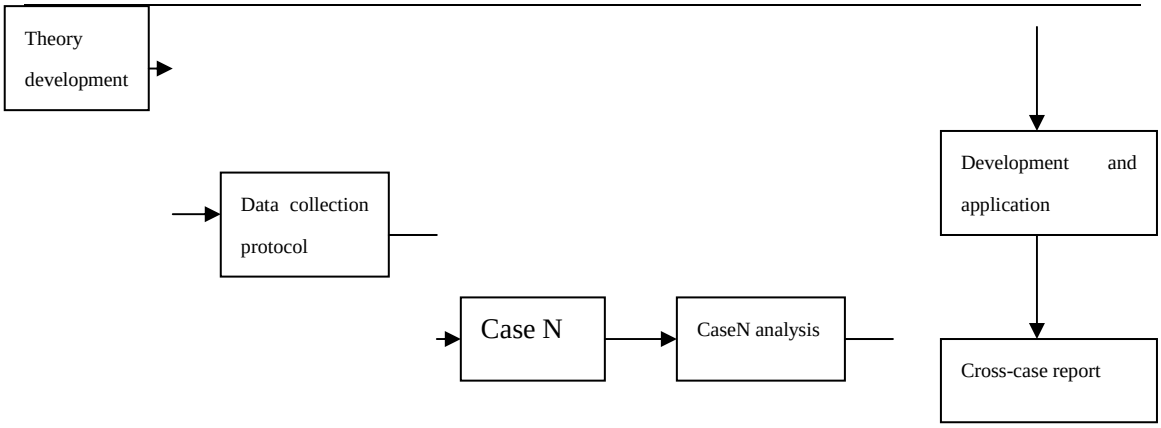


Figure 5-2 Case study procedure
Source: Yin 1994

This study covers supply chain management issues of multinational enterprises in China, the focus is on the inside organization as a whole, so the case company is been set as the analysis unit to conduct the data analysis. The multinational companies were selected as research object, and a multi-case approach is adopted, it is holistic with single analysis unit. In the four types, multiple cases and single analysis unit is carried out in this study. The need for case study research is supported by epistemological and methodological discussions. That is, there is a need to study the SCM implementation context of MNCs in China, more importantly, to uncover the mechanisms through which the MNCs will benefit.

Although the ongoing cases spend much more time and resources to carry out, it is richer with information, and the research results are more convincing, because multiple cases are replication design concept, rather than the Sampling Logic (Yin, l994). Repeat logic can generally be divided into two categories, "literal replication", if different cases get the similar results; "theoretical replication", if the results of comparison of different cases is given, but in a predictable range.

This study established the research process by referencing to relevant literature, and then designed formal interview questions on supply chain management research issues for multinational enterprises in China.

5.3 Case selection

This study was to use a holistic (single analysis unit) and multiple case study design type. The case selection criteria are related to the object of study and research questions, it determines the property that can bring about meaningful case study data. After clarifying the research question of the study, it is time to find suitable cases for study. The objective cases are selected according to the time and the will of the participated business executives or the persons interviewed.

The number of cases in a multiple case study should reflect the number of case replications- both literal and theoretical- one would like to have: "the number of literal replications depends upon the certainty you want to have about your multiple case results.

The use of multiple cases in this study underlines the complexity of the topic under investigation and develops the empirical evidence to support and sharpen the theory. The selection of cases inevitably involved discretion and judgment, selecting from those which could provide convenient access whilst exhibiting the appropriate components of SCM. The same data collection procedure was adopted in all cases.

In this study, multiple cases were adopted. The cases selected in this research are from multinational companies in China, it is able to meet the duplication of the logical argument in the case study method.

Based on the pre-discussion with managers from multinational companies, different industry of a company and its business scale may have impact on the way of the company's supply chain management. And so the case companies were selected as the research objects will follow the principles as:

- MNCs that constructed their supply chain in China
- Case companies that are willing to support the interviews, the conducted study and can provide information
- Different industry covering and different business scale

And so the four cases finally chosen are: Company S (covers electrical products, big in size), Company G (covers machinery products, medium in size), Company W

(cover bath products, medium in size), and Company P (cover pharmaceutical raw materials).

Through interviews with relative managers or senior management of the organizations, the study was constructed attempting to analyze the components of effective implementation in SCM of MNCs in China, including components of SCM itself and environmental factors related. This helped to increase the understanding of current practice on SCM implementation of MNCs. This also helped to uncover the types of information required for the more comprehensive survey at the next stage of the research.

5.4 Data collection

Yin (1994) pointed out that in data collection, there is none of a single data source can represent the full facts or phenomena, and in fact a variety of data sources are of complementary, therefore, a good case study should use several sources of information.

Yin (1994) proposed the following three principles for the case study data collection:

(1) Use of multiple sources of evidence, the same facts or findings should be from two or more source of evidence.

(2) Establishment of a database for cases, cases information should be collected together formally.

(3) Use a Chain of Evidence to link the research issues, the collection of data and the obtained results together.

Birnberg, Shields & Young (1990) divided data sources and data collection methods into three categories: 1. Field research, 2. Lab Experiment and 3. Survey research. The field research method can again be divided into: field experiment, case studies and field studies, and other methods. The field experimental is the experimental trials for the real-life situation; case study is to collect information of an organization; if two or more organizations information is collected at the same time, it is called field research.

Yin (1989) considered that the case study data collection contains documentation, archival records, interviews, direct observation, and participative observation and so on. Yin (1994) notes the importance of using multiple sources of evidence within case study research. Yin（1994）call the above methods categories as the tactic classification.

Case studies typically combine data collection methods such as archives, interviews, questionnaires and observations. The data collection methods can be explained as:

1) Documentation

Include the company's annual report, documents and report material of newspapers and magazines.

2) Archival records

Include the company's organizational chart, the statistical tables, company reports, assessment records, the relevant reporting, business analysis table and so on. The understanding of documents and records assists the research, clarify the subject direction of case studies, and also contribute to the follow-up research process and the interviews to shorten the time for the interview.

3) Questionnaire and interview

Interview is to visit or talk to a research object or relative persons, the respondents will not answer in pre-set form. In-depth interview is usually in a relatively non-structure, so that the respondents have greater freedom to guide the conversation in the direction of access methods. Interviews can be arranged in non-structured, semi-structured or structured ways.

-- Non-structural interview: to chat or talk with respondents with no strict limits, the researchers and the respondents may talk freely. It is conducive to broadening and deepening of social issues.

-- Semi-structured interview: Interviews are usually interviewed by the researchers in pre-set interviews outlines, and then different questions in the interviews will be based on the outline to guide the respondents to give the required information. This approach can retain the flexibility of non-structured, while makes the interview

more focused.

-- Structured interview: interviews by the researchers are prepared in advance for specific questions, interviews carried out simply to follow these questions. This kind of interview could be done like a survey, but the respondents did not answer in format. This structured interview lacks of flexibility, but because the question is set in a uniform manner which facilitates the comparative analysis for the results.

The validity of interview for the study came from the research direction established by studying of documents and records, and the research direction contributes to the formulation of interview subjects, and toward the required information for in-depth interviews.

4) Observation

The researcher makes field observation directly to understand actual problems in order to identify the solution to the cases. Observational evidence was gathered during formal events such as meetings and supplier development programs and, less formally, during visits or interviews. These opportunities provided details of the research subjects' surroundings as well as the relevant interaction and behavioral and environmental conditions (Remenyi et al., 1998). A content analysis was completed in order to group and identify research themes.

This study collects data from these aspects: information and documentation, formal and informal interviews. And so the obtained evidence is from different sources of information, it not only uses different data collection methods, but also confirmed by the respondents, such way of information obtaining satisfies the accuracy of data collection by data source triangulation.

The interviews in this case study are conducted through face-to-face talks with senior managers in the subsidiary of MNCs' in China. Lasting between 60 and 100 minutes, the interviews were conducted using the language of Chinese, for optimal knowledge and data acquisition. During the entire case study, the guidelines and protocols described by Eisenhardt (1989) and Yin (1994) was adhered, followed by qualitative data analysis procedures such as those found in Miles and Huberman (1994).

For each of the case study organizations, data was collected primarily through semi-structured and structured interviews. An interview questionnaire is used for the interviews and the questions concerned are especially set from the conceptual framework covering three management phrases of supply chain (Internal management, upstream management, downstream management) and environment aspects .

The interviews were focused on the activities, processes and outcomes of the performance measurement process. Interviewees were drawn from managers of purchasing, logistics, production planning and quality control area. In order to really grasp the interview centers, the notes were taken down during the interview to ensure the integrity and reliability of the follow-up data analysis, and backed up by relevant literature, relevant information provided by the interviewed enterprises and the company files as a secondary data to carry out induction. Interview materials were treated immediately after each interview, all the materials were filed, documents were consulted to understand the organizational culture of the MNC and the relationship between the MNC and its subsidiaries, and connection is maintained with the respondents to communicate timely to any of the problem.

The data presented in this paper reflect the views and interpretation of the interviewees. All respondents have the same conversation process and sequence of questions from the beginning to the end; such designed interview protocol ensures the reliability of the data collected (Yin, 1994). In each interview, the respondents were first explained for the purpose of the study, and then the relative background materials were collected from the respondents. Respondents were also enquired to seek for their views for the model on relevant components.

5.5 Establishing of data base

Yin (1994) pointed out that the composition of the database of case studies can be divided into four categories (Table 5-3).

In this study, the case study database is built in two categories, relevant materials and interviews notes. Relevant materials are the documentary sources and information provided facts, figures and recorded decision data provided by companies to

supplement the analysis; interview notes are the contents of all the interviews been taken down and organized after, the finishing work is conducted usually within 24 hours after each interview in order to identify problems and make analysis.

Table 5-3 Type of case study database

Type of case database	Description
case study notes	any kind of notes
case study document	relevant documents of the case company
formulated materials	Collected from research objective or research team
narratives	Finishing materials and answers from protocol questions

Source : Yin(1994) .

The database in this study keeps a similar form for each case company in order to enhance the reliability of data (Yin, 1994).

5.6 Data analysis

Data analysis includes review, classification, list form, or use other methods of evidence to explore the study of the initial proposition. First of all, it needs to determine the analysis strategy to understand what is wanted to analyze and why it is wanted to analyze. The specific strategy used in the analysis is of two situations: one is the theory dependency proposition. Case studies may be a start to the propositions, and the propositions may reflect a group of research questions, new ideas and literature review results. As the data collection plan should be developed based on the proposition, it may have pointed out the priority of the relevant proposition analysis strategy; the other is to develop the case description. A descriptive framework is to be built to organize the case studies.

Miles and Huberman (1984) have outlined specific techniques for analyzing qualitative data. They address a variety of devices such as tabular displays and graphs to manage and present qualitative data without destroying the meaning of the data

through intensive coding. Yin (1994) also gave three strategies for case studies (Table 5-4).

Table 5-4 Methods for case study data analysis

Method	Description
Pattern match	Conduct comparison of the discovery and collected evidence to the research proposition to amend or validation the hypothesis.
Explanation Building	Use information from the narrative form, in many cases, through dynamic comparison, to establish explanation by a series of interactive events.
Time-series Analysis	Compare patterns of events on the time series

Source: Yin(l994)

This study mainly aimed at the proposition described in the research framework which also guides the material analysis, and will collect a variety of evidence relevant to do the case comparison, clarify the relationship between the events and connect related evidences at the same time, so the analysis method used will be pattern match and explanation building.

The multi-case analysis method and the single-case analysis method are similar; both are based on pattern match, explanation building and time series analysis. In the multi-cases, the analytical work is able to the use of "repeat logic" in addition, so that the results of case studies can also be accepted with a more robust even in an arbitrary condition. It is also able to find additional interesting phenomena or differences through contrast between cases (Yin, I994).

This study is set as multi-case study, each preliminary data analysis is made after each interview, according to the research framework and related literature, and compared and linked with other interviews. Irrelevant information is excluded so as to avoid information overload. In case any inconsistency happened to the information gathered or further confirmation is required, marks is used so as to seek other sources

of information or respondents to verify the truth of the incident.

This study establishes the following steps by reference to case study analysis suggestions of Yin (1994) and Eisenhardt (1989):

(1) General analysis

This study put forwards the research framework that design based on literature theoretical framework and recommendations, the preliminary interviews also contribute to the design of conceptual framework. It expects to find out the results from the actual case studies to confirm the theory and to prove the applicability and feasibility of research framework. All the data is classified in accordance with the proposed theoretical model (Yin, 1994). The categories are the segmental elements of MNCs' supply chain management elements (divided into: internal, upstream and downstream) as well as external influence factors.

(2) Pattern match and explanation building

Pattern Matching method is used in this study. That is, this study will compare the interview obtained information and answers to questions to the expected pattern of blueprint on the literature, compare case study results to theory, in hope to identify similar results of the actual case studies to expected patterns from the literature. All interviews notes were taken down and organized in order to repeat the logic of the cases and make comparison from case to case.

(3) Look for different types between cases

According to the replication logic (Yin, 1994) concept, within-case analysis is conducted at first. All the interviews and case-related data are processed and analyzed. The explanation-building approach (Yin, 1994) is used to strengthen the internal validity of the relationship that has been confirmed. The goal of this approach is to analyze the relationship of the variables under study. Start from the real case, each case followed will be compared repeatedly by the same process, to enhance the validity of confidence for the conceptual framework through case confirmation. Then try to find different types of cases among them, make comparison according to multi-case information owned and to determine whether there is replication logic or other interesting phenomena. Replication logic (Yin, 1994) provides the way to

compare findings with the hypothesis from the beginning of the case study. Those that are unable to support provide an opportunity to amend original hypothesis. The revised assumptions are subsequently used in the next discussion with the respondents to verify the correctness (Eisenhardt, 1989). The use of multi-case design and the repeat logic may improve the external validity of the research.

5.7 Case study validity and reliability

To further overcome limitations in case study research methods, Yin (1994) postulates that any research study, to be valid, should conform to, and ``pass" certain design tests with regard to various levels of research validity. Yin (1994) refers that the quality of any given case studies can be judged according to the following four tests: construct validity, internal validity, external validity and reliability. These validity and reliability tests were revisited as part of case study design. The explanation of them could be:

(1) Construct validity: establishing correct operational measures for the concepts being studied; Construct validity mainly consider whether the cases information collected may be able to measure the phenomenon studied. To do this, in this study, the data collection is done through multiple data collection methods, mainly from interviews, and accompanied by other relevant information provided by respondents, the sources of information, and the evidences collected link to the relevant research questions to form a chain of evidence; the interviewees are asked examine and verified the draft report.

(2) Internal validity: establishing a causal relationship, whereby certain conditions are shown to lead to other conditions, as distinguished from spurious relationships. Case study is to compensate the deficiency of survey. This study uses Pattern-matching and Explanation-building to analyze the data, when the collected actual information and the research framework matches, it is able to effectively strengthen the internal validity of the research. This study attempts to explore in-depth the variables and the relationship between the variables, and is suitable to use the pattern-match approach to improve the data analysis internal efficiency degrees.

(3) External validity: establishing the domain to which a study's findings can be generalized. This case research uses repetitive multi-cases design architecture, the theory is used to guide each single case study, and then applies it to multi-case study repeatedly to enhance its external validity and generalization to the claimed patterns.

(4) Reliability: demonstrating that the operations of a study such as the data collection procedures can be repeated with the same results. The information of this case study is collected by more than one ways, and can get the same results if repeated with same process, and a case study protocol is written before the research is carried out to regulate the content of data collection and criteria of information analysis in the case interview process, a database is built in order to reduce the analysis errors, and facilitate readers to check the correctness of the evidence. Therefore, this study is able to ensure the reliability of information.

5.8 Limitations of case study research

Case study research forms the core of methodology in this research. Case studies can provide researchers with system point of view. Through as fully and directly inspect and think to the study objectives as possible, to enable to establish more in-depth and comprehensive understanding. Case studies usually make research with more in-depth, rich information and more dynamic, but its criticism is that it lacks of universality and objectivity (Yin, 1994). As a case study approach discussion, it is necessary to clarify the limitations of case studies in order to create a way to improve the quality of the research.

On the whole, the limitations of case studies can be concluded as the followings:

(1) Difficulty in summarizing the findings: as case study is considered inductive not statistical analysis in nature, this may lead to its induction with a certain degree of arbitrariness and subjectivity. The dangers of ad hoc theorizing and of neglecting to test data are great. The use of ``subjective" judgments during the data collection stages can render constructs invalid.

(2) The technical limitations and the bias of the researcher： A criticism of the case study method is that it suffers from a lack of rigor and an excess of bias. Case studies

do not have a standardized data analysis method, there are options in the presentation of evidence and interpretation of data, differences in opinion of the researchers, as well as other biases will affect the data analysis results.

(3) Problem of validity: According to Bromley (1986), researcher bias has an impact on the internal validity of the data. Becker (1986) agrees that researchers may have "feelings" for the subjects and that conclusions drawn may suffer from a lack of reliability. External validity is also difficult to measure (Berger, 1983). It is difficult to generalize findings to different settings as phenomenon and context are necessarily dependent. The evidence from multiple case studies, however, is often considered more compelling and studies involving multiple cases are regarded as more robust. Whether a resulting theory is ``generalizable'' is related to the complexity of external validity, i.e. whether external conditions are thought to produce much variation in the phenomenon being studied.

(4) Time and manpower consuming: labor-intensive and the amount of time spent is a real problem of case study.

It is important to emphasize that case studies deal with unique situations and, because of that, it is not possible to elaborate detailed and direct comparisons of data. In the context of this research, perhaps the most critical aspect of the case study approach is that it provides a limited basis for the traditional ``scientific generalization'' (Yin, 1994; Remenyi et al., 1998). Notwithstanding, like all experimental observations, case study results can be generalized to theoretical propositions (analytical generalization) but not to populations or universes (statistical generalization). Thus, the aim of case studies cannot infer global findings from a sample to a population, but rather to understand and articulate patterns and linkages of theoretical importance.

5.9 Procedure of this case study

According to the case study methodology, this research set the study procedure in the follows:

1) Identify the theoretical issues available for analysis

Through the relevant literature review, identify the present supply chain management theory, affective elements in the implementation of supply chain management, try to understand the issues in the manipulation of research design, help to design the theoretical framework. Yin (1994) concluded that the case study can help researchers to discover the actual situation (What), and to explore why there is such a case (Why). This is right to fit the contents and features of this study of multinational corporations' Supply Chain Management activities in China.

2) Put forward the conceptual framework

This study sorted out a research framework for the supply chain management multinational corporations in China by summarizing the relevant literature theory, combined with pre-interviews, and follow-up data collection preparation.

3) Decide the analysis unit and select the interviewee

In completion of the relevant literature analysis, a selection of respondents is made. This case study is done in the way of interviews and collection of relevant information. The analysis unit is the multinational companies that have built the supply chain in China and the interviewees are the selected business-related managers or senior staffs.

4) Design interview questions according to the research framework

In this study, semi-structured and structured form of questions were used, the questions involved in the research framework related to the relevant factors in implementation of the supply chain management (internal and external environment), it not only reflects the uniform requirement of the contents for all of the interview, but also allows respondents to fully express their views and opinions.

5) Set up case interview schedule, clear data finishing approach for the interviews

In doing the case interviews, the respondents were first contacted by phone to inquire about the willingness of their interviews. After the arrangement of interviews, the semi-structured questionnaire for the interview was sent two weeks prior to the respondents, so that the respondents have sufficient time to understand the purpose of this study and was able to prepare in advance the information and have sufficient time to think on the questionnaire. The interviews were guided by the questions, to use the

logic of repetition to improve the external validity of the study (Yin, 1994).

After the interviewees were selected, a database is set to establish the case files, this database included the pre-collected secondary data. In this way, it not only can enhance the "reliability" of the study, but also improve the material basis for future interviews.

In interview process, the confidential issue was also confirmed, so that the respondents were interviewed at ease. With the approval of the respondents, the contents to the interview were taken down; the respondents were at liberty to respond the interview questions.

6) Develop data coding and analysis methods

After each interview, the contents of interviews were organized into elements of the interview, and the information were collected with interviews in accordance with different categories of cases (Case S, Case G, Case W, Case P), data type categories (Related documents, interviews notes, and so on) were coded by classification into the established cases database. In the meantime, if the information collected is found inconsistent and can not maintain the continuity of evidence logic, it will be marked, to wait for other sources of evidence or confirm through telephone or fax with interviewee. After each interview, a preliminary data analysis was conducted based on the analytical framework of this study and related literature, findings of each interview and related events will be marked to compare with the previous interviews and other supporting information, and then chained together all of them.

7) Data compilation and analysis

Data were analyzed under pattern-matching and explanation building method proposed by Yin (1994). The data collection of this study is based on the literature with certain theoretical foundation. The pattern-matching method is applicable method to improve the data analysis on the internal validity. It concludes by interpreting the data from different theoretical perspective to explain the phenomenon of the cases been found to achieve cross-validation purposes by more theory, thereby enhancing the validity of the study. Finally, Summarize and compare the various theoretical viewpoints for data integration, and then sent the information to the main

respondents to be reviewed in order to enhance construct validity.

8) Research report writing

In this study, the interview notes were analyzed and conducted after necessary translation, which were then put into the case database before writing the research report. The basic structure of report include: themes and background, scenario description, question discussion, interpretation and research conclusion.

Summary

This part first summarized the development of existing research on supply chain management, based on it a conceptual framework for the research was formulated, the framework is then revised after discussing with the practitioners. The justification for the methodology used in the study is described after including the details of the methodology itself, ethical considerations for the research. The next part is the application of the methodology for the research, the case study.

Part Three Data Analysis

Introduction

The last part reviewed the development of supply chain management research, followed the research frameworks of researchers, established own conceptual framework for this study based on the literature and discuss with the practitioners. Set up the case study as the methodology used in this study. The former chapter in this part sees the application the methodology explained. That is, the multi-case analysis on the four selected MNCs in China. Each case is studied according to the same case study frame and the case study data is collected from several different ways. Based on the case study, the latter chapter gives a further analysis on MNCs' supply chain implement in China.

6.0 Case study

According to the methodology justified in the last chapter, the multi-case study should be held by both within case and cross case, and each case study follows the same research frame which is strictly in line with the conceptual framework

established in chapter 4.

6.1 Within case study

6.1.1 Case 1: S Company

1) Company Introduction

S company is the one which professionally dedicated to Power and Automatic Technology in the world, and has a global leading position in (power) distribution, terminal distribution solutions, security power, building automation and security, industrial control, PLC, sensors, drives and other automation projects. As an electric company which professionally dedicated to the electric industry area, S company is long in history and powerful in strength. Electric transmission and distribution, industrial control and automation are the main areas that S company goes. Their products are divided into five categories: transmission and distribution; low-voltage distribution; low-voltage terminal power distribution; industrial control and PLC, which are all over the four markets: power, infrastructure, construction and industrial.

S company entered China in 1979, and has been dedicated to power distribution, industrial control and the automation area of the building since then, its products go throughout the four markets including residential, buildings, industry, energy and infrastructure, to provide solutions to customers on electrical control system in construction of infrastructure. Also as the building infrastructure, integrated cabling system has become a new important business in China. This business combined with its automation products in modern industrial enterprises and buildings, providing customers with a more comprehensive solution.

Since 1995, S Investment Co. (China), Ltd. Has been established, the average annual growth rates in China remain at 20% ～ 30%, and it already has 6,000 employees, four branches, 42 regional offices, 14 manufacturing enterprises, 4 Logistics Centers, 1 training center and 1 global R & D center, more than 400 agents and nationwide sales network. When S company celebrated its achievements of investing in China for over 20 years, it also indicated the strategic decision-making of

investing in China.

2) Internal Management

□) Supply Chain Strategy

S Company aims to supply the more comprehensive and effective range of solutions to serve the market demand, and develops customized value-added services when it is committed to making a more secure and convenient power applications. Through grasping the needs of the users, using advanced technology and innovative products to satisfy the users. S company has grand strategy in innovation, quality and efficiency, and actively carries out cooperation and mergers and acquisitions to broaden its lineup of industry. So, the core strategy of S company is to develop the Customer-Oriented, innovative programs to meet customer's demand.

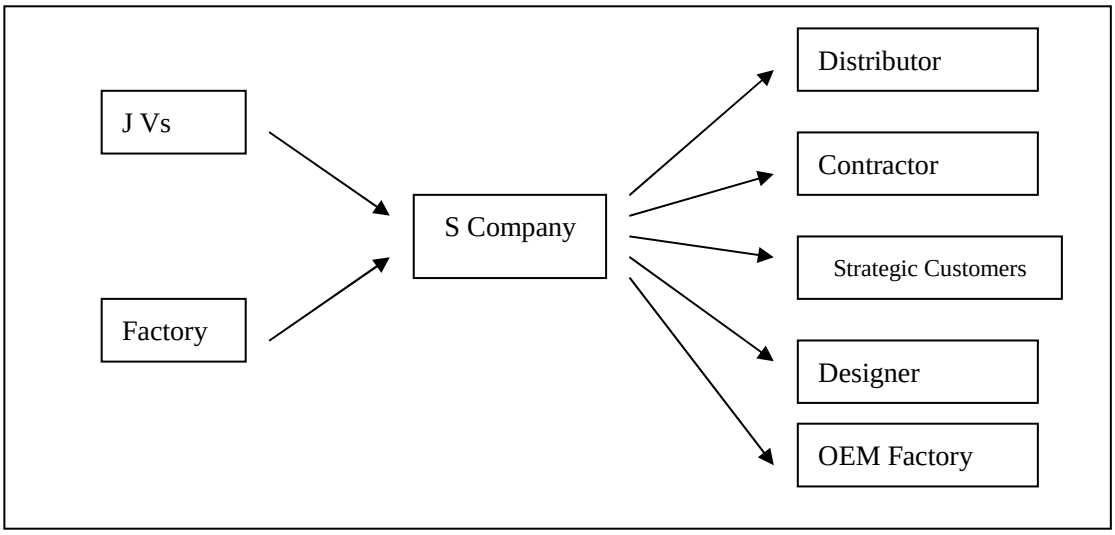


Figure 6-1 S Company's supply chain architecture
(Source: S Corporation)

In China, S company had done some supply chain integration including:

- Suppliers: 20,000 production suppliers inherited from multiple acquisitions to: Concentration on Key suppliers.

- Suppliers' Management Strategies: From separated supplier based on SE China joint-venture to concentrate supplier management and specific strategy for each niche market and optimize supplier strategy.

- Purchasing: From no involve in new product development to early involvement and working together with R&D team for supplier selection & sourcing & development.

- Supplier Quality & logistic improvement: From non supplier access management & evaluation to systematic supplier audit and scoring.

- Logistics: put a part of portion outsourcing, S company's international transport was outsourced to the three transportation companies: SDV, Panalpina and Kuehne & Nagel, integrated the Chinese inland transport from the past more than 20 transporters into the present CEVA, CAAC, Daikin, Beijing Railway Express, China Post, Kerry Chase, Maersk and other 13 transporters.

The competitive advantage of S company lies in localization. It has very strong R & D, production, and marketing capacity in China. Because it is very close to the client, can be very fast, easy to understand customer needs, this also makes S company more easily adapt to market changes. From the product point of view, S company mainly concentrated in two places, one is the product design, S company will discuss regularly with clients to understand the user requirements to design their own products, and the other is innovation sense.

□) Procurement Management

S company pays more attention to supplier certification in the procurement management, including quality, logistics and financial aspects, the basic quality certification standards of the supplier is usually required, quality control system and testing equipment, production process monitoring, time control, inventory management, order management, purchasing cost control, delivery quality and stability, need to be considered.

Procurement process includes:

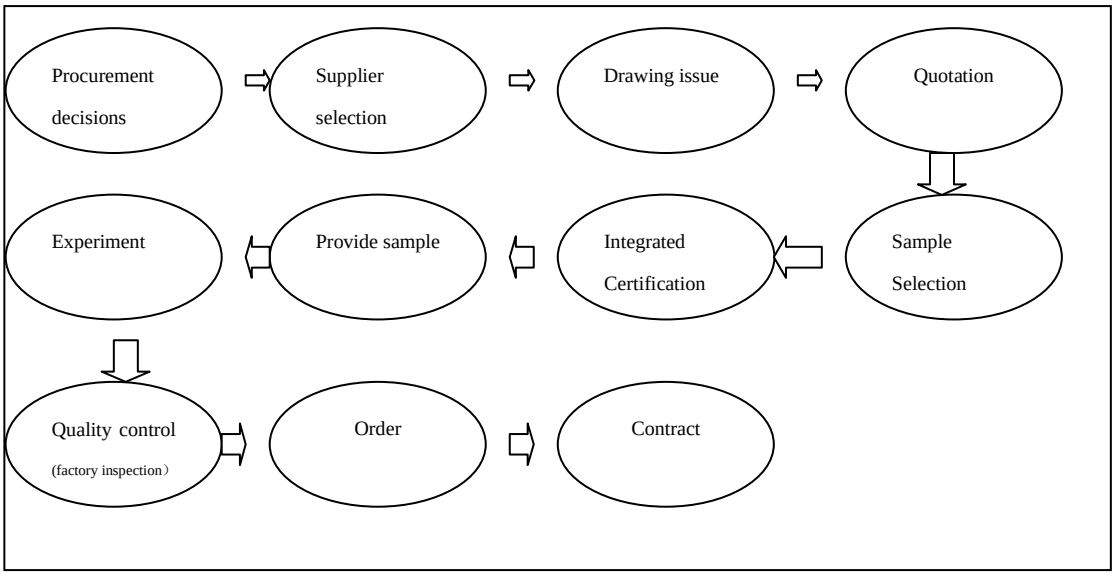


Figure 6-2 S company Procurement Process
(Source: S Company)

As a famous international enterprise, S company makes full use of its reputation and recognition in procurement, coupled with a stable purchasing volume and good technical support for the suppliers, it provides good services to help suppliers to progress in production continuously, which has won the suppliers acceptance.

□) Cost Management

S company's supply chain cost management covers the followings:

- Purchase Cost
- Quality Management
- Inventory and Delivery Time
- Payment Cost
- Production Cost
- Logistics Cost
- Customer Service

Through a series of measures, S company had saved a total of 237 million from 2001to 2006. As one of the largest electric companies, S Company was able to achieve such a success in Cost Management, because it took advantage of opportunities in four areas and took relevant effective measures, such as, customer-oriented, process-centered, product-centered, as well as employee-oriented. These measures combined to improve the company's overall growth and efficiency

significantly.

-- Customer-oriented

On the customer-oriented cost-saving measures, S company concentrates on three areas: order processing cycle, on-time delivery and product quality. Shorten the order processing cycle endeavor to punctual delivery that can improve the customer trust on manufacturers. Better quality ensures less cost. Product quality refers not only to meet the requirements of product specifications, but also anticipate and meet customer needs.

-- Product-centered

Through lean production, 6-Sigma and continuous improvement, Product-centered measures provide more opportunities for cost savings. The aim of Lean production is to spend less manpower, inventory and time, with less space to produce products. It focuses on quick responds to customer requests, using the most efficient and most economical way to produce high-quality products. 6-Sigma used structured applications and statistical tools to reduce disparities and eliminate defects. It is implemented on the base of project, to meet the needs of every client. Take DMAIC approach, namely Define, Measure, Analyze, Improve and Control. The whole production process of each project was reviewed at the end of each stage in this way. This ensures to really solve the problems, not just a temporary emergency to the problem. Continuous improvement is to achieve the aspects that customer finds valuable, and eliminate the aspects that there is no value to customers.

-- Process-centered

The process-centered measures achieve cost savings from the reduction of product categories, design standardization and raw materials procurement. Reduction of product categories is to better meet the needs of customers. Through reducing of the same products in different markets and the number of suppliers, closing the redundant or inefficient factories, it can save a lot of money. Design standardization is to standardize the design of products to meet customer needs. Through standard design, procurement of raw materials is less, and so cost reduced. Raw material procurement measures concerned about where to purchase the raw materials to insure

supply of the largest value to customer.

-- Employee-oriented

The employee-oriented measure is considered the most important opportunity of cost saving in S company. It includes three aspects: production safety, training and employee involvement. Production safety targeted creating the safest working environment for the workers as their first mission. S company keeps the best record of safety index. The active participation of employees brings huge benefits to the company in the working attitude, loyalty to the company and makes employees more efficient and more productive.

□) Channel Management

Today, in the electrical field, S company's competitor is not just international companies like Siemens, but also the domestic low-end products makers. The distributions are all the main areas of competition; it is tantamount to surrendering their own channels to rivals if the management of the distributors were not in place and hadn't done a good job of service. S company has rigorous and scientific business policies to ensure that partners are able to growth and make profit. Moreover, the company concerned about the distributors ability to achieve profitable growth. Company's commercial policy constantly revised and improved, leading to many of other competitors. By geography, channel, and different types of customers to analyze and to develop commercial policy, to ensure maximum market coverage, to ensure that channel operators have sufficient growth space in a fully competitive environment, and also will make profit.

S company's policy of distributors proceeds from the following aspects.

First, based on the customer segmentation to analyze the types of distributors, and match different types of distributors and corresponding customers as much as possible in order to enhance the efficiency of channel operation.

Second, distributors, as an important member of the network in S company undertake huge increase pressure and financial risks, so it should consider benefits of distributors in the supplier value chain to promote the overall balance and smooth of supply chain.

Third, as the leader in the supply chain, the required growth should be sustained, healthy and profitable growth, any problems in the link will harm to the suppliers' long-term advantages, S company should leave the survival profit margins to the distributors and help them to improve their cash flow.

Fourth, weigh the pros and cons between fine management, simple and clear policy, and efficient implementation.

Fifth, in addition to strengthening product training, technical support, promotion and off-site information, and other support, S company will together with the distributors to exert some pressure on end-users to reduce distributors' financial risks.

Sixth, to nurture core distributors' channel building, management ability and technical service ability made them exert their advantage in new product promotion and new region development.

Now one of important tasks of S company is to do the training for various distributors. The company has the best IT systems, the SAP which established in six or seven years ago, and was shared with the distributors. If the distributors do not have IT infrastructure, S company will help them to build their own IT infrastructure through business policies. Of course, this is the other side of partner training.

From the culture point of view, S company is aware of their distributors coming from different countries and having different cultural backgrounds, S company uses its own culture to influence and encourage the distributors, S company also concerned about their the growth of the distributors as well as their business operations and development. This is a win-win situation, to co-operate in good faith and to ensure their success, not just the relationship between suppliers and distributors.

3) Upstream management

□) Supplier Selection

Since S company entered China market through merger, their suppliers are mostly the suppliers of the original enterprise.

Suppliers are diversified into 4 key markets according to purchasing category:

- Electrical and electronic components market: most of them are global players and organize annual global negotiation

- Fabricated component market: mainly are local suppliers, large supplier base.
- Raw material market: the majority is global suppliers and low mobility in this market
- Non production market which is concerning internet service provider, travel agency, hotel agreement etc.

The selection standard of suppliers relate to:

- Supplier's quality certification standards
- Product Quality
- Speed of delivery
- Logistics
- Technology
- Cost
- Service

□) The supplier daily management

S company classifies the supplier based on annual performance evaluation and audit results. All markets have its own critical suppliers who were treated as key player pattern and S company initiates to put new business with these selected key players and prepare for long-term cooperation. For new coming suppliers, three basic audits were done on buyer assessment, quality audit and logistic audit and each was scored by 4 different grades.

The daily management including:

- Quality
- Delivery time
- Quantity of project
- Production Stability
- Situation of enterprise development
- Financial situation

3 Basic KPIs (Key Performance Indicators) are also used:

- Productivity : annual cost down (though Learning curve, innovation in production, evolution in manufacture process etc.)

- Annual Quality performance (external non confirmed part ratio)

- Annual Logistic performance (external supplier OTD ratio)

□) Supplier Relationship Management

Developing and innovating partnerships is the important strategy of S company to success, they have done a lot of works beyond the routine for suppliers to help them to improve quality and process, there are now over 1,000 suppliers and companies are working together. In addition of the 1,000 suppliers and vendors, there are joint venture partners and universities distributed throughout the country supporting S company's partner "ecosystem." Through these external bodies, S company though as the traditional industrial company can provide customers a directed end services like the consumer companies. S company divided its supplier relationships into different levels (Picture 5 -3), adopting different management methods, the top strategic suppliers are the company's major suppliers and they will be involved in the S company's early project design, most of the suppliers are ordinary suppliers and potential suppliers and for the small number of suppliers who is unable to continue co-operation will be phased out.

Figure 6-3 S company's Supplier Category
Source: S company

S company began transferring great innovation to China as early as it entered Chinese market. In 1987, when the completed building still used fuse for protection, S company introduced a new circuit breaker technologies into Chinese market. The circuit breaker technology was then a considerable lead in the European market also. This technology was an innovation breakthrough in China, it was a huge revolution in

the power sector, a great success. Since then, S company realized the importance of the transfer of technology to the Chinese market. Other competitors may take a different approach because they do not fully trust Chinese suppliers. Advanced technology and best products are the key competitive advantages, and important guarantees for the success of S company. It will continue to give priority to develop and innovate, and keep more competitive.

4) Downstream Management

□) Demand Management

Customer-oriented, providing customers with hardware, software, services and solutions, is the S company's business strategy. S company, through market segments, provides comprehensive, differentiated and innovative solutions to meet customer continuously individual needs. When entering Chinese market 20 years ago, S company had different types of products, each product had its own brand and systems, now, a unified platform was created – the Unity automation platforms, all customers can find what they need through the platform, S companies can also find customer needs through the platform and exchange information with customers. In the past, S company was product- centered, and customer's equipments were mostly stand-alone, now most of the customer's equipments are networked, for example, ERP systems and industrial automation systems are interconnected, PLC has connected with the site sensors and other devices too, automation and Internet have integrated more and more closely, customers pay more attention to the exchange of information, the product application and practical problem solving, S company is therefore more concerned about the "Efficient automation", made it a right direction for demand management. After joining ODVA, S company has participated in new standards revising, combining the existing Modbus / TCP products and systems with the CIP contained in the full service packages, the EtherNet / IP is the best solution to meet customer needs with compatibility, and the co-operation with ODVA can help EtherNet / IP to become the most widely used industrial network with new product under this standard to market.

□) Order Management

S company's order management is carried through the information platform and achieved information sharing and exchanging. The operational plan of each individual entity is guided by the information and resources are optimized within the Union. The use of SAP ERP management system has established a set of information management platform for the company from raw material procurement, warehousing, draw and return material, production management, sales, inventory, and financial accounting, to achieve the effective control to the company's plans, tasks, and timely delivery, accounting and other sectors in line with a set of practical management model of the group company. Through the scanning of packaging barcode, to establish the relationship between packaging and products to complete a leaving (warehouse) scan and after-sales service trace, and through any one of the barcode information of the packaging or the product itself to associate with all raw materials, parts, suppliers, customers, production processes, quality testing and other critical information. At the same time information platform also serves as a transaction system to complete both orders of the production and sales and the intention to the third-party logistics services.

□) Customer Relationship Management

S company has a global services network which can provide technical, sales, logistics support, One-step service for the majority of users. Through this network, S company provides the products, technical equipment information, corresponding staff training and first-class after-sale technical services to meet the needs of the users. S company’s products are welcome by customers, not only because its excellent quality, but also because its global supply network of spare parts, and its 24-hour express courier service system to ensure the fastest speed of sending the spare parts to the customer's hands to solve customers urgent needs.

Although S company is a B2B company, its business model is more like a B2C company, achieving to transfer from a product provider to solutions provider, based on providing the leading automation and control solution for customers. S company has different partners, including wholesalers, general contractors and global strategic customers, through them to establish the high quality contact with the end customers,

and cooperate with them on product knowledge, training, corporate finance development, supply chain, logistics, and staff development, focus on their development. S company's co-operation with partners has many different models, such as OEM, complete plants and so on, S company provided them with various development projects and cooperation model, also rely on intermediaries and partners to improve customer service. In China, to strengthen and develop customer partnerships is the important factors for S company's success in accelerating growth. Distributor and partner relationship management is the key to customer service, S company through 500 nationwide distributors to sale products and develop customers, through financial support, personnel training, and IT platform services to enhance the competitiveness of distributors. Let distributors to achieve profitable growth, focusing on product to provide service to customer, consider the customers satisfaction as a priority matter, establishing a leading edge in the marketplace, understand customer needs and invest in customer support system. Establishing product after-sales tracking service system, to recall and repair the product with quality problems, record maintenance information, generate all kinds of after-sales service reports, inquire automatically through the bar code to the products with quality defects.

S company has a special customer support department to focus company manpower, IT systems and management processes, resources to customer service. And has a good innovative and powerful systems to care for customers, whether by phone or online, the company team will provide customers with high standards of professional service. After-sales service department is by right of the perfect technology and efficient team, a sound process management, strong spare parts network, a wide service coverage and strict quality control system to ensure that the overseas customers can get a timely and satisfactory service in the shortest time. In 2006, S company's Customer Support Center upgraded to a customer care center, integrating the functions of various departments to provide customers with comprehensive, one-stop service platform, build customer complaint management process and deal with complaints personally. Accept and implement the concept of customer service and standards from top to bottom within the organization, and truly

put the service into corporate strategy. Now Customer Care Center has been the company's most important business sector, which currently has more than 150 employees, an excellent IT systems, management structure and platform systems, with the completion of integration of efficient software to make it more manageable. On the basis of the current staff, the company will also increase a higher level of technical personnel to contact with the S company's global networks. This is an incomparable framework which is different from other competitors and forms customer service a competitive advantage.

5) Problems and Solution

i) Main problems

-- Suppliers Problem

Not enough local suppliers for critical technology, unstable quality & logistic, Yearly cost down lower the margin of suppliers:

-- Infrastructure Problem

In the process of cooperation with third-party logistics, S company does find much problems, they are related with the lacking of service capacity, like: simple and primitive logistics services function; inefficient logistics operation; and inadequate effective services network; low level of socialization and so on.

-- Others

There are some cultural differences exist in that the Chinese providers will reduce focusing on the customers when they have full orders, it needs to communicate with them; There is also a certain impact of policy, like the changes in export policy, local policy, industry technical standards and etc.

ii) Solutions

S company continue to develop and source new & qualified supplier，Work with supplier quality engineer and logistic engineer together to launch improvement project with supplier on the methodology of lean manufacturing and 6 sigma. Work with suppliers on R&D for value evolution projects。

Before entering into China, S company focused on the understanding of the local situation, including business and cultural partners, the understanding of Chinese

culture and the habits of Chinese customers, the localization of S company is the best one among foreign invested enterprises in China, they understand Chinese culture quite profound from top to bottom, and continuous to develop partnerships, cultural conflict should not be a big problem to S company.

By diversified management, taking into account not only regional differences, but also the different cultural backgrounds, the S company has achieved 100% localization for customer service business, they are the elite of various industries in China, such a team will continue to provide surprise service to Chinese customers.

S company keeps calm in making decisions on logistics. They would solve the problem through self logistics or third-party logistics by analysis of their own special circumstances.

6) Comments

As an international well-known multinational company, S company has strong brand and good influence on company reputation. In its supply chain management in China, it selected customer-oriented strategy, focuses on services and cooperation; it has long-term development goals, complete infrastructure, and good information infrastructure; it implements the supply chain management together with its partners, and has achieved great success. It established cooperation relationship with distributors and business partners, in full confidence with joint venture partners and transfer technology to them, relying on large suppliers to complete supply chain together. Under the development strategy, it analyzing its core competitiveness, and by improving customer service and multi-level supplier management, maintains own core competitiveness and long-term interests.

6.1.2 Case 2：G Company

1）Company profiles

G Company is the leading North American provider of maintenance, repair, and operating (MRO) to businesses and institutions. For more than 75 years, G Company has been selling the products and services that every business needs to maintain its facilities and equipment. Fortune Magazine voted G Company as being one of

America Most Admired companies.

G Company has more than 600 stores, 18 distribution centers and large distribution network worldwide. Every day it provides 900 thousand wide variety of industrial products which come from 3,000 suppliers to 200 million customers in more than 150 countries worldwide for more than 110,000 times and ensures them in the normal operation of the facilities and reduce the customer's procurement costs.

G Company (China) Industrial Co. Ltd. had spent about 2-3 years to prepare, since September 2006 it opened its first MRO product sales center, G Shanghai head office began to officially conduct business in China with wholly-owned status. "As a logistics storage enterprise, G company with its complete MRO line of products, adequate cash reserves to provide clients with professional MRO procurement services, saving customer's time and costs, trying to become the" Wal-Mart" in manufactory industries

G Company operates on industrial products, as well as (MRO) services of equipment maintenance, repair and operating. G Company in China also has a comprehensive and diversified product portfolio which across 15 product lines, more than 50,000 kinds of famous brands of industrial products to ensure maximum choice of products to meet customer demand. G Company has been focusing on service, since its foundation in 1927; its staffs have fully understood the need of clients and do everything to serve them. The reliable customer service representatives and professional sales staff provide comprehensive procurement solutions for customers, sufficient product inventory ensures that all products available from stock and deliver at the order day.

At present, the China head office of G Company including the warehouses is located in Shanghai, it covers an area of 23.500 square meters, with 12.000 square meters of warehouse center, more than 30,000 lines of industrial products, available from stock. In Jiading and Jinqiao Industrial Zone, also in Wuxi and Hangzhou, it established customer service centers. And based on the Yangtze River Delta region, to radiate to the whole China, it is also thinking to build the store in other regions. In order to service the local customers better, G had set up the Chinese products catalog

and established its website.

About 90% purchasing of G Company is from China currently, including the multinational supplier in China, while about 10% of the products come from overseas, including the G's own brand.

G Company (China)'s major customers are various industrial enterprises; it faces to the Chinese market mainly.

2) Internal management

□) Company Supply Chain Strategy

G Company is not only a vendor with thousands kinds of MRO (Enterprise unproductive material), but also an MRO service providers, one of G's feature is its rich in catalog. This catalog is also known as the "industrial Encyclopedia." Thus, it requires the company not only to reduce costs through the supply chain management, improve efficiency, but also provides the best service to customers at the right time, right place with the right goods to the appropriate customers. G Company constantly increases its own value in the supply chain under the expansion of the implementation for channels, products, and services, achieves economies of scale by specializations. In the process of meeting the upstream and downstream customers' needs, to make the supply chain systems provide more value-added services, with an increasing number of "standing industrial services". Now G Company's product lines and product categories are further expanded and extended to meet more demand of Chinese enterprises, to accelerate the expansion of the Chinese market, to provide a low-cost high quality services for Chinese enterprises.

G Company's current sales of industrial products in MRO categories of their products are of stability, and the frequency of replacement of these products are not too quick. The requirement of supply chain speed is crucial to succeed. Now based on the head office, G Company had established a relatively good information integration system at the beginning at the company foundation, and the warehouses have adopted more advanced bar code technology, etc.

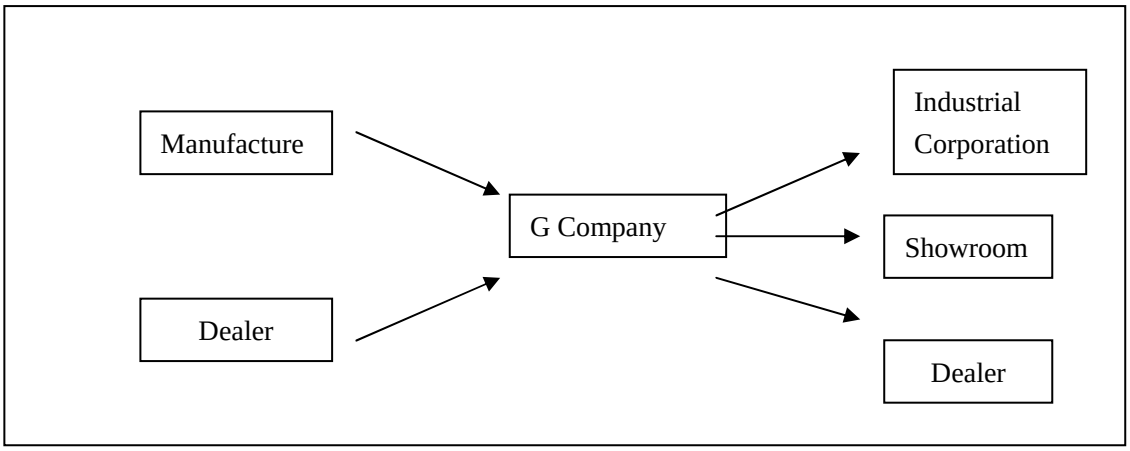


Figure 6-4 G Company's Supply Chain in China
Source: G Company

□) Cost Management

It is different from the manufacturing company that G Company's supply chain costs reflect as follows:

-- Procurement: in procurement costs, G Company mainly compare among same products, different brand pricing, market share, possible profits, etc.

-- Storage: Storage is a relatively large portion of G Company costs, in order to ensure the available of supply, G Company needs to ensure adequate inventory.

-- Transportation: transport cost is also an important part, in order to reduce cost, the company transportation the urban delivery or urgent mails itself, and outsourcing transportation for the next day or provincial deliveries.

Therefore, under the same conditions, the comparison of quotes from suppliers is the key to control procurement costs, good warehouse management is the element of storage cost, reasonable logistics capabilities establishing is the foundation to reduce transport costs.

□) Channel Management

G Company's products and services require low-cost, high-quality MRO channel integration; fast logistics distribution network; consulting services, optimized warehouse management, can provide new product information, product applications and the integration and optimization of the enterprises MRO over the whole supply chain.

G Company is still in its initial stage in China, so its operation scale is not very

big yet, company's channel development and maintenance also need to distinguish between different situations, and use different approaches. Currently, it manages the distributors hierarchically by establishing different levels. It also allocates products comply with specific circumstance of Chinese distributors. G Company employees help customers to complete their works through its highly integrated service network and branch offices, distribution centers and websites, and through the application of the right product to protect the equipment running, thus saving customers' time and costs.

3) Upstream management

□) Supplier Selection

Suppliers of G company mainly are the existing suppliers of the company's headquarters, they are enterprises with all kinds of brands supplied MRO industrial products; the new suppliers are developed according to customer demand, and the company's future product strategy planning.

For the new suppliers, G Company will make comparison for the qualification, industry background, product distribution channels, prices, etc. to confirm cost-effective suppliers in the similar products line, then negotiate with them for the profit margins and provisions stipulated in the contract that accepted by both sides, after reaching the initial intention, then the product details will be provided, the signing of contracts is followed-up.

Centered by MRO products, the selection criteria of Chinese suppliers of G Company are:

-- Quality
-- Brand
-- Supply Capacity
-- After-sales Service
-- Profit Margins
-- Payment Terms

□) Supplier daily management

G Company's daily management of Chinese suppliers involved:

- Supplier Price Changes
- Product Changes
- Changes in the terms of contract
- Sales Situation
- Supply Situation
- Quality Tracking

And so on. Through monthly score for the quality of supply, punctuality, receiving rates of different, return rates, inventory turns, and slow-moving stock status, it controls the rate of profit contribution.

□) Supplier Relationship Management

At the moment, G Company has about 300 suppliers which produce MRO industrial products in the Chinese market. Currently, G Company established long-term supplier partnerships with global sourcing agreement, but contractual relationship with the suppliers in China, and joint venture relationships with a small amount of suppliers which has self - brands.

G Company keeps closely with suppliers, it promotes harmonious relations between the demand-and-supply, as the global largest industrial sales company, G Company's annual celebration is held every year, the anniversary is like a meeting for the sales staff and suppliers. During the meeting, the suppliers will hold their new product catalogs to contact the sales staff of G company. Some suppliers work together with G company to do the sales forecast and earn the orders of production. When G Company entered China, many suppliers related with it entered into China followed up, which including manufacturing giant 3M, many of its products have been in China along with the pace of G company. Some small and medium suppliers, are also found its own place in G Company's supply chain in China, they sold products through the channels of G company and grew together with the company.

On the other hand G company is still mainly rely on its diversification of products, thousands of its customers and good services to maintain good contacts with suppliers, there are many aspects of the services: strong chain of guarantee funds, improved information systems, logistics and distribution, and also including staff professional

training.

4) Downstream Management

□) Demand Management

G Company's operating strategy is to provide customers with the right products to enable the normal operation of their equipment to save time and money. G Company has made the commitment to customers the available supply, which means that the products sold must have sufficient inventory, now G company has sold more than 30,000 kinds of products in China with an increase of 10,000 species per year. The increasing product variety is critical to meet the needs of new and old customers, G Company was first started to do catalog-style sales, in order to improve the convenience of customers, it periodically updates the product catalog, and by 2010 G Company's product range will expand to 100,000 kinds. The catalog covers all the selling products of the company, the catalog has now grown to the website, 800 hotline, telephone sales, major client sales, etc., where there is a need for purchasing from the catalog, it can be dong through a telephone or on the website to confirm order, and then only need to wait. G company has its own trucks to implement a number of urgent orders to be sent on the same day, focusing on direct sending to important customers and so on. The standardized model combined with professional customer service is the necessary condition for the success of G company. In the entire sales network, warehouse-style shop is the most critical nodes for G company. There will be about a 20,000 square meters of storage warehouses behind each show stores. At the same time, there are still 50,000 kinds of products without standing stock, so it will arrive after two days after order.

□) Order Management

"One stop" procurement service is a new MRO purchasing pattern. G Company's customer orders are required to enter into the system at the same day, and the product available in the inventory should be on delivery next day, so that customers will have the full sense of delivery convenience and quickness of orders. The products can be selected by sending catalogs and Web searching, for product knowledge, way of use and after-sales problems can also be consulted to the relevant departments through the

800 hotline. The key of G company's order management is to be able to process an order that save more time and cost than the others and to commit the supply cycle to be generally within two days which is called: Perfect orders (picture 6 -5).

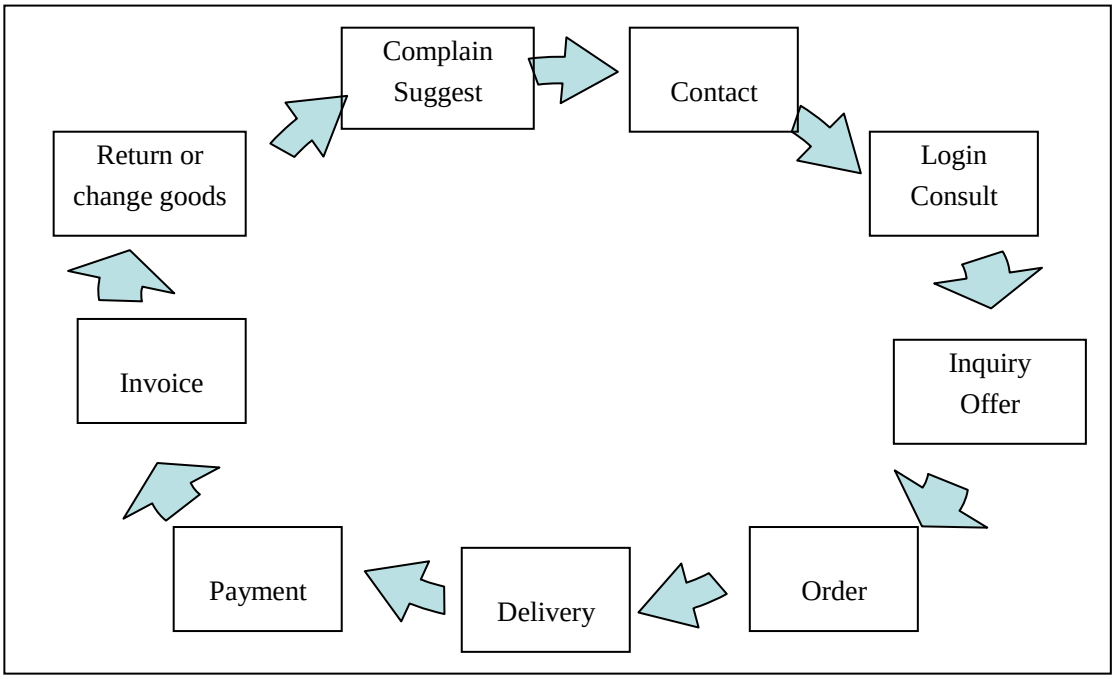


Figure 6-5 G Company's Order Process
Source: G Company

G Company keeps its core competence in two aspects:

-- Warehouse management

G company has established a warehouse of nearly 20000 square meters in Minhang District, Shanghai, and a product exhibition hall of 1000 square meters, with more than 30,000 kinds of products available in inventory and can be delivered at the order day. G Company's warehouse management is composed of three parts: receiving, inventory control, and deliver. When goods transported from the suppliers, the first thing is to make them standardized (re-packaging, paste new label, etc.), and then be placed on shelf, in order to ensure stable of quality. To quickly handle a large number of customer orders, any operations that may cause the order processing slower should be avoided.

G Company has 17 series and 50,000 varieties of products, in order to ensure the quality of every product, the warehouse staffs classify the store shelves based on

product characteristics, separate storage is used for some products which require special environment. Meanwhile, in order to ensure prompt and effective shipping, storage is also set based on each product shipping rate, the higher shipping rate products will be placed on the easy picking and easy shipping positions. In addition, staffing is also correspondingly optimized, the "zoning picking" concept is proposed, staffs were ordered to pick goods in different regions, to save the time and cost of moving in the warehouse.

An average of 200 order receipts daily, management and delivery are completed by teams in the three management parts, and all the warehouse staffs have undergone a rigorous training. Each one is able to do it alone from the receipt, from the on shelves to picking and packaging, the whole process of delivery. It is of them, G company can ensure a daily standard of 97% perfect orders.

-- Information platform establishing

It is a very complex thing to provide services for so many kinds of products. G company is one of the largest user of SAP software. It has 35 million product information needs to be updated in the network platform, there are more than 2 million orders from customers need to be addressed, and there are thousands of suppliers waiting to docking services for co-operation platform. Currently 1/10 of G Company's Chinese employees are IT staffs. G company has already a prototype of automated managements, the sales radius of each storage shop is 300 km. Meanwhile, the 17 broad categories of more than 50,000 kinds of products are administered based on data management system.

□) Customer relationship management

G Company sell its products to enterprise, while Wal-Mart, Metro sell the products to family, it is an industries supermarket company based on catalog marketing. Since entering the Chinese market in 2006, centered in Shanghai, G Company has actively expanded its market share. According to the regional characteristics of Chinese market and the economy development, G company had set up the offices in the Yangtze River Delta region, in Suzhou, Ningbo, Hangzhou and other places. In September 2008, it set up Guangzhou, Chongqing, and Qingdao

Office, and there are more than 60,000 registered users. While continuing strengthen its market in Shanghai and the Yangtze River Delta and enhancing the services in southern China, in 2009, the company began to focus on developing Tianjin-Tangshan which is known as Bohai Bay economic zone.

G Company's staff team maintains a close contact with the customers in order to understand customers' needs better and can provide cost-saving solutions. G Company's customer service staffs not only focus on the pre-sales and after-sales services, but also focus on differentiated services, for different customers they proposed different solutions. Therefore, with many kinds of products are not the unique competitive advantages for G company, the truly unique part is the service it provides. In a sense, G Company relies not on selling products to make money, but also selling services.

As a service enterprise, G company's magic weapon is actually no different to other service-oriented businesses, nothing more than holding the customer first. Customers’ purchase records and credits are the important content of company's customer management. G Company has a database as a support for each familiar customer. What the customer bought, what he requires, his telephone number, the address and the credit evaluation are all included in the customer database. Thus, it is able to efficiently manage inventory with orders, while effectively manage and understand its customers.

5) Problems and solutions

□) Key Problems

- Problems of Chinese suppliers

There are problems with Chinese suppliers on supply capacity, the quality of some products can not meet the requirements that have to be returned, and the response speed needs to be raised;

- Infrastructure Problems

There is no obvious problem on infrastructure, because G company is a newly established company, with a relatively higher starting point and infrastructure is more advanced compared with other domestic industry.

- Cultural Problems

There are still differences in understandings with Chinese suppliers in the contract enforcement and the quality of services

- Other problems

G Company is more influential in the overseas, particularly in the U.S. market, but presently in China it is still in its period of growth. The procurement of enterprises in China has relatively fixed pattern and there are cognitive and practical difficulties to adjusting; many local suppliers still look on bilateral cooperation with observation mode, there is difficulties in demanding further cooperation with suppliers. This is a quite large difference from the co-operation with suppliers in USA. With the changes of Chinese economic environment, some policies and regulations have impacts on the company's supply chain in China, such as: constraints in some industries, dangerous goods management, and customs management, etc.

There are still risks in company's current supply chains in China, includes: Ability to predict changes in customer demand; Turnover of stock commodity and sluggish commodity treatment; with the increasing of business, the information systems need to be updated and completed.

□) Solutions

G Company's assesses currently supply capacity of suppliers every month in order to ascertain the on time delivery, the requirement to select other supply channels; Set up return rates on product quality, observe the needs of continuous improvement and the response speed, etc.; According to the sales of product, monthly profit contribution, make the survival of the fittest.

G company has now relatively good infrastructure and information systems, which takes precedence over the domestic companies. It will continuously improve the business processes and overall supply chain operations capacity along with the increasing numbers of customers and future competition intensifies. In the crossing competition, G Company will depend on its own platform to achieve the triangular balance among suppliers, customers and G company itself.

6) Comments

Although it is not long that G Company entered China, as a leading MRO company in North America, the establishment of its supply chains in China is in a higher starting point. It has established a complete information system in the construction of its supply chains, which greatly improves the management efficiency. As a non-manufacturing enterprise, G company sells a wide variety of products, and implements supply chain management not only to provide customers with more products, but also with in time services, so a complete storage of spot goods and on time delivery is an important aspect of its supply chain management. In order to achieve on time service and deliver, G company uses information management systems in inventory management and focused on operating training for staffs. The current G company Chinese suppliers are primary contractual relationships, the evaluation system is also strict to these suppliers, after fully understand for the suppliers, G company will develop strategic partnerships as it does with its overseas suppliers, and its Chinese clients are still under development, because the Chinese companies need time and patience to fully accept a new service provider.

6.1.3 Case 3: W Company

1） Company Introduction

W Company was founded in 1977, with its headquarters in Europe, it is a manufacturing-oriented enterprise, the company's main products are bathroom accessories, its products are sold throughout the world, and it has established joint ventures in Spain, Romania, South Africa, Russia, China, Egypt and other countries. In the past 30 years, innovation has been the company's strategic goal, and it constantly introduces new products (each year there are at least five new products come out), especially in recent years, product development is oriented to water-savings, and were well received by the market. W company has won reputation in bathroom industry with advanced technology, excellent quality, reasonable price and good service. W Company entered China in 1995, and entrusted agency to do purchase in China at the beginning; In 1996 W company invested a weaving and plastics Co.Ltd. in Shenzhen, with an absolute controlling of 95% share, doing OEM

processing; It established W Company Asia Ltd. in Hong Kong in 1997, as a wholly owned subsidiary, doing export trade and procurement. Its business in China primarily is purchase, and its suppliers are distributed in Zhejiang, Ningbo, Wenzhou and Taizhou, Shanghai, Guangdong, Shenzhen, Jiangmen, Shantou, Foshan and other sanitary ware industry-intensive areas. Currently the branch company in China are responsible for contacting with the suppliers in Asia (doing supplier evaluation, procurement, contact, inspection, arrange shipping and other activities), and developing the Chinese market. For more than 85% products W company sold in Europe were purchased from China. Its customers are mainly international ones, including: B&Q, LEROYLEILIN, AUCHAN, and the sanitary materials shopping mall in countries like France, Russia, Romania, Portugal, Spain, South Africa, Britain, Egypt, the company also received global orders for processing.

2) Internal management

□) Supply Chain Strategy

Sanitary fittings made by W Company are functional products with large universality, and so the effectiveness of supply chain is its strategy.

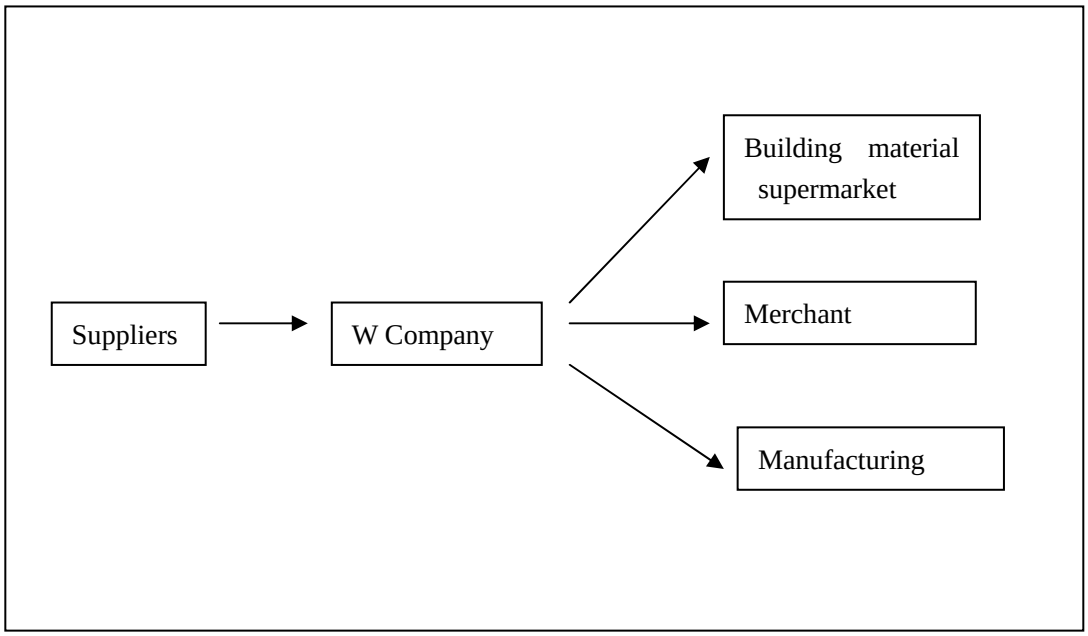


Figure 6-6 W Company's Supply Chain in China

Sourcing: W Company

To ensure the effective operation for the entire supply chain, W company had

done some integration on supply chain in China including:

-- Logistics Integration: outsourcing related service to professional freight forwarding companies, established two logistics platforms separately in Shenzhen and Ningbo to convey direct shipments to the destination.

-- Suppliers Integration: reducing the number of suppliers and improving supplier quality.

-- Technology integration: helping suppliers continuously improving product quality.

□) Purchasing Management

W Company pays great importance to the selection and qualification of the suppliers, and implements a strict procurement process (Figure 6 - 7)

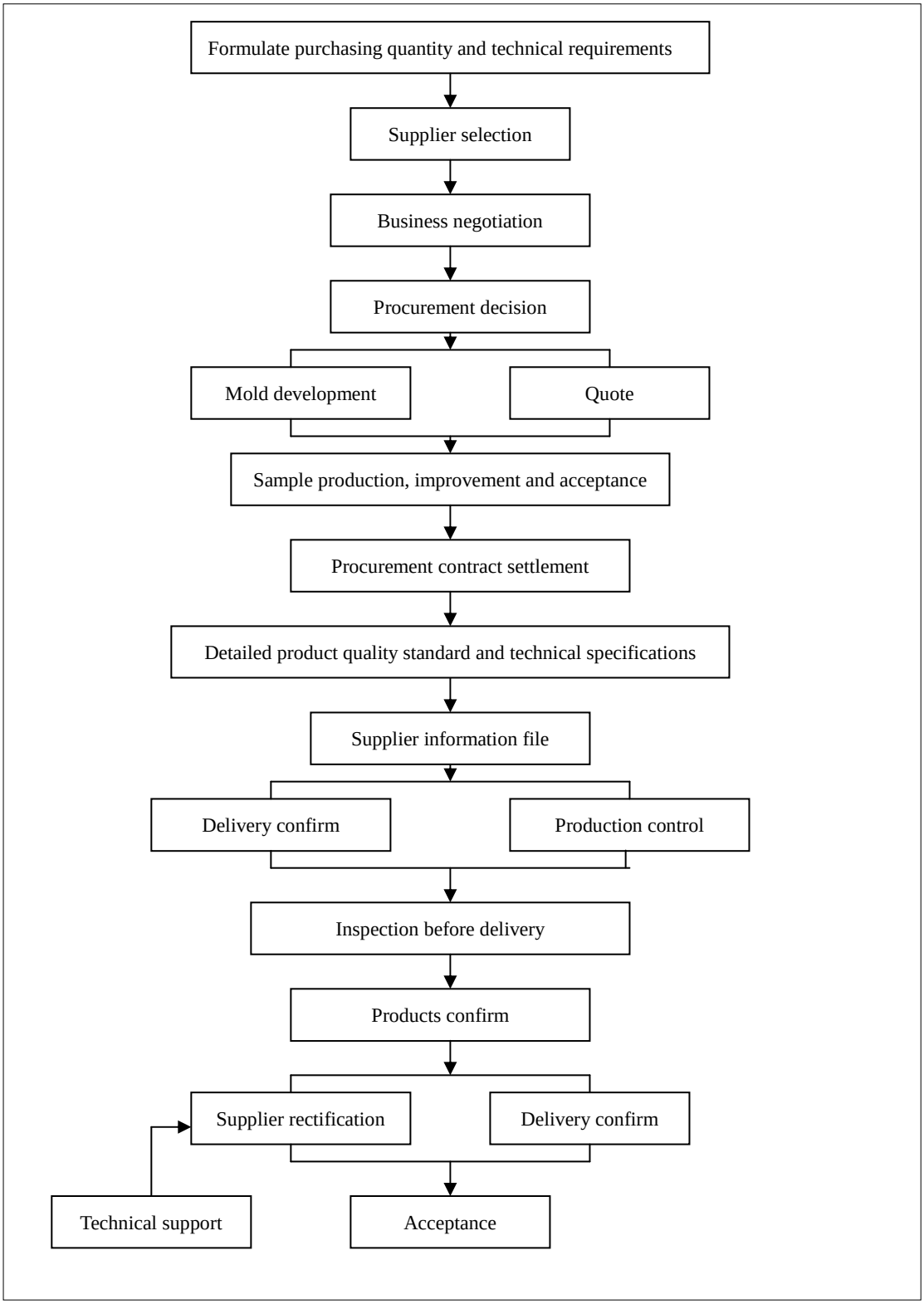


Figure 6-7 W Company's Procurement Procedures
Sourcing: W Company

In order to ensure products quality, W company is also concerned about suppliers' suppliers and the logistics companies in the whole supply chain, particularly the suppliers which are related to the suppliers of key products and key components,

W company will examine and verify their qualification and certification of product quality by the same standards.

W Company takes its own advantages in the purchasing:

-- Language Advantage: The staffs who in charge of the purchasing in China can speak Chinese, French and English; competitors can not do this.

-- Technical advantages: The purchased products are the general products or proprietary products in the industry, and W Company has a leading position.

-- Amount advantages: the purchasing quantity is large, W company's leading position in the industry and its brand advantage and eight subsidiaries leads to larger sales volume.

-- Reputation advantages: W company has a good reputation in the industry, and generally does not need to pay in advance to the suppliers.

-- Logistics advantages: W Company has long-steady cooperation with freight forwarding companies and two logistics platforms (in Ningbo and Shenzhen).

□) Cost Management

In the supply chain cost management W Company mainly focused on the cost control of the whole the supply chain, the cost covering:

-- Direct cost of goods: raw material costs + manufacturing costs + production costs

-- Purchasing cost: the cost of the factory, samples, loss of substandard quality, loss due to delay in delivery, quality testing cost, etc.

-- Logistics cost: freight forwarding cost, shipping cost and related services.

-- Financial risk (cost): to pay after quality acceptance as much as possible

W Company will grasp the (raw materials, spare parts) market information in time, achieve cost control by analysis the quotations, cooperates with the suppliers on the base of unaffecting the product features to do technical improvements and products innovation, outsourcing logistics services, improve management and reducing management costs.

□) Distribution Management

W Company's marketing channels are mainly divided into: direct sales (it has big supermarkets in many countries), sales through traders or wholesalers channels, also

as intermediate products sold to the factory. The main methods in channel development and management are including:

-- By professional exhibition to improve the awareness of the brand in the market, to contact new customers.

-- Participating business activities organized by government, maintain high-class contacts with customers.

-- Participating industrial association activities.

-- Web Promotion activities

-- Market Promotion activities

-- Regular customer visits

4) Upstream Management

□) Supplier Selection

The main supplier selection criteria of W company to Chinese supplier are including:

-- Quality: comply with the company request, W company has basic quality control facilities and staffs in quality control, inspection, laboratory, etc.

-- Delivery: strictly deliver goods in accordance with the time limit stipulated in the contract.

-- Price: competitive price, make cost analysis and comparison among similar enterprises.

-- Services: including the effective communication, understanding of W Company's intentions, familiarity with the product, understanding of quality requirements, interest on the joint development of products, act in concert with small-scale orders or new product development, quality control and delivery, transparency in the price negotiations.

After confirming target suppliers, contact to the suppliers according to the quotation to know actual situation well, and to determine whether to place orders finally.

The means and processes of W company to choose Chinese suppliers are mainly through the Internet, professional technology magazines, trade associations,

franchised store of related products, professional exhibitions and other approaches of collecting related businesses information, including product information, production and management capacity information, financial information, business reputation, etc. as the base for selecting suitable suppliers.

Selection process including:

-- Primary selection of suppliers

To verify target suppliers' information under premise of price-driven; select several specific products for target suppliers to quote, and send out "Requested Factory Information", for detailed understand on the scale, production capacity, the main business, the basic financial situation, independent technological innovation ability, human resource situation, the coordination ability, key clients, number of customers and amount of purchase, accurate delivery of the past, etc.

And also make spot inspection on target suppliers, to verify the received information, on the other hand to examine the concerns of their own areas, such as site management, quality control records and so on.

-- Supplier Survey

For the existing suppliers which need to extend new product varieties, W Company will check the information of the supplier evaluation and previous record of delivery. Assessment contents include the supplier's products supply capacity, delivery timeliness, and the advantage compare to the competitor, in time quality issues dealing ability and other quality management system related to information and financial position.

For the new developed suppliers, W company will design "Supplier Survey registration form." combined with the specific circumstances and the interested products and information to make direct investigation to them.

The elements of the investigation mainly involving the following aspects:

-- Overall operation and management situation: including the company's quality objectives, principle objectives, organization structure, financial situation, the quality management system, the number of employees, production scale, key products, key customers and customer relations and cooperation consciousness, etc.

-- Design and manufacturing: including the strategic thought of design, technical means and methods, standardized system, use of modern technology, attention of reliability and safety, laboratory and the R&D center development or the ability to process change control ability and so on.

-- Production situations: including the situation of production technology and equipment status, system of equipment using, management and maintenance, quality standards for process planning; process specifications and the science and feasibility of special process; processing capability and capability index, identification of each batch quality and tracing capability to customers' requirements.

-- Technical level: whether the products technical parameters provided by the suppliers meet the requirements. Does the supplier have a strong team with technical ability to manufacture or supply the products required to meet the customer's product development and improvement projects.

-- Product Quality: request suppliers to have a good quality control system, effective quality control, quality plans that can review the implementation of the plan to ensure the supplied products to be able to continually reach the stable requirements of Product Specification, meet customers' requirements.

-- Supply Ability: need to determine whether the supplier has a considerable production scale of the level of requirements and development potential, to ensure the supply ability of demanded quantity of products.

-- Competitive prices: this does not mean that is the lowest price. The price is considered of required time, quantity, quality and service and then to determine which one to choose. Suppliers should also be able to provide purchaser with the program of improving products cost control.

-- Reliability (credibility): Select suppliers with higher reputation, stable operation, fine financial position, to keep mutual trust and reputation, and maintain relationships.

-- Location: geographical location is also one of the elements which company must consider when choose suppliers. Supplier should be able to quickly bringing the goods to the pointed warehouse and improve on time delivery; location of related industries development is also an important measure, places with high level of industrial

development must have more complete supporting industries and guaranteed product quality.

In addition, the external survey to a supplier is also very important, through the investigation to get suppliers' assessment information and cooperation impressions from other enterprises or branches, to find the suppliers' information in products, production management aspect, technology development strength, or advantages in other ways.

□) Supplier evaluation:

The main purpose of W Company in supplier selection and evaluation is to find the most promising partners, manage them, and determine whether to establish partnership with them. Only when the supplier achieves the satisfactory performance will it be possible for W company to consider to establishing strategic partnerships with it; W Company decides to develop strategic partnership relations with suppliers based on the results of supplier performance scores.

Presently the common methods are: direct estimation method, purchasing cost comparison method, consultation selection method, but in the process of selection, the comprehensive selection method with closely attending of quality and price is often favored.

-- Directly estimation method: This method commonly used by W company to purchase non-essential raw materials or components, it is the choice of Class III suppliers, major adopting the views and experience of the relevant procurement officer.

-- Purchasing cost comparative method: use computational analysis on purchasing costs, including product prices, procurement costs, transportation costs and other expenses, choose the suppliers that have lower-cost in purchasing. Procurement cost comparison method is usually used by the company to choose the suppliers and understand the suppliers to see if their quality and delivery time can meet the requirements.

-- Negotiation method: W Company often selected a few relatively better suppliers firstly, negotiated with them, and then determined the appropriate suppliers.

Negotiation method can make fully understanding between supply side and demand side, although it is not necessarily to get the most reasonable price, the most favorable conditions for the supply source, the product quality, delivery dates and after-sales service and other aspects are more assured.

-- Quality and price based comprehensive selection methods: Although qualified products can be provided by different suppliers, there are differences in quality and transportation costs after all, which required the company to consider integrate price and potential quality loss in choosing suppliers.

W Company's supplier evaluation indicators are:

-- Quality Management indicators

To confirm whether the supplier established a stable and effective quality assurance system, with product quality achieved ISO9000 standards and internationally acceptable industry quality standards. Confirm whether the supplier established a sustainable and reliable test system for matching products to the test at any time.

-- Cost (price) indicators

W Company generally uses way of tender and bidding, and introduced competition system to choose suppliers with cheap and fine, best cost-effective products, and can meet the cost and benefit needs of the company.

-- Delivery indicators

W Company also assess whether the supplier has sufficient production capacity and production equipments, adequate human resources, the potentiality to expand production capacity; rapid market responsiveness, supply capacity of one-time large quantities. Industry leader may not be the preferred supplier of W company, because if the purchasing proportion is too small in suppliers' total output value may be detrimental to W company, so, in the same circumstances, W Company often considers the suppliers to have similar supply scale as the purchasing scale.

-- Partnership and Suppliers' pre-sales, after-sales service indicators

W Company particularly concerned about delivery capacity of suppliers, usually the conditions of shipping, receiving, payment terms and other links are clearly

defined in the supply contract. Only when the suppliers can provide the pre-sales and after-sales service, they will be identified as the core suppliers and can get larger purchase orders and higher profits.

-- Social Responsibility

W Company requested the Contract Enterprises in developing countries to implement the SA8000. Social Accountability International Standard which is generally welcomed and supported by the European and American business enterprises and consumers, to ensure the manufacturers and suppliers' products to meet the social responsibility standards.

□) Daily management of Chinese suppliers

W Company's daily management to suppliers major according to: supplier maintenance, quality control of suppliers, supplier performance evaluation, supplier regularly auditing and so on.

W Company takes some measures to Chinese suppliers on quality and delivery time and cost control, including:

-- Quality control: periodic audits on suppliers to help them improve the quality; full communication to allow suppliers to fully understand the quality technology and products requirements, to provide necessary training to suppliers.

-- Delivery control: to check the production process through order tracking and quality control, solving problems in time; to evaluate the satisfaction rate of suppliers' delivery time, reduce the number of orders if the suppliers' satisfaction rate is under 75% and increase the orders quantity for the qualified suppliers.

-- Cost control: make quotation cost analysis; on the premise without affecting the product features, cooperated with the suppliers to improve technology, innovate for products, improve management and reduce management costs.

-- Social Responsibility: under new international trade trends, W company requires suppliers to take their social responsibility, too. Suppliers need to comply with prevailing international norms, such as: the EU eco-environmental standards, China's mandatory standards; industry market access standards, energy-saving and environmental protection, compliance with national laws, suppliers are required to

promise these requirements in the contract.

□) Company's supplier relationship management

W Company established contact with Chinese suppliers primarily through joint venture relation, partnerships and contractual relationships, at moment there are one joint venture supplier; two partnership suppliers; others are all contracted suppliers.

The company has taken some specific measures in the maintenance of existing supplier relationships, which mainly are:

-- Incentive policy: Through the number of orders to inspire suppliers; give inquiry priority and more order to qualified suppliers.

-- R & D and production cooperation: establishing technology R & D centre in joint venture company; responsible for the design, providing technology support required by eight subsidiaries in the Group.

-- Risk and benefit sharing: mainly reflected in the management of the joint venture company.

At the same time, W Company continued to complete its own management standardization, improve its market visibility, and enhance the market leader position in the industry and market share. Suppliers conscientiously feel the real benefits, profitable and broad prospects. W company encouraged suppliers to continuously improve their honest and standardized management, and so won the respect and loyalty of the suppliers and enhanced its acceptance.

4) Downstream Management

□) Demand management

The management in the downstream of W Company is set mainly to meet customer demand as the target and strived to achieve: strict delivery, stable quality assurance, excellent after-sales service;

When the market changes, W company will give response to market changes through supply chain management, and actively ensure unblocked management for downstream information to the upper management, making purchasing department making procurement plans with enough information to respond to the market demands changes, and complete the procurement plan under co-operation of all sectors (Figure

6 -8).

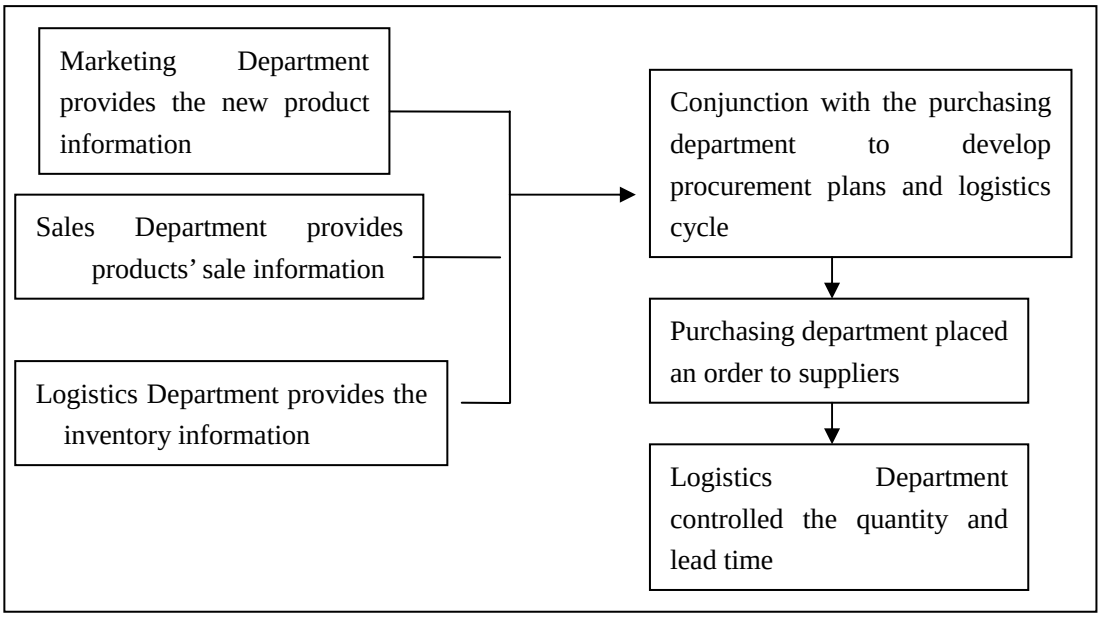


Figure 6-8 Department cooperation in W Company's Supply Chain Management
Sourcing: W Company

Improve the order management process:

Order management process developed by the company reflected:

Sales department and logistics department to confirm the purchasing quantity → Marketing Department confirms products' quality standards → Purchasing Department places the order to factory → Quality Department audits factories, confirms samples, pre-delivery inspection → Logistics Department contact the forwarder to deliver the goods → Quality Department will check and accept after receiving the goods → Purchasing Department will feed back quality information to the supplier or place new orders.

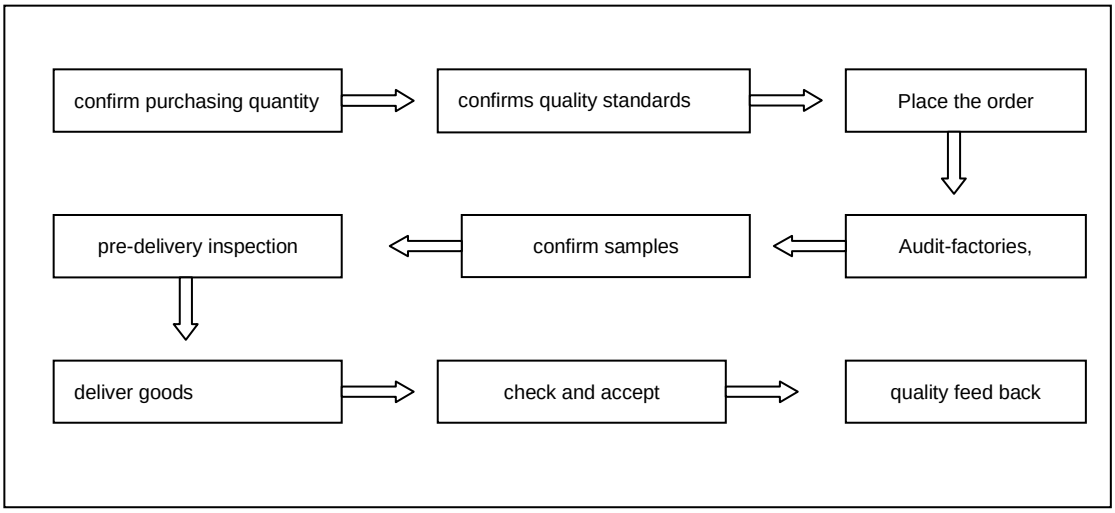


Figure 6-9 Order management process of W company
Source: W company

□) Customer relationship management

The customers of W Company include building material supermarkets, traders and wholesalers, as well as factories. W Company used different approaches in customer relationship management according to the different stages:

-- Development stage: mainly through exhibitions, professional product promotions, other government or industry's business activities.

-- Initial stage of cooperation: establishing connection network, enhance customer expectations (perfect company services, recommend updated products).

-- Stable cooperation stage: make high-level visits regularly to enhance customer loyalty (Let customers decide not to leave, or they will greatly increase purchasing cost with reduced product categories and declined service quality)

-- Strategic cooperation stage: establish collaborative cross-organizational communication in production, technology, logistics, marketing etc.; close cooperation in new products development and quality improvement.

5) The problems and solutions

□) Major Problems

-- Supplier Problems: untimely delivery, the supplier can not deliver goods on time; and quality instability

-- Infrastructure Problems: not advanced production equipments of suppliers and

incomplete quality control equipment.

-- The cultural differences: there is obstacle in cross-cultural management, differences in language and way of thinking leading to have errors in understanding problems and communicating, language communication barriers, especially in expressing with foreign language for both sides of supply and demand. This question is more serious to the current Chinese suppliers.

-- Other problems: the refund policy and exchange rate changes directly affect the purchasing cost. The existence of technical barriers, such as the EU REACH standards, ACS technical standards for products, reduced the optional range of products and suppliers, increased production costs. Changes in international political relations also have affected the enterprise's purchasing scale in China.

□) Solutions used

For supply chain management problems, W Company always hunts for the reasons first, then make adjustment. For delivery problems, verify how much of the orders, Are there production scheduling errors when factory had too many orders? Is it beyond the capacity of the factory? For inconsistent quality, check for the causal factors or systemic factors, is there equipment problems, staff problems, technical level problem causing high reject rate? If it is the reason for the supplier, rectification monitoring is required; if it is the reasons of ordering, a confirmation with the supplier is to be done and joint correct will be made.

For obsolete equipment and technical issues, an active increase of the investment in equipment and corresponding personnel training will be held. At the same time the two sides tries to understand each other's culture more and conducive to thorough communication. Sometimes Asians are more implicit and may not express openly, they may also nodding when they are not fully figure out the problems; Westerners are more direct, they pay attention to the principles and coherent. With the general improvement in the level of education, it is not so difficult to find the qualified foreign language professionals to relieve the language difficulties for medium and small factories in China to help them improve their expression skills. Furthermore, to actively respond to the changes in policy and economic situation, strictly control

production standards is always required.

6) Commentary

Although W Company is not a large well-known multinational company, it has certain brand awareness and leading product technology in the same industry, is an industry leader. The supply chain management of W Company fully reflects the entire activities in supply chain planning, coordination, operation, control and optimization. W Company's products are mostly standard products. The supply chain management is mainly focused on the cost, quality, technology, and services. W Company depends on the superior product quality and services to meet the customers' demand, it constantly develops new customers, reflects the changes of customer needs in the supply chain management in time, in order to provide good products, W Company adopts strict and standardized measures in supplier management, carries multi-inspection indicators for suppliers to ensure the quality, exerts its own technology and advantages of reputations to manage suppliers, to reduce supply chain costs, W Company made three levels of supply chain integration and had received certain results. However, W Company's supply chain management is still traditional method currently, management information systems remains to be established.

6.1.4 Case 4: P Company

1) Company Introduction

P Company is a Hong Kong Chemical Industry Company. In 1996, it began to invest and establish production configuration factory in Shanghai, which is a plant of small and medium size. P Company (Shanghai) is a pharmaceutical chemical enterprise, mainly engaged in R & D and production of pharmaceutical intermediates and medicine raw materials. P company is one of the leading producers of Pharma Bulk products-APIS-in China, using western Multi Purpose Production Management in its Shanghai operation with global customer base. The plant is GMP certified and fulfills international quality requirement for API production. The proportion of procurement in China has reached more than 95%, more than 90% of its products were exported to Japan, India, Korea and European countries.

2) Internal Management

□) Supply Chain Strategy

P Company produces non-standard products that are customized for clients, and so it pays more attention to supply security and stability in its supply chain. In supply chain management, P company major concerns to the quality management system of the raw material suppliers, non-production suppliers and production suppliers as well as its direct clients.

The supply chain reflects mainly "Suppliers - Manufacturers (P company) - production-oriented customers and dealers"

P Company had completed its optimization and integration from a joint venture to wholly-funded in the supply chain management process in China.

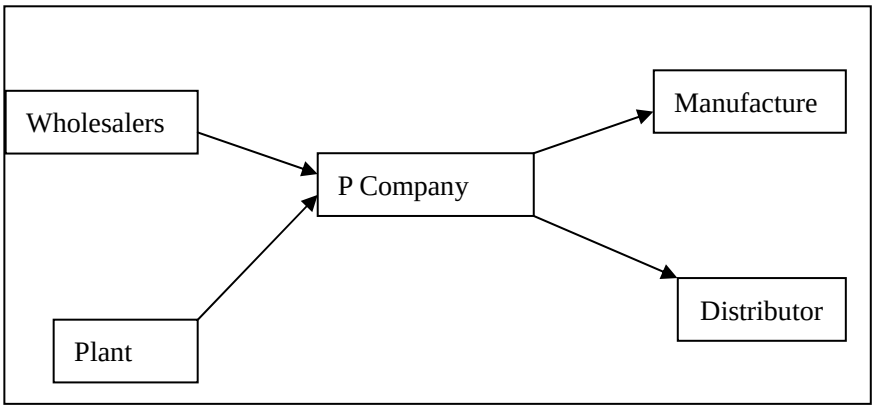


Figure 6-10 P Company's Supply chain structure in China
Source: P Company

□) Purchasing Management

P company had a purchase team, it had established a standardized procurement processes to ensure the process implementation and assesses the variety of procurement projects, compares different results of the project. These include:

-- Building strict and standardized procurement system

In order to reduce procurement costs, increase procurement efficiency, P Company started from the characteristics of its own to establish a strict procurement system, standardize operational processes and determine clear the rights, responsibilities and relationships of various departments. So that procurement staff can follow the rules in the procurement process for the requisition, approval,

contracting, execution, inspection and storage and other sectors standard operation procedures; It established the suppliers files, supplier access system and price evaluation system for the regular collection, analysis, and evaluation of price information, in order to select the most suitable suppliers to develop procurement plans and provide an enabling information to conduct price negotiations; Developing scientific and reasonable performance evaluation systems, carrying on the effective staff performance assessment , incentives and constraints for procurement staff, to improve their initiative.

-- Prior management,

Establishing perfect material information files, and information system in order to effectively control and reduce procurement costs and to ensure quick accessing to the procurement materials and the quality of delivery, it is prepared to market-related price information collection and collation, and timely understand market conditions and dynamics to ensure the quality of procurement materials, controlling the latest, most complete and most accurate information to ensure the correct procurement decisions at all levels and avoid mistakes of the important condition. The collected information must also be carried out under systematic research, conclusion draw, collate, compare and choose, to complete the purchase price in using compared and processed information or making appropriate adjustments and updating, then it can be used as a procurement decision.

-- Comparison of Purchasing Projects

P company usually makes purchasing decisions according to the complexity and variability, two or more available options are proposed for comparison. And to compare and analyze with the purchase price before and make the appropriate adjustments and updates. The adjusted and updated price files is distributed simultaneously to procurement management accountant to identify and retain; if necessary, procurement management accountant can directly collect the purchasing price information through various channels and inform the buyer at the same time, so that the buyer can file and implement.

-- Performance evaluation of the buyer

To pay attention to the buyer's occupation ability and professionalism, and to control their conduct with the enterprise system; A qualified buyer needs to be familiar with both the enterprise's production operations and material storages, understand the properties of the material itself, market conditions and so on, to avoid being deceived and avoid the purchased materials of useless or even simply unavailable, so that enterprises will not suffer unnecessary losses.

-- Hold Purchasing Management Conference

Pointing at the problems in procurement, changing or updating the procurement management policy and etc., the purchasing department will join other procurement monitoring departments to held regular or irregular procurement management meetings. At the meeting, they will present problems encountered in the procurement process which are difficultly to be solved, and through mutual consultation to look for the feasible options under the goal of ensuring the interests of enterprises. P Company has set up procurement monitoring departments to strengthen their internal management structure optimization, For any procurement of enterprises, the meeting will put foreword questions, investigations, monitoring and the necessary participation, any procurement that is unreasonable or detrimental to the interests of the enterprise will be rejected or terminated.

□) Cost Management

The main control aspects of P Company's supply chain cost management include:

-- Purchase cost control

It is primarily done by the cost-benefit statistics, and also strengthening the studies on competitors. Reviewing in-depth regularly the costs and benefits of the product specifications, even making breakdown analysis of rivals' product classifications. Under the secure guaranteed conditions from quality and delivery time, the purchasing cost is controlled through shop around; analysis of supplier cost structure and its performance, and hen negotiate.

-- Manufacturing and storage cost

P Company adopted SOP (Standard Operation Procedure) and GMP (Good Manufacturing Practice) to manage its production, through improving the

manufacturing process, upgrading production worker technology, improving operational procedures, reducing production losses and defective products, to reduce production costs; at the same time, production is strictly according to orders and reduce inventory, P company generally keeps only one month's inventory, it classifies inventory materials and focuses on the management of important materials.

-- Logistic cost

In logistics, P company generally requires home delivery in the procurement and outsourced dangerous goods transport to professional transportation companies.

□) Distribution Management

The distribution management of P Company is mainly aimed at customers and dealers, the company took different management approaches to ensure the channel members and the company to have the ability to engage in mutual coordination and cooperate in all activities, which is significant for the greatest common of long-term benefits. P Company provides customized services for direct customers, and technical support and product training for distributors, and try best in order management and settlement management.

P company distribution management including:

-- Order processing management

Reduce the situation of poor delivery caused by the mistakes in order handling circle.

-- Delivery management

To ensure timely supply, disperse sales and inventory pressures, speed up the circulation of commodities. To strengthen support for trade promotions and reduce the resistance of commodity circulation; to improve product sales force, promote the sale; increase capital utilization, making it a major profit source for the distributors.

-- Products and services supporting for dealers.

Properly handle the problems of the product such as damaged or bad in selling process, customer complaints, customer returns and etc., protect the interests of dealers from unnecessary damage.

-- Others in management

Include enhancing the dealers' philosophy, values identity and knowledge of P company's products. P company uses collaborative, consultative approaches to provide the necessary help for the dealers; guide and support the distributors to change for better product marketing direction.

3) Upstream management

□) Supplier Selection

P Company selected their Chinese suppliers mainly through industry assessment, exhibition, networking, etc. and based on the required quality of raw materials indicators to look for suitable suppliers or optimize and updating the existing supplier system. The whole process goes through consultation, submission, supplier evaluation, negotiation, determining the relationship and regular re-evaluation.

The main criteria of P Company for supplier selection in China include:

-- Supplier's Quality Management System

-- The stability of the product quality

-- Technical capability

-- Enterprise Infrastructure

-- Request for payment

-- Service speed

In addition, some raw materials of P company are dangerous chemicals or toxic chemicals, such suppliers will be required to provide business license for dangerous goods, safety production licenses and other relevant information for recording in the relevant state departments.

□) Daily management for suppliers

P Company's supplier management includes supplier certification, selection and performance assessment, etc, The company established a complete supply file for day to day managements to complete control the information of all supplier enterprise, assess accordingly the performance of suppliers, sort them in accordance with the importance, and distinct the important suppliers and the general suppliers. The important suppliers are able to meet acceptable standards of enterprise mainly in the goods quality, price, delivery date, coordination capacity, settlement conditions, and

other aspects, and have sustainable business with P Company; but for general suppliers, P Company only has occasional or temporary business with them. Special person is responsible for the management of supplier files which shared with the relevant confidential departments. Through the establishment of supplier files, it can choose suppliers with good reputation and reasonable prices and establish a good working relationship with them, thus ensuring product quality and timely supply of products.

The main contents of Company's daily management of Chinese suppliers are:

-- Updating quality indicators regularly

-- Quality

-- Timely and friendly solving commercial disputes

-- Regular assessment

□) Supplier Relationship Management

Since P Company's raw materials are basically bulk chemical raw materials, it has many supply channels. In order to reduce operating costs, P company keeps mainly the contractual relationship currently with suppliers in China, only very few are particular contractual relationship. Therefore, the practice of the company to maintain the relationships with current suppliers is mainly to share the risks and benefits, support technology services to individual supplier.

The specific practices include:

-- Establish the interaction mechanisms between purchaser and supplier, to obtain the actual supply capacity of suppliers; identify the constraints faced by the suppliers, and provide the confirmed supply capacity to the planning department or other relevant departments to make an executable forecast plan and release to the suppliers, make the suppliers be profitable, and share the risk together.

-- Sharing with suppliers effectively business and technology, provide detailed quality requirements to suppliers, and always participate in supplier's production process and related quality control activities, make real-time tracking and inquiring on the purchasing goods, to ensure product quality after delivery.

-- Reduce the uncertainty of the procurement process and maintain a stable

relationship. Communicate on the related information with suppliers, especially in the receipt of changes of customer demands, make timely feedback to suppliers and help them to respond quickly.

4) Downstream Management

□) Demand Management

The Demand Management of P Company is by means of finding, recording, organizing, and tracking to respond the changes of needs and to ensure that production schedule of the suppliers can reflect these requirements functions.

P Company's products are pharmaceutical raw materials; it has relatively stable market demand. The specific approach of the company to manage customer demand is mainly analyzing customer demand and to specifically convert it into technical specifications, doing technical development and product development based on customization and rapid response.

The company has established rapid response mechanisms, making push-pull combination of supply chain management to respond to market changes.

□) Order Management

P Company's order management makes customized, differentiated products and services be organically integrated into customer management in order to make products more responsive to meet the needs of consumers, then promote economic efficiency and customer satisfaction. The whole order management system can also better predict the profit situation, select the settlement system which is beneficial to the overall development at the right time, and timely arrange promotions to balance the supply relations between firms, to become active from passive.

P Company's order management process is mainly implemented in PULL model, the main steps are: receive orders, issued production orders, material decomposition, purchasing raw materials, production preparation, production, inspection, shipping management, delivery.

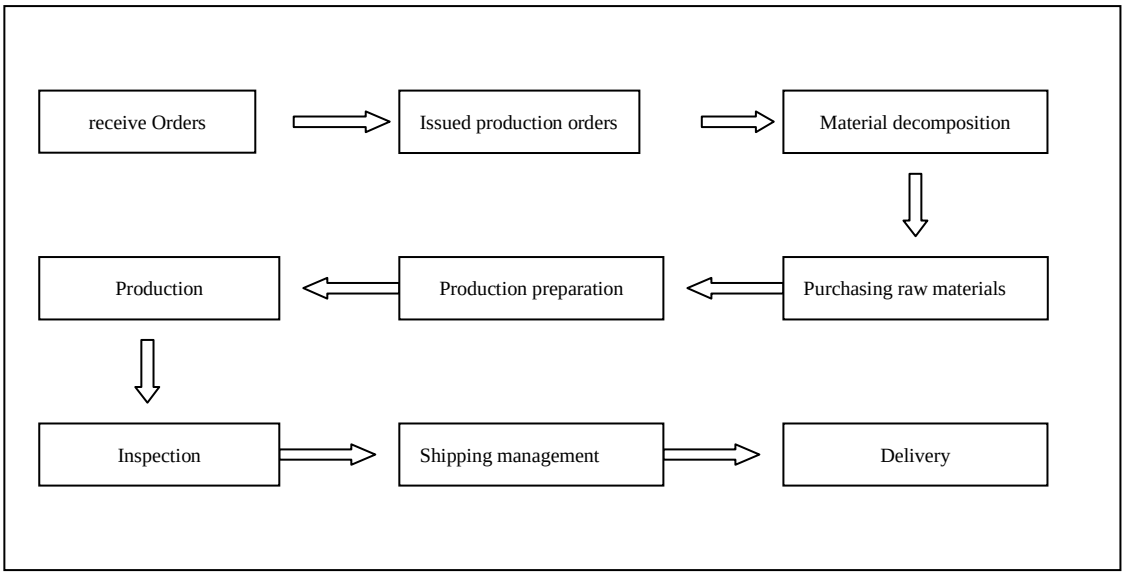


Figure 6-11 P Company's Order Flowchart
Source: P Company

P company in its order management also focuses on:

-- The operating conditions of the dealers, master sales characteristics, market changes, inventory and others. Collect all kinds of information, concern about the changes in the market and record them in timely.

-- The available supply number of company monthly, meet recent new market requirements, especially the arrival time of short supply or variety of merchandise, ability of supply quantity and quantity limit situation, and strive to make the orders targeted and accuracy.

-- Order fulfillment situation, make adjustment with customers' sales trends, inventory and supply sourcing, to ensure the normal operation, and arrange reasonable and make easy for future work.

□) Customer Relationship Management

More than 90% of existing customers of P Company are overseas companies; they are pharmaceutical companies and agents; only less than 10% customers are Chinese major pharmaceutical companies. In customer relationship management P Company is always consistent with customer demand for products and the customer's business development strategy. Managing the customer relationship resources, P company understands and finds out customers' real business and service demands, the aspect of maintenance is mainly to help customers to customize the products and

control cost then maximize customers' value in the process of meeting customer business and service needs.

P Company's Hong Kong head office is mainly responsible for the development of international customers through the participation in the API pharmaceutical raw materials exhibition held in Europe every year.

The key to customer management is to mobilize the enthusiasm of customers, and reduce the risks bring to the company. Include:

-- Benefit management: Let dealers, customers be profitable. P Company provides customers with consistent quality and timely services products to enable customers feel the advantages and benefits that are difficult to get from competitors.

-- Production environment management: To undergo annual audits from customers.

-- Emotion and relationship management: In API activities each year, P Company will take the initiative to seek for comments from customers, make in-depth communication with customers, timely detection of the problems and potential needs of customers, and give solution with satisfaction. Through communication with customers, maintaining emotional relationships with customers to make up the interests in inadequate aspect.

-- Service management: Survey regularly on customer satisfaction. Through regular surveys, direct determine customers' satisfaction and improve customers’ unsatisfied aspects.

-- Risk control: Enhance risk control; do well in customers' credit management.

5) Problems and solutions

□) Problems

-- Supplier problems

P company is currently facing with the credit problems from suppliers, such as the quality management system imperfections and the response speed of delivery and other issues.

-- Infrastructure Problems

P Company hasn't completed its enterprise management information system yet; this becomes the obstacle of information in supply chain management currently.

-- Others

Currently, Chinese suppliers still remain behind in understanding the quality management systems compare with the Western countries suppliers, they are sometimes arbitrary in quality system aspects. Chinese policies and regulations in the corresponding provisions resulted a greater impact on P company's cash flow, such as the renting premises, the charge of deposit in materials process; Medical management policies and regulations also impacted P company's products being sold in the Chinese market.

□) Major solutions

P company uses a PUSH-PULL integrated mode in its supply chain management currently, to improve the supply chain response speed, reduce raw materials and inventory of finished goods. On quality controlling, it mainly controls timely notification and further discussion after updated the index to use the guide and recommended ways to urge the suppliers cooperate with it to establish and improve the quality management system, strengthen the sense of responsibility to work on tracking, to do well on supplier audit, strengthen the assessment of suppliers and their quality management system, maintain quality assurance system operating in order to achieve the requirements of high-quality products and dedicate to continuously quality system improvement. In the aspect of delivery, trying to predict well and inform suppliers in advance and assist them to understand the market situation, control cost well.

6) Comments

P company, compared with the same buyers, its purchasing quantity is relatively small, which has certain disadvantage to its procurement and the negotiation situation of purchase price. It enhances supplier's acceptance mainly through long-term stable orders, good relation maintenance, and provided technical support.

On the other hand, its procurement method is still in the traditional manual way, and needs to be achieved. Although it looks saved the hardware and software investment spending, the efficiency of the company is lower, the manual order operation wastes time, and so the procurement cycle becomes longer, which makes

management complex and purchasing costs higher. The customer management of P company has not yet risen to the strategic level, which is also the disadvantage to the cultivation of customer loyalty.

6.2 Cross case study

6.2.1 Background of sample companies

The sample companies selected in this paper, taking into account the situations like the size of enterprises, the industrial sector, the host country of the parent company, trying to find the impact of the strength of the core enterprise and cultural factors in supply chain management implementation; and so the chosen companies include big, middle and small in sizes; Europe, North America and Hong Kong in origin, and different year of entering China.

Table 6-1 Basic condition of sample companies

	Size	Country（area）	Product	Main market	Year of entering
S company	big	Europe	Electricals	China, world	1979
G company	medium	North America	Industrial products，	China	2006
W company	medium	Europe	Bath products	China, world	1995
P company	small	Hong Kong	Pharmaceutical raw material	China, world	1996

S Company is a well-known international company from Europe; it entered China early bringing electrical products required for both China and the world markets. G Company has been very well-known in North America, but relatively new in China, it is medium-sized, provides industrial products and services for industrial enterprises in China. W Company, though not large, has been in China for some time, selling bath products for China and the world market. P Company is a small company with the background of Hong Kong, it has been in China for more than ten years,

manufacturing pharmaceutical raw material products for China and the world market.

6.2.2 Implementation of SCM of the sample companies

Although there some different priorities and methods, the four companies have many basic points in common in supply chain management implementation.

1）Internal management

From a strategic view of view, to meet customer needs while reducing costs is the common point, the four companies have the same goal in supply chain management that is to meet customer demand, in which the S Company and G Company emphasized the customer in the service, W Company and P Company emphasized customer demand for commodity quality.

The four companies integrated their strategic supply chain thinking in the procurement management, S Company and G Company, based on their reputation, control supplier qualification strictly in the procurement, and set product quality and technical requirements high. W Company, although not large, has brand awareness, which helps in the procurement to have the ability to select cheap products with quality. P Company is a small company also targeted to the quality and price controls in procurement.

In the cost control, the four companies have the same content in procurement cost, quality control cost, logistics cost, and so on; as production-oriented , S Company, W Company (part of), and P Company also concerned about the production costs; S Company and W Company have the storage cost, G Company, as a MRO company, the warehousing cost is very important in its cost content; and P Company, in order to reduce cost, usually controls the inventory within two months. On the other hand, S Company and G Company have service costs to consider. The focus and ways to reduce costs for each company is different, W Company mainly focuses on the purchase price and logistics costs; P Company not only focuses on procurement costs, but also strive to reduce production and inventory costs; G Company uses a special way of warehouse management to control costs; S Company has the most comprehensive multi-dimensional cost control ways, , from the increased service

capacity, the production improvement, the business processes, the staff skills and so on, and achieved good results.

In distribution management, S Company, G Company and W Company focused primarily on the development and maintenance of distributors, they contact with distributors by increasing communication and information to improve services and provide technical supports, sharing benefits and risks; P Company's overseas orders was monitored by the Hong Kong headquarter, therefore, its distributors outside China is also managed by the parent company.

2）Upstream management

The supplier selection criteria of the four companies have much in common, they are mainly: product quality testing capability, production capacity, delivery time, service, price, term of payment, etc.; In addition, S Company also considers the technical ability of the suppliers, G Company considers the company's brand, W Company considers the stability of the supplier, P Company as in the pharmaceutical industry should also consider supplier qualification.

On the daily management of the suppliers, there are also similar contents for the four companies, the basics are including: product quality control, cost control, delivery control, periodic evaluation etc.; P Company will, according to the orders, modify the quality and deal with business disputes; W Company also has its social responsibility requirements on suppliers; G Company concerned about the changes of the products and keep quality tracking; S Company also pay attention to the development of the suppliers and the change of their finance.

S Company has scientific methods on supplier relationship management, the suppliers were classified according to the degree of importance, a strategic partnership is established with a few key suppliers, and the strategic suppliers are invited in the early activities and technology development of the order management, most of the suppliers are the potential suppliers and the common supplier, S Company helps them to improve their production skills and provides technical assistance, the small part of the supplier that can not continue to work together will be eliminated; As a new entrant, G Company is still in the process of developing its suppliers, P Company in

order to save cost of the purchase, contractual and interest relationship are what they used to maintain relationships with suppliers; W Company uses both contractual relationship to the majority of the suppliers to share benefits with them, and stable orders to a small amount of partnership, it also provides technology cooperation to the joint venture to maintain relationship.

3）Downstream management

In Demand Management, S Company, through market segment, delivers innovative, comprehensive, and differentiated products and services to meet customer demand, S Company continually improves technology by innovation; G Company provides available products and services to ensure customer's machine to operate normally, and also expands product catalogs and keeps adequate inventory for demand management; W Company and P Company always collect and analyze market information to provide demand products and services.

In Order Management, S Company and G Company have already used the company's electronic platform, customers can order and express their requirements through the network, each company made special persons to deal with these requirements, and make sure to arrange them through the order management process; W Company and P Company are still using the traditional method to treat orders, and managing them under standard procedure.

In customer relationship management, W Company takes different management approaches to its customers according to co-operation stage, from the initial contracts relationship to technical co-operation and services; P Company's domestic customers are mainly large pharmaceutical companies and they contact regularly to understand the changes in demand, especially the changes on technical requirements, to provide qualified products with stable quality and reasonable price, its oversea customers are managed by the parent company, the annual API (Active pharmaceutical Integrate) China and CPHI (Chemical Pharmaceutical Ingredient) are the special time to communicate with customers and follow-up the market change. S Company maintains customer relationship through its powerful network of services, and provides technology, products, services and dealer training according to different types of

customers to bring up customer loyalty; the company also implements customer care through IT systems. G Company uses detailed records of customer information to fully understand customer needs, providing them with good products and efficient services to win the favor of customers.

Table 6-2 Summary of SCM components for sample companies

	S company	G company	W company	P company
Internal management	provide satisfactory service to customers while controlling costs as the strategy use good reputation to select high-quality suppliers and high-tech products in procurement cost control from all dimension, especially production cost and service cost pay attention to the distributor development and maintenance in distribution management	provide available products and services to customers as the strategy use own reputation to choose suppliers and products with well-know brands warehouse management to be the key part of cost control concerning also with the service cost and logistics cost pay attention to the distributor development and maintenance in distribution management	provide customers with high-tech, high-quality low-cost product as a strategy use own brand to select high quality and low price products procurement cost and logistics cost as key part of cost management concerning also with production cost and inventory pay attention to the distributor development and maintenance in distribution management	provide products with different technologies, low-cost, stable quality to meet customer requirements as a strategy select high quality and low price products as procurement goal consider procurement cost, production cost and inventory in cost control
Upstream	supplier	supplier	supplier	supplier

management	selection criteria include: product quality testing capability, delivery time, service, price, payment terms, technical capabilities daily suppliers management including: product quality control, cost control, delivery control, periodic evaluation, supplier development and financial situation establish different levels of supplier relationships, involve strategic suppliers in the order activities and technology development, provide technical services for	selection criteria: product quality testing capability, production capacity, delivery time, service, price, payment term, brand daily suppliers management including: product quality control, cost control, delivery control, periodic evaluation, and quality tracking develop relationships with suppliers through orders and benefit-sharing, make cooperation after full understand	selection criteria: product quality testing capability, production capacity, delivery time, service, price, payment term, stability daily suppliers management including: product quality control, cost control, delivery control, periodic evaluation, and social responsibility provide technical assistance to the joint venture suppliers, place stable order to partners, use contracts and benefit-sharing to general suppliers	selection criteria: product quality testing capability, production capacity, delivery time, service, price, payment term, production qualification daily suppliers management including: product quality control, cost control, delivery control, periodic evaluation, periodic quality changes, and disputes settlement maintain relationships with suppliers through contracts and benefit-sharing

	suppliers and improve their production capability			
Downstream management	provide customers with differentiated products through market segmentation and technological innovation use electronic order management system to provide fast order processing based on strong network of services and customer care system implementation to provide different customers with quality products, technologies and services in order to win customer loyalty	expanded product catalog, maintain adequate inventory, to provide customers with available products and services use electronic order management system to provide fast order processing make detailed records of customer information to understand customer needs, and provide quality products and good service, to win favor from them	based on market information, to provide customers with low cost high quality products complete order management through standard procedures take different approach in different stages of customer relationship management from contract management to technical cooperation	provide products with reasonable price and stable quality according to customer requests complete order management through standard procedures maintain communication with customers through main exhibition to know technology changes, and keep technical tracking

It can be seen that the four companies have clear strategy in their supply chain

management in China. They know how to take their advantages in procurement and the focus of the cost control. They established criteria in the selection of suppliers that meet the standards required, they have clear and specific contents for the daily management of suppliers relationships, keep mutually benefits with suppliers under different levels. They concern about customer demands, take full implementation on order management, adapt to the changes in the market to meet customer demand, communicate with customers to solve problems if any, keep good relationships with customers.

6.2.3 Problems facing

Four companies have encountered problems in supply chain management in China, which are mainly concerning with suppliers, the facilities, and government policies.

Table 6 - 3 Major problems four sample companies facing in SCM in China

	S Company	G Company	W Company	P Company
Suppliers aspects	key technical capabilities unstable product quality delivery time price customer focus cultural differences (not serious)	supply capability product quality response speed understanding of service quality compliance with contract cultural differences (understanding to the problem）	delivery time stability of quality cultural differences（language，way of thinking, understanding to the problem）	Supplier Credit Product quality management system response speed understanding to the quality management
infrastructure	logistics ability service network		production equipment of the suppliers quality control equipment	information system
Government	export	trade	tax rebate	Financial

policy	policy regional protection industrial criteria	restrictions Dangerous Goods Management	policy exchange rate policy production standards	Policy for firms Export policy Pharmaceutical Industry Policy

We can see that many problems related to the suppliers are in common concerning with issues of quality, technology, delivery and management; problem in cultural aspects is the differences in understandings. In infrastructure, logistics and information systems are the primarily issues, S company has a nice information systems, but still have problems in third-party logistics co-operations; G Company is a new company, has relatively good infrastructure, and has its own logistics, there is not much problem under current business scale; W Company has not yet an improved supply chain management information system, but it already has its logistics platform, to keep stable cooperation relationship with third-party logistics, its main problem is the issue of production equipment when facing increased orders; P company as a small company, its management information system is also a problem. In policy aspects, S Company, W Company, P company have overseas business, trade policy, exchange rate policies of the government always have effects on them, G company services the enterprises mainly in China at present and so has little impacts; In addition, although the four companies are in different industry, they all feel the impact of policies in their respective industries; S company, has biggest business scope in China, it also felt the impact of different regional policies.

7.0 In-depth analysis on MNCs' supply chain in China

With global sourcing and supply chain integration, supply chain procurement networks of large multinational companies and international purchasing organizations

are accelerating their extension to the Chinese market, global procurement and supply chain integration activities in Chinese market performed more frequently.

The case study in previous chapter gives a miniature of the MNCs' supply chain in China; these cases set the foundation for the in-depth analysis on the things concerning MNCs' supply chain activities in China.

7.1．Driving forces of MNCs establishing their supply chain in China

Many multinational companies came to China because China has a better supporting manufacturing base and industrial capacity, they not only involve China in their global sourcing, but also bring to the Chinese enterprise the concept of supply chain to develop better long-term cooperation with Chinese enterprises and hope to get high quality products and resources with reasonable and cheap price from Chinese market.

Sourcing from China mainly due to:

1) Chinese market

Market driver comes from the pressure of competitors and the opportunities Chinese consumers provided. With the development of information technology, the high-speed exchange of information and feedback, consumer preferences tend to be consistent. Consumers have become global consumers; enterprises have also become a global enterprise. Multinational companies cooperate with host country companies in the world making use of their technology and high-quality staff.

Since 1995, China's economy has maintained an annual average growth rate of nearly 8 per cent, and has become the world's fastest growing country. This growth is structural and derived by strong internal (reform) and external (globalization) forces, the world benefited from this growth. With the trend of globalization, a number of special markets often become the leader in the development of other markets. In order to defend the interests of enterprises, it is necessary for MNCs to enter foreign markets like China, the huge market. The birth of cost, technology, capital and other advantages of the product or service of the special market will help multinational companies to earn more market share.

2) Production capacity

Since the reform and evolution, through 20 years of efforts, China's manufacturing industry has made remarkable achievements. China's manufacturing capability and supporting capability have been improved after years of development. China has developed a full range of manufacturing, with the ability of upstream and downstream supporting industries to meet the needs of foreign markets in a variety of levels. Rapid development of foreign investment in manufacturing, the investment structure has turned from labor-intensive industries to capital, technology-intensive industries. In the 80s of the 20th century, foreign capital was mainly concentrated in the traditional labor-intensive manufacturing industries, especially textiles and clothing. After 1992, the foreign direct investment gradually shifted to capital-intensive and technology-intensive sectors, especially in the chemical industry, machine building, transport equipment, electronics and telecommunications sectors. In the second half of the 90's, the traditional labor-intensive manufacturing industries had a relative stagnation in foreign investment, while IT industry became a new investment focus. The international competitiveness of the manufacturing sector improved, some industries have begun to be with international standards, and adopt international standards or introduce foreign technology and capital in their production, processing and marketing to improve competitiveness.

3) Low cost

Often the cost of multinational corporations to set up factories in foreign countries determines their decision-making. China's cost advantage mainly includes three aspects: First of all, there are low-cost non-technical and technical workforces. Promulgation of university education provides a large number of inexpensive high-quality personnel for multinational companies; Secondly, China's natural resource compared to other countries in the world also is cheap.

Prices and competition pressures are the two main reasons for multinational companies sourcing from low-cost country. Facing to enormous potential of reducing costs, multinational companies have strengthened their procurement capacity in China, buy goods from Chinese suppliers may save at least 20% of the landing cost and fees.

Cost is the determinant of procurement in China. A large number of low-cost, high-tech workforces and a favorable export environment make China a global supply base.

4) Increasing of high end products

The composition of Chinese exports have begun to change rapidly, no longer rely on cheap, low-margin products, but turning to value-added, higher margin products. China's private sectors growth has been faster than the state-owned enterprises, many of the private sectors have quickly entered into high-end products market. The high-end products exports grows rapidly, those traditional Chinese clothing and shoes, calculators and other low-cost TV sets and the growth of low value-added exports have gradually declined, the growth of telecommunications equipment, software, high-margin auto parts ship merchandise exports have reached 30% to 150%. China is the first developing countries in the world that can compete simultaneously in high-tech areas and low labor costs area. In the past, consumer goods, clothing and textiles are the major sourcing products by multinational companies in China category. Today, more and more multinational companies source for high-tech products directly from China to replace simple labor-intensive products.

5) Rapid improvement in technology

The development of China's manufacturing industry is a result of international industrial transfer. The foreign direct investment in China's manufacturing industry in last decade maintained a virtuous cycle to promote and expand the export-oriented production and import of technology. In particular, since China's accession of WTO, multinational companies invest in manufacturing increasingly actively. Extension of foreign investment and supporting industry chain have been expanding, the R & D set up of foreign-invested enterprises gradually increased to nearly 1,000. Foreign direct investment and the establishment of R & D institutions do considerably make up for R & D investment gap of Chinese government and enterprises, and strengthened the local awareness of R & D that led more and more local companies actively carry out technological innovation.

Actively invest in R & D in China, multinational companies changed the practice

of not involving the real core technology in their investment in the past, and have started to set up original R & D center in China. Taking into account the comprehensive cost, China still has strong competitive advantages, the domestic manufacturing industry in China has also big space for the transfer gradient, Chinese government attaches great importance to the promotion of independent innovation from local enterprises, and is improving and implementing policies to support independent innovation, give full play to the technology innovation by businesses, encourage high replacement of the products to the market. China has made some of the major technological breakthrough in equipment development, the equipment and technical level has promoted in traditional industries.

7.2. Supply chain establishing stages of MNCs in China

Looking for suppliers in China is no longer a novelty. More and more multinational corporations came into China to set up their own supply chain, and thus to make use of the advantages of low-cost supply base. Many multinational corporations develop their supply chain in China successfully in the steps of:

I. Experimental period

* Developing skills of procurement in China
* Establishing local team and cross-border system
* Developing knowledge of the supply market
* Production test
* Reform to use test-production products

At this initial stage, companies focused more on how to implement the procurement in China and set up relevant processes and organizations. At this point the main challenge lies in the differences of culture and business practices, as well as the lack of transparency in Chinese supply market.

II. Early time

* Continuing produce the product and improve production quantity at same time
* Ease the internal resistance
* Ensuring the same quality of different suppliers

* Adjusting the Procurement Office staffs

* Protecting intellectual property rights

* Developing suppliers

After the initial stage, the new questions began to be felt, and the expansion of procurement in China often seemed more difficult than expected. Most of the procurement department leaders in China consider that the imposing restrictions on the expansion of the procurement scale came from the internal boycott. Even though much of these procurement leaders express that they were supported by the highest level of the company, but such support did not work on the lower manifested teams, and the cooperation of such manifested team is of important for the implementation of procurement plan in China.

Procurement professionals also found that even though there were enough qualified suppliers in the market, foreign companies still focus on the development of suppliers, in order to set up a base of qualified suppliers in China. This is often an inter-departmental action, the single action by the Chinese subsidiary to deal with such cross-regional and cross-functional motion will probably too complex and difficult to complete.

In addition, with the increasing procurement number in China, the completion of orders and management of the expansion of supply chain became particularly crucial. Increase of purchases also brought greater risk. Therefore, a wide range of crisis management (such as: violation of intellectual property rights, exchange rate risk, etc.) also became more challenging.

III. Integration period

* Managing the expanded supply chain

* Coordinating and enhancing the inter-department cooperation

* Consolidating logistics management

* Coordinating local procurement with overseas procurement

* Developing support for products of Chinese suppliers

In the past, multinational companies tended to select an escape attitude to solve problem, they used a number of large-scale procurement intermediaries. However,

with the improved attention of procurement in China, more and more multinational companies setting up their Purchasing Department in China directly, or call the Department of international procurement. Some companies go further: they settled some of the functional structures of procurement in China. In 2006, IBM's global chief procurement officer deployed to the Chinese, in order to be able to narrow the gap between chief procurement officer and the supply base. Other companies put major procurement staffs to China, so that China became part of their globally harmonized merchandise strategy. With the evolution of the company at different stages, new challenges will continue to emerge. For example in the spare parts market, regardless of the supply market is decentralized or centralized, multinational companies will use their own purchasing department to communicate with the Chinese suppliers directly. Only in a very fragmented products market will they select a number of procurement intermediaries, such as in the toys or clothing market and other markets.

IV. China - Procurement Center

* Integrating the global supply chain
* Establishing global production strategy
* Managing the changes in the proportion of corporate functions

Transnational supply chains have the chance to upgrade operations, and to win profits. Kearney(科尔尼) global procurement findings show that benefits obtain can not simply rely on the depression of suppliers prices, but on more advanced procurement strategies, and form long-term strategic cooperative relations, creating win-win situations with suppliers.

When the multinational companies set up purchasing departments in China, they use a number of international advanced methods to meet the challenges they face. For example, a lot of Chinese enterprises have not transparent quality control mechanisms, multinational corporations will set up the quality inspection system at the scene. Most multinational companies select international logistics co-operation locally to solve the logistics problem because they think the products transportation is usually inefficient, expensive and unreliable in China owing to the relatively weak infrastructure.

Therefore, the Chinese suppliers and multinational companies should be more cooperative to improve supply chain efficiency and reduce the cost of the entire system, rather than low prices alone. Another trend is that a lot of multinational companies are active in reducing the number of suppliers. The reason is that multinational companies want to maximize the centralized purchasing, to achieve maximum price advantage. From a managerial perspective, the more suppliers the greater complexity of management, the higher management costs also, and not conducive to form long-term strategic cooperative partnerships with the most important suppliers.

7.3．MNCs' supply chain strategy in China

China, as the world's largest developing country, its advantages of cheap natural resources, human resources and a huge market have attracted many multinational corporations to set up their supply chain in China, a number of Chinese enterprises became the member in the global supply chain of multinational corporations. They bring with them also the idea of supply chain strategy, the goal is to provide high quality products and services with lowest price, to enhance the effectiveness of market supply and customer satisfaction, and gain competitive advantage by higher market share. To do this, they use specific approaches to the supply chain in China to improve technology and efficiency, reduce costs and perfect the weak link in the value chain, and strengthen the core competence. Multinationals implement strategically in the supply chain in the following aspects:

7.3.1 Outsourcing

In the implementation of global supply chain, outsourcing is the most common way of cost saving. The outsourcing definition first appeared in 1990's "Harvard Business Review," and its essence is to retain enterprises' core competencies, and transfer non-comparative advantages to other business enterprises, the best use of external resources to achieve reduction of costs and enhance the competitiveness of

enterprises. The business outsourcing involved in supply chain management is of the followings:

1) Outsourcing of production

Production Outsourcing is the most extensive application of outsourcing. Outsourcing of production is for enterprises to increase production efficiency, lower production costs, and maintain a reasonable rate of return on capital investment. It is conducive to the development of proprietary technology and training their own core competencies, and conducive to a rapid response to market demand and build a better business processes.

In view of the development of the manufacturing industry status in china, many multinational companies are actively outsourcing their non-core tasks from China's manufacturing enterprises. Since the 90s of 20th century, manufacturing outsourcing by multinational companies has transferred to China for the assembly process part of the manufacturing value chain, and formed the climax of foreign investment in China. Multinational companies shifted the processing to developing countries, but kept the key components or raw materials manufacturing at home. As the technology diffusion and enhancement of manufacturing capabilities, developing country firms have been able to independently produce key components required by multinational companies and key raw materials. Then multinational companies began set up the local foreign-funded enterprises engaged in production of key components to expand the scale of business from the start, also provide key components for other multinational companies. Multinational corporations now directly outsource from product processing and assembly to the critical components and raw materials from developing countries, which increased the outsourcing proportion, the depth of multinational companies manufacturing outsource is greatly increased.

2) Outsourcing of service

Multinational companies in their strategic restructure and business process change will certainly outsourcing some services from developing countries with lower labor costs. This made it possible for developing countries to undertake service outsourcing, to expand absorbing of foreign investment. With the transfer of

manufacturing sector, multinational companies also shifted the services to China. The transfer of manufacturing sectors and service sectors, mainly through multinational companies' established wholly-owned firms or joint venture. Recent developments suggest that some multinational companies had outsourced some services which was done by own such as financial settlement, call centers and human resource management from China. Current outsourcing services of multinational companies from China include:

-- Logistics outsourcing: MNCs in China contract with the transnational corporations for the logistics in the supply chain management in order to reduce time and cost in the process of transport, storage and other logistics.

-- Sales outsourcing: MNCs in China adopt sales agents entered into China market to avoid market barriers and make substantial profits.

-- Information technology outsourcing: Some MNCs have signed comprehensive retail IT service outsourcing contract with IT companies in China for the outsourcing of IT collaboration.

-- Human resources outsourcing: In view of the special cultural and salaries regulations, transnational corporations in China actively seek for local software and service suppliers to provide global and local required products and services.

7.3.2 Merger and acquisition

Since the late 90s, multinational corporations have taken more and more mergers and acquisitions in China, from all indications. The international background mergers and acquisitions of multinational companies in China have become a strategic act.

One of the notable characteristics is the powerful combination of crosswise (horizontal) mergers and acquisitions as a major trading form. Horizontal merger means that the two sides are in the same horizontally related industries, production and operation in the same kind of products or technology-related industry.

Horizontal mergers and acquisitions in the industry in china have the following characteristics:

First, the mergers and acquisitions focus on the technology-intensive and

capital-intensive industries. Second, after 10 years of development, these industries have relatively mature market, and most are in the excess supply capacity. Third, the technology in these industries has made rapid progress with great technical inputs and increased economy of scale in recent years. Fourth, many of these were restrained industries in the past, and the government has relaxed its controls on these industries and introduced competition on them these years. Five, those industries are forming or have formed a global market.

These features make the global supply chain management a new production organization and management model that has been widely applied by transnational mergers and acquisitions. Multinationals mergers and acquisitions in China have not only aimed to obtain market, but to seek global supply chain integration. Latter multinational corporations began to invest in China with systematic characteristic; the mark is the massive investment and the establishment of holding company. These companies can unify and coordinate the affiliated enterprises, made the products, services, research and development closely linked and interfaced for multinational corporations, thereby enhancing their industry radioactivity control function.

7.3.3 The supply chain alliance

New era of the Supply Chain Management is based on the market demand, the whole supply chain is a complete network structure composed by all partners, forming a highly competitive strategic alliance. Supply chain alliance as an intermediary does not expand the organization itself, but really expand the borders of the enterprise, so organizations can avoid being too large and still through sharing of technology and market to reach the external resources and expand the scope of available resources and make maximum use of resources, and overcome the uncertainty of market transactions.

Under supply chain management, more and more MNCs in China lean upon their advantages on production design, manufacturing, purchase and distribution to define core business and care for non-core business through supply chain system. The role of management on supply chain is no longer fixed and single as tradition. It is developed

and changed in the process of time and with the globalization of supply chain. MNCs are trying best to achieve the coherence between partners, reduce the risk of supply chain and improve the communication and information among enterprises.

7.3.4 Localization

Since 2000, multinational companies investing in China has significantly accelerated the implementation of localization strategies. Localization strategy is systematic, including the localization of research and development, localization of products, localization of production, localization of marketing, localization of human resources.

1) Localization of production

Although China's accession of WTO leads a dramatic reduction in import tariffs, multinational corporations are still like to set their global manufacturing centers in China, and build China as the axis of global production patterns, which is to take full advantage of China's cheap but qualified labor resources to gain regional economies of scale and global competitiveness of the strategic objectives. At the same time, as the education in China is becoming popular, the qualified labor resources have greatly increased and improved, this is the advantage transnational corporations need.

2) Localization of product

For MNCs, high-quality products and strong brand in the global market are the sharp weapons, from the successful multinational corporations, at least 2 / 3 of the revenue and more than 40 percent of the profits were from new products. MNCs also did not ignore the characteristics of local market and consumer preferences of residents in China, despite significant culture different from the Western countries, multinational corporations spared no effort to promote the localization of products.

The products localization strategy of MNCs' focuses on the market to the study the product formulation with particular emphasis on China's traditional science. The combination of Western science and Chinese culture comes from the influence of thorough analysis and understanding of that specifically designed products for Chinese market.

3) Localization of marketing

China is vast in territory and large in population at the same time, and very different traditions around, it has a fragmented commercial system and not standardized market action. In this context, market position, distribution strategy, communication way, service strategy, brand planning is unique; some multinational companies enter Chinese market ignoring its complexity and consumer particularity at the beginning and then greatly suffered, and so multinational corporations began to take into account all these differences.

4) Localization of R & D

For many transnational corporations, R&D is mainly controlled by the headquarters in its home country, to form a knowledge density trapezoidal structure of the industry chain from the home country to China. Since 1994, many multinational corporations began to speed up R&D institutions in China. In 1997, 24 foreign R & D centers were invested in China and by February 2003, foreign investors had set up nearly 400 R & D centers, of which independent R & D institutions of large multinational companies have been over 150.

Multinational corporations set up research and development institutions in China have multiple objectives:

-- First, MNCs set up R&D centers in China that responsible for the development of products, to meet Chinese consumer preferences in a fastest pace and capture the Chinese market in order to enhance competitive advantages.

-- Second, Some MNCs take China as their standard experiment to achieve global R & D network, capture the world's information, or make new scientific and technological achievements and new products take back to the home country, for the use of multinational corporations.

In this new background, the local R & D strategy is actually part of the human resources center of multinational corporations to attract international talents. They usually establish independent multinational corporations Institute, Management school, training centre, through co-operation with Chinese well-known colleges and universities, to realize a high-level talent competition, with superior resources and

flexible employment system, multinational companies are attracting a large number of outstanding local talents, better than a single capital investment and have more strategic perspective.

5) Localization of managers

Promoting local Managers is the effective way to avoid and overcome culture differences. The manager strategy is of two main ways, first is foreign manager expatriate, and the second is local manager hiring.

The biggest obstacle of expatriated managers in China lie not only language, but also the difficulty to go deep into the Chinese market, to understand Chinese culture, political and economic systems, this stops to develop flexible and effective management activities. To overcome this obstacle, transnational corporations adopted different approaches, Japan and South Korea companies tend to employ managers from home country, but take out the china-lization training before taking business in China, they send administrators to China each year to study Chinese and learn from China the Chinese customs, political and economic system, and market characteristics. American companies are willing to employ a large number of overseas students of Chinese-American and Chinese elites with senior management background in China investment sector.

Now a majority of multinational companies in China choose local management personnel for lower management position, in addition to lower cost of dispatch, also because they believe that the ideas of local people may better mix with local culture and can effectively eliminate differences in cultural background and language that may cause management conflicts, increase management efficiency, at the same time can use good interpersonal relations and market experience of the local management personnel, and more easily close to the local market, to expand sales channels, information and reduce transaction costs.

7.3.5 Integration

After entering the WTO, multinational companies both who have many years of development in China and those still waiting to enter are showing great confidence

and enthusiasm in investing in China. With the openness of China's manufacturing industry and related upstream and downstream industries, multinational companies around with the invested projects started improving the industrial chain, and enhance capacity in China's internal supporting.

According to the needs of the strategic adjustment and global competition, multinational corporations conducted a comprehensive restructuring on their business in China. Multinational companies through the adjustment of their investment, development and procurement activities in China expended its influence step by step from production areas of processing and assembly to the upstream and downstream industry chain. Thus further improved the internal division of China's manufacturing system, expanded the participation of China's manufacturing in international division, enhanced the competitiveness in China's manufacturing industries and competitive advantages, made China "the world's manufacturing center" and made China the "world factory" of home textile, garment and other industries.

Since the establishment of investment companies and regional headquarters in the late 90s of the 20th century, multinational corporations have launched a new round of relocation of headquarters. They made adjustments on the equity structure and organizational management of the investment company already operated in China; undertook business mergers and separation for its subsidiaries in China; highlight the core business, reduce raw material procurement, product distribution and R&D costs. Forced by competitive pressures from domestic enterprises and globalization, multinational companies accelerated the pace of business integration in the invested enterprises in China. MNCs hope to establish a suitable production and sales relationship with supply chain by business restructuring, optimize its resource allocation, enhance competition on the Chinese market and raise the degree of localization; on the other hand, by business integration, closer links between invested companies in China with its head office and other agencies overseas, create favorable conditions to speed up the transfer of manufacturing to China and then form a complete industry chain in China, complete a new round of business process integration, start at a higher level the competition and cooperation in all directions

with local enterprises.

7.4 MNCs' supply chain management in China

MNCs' supply chain management in China was influenced by many factors: global management layout, time of entering China, government policies for foreign investment. MNCs use different formation of the supply chain management in China. They need not only to satisfy native manufacturer, but also keep cooperation with global supply chain. So, they made the SCM focus on the development of native supply partners and the multilevel supplier management.

7.4.1 Upstream management

1) Supplier strategy of MNCs

Multinational companies attach great importance to strategic planning, including its product strategy and competition strategy, strategic intent is the starting point and fundamental basis of their supplier choice. Whether the supplier can meet the intent of MNCs' development strategy is the key to the selection. Multinationals according to their strategies have different focuses of criteria for supplier selection. Some manufacturing MNCs using cost advantage strategy, in order to reduce costs (usually lower inventory costs), pay more attention to the productivity of suppliers, physical distance, quality assurance capabilities; some pay attention to the speed of new product R & D, in order to be able to faster the introduction of new products; a number of multinational companies require suppliers to have a certain self-management ability and communication ability. In short, MNCs' supplier strategy is consistent with its business strategy.

2) Criterion for supplier selection

MNCs in China have a set of criteria in supplier selection include: quality control capability, economy and finance condition, technical implementation ability, cooperation extent, and schedule management.

(1) Quality control capability

MNCs pay much attention to the capability of quality control when they select suppliers. There are two ways to assess suppliers' capability of quality control.

-- Number of staff in quality control

The number of staff in quality management influences the quality. The quality management staff refers to all the persons who are entitled to the monitor projects, including operation managers, quality examiners, related technological staff, front-line monitors and so on. Adequate quality manager figures are good to the structure of companies.

-- Ability to control disqualification rate

The ability of disqualification controlling rate is of another keystone for quality management. The target is whether the quality managers can check out disqualification when it happens.

(2) Economy and finance condition

For both the enterprise and its suppliers the profit margin is of significant management target. Therefore, MNCs pay attention to the economy situation when they select suppliers, they often considerate the following three aspects:

-- Finance situation

Suppliers have differences on management scale. The finance strength usually is even obvious. The suppliers with poor financial situation may happen to withdraw from the contract on the midway and be unable to compensate, which makes the enterprises select another supplier to replace with high cost and suffer the loss of delay. So when appraising suppliers, finance situation will be a very important index.

-- Contract price

Contract price refers to the price quoted by the outsource contractor for the project or instrument, the quoted price is a key factor to determine outsource contractor. If other appraisal factors are blurry, this factor is often regarded as the most important and objective one.

-- Salary system

To the workers engaged in labor services, salary system is an important factor that influences the efficiency of workers. The more perfect salary system, the higher

efficiency the worker will be.

(3) Technology implementation

Technology criterion represents the strength of outsourcers in specialty. As technical capability lie on technicians and the ability of resource allocation, this criterion details as the followings:

-- Quantity of technical workers

According to the size and production specialty, suppliers need more workers, which can be divided into core staff and free staff. The core staffs refer to the workers who have expertise and experience. They have high diathesis; when the core staffs are not enough for the business, the contractor usually will need to call for free staff from inside and outside. Here, professional technical staffs refer the core workers.

-- Scale of machinery and equipment

With the improvement of automatic machinery equipment, generally, the more perfect the machinery equipment gives the higher accuracy and efficiency for production. So, machinery equipment is also part of appraisal for supplier technical capability.

-- Performance records

The more records of performance the supplier ever contracted represents the higher technology of him.

-- Numbers of Patent

Some contractors may do some research themselves. They often apply for patents for the research results. So, numbers of patent can be regarded as specific performance of technical capability. The more patent the supplier has represents the higher technology it has.

-- Times of project subcontracted

Some suppliers do not have much technology, so, they often solve technical problems through subcontract the projects to other companies after getting them. Therefore, more subcontracts may represent less technology this company possesses.

(4) Cooperation

Cooperation extent factors can be divided into:

-- After-sale service

Generally after completion of the project, companies may require the suppliers to solve quality problems when necessary for a certain period time after contracts settled. Good after-sale service will satisfy the customer demand.

-- Number of other projects.

Each supplier has its own optimum number of projects. When the quantity exceeds their management ability, cooperation aspiration and capability will decrease. A higher number of the projects represent worse cooperation extent.

-- Cooperation experience in the past

Suppliers kept cooperation relations with other companies will have advantages in the appraisal select; and the more collaboration experiences the suppliers have, the higher cooperation extent they have.

(5) Schedule management

Schedule management is very important in outsourcing control. Its main appraisal factor is suppliers' ability to complete projects on time.

3) Determine the numbers of supplier

Number of suppliers may influence the enterprises performance. Fewer suppliers will improve firm's performance. But at the same time, it undertakes the management risks, if there is problem in supplier's management. Therefore, making decision of the number of suppliers could be the strategy.

According to the classification, the choice strategy for supplier number could be of Single, Double and Multiple Supplier:

-- Multiple Suppliers strategy

In the uncertain environment, the Multiple Suppliers is a measure of avoiding risk to ensure continuous supply. If one supplier delays the delivery, enterprise turns its attention of other suppliers. Through the competition among suppliers, it can reduce the products cost effectively, while ensuring continuous supply. But it is not easy to establish stable cooperation relationship with many suppliers, and the management cost is high. Normally, the number will be limited to 3-5 suppliers. This strategy is applicable to purchase common and little accessories.

-- Single Supplier strategy

Getting the specific products from a single supplier often is because the enterprises have no choice to the manufacturers of specific accessories. A single supplier is not conducive to prevent unforeseen risks, and the buyers became enslaved to suppliers. Single supplier strategy applies to consolidated purchase for strategic style accessories, or to the strategic investment to supply enterprises to support suppliers for setting up cooperation relationship.

-- Double Suppliers strategy

Synthesizing the two strategies above, to purchase accessory from two suppliers can reduce risk and be convenient for the establishing of partnership. According to Pareto's Principle, generally, enterprises' purchase tallies with 2-8 principles which mean 20% suppliers provide 80% accessories. And this can also be adapted to two suppliers, providing each specific style of accessory has one important supplier; avoiding the influence of the price and quality competition among suppliers to SCM strategy and the suppliers share any improvements of the other suppliers' exploitation. At present, Double Supplier tactic is used by many companies. The enterprises can both get the benefit of centralized purchasing and reducing accidental risks in a certain extent. Through adjusting purchase proportion between suppliers, enterprises effectively promote the healthy competition among them and keep long-term partnership with them. In a sense, it is more conducive to strengthen the stability and high effect of the supply chain.

4) Supplier selection procedure of MNCs

Many MNCs in China select their suppliers in similar procedures which contain the thought with:

-- Supplier strategy should follow company strategy

After in-depth analysis on corporate strategy, MNCs often clarify their core businesses, future development direction, and precise business processes, then they will make a specific analysis on supplier concerning processes and improvements, and formulate the basic supplier management principles for suppliers to follow.

-- Develop supplier evaluation indexes and evaluation criteria

Evaluation indexes generally include: corporate strategy, culture, sustainable business capacity, quality assurance capability, R & D, manufacturing technology, cost control; all these evaluation indexes will refine many sub-indexes, which set for projects with specific rating criteria.

-- Access to enterprise

Having accessing and face to face communication with business executives, MNCs then make overall evaluation on the enterprises, such as corporate strategy, corporate culture, sustained entrepreneurship.

-- Specific evaluation

Specific evaluation(management evaluation) is made by the professionals, the experienced personnel involved in R & D, production, technology, quality, procurement, make the project evaluation and rating in accordance with evaluation criteria, evaluation results are set in three categories, the worst is the C class which will be directly out and will generally not be considered in the future; the middle is the B class which is demanded to make improvement, and then make choice according to the results of the second evaluation; the best is A class which is generally elected directly to the next process.

-- Product confirm

Technical personnel of both sides communicate to determine the product function, structure, technical specifications, drawings, acceptance criteria and so on, and then determine the product trial program, and after test to confirm in written.

-- Signe of orders

Suppliers who passed all of the above process can get the final order, enter the procurement phase. A safe number will be made in the earlier order, the normal volume order will be set only under a stable situation.

5) Daily supplier management

Become suppliers of transnational corporations is only the beginning, MNCs have many aspects of management measures on selected supplier, through the strict measures, multinational corporations will eliminate at any time the supplier that can not be satisfied with the company. The daily management include:

(1） Suppliers training

MNCs attach great importance to the supply business training, they invest large in this area to give training for supplier staffs of all levels continuously, systematically and practically on the necessary business, to train in various forms even in the way of thinking to keep consistent with mutuality.

(2） Production process monitoring

Multinational corporations take greater emphasis on the management of production process to keep abreast of business conditions for security, cost, speed and other considerations relative to product testing. They focus more on supplier internal management, because the management problems of enterprises account for a large percentage of quality problems, and difficult to be improved.

(3） Supplier performance evaluation

MNCs generally have a set of supplier performance evaluation system, including the timeliness of delivery, price competitiveness, quality levels, support situation, the problem solving and continuous improvement, and others. The results of evaluation is managed at different levels, the best (A, B level) will be given with a greater share of orders, the general (C level) is arranged for normal share of orders, the less (D class) is treated temporarily with reducing orders and requested rectification and re-evaluation, the worst (E grade) is eligible for cancellation the supplier qualification.

(4） Adjust the relationship with local companies

MNCs in China always adjust SCM style with local enterprises to adapt for the new change of industry. Many of the MNCs willing to give substantive help to their suppliers:

-- Develop multilevel management for local suppliers

While developing more native supply partners, MNCs began to introduce multilevel SCM model, which means that through a transparent information platform, the supplier and the supplier's supplier can share information and cooperate in one flat. Under this model the MNCs select and cultivate some proper first level supply partner, set up an IT platform, let them communicate on the platform. Then the MNCs help these partners manage their supply partners, and to get better price and service

depending on group purchase. They can also conformity many suppliers using group purchase, and help first and second level partners to do centralized purchase in the same network to let them enjoy better price and service. This finally reflects on the price and service of the components the MNCs ordered from the partners.

Furthermore, big MNCs help the first level partners to upgrade IT level; bring the third level, fourth level even the fifth level suppliers into an unified information platform; integrate the relationship of the third, fourth and fifth level raw material supply partners and accessory supply partners; administrate the role of different level supply partners and pay attention to the change of them in the network; finally, to form a supply chain network with the capability of timely delivery, favorable purchase cost and flexibility.

-- High light the integration of first level supply partners

With the escalation and multi-direction of native companies, MNCs have realized the importance of conformity management to the supply chain members. Group purchase became a popular strategy to reduce purchase cost and better management to supply partners. The keystone of Group Purchase tactic is to get profit from low cost and quick response through big quantity and transparency information. This purchase model also brings benefit to the whole supply chain: the first level supplier only needs to communicate with a purchase centre, which reducing much of its cost and the excellent supply partners will get many opportunities to supply different kinds of accessories to MNCs. On the other hand, MNCs can get profit from purchase cost and services through integrating the purchase requirement of different departments and establishing deeper fellowship with appropriate supply partners.

-- Provide technique help

MNCs help the native companies to establish a unified management platform of supply partners. They also constantly perfect and deepen relationship between themselves and supply partners through this platform. Help the supply partner to improve their technique and management; set up appropriate quality guarantee system; help the supply partner to upgrade their organization ability by providing them techniques and management education and providing more roles and opportunities of

supply chain to the supply partners. By this win-win tactic of supplier management, MNCs can construct more permanent and stable fellowship with native enterprises, and establish foundation for the future development of multi-fellowship management.

7.4.2 Internal management

7.4.2.1. Cost control

The operation of the supply chain must be accompanied by a variety of fees and expenses, which constitute the supply chain cost. Currently, the mature point of view for the supply chain cost is defined as the material costs, labor costs, transportation costs, equipment costs happening in the supply chain. In the intense competition market today, enterprises need not only use the traditional cost management methods to control the internal costs to survive and continue to grow, but also with the participation of other enterprises in the supply chain work together to reduce the non-essential supply chain costs, when the whole supply chain costs decreased, companies will definitely get maximum profit from the "big cake".

Supply chain cost is an important part of strategic cost management, supply chain cost have a decisive influence on the competitiveness of the products. Currently, most multinational companies set the supply chain cost management as a strategic object prior to the cost management; they involve the competitive strategy into supply chain costs. Supply chain cost control is the comprehensive cost control that requires the supply chain member companies to participate and implement, not just the core company. For the entire supply chain management and effective implementation of cost leadership strategy, the joint efforts of all members are needed. In order to coordinate to the supply chain cost control, it is necessary to unify clear objectives, responsibilities and organizational management, to jointly promote the overall supply chain system cost control.

1) MNCs'cost management tactics

(1） Information sharing

No company can maintain sustained long-term technical advantage in the competitive environment, to enhance the overall competitiveness. MNCs based on

information sharing consider cost management in Supply Chain Integration with the speed of new technology spreading and applications to reduce production costs throughout the industry. With association, manufacturers, parts suppliers and raw materials suppliers have a lot of information to share, they adjust supplier management strategy, the downstream firm can not only has several suppliers, but also require suppliers to share the best solution of cost reduction, and extend the supply chain management to the upstream.

(2） Consumer demand-oriented

Different from traditional cost management practices, the present cost management requires the product and parts to meet end-market demand at lower prices throughout the supply chain without affecting product quality. Multinational corporations in the cost control will first consider the consumer's needs and then the price sensitivity, followed by merchantability and competitiveness, as well as financial scheme. They control in advance the products cost, giving consumers the best product value to minimize the complexity of the production line, improving product and process technology, reducing the temporary design changes, controlling effectively the overrun product cost by financial plan.

(3）"Quality - Function - price" balance.

"Quality - Features - price" balance affects the negotiations between suppliers and customers, the contradiction between the three, in a different competitive environment, size up the situation to be considered. Product life is determined by its quality, features and price; MNCs have always looked for the product balance with the lowest acceptable quality, at least acceptable function, as well as the minimum price.

(4） Cooperation at the lowest cost

Study on the lowest cost is defined as building mutual trust relationship and mechanisms under supply chain relationship, by multi-level hierarchy supplier meeting to discuss product design improvement, production process and productivity improvement to realize the lowest product cost target. Cooperation not only brings to them more of their own benefits, but also the benefit to the parties of supply process,

the key is through mutual support and improvement to reduce unnecessary links or expenses, seeking the lower total cost of all members.

7.4.2.2. Cost management measures

A complete supply chain consists of three parts - sales, production and procurement. The sales is closest to customer as the first link, it emphasizes on the on time delivery of products and services to customers; The second is the production focusing on minimizing the processing costs of finished products; Finally, the procurement aims at reducing procurement costs of raw materials, which helps companies to get the cheap raw materials and sell products at a lower price. In order to effectively control costs, multinational companies use various methods, including:

1） Use activity-based costing management.

ABC management is a strategic cost management model to meet customer needs in the premise, by optimizing the whole value chain to enhance the competitive advantage of the enterprise. The use of ABC management for supply chain cost management requires members of the supply chain to have system theory, information technology and ABC management thinking, encourage of cost management into supply chain operations of deep-level, reconstruction activity and reorganization of work processes from the perspective of cost optimization; make supply chain cost - benefit analysis to determine the critical activity, which targeted key control on supply chain costs.

2）Construct supply chain costing system.

Use accounting methods for supply chain costing is the basis of the supply chain cost management. The traditional supply chain cost can be divided into material cost, labor cost, transportation cost, equipment cost and other variable costs. To achieve a reasonable supply chain costing, it must re-classify the costs by reference to internal cost accounting system, to group supply chain costs into manufacturing costs, transportation costs, inventory costs, packaging costs and management costs. Activity is the basic unit for supply chain cost management, therefore, based on the supply chain ABC management, MNCs established the supply chain cost control system to achieve the overall cost management. The target cost determined is decomposed in the

supply chain to the core business and upstream and downstream members, let the operating unit be the cost control center.

3）Construction supply chain cost assessment and incentive system.

After establishing supply chain cost control system, a corresponding performance measurement system for supply chain costing is also established so as to implement cost control in supply chain management effectively. According to the characteristics of the supply chain cost management, the evaluation index system of supply chain objective cost control includes:

-- Customer Satisfaction Index.

Customer satisfaction indicators include quality, price and timeliness. Among them, the quality indicator includes passing rates, return rates and complaint rates; price index includes the ratio of customer expected price and the actual price of products or services, or product feature cost ratio; timeliness indicator includes on-time delivery rate and supply rate

-- Activity cost index.

Activity cost index includes: the completion of activity objectives cost, to compare the activity target costs to the actual cost of activity; activity costs improvements, activity situation improvement, describes the various operations to achieve the target cost, taken What operating cost management methods, to ensure the sustainability of the cost completion and the effectiveness of activity cost management.

4) Create supply chain cost consciousness

Cost Consciousness depends on organizational overall atmosphere. Changing from single enterprise management to the extended enterprise management, the supply chain management became an irreversible trend. The construction of enterprise culture should also be extended to the entire range of the supply chain. MNCs consider cost consciousness as an important aspect of corporate culture and build it that truly plays a role within the supply chain; The culture of supply chain cost requires all members of the business and all employees of the supply chain network to have a strong cost-conscious, not only every enterprise should conscientiously

maintain the supply chain cost, but also to urge other enterprises in the supply chain control supply chain cost as same. Moreover, the goal of cost culture is to reduce costs through innovation, improve quality, save time, and stress the continuous cost reduction to avoid short-term behavior. Supply chain cost culture creates the basis of the supply chain cost management and enhances the supply chain to ensure competitive advantage.

5）Maintain customer satisfaction

Supply chain is the functional network structure of suppliers, manufacturers, distributors, retailers, and the end users. In this network, the end consumers and the closer retailers can be seen as the customer of the supply chain, companies of each node in the supply chain cost management should adhere to maintain a customer satisfaction philosophy, beware to cause dramatic decline in customer satisfaction because of their compression of cost on business over the supply chain that ultimately lose the whole market. Therefore, MNCs know to maintain a certain degree of customer satisfaction as the prerequisite in supply chain cost management, keep balance between improving customer service levels and reduce supply chain costs.

6）Total cost management as objective

The total cost management model is applied to the supply chain cost management as a strategic management model, it mainly provides a way to cut cost through integration of technology, human resources and management strategies. The total cost management aim to reduce "overall" cost for supply chain not only the partial cost, companies of each node in the supply chain based on system theory and information technology, use activity cost management ideas on the supply chain process updating and controlling. The total cost management approach would consider not only the cost of the project, but also the time, resources and the relevant factors to the sustainable management, such as corporate image and reputation, corporate culture, employee quality, good relations to customers, etc.. It uses network planning techniques optimize the time and resources of supply chain operation to achieve the cost management purpose.

7）Establish contact with suppliers

The traditional way of buy is designed to buy for the lowest price, this loose connection with suppliers that lack of communication and coordination will lead to higher costs. MNCs know to establish long-term strategic cooperation relationship with suppliers, choose good suppliers as partners in the supply chain, which is called "reverse marketing." Gather suppliers together periodically to allow suppliers aware of the competition between them, let them understand the dependence on the enterprise and build credibility among suppliers. And then assess the willingness of each supplier to be the team members, establish relationship to those willing to reduce costs and create greater value. As an incentive, share with suppliers cost saving. With the development of suppliers, reduce cost and improve quality will become more effective.

7.4.3 Downstream management

Downstream is of about the customer and customer management is also known as customer relationship management. The main meaning of it is to increase customer satisfaction, thereby enhance the competitiveness of enterprises through in-depth analysis on the detailed customer information. Customer relationship is occurring around the customer life cycle and development of information. Customer relationship management is the core of customer value management, MNCs through "one to one" marketing principles, to meet the different needs of the value of individual customers, increase customer loyalty and retention, continue to contribute value to customers, thus enhance overall corporate profitability.

1) Customer Management content

Many MNCs manage their customers in areas includes:

Customer Profile Analysis: including customer qualification, risks, hobbies, habits, etc.;

Customer Loyalty analysis: the degree of loyalty, persistence, changes of the customer to a product or a business.

Customer profitability analysis: refers to the edge profit, total profit, net profit of different customers' consume for the products.

Customer Performance analysis: refer to sales of different customers according to product categories, channels and sales division;

Customer Prospecting analysis: including customer number, category, and the future development trend;

Customer product analysis: including product design, relevance, supply chain, etc.;

Customer Promotion analysis: including advertising, publicity, promotions management.

2) Customer management objective

In marketing networks of the enterprise, wholesalers, distributors, retailers and other distribution channels constituted the most important part. In order to maximize resources to obtain and maintain customers, MNCs implemented customer management, to grasp customer needs, obtain and maintain customer resources.

CRM makes employees fully understand customer relationships and customer demand, access to customer record information within the enterprise to achieve customer information sharing; evaluate overall market plan; track on a variety of sales activity; accumulate large quantity of dynamic information for the comprehensive analysis of marketing and sales.

Create customer-oriented communication, shift enterprise value from product to customer needs; customers become the company's core resources. Use personalized service to enhance competitiveness and deliver the most appropriate services. Remember the names of customers and their preferences, transaction characteristics, to provide different content to different customers. Increase customer loyalty, increase purchase rate, and improve customer satisfaction.

3) Customer management methods

MNCs' "Customer management" methods include the establishing of customer database, all types of investigation for customer needs and conditions and customer serialization. Customer management is also an art of communication, effective communication with customers in the way of listening, training and helping.

(1）Build customer database

The "Customer Management" need to build customer files, it is the

implementation of "on file management.", "On file management" is to record, save, analyze, organize, and apply all the information of the customer in order to consolidate relationships with customers, thereby enhancing business performance. Some companies use "customer cards" as a common tool. In addition to basic information, it included the customer basic information, customer demand, business conditions and other aspects of the research data.

(2）Customer Survey

To understand customer is the important work of sales staff. To actively and effectively expand market share, they need to aware of the details of the customers through a variety of ways and means like:

- Customer needs and expectations,
- How much is met by both competitors and the company itself?
- How can company do to really satisfy customers' value?

(3）Customer classification

Classify customer is a way of conveying simplified and effectively customer management. The classification can be made on the basis of:

-- Customer's attitude towards products

According to the attitude towards products, customers can be divided into loyal customers (including the first users of new products), brand transfer of clients and non-brand loyal customer categories. Customer management is focused on the development of loyal customer or lead users for the product of the enterprise.

-- Customer's purchases amount

MNCs divided all the customers into three categories in their customer management. The A class are the big customers, they are small in numbers but buy with large amounts; The C class are the small customers, they are big in numbers but buy with small amounts; The B class lie in between, they are ordinary customers. Management for customers always focuses on A class customers, take care of B class customers to cultivate loyal customers and the first users of company's product or A class customer. Maintain good customer relation is always according to the customer classification.

(4）Communicate with customers

Customer management needs scientific management methods and keep in touch with them by communication. The usual means of communication MNCs use includes:

-- Listen

Develop effective listening strategies: encouraging customers to speak. Express friendly, keep focus, attitude naturally, feedback quickly avoid differences. Sum up conversation from time to time; understand with each other. Hold customer meetings or invite customers to seminars; address customer letters seriously and promptly, use "hot line" to handle customer complaints; warmly receive visitors and customers.

-- Training

Customers (mainly dealers) guidance, incentives, assistance covers a wide range, depending on the customer's needs. In addition to the proper ways to manage customer, training is also needed to enhance the professional degree to improve customer's competitiveness, and ultimately enhance the market competitiveness of the company.

-- Helping

MNCs help customers solving problems in the buying, using and maintenance of products, to provide customers with quality service. The support to the customers is usually one of the important activities of the company. The growth performance is inseparable from sincere cooperation between enterprises and customers. They provide customers with software and hardware in a variety of aspects, kept close relationships to the customer to expand market share. This support usually includes: management related support, sales related support activities, develop and promote activities.

7.5 Problems of MNCs' supply chain implement in China

MNCs established their supply chain in China, they have benefited from it. But it should be cleared that profits and risks coexist. Facing the condition of Chinese economic, political and cultural, while making investment income in china multinational companies are also meet with problems.

7.5.1 Problems in purchasing

1) Increased overall cost

In the investment carried out by MNCs, usually the parent companies control the core techniques and the main business of sub-companies, the materials it needs should be acquired from the suppliers approved by parent companies.

The MNCs always attach importance to product quality. They usually set an integrated investigating and selection system for suppliers. Unless it was attested, each manufacturing departments almost has no choice to select their own material supplier. In such circumstance, much of Sub-Company's purchase belongs to international trade. As the sub-companies and the suppliers do not locate in the same region or even the same country, the service cost of the suppliers to the sub-company is increasing. This means the sub company has to add freight, insurance, tariff and other expenses cost. If the sub-company elides some of the service the suppliers provide for reducing cost, such as consultation on techniques and cooperation on application, it may increase some indirect cost. When the manufacturing enterprises have little knowledge about raw materials, they use production techniques only by convention, which may cause the loss and waste of manufacturing and reduce the output ratio of eligible products.

2) Unreliable logistics

For those multinational companies who purchase in China, China's logistics enterprises need to improve their implementation in reliability, quality and services to meet the requirements. Lacks of high-quality local logistics service providers, most of the logistics service enterprises are limited in basic storage and can only provide transportation with low added value. Many multinational companies gave up lower-cost rail to use road transport from the reliability perspective, because although the average delivery rate of railway is very low, the damage rate is high. China still has significant gap in overall logistics level with the advanced countries.

3) Pressure of high transfer cost

The so-called transfer cost means, in the operation system of an international

company, the book account sale price of inside trade between parent company and sub-company or in between each sub-company. This price is not restricted by the supply and demand rule in the market and is not determined according to general manufacturing cost, management profit or international price. It is fixed according to the profit of the parent company and the country's situation the sub-company locates, which may be greatly higher or lower than cost. With the development of economic globalization, MNCs' sub-companies in host country start to face two competition pressures: one is from other MNCs in the host country. The other is the native companies in the host country, as the technology and economic situations of host country are improving constantly.

Simultaneity, the lost of competition advantage caused by high transfer price gives the enterprises increasingly rising competition pressure. In this circumstance, more and more MNCs realized that the original provision of raw materials which have sudden huge profits can no longer carry out under high transfer price.

4) Difficult relationship with original suppliers

With the extension of MNCs' business scope, the effectiveness of market uncertainty became obvious. The change of international market and the demand is very fast, it requires the MNCs to keep up with it.

In the process of internationalization, the suppliers usually will influence the purchase of MNCs in the following aspects: (1) because the long distance from the original suppliers, they have differences in time and it makes inconvenience for purchase department to communicate with. Therefore, they solve problems much slower than with native suppliers and the technical communication also become a question. (2) Culture differences make communication difficult in language and culture between purchasers and original suppliers. (3) Different product criterion in different countries and regions require purchasers to master many kinds of technical knowledge. (4) The increasing international trade makes the purchase department consider more factors on the selection of transportation mode and the risk of exchange rate. (5) The existence of overseas suppliers prolongs the period in advance for the purchasing of MNCs' sub-companies, which will face with larger pressure of

controlling stock to guaranteeing production.

5) The purchase management power of MNCs' sub-companies in China is limited

Generally, big MNCs have a global purchase organization, which is called GPO or IPO. In traditional operation, GPO plays a role as a bridge for the purchase between each sub-company, it takes the responsibility to find suitable suppliers to the sub-companies in the area near its manufactures departments in the world. However, GPO's traditional bridge function is very limited now, because normally, the GPO itself does not participate in the purchase process of the sub-company. It mainly only provides some information to the purchase departments of sub-company. In the continuous development of information society, this communication function is not as important as before, and each sub-company may share much information from other ways (such as the network in MNCs). So the role of GPO is now a new challenge MNCs' purchase management facing.

7.5.2 Problems of Chinese suppliers

1) Difficulties in supplier selection

Multinational corporations invested substantial time, effort and money in the establishment of supplier networks. Because of the incompletion of information in emerging areas, the transnational corporations met with difficulties in supplier filtration by the standard flows. Multinational companies often have high expectations for the potential suppliers; they often use the inherent model according to its own philosophy to the low-cost region suppliers. This sometimes led to too high and even unrealistic assessment and screening standards. Difficulties in technology and information systems in most low-cost countries and regions are similar. So to select suppliers under Chinese IT information systems and infrastructure environment are relatively difficult.

2) Problems of product and service provided by China suppliers

When multinational companies operated in China, they met with problem of supply chain in reliability, quality and service. Made in China has a very high cost advantages, and is currently welcome to the international market in general. However,

the vicious price competition among small and medium-sized manufacturers, have resulted in low quality of raw materials, loopholes of production management, and low product quality; few suppliers even cutting the expense of technical, safety and quality of the products in order to obtain low-cost capital for marketing. Technology is another shortage of Chinese enterprise. Many Chinese enterprises ignore the research and development skills, they are lack of independent intellectual property rights of technology and independent innovation, which is the competitiveness favored by the MNCs. Some suppliers still lack of credibility, they may break the committed quality and delivery; some are lax in the protection of intellectual property rights, there are sometimes pirated products;

China now also lacks high-quality service providers of local logistics; most of the logistics business services were limited to basic storage and transport. The delivery date may not be able to fix because the information delivery can not be guaranteed. Many multinational companies in China already felt the difference of local ERP processes system with their own country.

3) Lack of practical talents

Some Chinese manufacturers do not understand "the global procurement". They are not familiar with the procurement rules and procedures due to lacking of talents. With barriers of the procurement information and language, Chinese enterprises are uneasy in entering global supply chain.

4) Problem in company management

Many enterprises owning to slow awareness, or stopped by firm size and capital capability ignored to display fully themselves to the outside world; some Chinese enterprises like to focus on their hardware facilities (such as plant, production equipment, etc.), but less prepared to the software (such as corporate culture, management processes, quality assurance system, etc.) which is concerned about by transnational corporations. Low protection in systematic and planned system has led to implementation difficulties for the commitments made to customers; high staff mobility led to inconsistency of work. All that makes multinational corporations much difficult to obtain true information in investigation and assessment stage for suppliers;

in the course of negotiations, lack of the appropriated skills and knowledge are also obvious shortcomings.

5) Low awareness of cooperation and coordination

Chinese companies are used to the traditional manufacturing competition environment and management. They still compete between enterprises and are not familiar with the cooperation and coordination within supply chain system. Not many Chinese enterprises have the concepts and the spirit of cooperation and coordination to establish positive and mutually beneficial cooperative relations with MNCs. This is a big problem for them to have long-term strategic partnership with MNCs, and to maintain mutual benefit formation of supply chain.

6） Disorder price competition

Some Chinese companies eager to enter the international market, they compete disorderly before MNCs with low cut-throat price. This is the way that hurt both the Chinese competitors and the MNCs especially small and medium enterprises as they have no strategy concerning the technology, brand and so on. This is usually within the functions and roles of trade associations.

7.5.3 Other problems

1） Increased transaction costs.

As there is government management lag exist in customs, quarantine, industry and commerce, and taxation field; and some government departments have overlapping their responsibilities, enterprises are facing with multiple supervision. To some extent, this increases transaction costs of transnational corporations.

2） Obstacles in cross-cultural management

The differences in cultural, institutional organizations, as well as logical thinking and communication between countries brought enormous challenges to the global procurement. The Chinese company culture is built on the natural economic of thousands of years with decades of a planned economy, the developed Western company culture is built on the free and open market economy , so the two cultures inevitably have some collisions in the trading habits, decision-making, and so on.

In the management and coordination of global subsidiary and integration of global logistics, the MNCs face the differences in languages, ways of thinking, barriers to communicate. Especially, it is not easy for both sides to express clearly by using the foreign language. With the improvement of the education level, the emergence of the foreign language talent will help the Chinese small and medium-sized factories to meet the urgent needs, but it is still a problem that can not be ignored.

3） Difficulties in legal environment

Suppliers in the emerging market usually are weak in the sense of legal system, and with limited qualification of information systems and barriers of languages, they are not able to meet the requirements of legal management from multinational companies.

It is difficult for foreign companies to adapt to the Chinese cultural of personal relationship, they are easy believe that China is weak in enforcement of intellectual property protection, this led to slow progress in international procurement. The principal contradiction embodied in the aspects of intellectual property rights and ownership of enterprises.

Multinational companies may not understand in a short time the local laws, especially law of tax, regulations of trade, export rebate and other laws and regulations, because there are differences between countries that are difficult to follow. In addition, the difference of regional market in China is also significant, which formed completely different regional market. This has also increased the operating and marketing complexity. The imperfect Chinese commercial legal system is another problem encountered by multinational companies.

In Western countries, trade unions are powerful bodies, and corporate with leadership on the basis of equality and dialogue and even put pressure on the government. But in China, there is not independent trade union organizations of workers, many of the problems are solved through local government and enterprises, which could easily lead to intensified conflict between multinational corporations and workers.

4） Problems in communication with the Chinese supplier

Time differences, language difficulties, lacking of understanding of western standards, lacking of preparation on the cross-border purchases, and lacking experience of cooperation with foreign companies, make multinational corporations feel uneasy to communicate and coordinate with Chinese suppliers. Negotiations with Chinese suppliers need more rounds and take more time. Some consensus of negotiations could be overthrow. The complex organizational structure of the supplier made it difficult to distinguish the real decision makers. The need for translation in negotiation also makes some subtle details unable to understand with each other. All that led foreign companies believed that negotiations with Chinese supplier are difficult and inefficient.

Problems may also appear in corruption and bribery in some extents, but transnational corporations must maintain its own code of ethics at the same time. There are difficulties sometimes for Multinational companies to negotiate with potential members of the alliance of the supply chain, because their trust for the Western managers is limited, and some additional business conditions were raised.

Summary

This part first made a multi-case study on the supply chain implement of four MNCs in China, these case companies were selected considering the company scale, the business field, and other factors. Each case was analyzed according to the same case frame that reflects the research framework. The case frame is designed as the: internal management, upstream management, downstream management, and environment influence. The case study shows MNCs have some similarities in supply chain management activities and obstacles in China. After the analysis of the cases, in-depth study was made on the supply chain management of MNCs in China in the aspects of motivation, strategy, activity, and obstacles.

8.0 Conclusion

The previous chapters have described the work undertaken in the study to reach this point. That is, an introduction to the research has been described, including the research questions, detailed literature review, and the key conceptual frameworks, the specifics of the methodology were discussed, results of the case analysis presented. This chapter therefore attempts to reach relevant conclusion from all of the work undertaken thus far.

8.1 Research findings

The Chinese market has now been identified by many multinational companies as global strategic market. Low manufacturing cost and mature technical facilities have made China a world factory. Sourcing from China is not new. More and more multinational companies flock to China to establish their procurement office to take advantage of this low-cost supply base. The research findings elicited from the case studies indicate that:

1). MNCs establish supply chain in China aimed at low-cost and production capability

Multinational company's building supply chain in china is actually of the localization of international competition. This competition forces the MNCs to seek for low cost products. The common drivers of these MNCs' supply chain in China are

of low cost products and improving production capability. Successful supply chain helps companies achieve various objectives resulting in cost saving or efficiency improvement which ultimately leads to a competitive advantage.

2). Management activities of MNCs supply chain can be traced to internal, upstream and downstream management, which are implemented under certain environment influences.

The supply chain implement contents of MNCs in China can be broadly grouped as internal management, upstream management, downstream management and environmental influences. Each of these parts contains its specific components. MNCs implement supply chain in China should not only focus on supply chain components of the chain but also the influence environment of China Supplier selection and management, and cost controlling contribute more to the supply chain management in China by MNCs. Meanwhile the environment conditions like market, Culture and ethics, infrastructure, laws and regulations and so on influence the implementation.

3). Most of the Chinese suppliers in MNCs' supply chain are still low-cost producers.

Although entering supply chain of MNCs' forces domestic enterprises to comply with the international rules of the market and improve their competitiveness, most of the Chinese suppliers are still low-cost products producers. Chinese suppliers in this stage needs more capacity planning, low-cost labor and cost control, because this positioning is not sustainable.

Only a small part of multinational suppliers become partners can joint in the resources planning, timely inventory management and global service of logistics system and after-sales of the multinationals to do some online projects collaboration to enhance supply chain system and achieve win-win situation.

4). There are various obstacles and problems of MNCs' supply chain implement in China.

These problems cover the fields of purchasing, supplier selection, and management practices, such as: high comprehensive cost in purchasing, not enough qualified suppliers, quality of products and services, culture and communication difference in management and investment environment influences and so on. All

these challenges limit the scope and development pace of MNCs' supply chain implement in China.

8.2 Managerial suggestions

8.2.1 Suggestions for MNCs side

Multinational corporations in China are also in their constant explores; they communicate with their suppliers in China continuously, learn some very good ideas from the supplies and make improvements for the supply chain initiatively rather than passively. They integrate into Chinese society, understand more of China, adapt to Chinese environment, combine good management experience to the reality of China, and exploit the potential ability of their Chinese suppliers. This can make their Chinese supply chain smooth, peace, and ensuring efficient operation of the entire global supply chain. Promote good ideas and rules, combine flexibly good ideas with the actual situation in the environment in China. To solve the problems MNCs facing in China, each company is searching after different kinds of approaches in practice trying to make the supply chain be operated more effectively. MNCs need to consider the practical approaches include:

1) Adjust purchasing management

-- Keep long-term vision, strategy and management philosophy

Under normal circumstances, the supply chain strategy plays a decisive role at the overall strategy of the whole. Leading companies often make clear definition of procurement strategy to purchase in low-cost countries as well as in China by senior management, which is implemented through all levels. Such a strategy not only provides for procurement quantity target, and generally accompanied by the detailed implementation and development plans for the local organizations.

Although companies have successfully launched the initial purchase in China, limited qualified suppliers will prevent the increased procurement quantity. Therefore, the leading foreign companies concerned more about the development of potential Chinese suppliers. For those eager to expand their Chinese supply base, they tend to

adopt technical support, quality management processes to develop suppliers.

-- Try hard to release the internal resist

The internal resistance is usually the main reason that stops the companies to increase the quantity of purchasing in China in accordance with their wishes. Indeed, some companies are still not successful enough in China procurement, because the internal staffs are unwilling to accept changes and unwilling to dedicate to the procurement in China.

Many companies set up a centralized project office, which is responsible for high-level managers to carry out procurement in China, and then push forward the agenda at the company, thus alleviate the resistance from all level. This project management at the company created transparent procurement activities in China; high-level managers are also able to track the procurement process.

-- Establish formal organizational framework for purchasing in China

Procurement offices of MNCs in China add complexity to the global procurement system. For a company with centralized global sourcing framework, the China procurement office usually has played the role of expanded global organizations. However, for those who have decentralized division framework, the definition of its China procurement office is a more complex problem. They should choose to adopt a separate Chinese procurement office or to provide each business unit with a procurement office.

It is experienced by the MNCs in China, with appropriate organizational structure, leading companies focus on the development of regional and inter-departmental coordination to ensure the success of their China procurement. The companies also set up a special project management team issue at both the sending and receiving end to ensure the appropriate adjustments to be made. Many companies strategically expatriate managers from the headquarters procurement office to China. Through their long-established personal networks, the companies can enhance cooperation beyond the boundaries of the regions and departments.

-- Stabilize procurement staff

Many MNCs are successful in the localization of their China procurement team.

This is not easy. As the strategic procurement in China was got attention until the late 1990s, so the local procurement professionals are very scarce. It is the usual way for the foreign companies in China to attract the procurement professionals from the acquisition office of the opponents. This has made the company pay more attention to retention issues. Some companies provide a more attractive remuneration combination seems to be a good approach. While some companies found that rewards other than the money are also effective, such as: personal identity, overseas training opportunities and a clear career development path.

-- Optimize procurement volume to form a scale effect

MNCs can make the procurement plan for the next three months or six months to facilitate the optimization of production of suppliers;, integrate similar products procurement, make fine supply chain management.

-- Control purchasing risks

Global procurement is full of risk, and procurement in China is no exception. The main risks of purchases in China come from the infringement of intellectual property rights, the appreciation of the Renminbi and the expansion of supply chain disruptions. The successful procurement office must work actively to manage these risks in order to reduce the possibility of its occurrence and the emergencies potential.

2). Establish cooperative relationships with suppliers

-- Adopt a standardized supplier management system

Establish a set of criteria for supplier management practices, processes and programs, and strictly enforce a unified information management, using the same language. Create a set of system for code of conduct to unify the behavior of employee for sending end and receiving end. Set the goal of supplier development, make timetable for supplier development implementation, fully estimate the difficulty of the task, establish a dedicated management organization, responsible for bringing together and participating issues in collaboration with suppliers, establish an effective public , fair, and impartial reward and punishment measures, and enforce strictly.

-- Nurture native suppliers, speed up localization process

With the spreading of JIT production, pulling mode of production is being

concerned increasingly by many enterprises, which needs higher requirement to the purchase of enterprises. To solve the problem of increasing purchase cost and transfer price, MNCs have gradually realized the essentiality of developing native supplier, which means the localization. It is a development strategy each MNC must consider.

The obvious benefit of developing native suppliers is to save transportation cost; leaving out the procedures of passing in and out CIQ(Customs, Immigration and Quarantine). And as the trade is in the same region or country, there is no exchange rate risk to both parties. Suppliers can cooperate closely with MNCs on the provision of services, especially the delivery methods of purchasing raw materials.

Native suppliers can better participate in companies' products development and technology innovation, it also make the supply chain to be operated more perfectly and then improve the overall competitiveness of supply chain. Western companies gradually accepted product development capabilities of the Chinese supplier and are willing to adopt products development ability with high cost-effective, through self-development by Chinese Products suppliers to take better advantage of China's low-cost production process. Now, more and more Chinese suppliers involved in the new product design work of multinational corporations.

-- Set up effective relationship with Chinese suppliers

To give full play of suppliers, the relationship between MNCs and their suppliers should be of long-term with mutual trust and common development. The key of this new type cooperation relationship require the MNCs and the suppliers to share the risks, and to achieve win-win situations. They can exchange views from time to time; hold face-to-face meeting for the similar suppliers to convey request to the suppliers and at the same time listen to the suppliers for their opinions and suggestions. This kind of cooperation helps not only the discussion of the quality, delivery time, but also the communication on the product development, manufacturing techniques and other technology problems. For example, to arrange technicians of both side communicate directly with each other, and help them to share valuable ideas on the products and even operations. In other words, MNCs can use suppliers as a source of innovation to achieve the development of products, technology and management.

3) Adopt Chinese situations

-- Control the distribution cost

MNCs built supply chain in China for low cost supply and production, but they found the cost for distribution is high. To simplify logistic management and reduce the cost of purchasing, many international industries of commodity circulation and large-scale manufacturing enterprises have implemented agency system and distribution system. These are two effective modes that MNCs can adopt in their international purchase. For big MNCs, distribution center plays a role in the coordination of raw materials supply to those suppliers that scattered. Setting up distribution centers in some traffic hinge regions or according to the distributing situation of the manufacturing units of sub-company will effectively save transportation cost and each unit's stock, fund occupation, charge of keeping stock and other costs.

At the same time, after establishing long-term cooperation relationship with agents, small MNCs can implement pull-type supply both to reduce the inventory of purchasers and make the agent to reduce their stock quantity and risks as they fully realize the demand of their customers.

-- Know well local laws and regulations

MNCs can employ specialized agencies for related businesses or training-related knowledge. Continually improve the business operating environment in the area of circulation and create a more fair, transparent and predictable market environment for export by global procurement. "foreign investment guidance ", "foreign-funded commercial enterprises Interim Measures" have been promulgated to encourage buyers in the world to set up procurement centers in China with various policies to support the passage of the state's industrial policy and monetary policy for the purpose of promoting export enterprises to improve the commodity grades and export quality, and service more in line with the global procurement needs.

8.2.2 Suggestions for Chinese suppliers

Needless to say there are varieties of benefits for both MNCs and Chinese

enterprises to establish global supply chain in China. However, facing with an ever-expanding global procurement opportunity, the majority of Chinese enterprises lack the experiences of integrating into the supply chain of multinational companies, they are not easy to find global sourcing platform for products to enter the international market in an effective way. Many enterprises frequently accessing to the global procurement order fair, but often are empty-handed, and unable to integrate into the supply chain of transnational corporations. In order to integrate into the global supply chain, Chinese suppliers need to make some changes to be adaptable. They need to:

-- Understand global supply chain strategically

Global procurement is the commercial operation mode of multinational corporations on the basis of supply chain management, multinational corporations want their suppliers to become an integral part of supply chain. Suppliers need not only provide qualified goods, but also accept its philosophy and its cultural identity with truly integrated formation of a strategic partnership. Companies exporting goods usually focus on the management of goods while global procurement greatly emphasis on the management of their suppliers, Corporate and strategic alliances of procurement beyond simple transactions to enhance the competitiveness of the whole supply chain.

Competition in the market now is no longer competition between business, but among the supply chains, purchasers of domestic or foreign , want to create an effective supply chain, they prefer to have very strict requirements on a few suppliers in the supply chain as their key suppliers, they use a sound evaluation system, called for a large scale of two-way communication, make site visits and detailed survey on suppliers, they share information of the market demand, production costs, production capacity, R & D design capability with suppliers at a high degree.

Only have profound understanding of the strategic role of MNCs' supply chain in China, can Chinese suppliers comply with the strict requirements of the global procurement assessment. Chinese suppliers need to change their attitude to become the strategic partners of the MNCs on a win-win basis.

-- Take full advantage of the support from the Government

Chinese Government has taken measures to help enterprises to enter the global procurement network for the expansion of China's exports. Governments at all levels have begun to realize the strategy of multinational corporations and the importance of cooperation. A series of policies and measures have been formulated to guide and promote global procurement, in accordance with WTO commitments, China has orderly opened to the outside world the wholesale, retail, logistics and distribution, and other commercial circulation. A number of domestic key cities like Shanghai, Chongqing, Tianjin, Nanjing, Qingdao, Wuhan, Shenzhen, Ningbo and so on have built the platform for global procurement and export transactions, Chinese enterprises should make full use of supports and services provided by government departments to access to the global procurement system.

-- Participate actively to the supplier selection of MNCs

Chinese suppliers must fully understand the needs of MNCs, express their ability of technology integration and flexible management system on quality control and R&D; try to enter the supply association of MNCs, take part in meetings of business organizations involved in the procurement related to product quality, technology development, so that the depth of cooperation began from participation and be continuously strengthened. At the same time, learn from good businesses and understand the method of being supplier for various types of procurement, join in their choice of suppliers. Know the price policy and relationship policy of the purchaser; always renew the negotiation strategy with the purchasers, treat differently with different companies to become the key suppliers of MNCs and strive for long-term cooperation, and interdependence relationship with them.

-- Familiar with the procurement standard and procedures of MNCs

To truly integrate into the global procurement systems, Chinese suppliers must understand and adapt to the procurement standards of transnational corporations. Multinational corporations have their procurement evaluation systems upon which they assess the qualification of supplier and decide whether to grant large volume and high-profit orders. Chinese suppliers need to know all these evaluations especially

quality and price, reliability, in time delivery, technology improvement ability and so on. Try to become key suppliers of MNCs on the base of active preparation and maintain a long cooperation with them.

-- Enhance the information system to meet the requirement of the MNCs

At present more and more global procurement has changed from indirect to direct, it acquired increasingly greater reliance on the information. However, buyers think that the Chinese suppliers did not make full use of e-commerce and information technology in the supply chain management. To put faster Chinese products into international market, the relevant government departments and enterprises should attach great importance to information construction and create e-commerce platform. Chinese enterprises need to strengthen their ability of e-commerce applications by changing the means of information; open up supply channels to simplify the acceptance of orders and deal with the order timing, transmit products, technology, and enterprise information; to strengthen links with MNCs and make possible to access to supplier selection system of MNCs.

-- Improve products and services quality to meet the requirements of MNCs.

Chinese suppliers should combine the needs of buyers to the participation of the product development; receive cross-border procurement guidance, and make continuously improvement in product quality, product upgrades, achieve effective international certification as far as possible. Find the best way for buyers to increase profits, and keep long-term strategic relationship with buyers, share sensitive information, keep cost transparency, and find ways to reduce product cost together with buyers, carry out effective communication, deal with complaints in time, improve service quality to meet the procurement requirements in delivery time, quantity accuracy, technical support, packing appearance, continuously improve the level of internal management, improve the working ideas to meet customer requests to become qualified providers.

-- Maintain good communication with buyers

The communication provides for both the purchaser and suppliers with unique opportunity to make direct procurement in China in the simplest and most convenient

way. Chinese suppliers need to give correct response to procurement requirements, the suppliers must be familiar with their products and production capacity, understand the procurement requirements, it is necessary to determine their own competence to the requirements of MNCs. If they are genuinely unable to meet in the near future, they must be honest to tell the buyers and find a solution. Such is a behavior of integrity of the suppliers, so that buyers will have trust in the mood. The final product should be consistent with the sample. Packaging of goods need to be in line with the order, delivery time be consistent with the order contract without even a little bit of difference. This is the way for buyers to judge the credibility and ability of the suppliers and thus seize the opportunities for long-term cooperation.

-- Promote the modernization of logistics.

Global procurement with big volume, variety and strong time concept, manufactured products came from manufacturers to the hands of the ultimate consumers need transportation, warehousing, packaging, distribution, customs clearance, and many other services, the global procurement normally have high demands on logistics and distribution capacity from production enterprises. Without a developed system for the logistics support, it is difficult to meet their needs. China as a manufacturing centre need to improve various important port logistics system and raise the professional logistic enterprises with competitiveness, promote the use of information technology in the logistics system. To achieve the logistics modernization, it needs necessary efforts from the government, logistics enterprises, and production enterprises.

-- Cooperate with the intermediary organizations

According to the experience of developed countries, intermediary organizations play great important role in the procurement. MNCs not only establish Procurement Office in the host country, but also keep linkages with suppliers through intermediaries. As the intermediary institutions can be trade agents, and also other intermediary organizations, buyers are easy to expand their business through the intermediary organization which can help screening local providers, managing the price negotiations and fulfilling subsequent orders and logistics. These intermediary

organizations can provider services that meet the needs of complex day-to-day operations of the MNCs. The vast majority of Chinese enterprises especially small and medium enterprises are also benefited because they are insufficient to meet the comprehensive requirements of MNCs. Under such situation, give these organizations full roles in the e-commerce industry, logistics, and authentication to make collaboration between MNCs and Chinese suppliers.

-- Encourage in core competitiveness.

Because of large population base and growing employment pressure, high-quality talents in China is used cheaply. So, traditionally Chinese manufacturers used to compete with advantages of rich natural resources and cheap labors with a lot of skilled workers and a lot of high-quality personnel. How will these traditional strengths portrayed as the core competitiveness of enterprises and docking with the international practice? Many small-scale enterprises in China have flexible and rapid response capacity to market, which could provide lag-leap advantage for the organizations through study of the technical and business, but they need to establish the concept of management globally and to establish a flexible organization of scale to enable enterprises to obtain strong learning ability, market awareness and the efficient operation and other dynamic quality of modern enterprise as well as global management systems and internal logistics in order to achieve international management. They should focus on whether or not the quality of products can meet international standards, whether or not their competition and incentive mechanism can adapt to the development of organizations and whether or not they have financing channels and marketing channels and human resources to expand market.

8.3 Research contribution and recommendation

8.3.1 Contribution to the research

1）This study proposed a complete research model of MNCs' supply chain management implementation that considering the whole process of supply chain as

well as the host country environment. The model is developed based on comprehensive literature review, questionnaires, and interviews. The model divides the supply chain management into internal management, upstream management and downstream management by investigated the supply chain management practices of the MNCs, and summarizes the main elements in each management section, the supply chain management environmental factors have also been involved in the research model, these factors are considered to impact the supply chain management. Although the model may not cover all the factors that affect supply chain management, it should have covered the important factors in the inspection.

The proposed research model not only provides further study ideas to the researchers of the field, but also gives a reference to the management practitioners.

2）Based on the model, this research has made detailed study on the main implement elements and approaches of supply chains of multinational corporations in China, and analyzed the existing problems, which are not rich in the existing studies. It also gave suggestions to the multinational companies and Chinese suppliers on the supply chain management after interviews and data analysis.

8.3.2. Recommendations for further research

The scope of this project was rather broad, and hence analysis was limited to the qualitative aspects, the case study method, it emphasized detailed contextual analysis of a limited number of cases and their relationships. The limitations of the research must be considered. It may be better as an exploratory research. Suggestions for further research to this project would be in the following three areas:

1）First of all research could be done in examining whether the framework holds an empirical examination.

As critics of the case study method believe that the study of a small number of cases can offer no grounds for establishing reliability or generality of findings. In this context it would be interesting to test whether the components and environment factors influence the MNCs' supply chain management in China and how?

2) An quantitative study may be held to test the influence factors

As limited by this research a quantitative study on factor analysis may be another recommendation.

3）Further research can be extended to the Chinese supplier side.

As this research has been taken in the perspective of MNCs in China, there is no data gathered from Chinese suppliers. But for MNCs' supply chain in China, performance of Chinese suppliers is very important. So it will be helpful to study also from the Chinese suppliers' perspective.

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