Purchasing Process integration in manufacturing industry in China

—case study of three Chinese manufacturing companies

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Summary

Tutor: Åsa Gustafsson

Background: China could be seemed as a highly developing country. There are many opportunities and challenges in China. Its preferential policies and huge potential market attract a lot of foreign companies to come to China. Meanwhile, Chinese government encourages the development of domestic enterprises. Therefore, at present there mainly coexist three forms of enterprises in China: foreign-funded companies, private companies and state-controlling companies. In order to enhance competitiveness, almost every company in china has its own supply chain network. Supply Chain management plays an important role in Chinese companies.

Research question:

1. What is the current situation of purchasing process and purchasing process integration for some manufacturers of different ownerships in China?

2. How can purchasing process be integrated for some manufacturers of different ownerships in China from manufacture’s perspectives?

Purpose: The purpose of this thesis is to study the current situation in purchasing process integration in Chinese manufacturing industry of three kinds of ownership and evaluate the purchasing process of three kinds of companies in China. In addition, it gives some suggestions to remove potential obstacles and optimize the purchasing process; and aims to help the companies to gain competitive advantage in the long term.

Method: The empirical foundation for this thesis is intended to be on multiple case study method. It studies of the three types of manufacturing enterprises in China. To represent these three types of companies, three companies are chosen from each as selected research objects. Data is collected through semi-structure interviews, so the questionnaire would be open-ended. Long-distance telephone interview with purchasing managers and material managers separately for each company would be
adopted.

**Conclusion:** The purchasing process of three companies who represent three different types of ownership is studied. It studies the current situation in purchasing process integration in Chinese manufacturing industry of three kinds of ownership and evaluates the purchasing process of three kinds of companies in China. Then the obstacles in purchasing process are found out. Then suggestions on purchasing process integration are used to tackle these obstacles.

**Future Work:** This thesis focuses on three manufacturing companies in China. The result of this thesis cannot represent all the obstacles in purchasing process in manufacturing industry in China. But the purchasing process, characteristics, strength and weakness are similar in the same type of ownership. Meanwhile, the recommendation on purchasing process integration also cannot solve all the obstacles found, due to the companies’ own condition. In future research, it recommends to add more research companies. Furthermore, more studies could be included to identify common obstacles and dig out solutions related to purchasing process integration in Chinese manufacturing industry.

**Keywords:** supply chain management, purchasing process, supplier relationship management, process integration
Acknowledgement

This Master Thesis has been written during spring 2011. It helps us to grasp the concept of purchasing process integration and extensively develop our understanding and allow us to combine the concept with current situation of Chinese companies. It is not possible for us to finish this thesis in time without support and beneficial feedback from a lot of people. We should express our appreciation to them.

First of all, we would like to show our gratitude to our tutor, Åsa Gustafsson. In the whole process, she puts forward many useful suggestions and constructive feedback to this thesis. Furthermore, we are obliged to thank our examiner, Helena Forslund, for her guidance and patience.

In addition, we are greatly indebted to the interviewees who took extra time to accept our interviews and provided us a lot of valuable empirical materials. They are Ming Tong, senior buyer from Nypro; Xin Lv, buyer from Haier and Rui Wang, buyer from Gao Xiang. They share their knowledge, support us and provide relevant data and information whenever we asked for.

Finally, we would like to show appreciation to our opposition group, Muhammad and Zhe Zhao, for their constructive criticism on our script.

Växjö, May 2011

Weihua Liu & Ying Chen
1 Introduction

This chapter intends to describe an overview of subject areas related to the topic selected. Background helps readers to understand the backdrop of this thesis. Problem discussion helps readers to understand the reason for choosing this topic then drawing forth research question and purpose of this thesis.

1.1 Background

The Economic Environment in China

With the reform and opening-up policies of Chinese government, the economics in China is growing quickly. China could be seen as one of the most rapidly developing countries all over the world. Chinese National Bureau of Statistics made major revisions to its estimates of China’s GDP. From 1979 to 2004, China’s real GDP grew at an average annual rate of 9.6% (Chinese National Bureau of Statistics, 2006).

On one hand, Chinese preferential policies and huge potential market attract a lot of foreign companies to come to China; on the other hand, Chinese government encourages the development of domestic enterprises. Therefore, at present there are mainly three forms of enterprises in China: state-controlling companies, foreign-funded companies and private-owned companies.

Chinese National Bureau of Statistics defined the different meaning of state-controlling companies, foreign-funded companies and private-owned companies in 1998. The definition of State-controlling companies is that the state’s equity capital takes high proportion and the enterprise is actually controlled by the state. It includes the absolute holding companies and relative holding companies. Private-owned companies refer to the company owned by individuals. The definition of foreign-funded companies is that the companies are established in China by foreign investors with all the capital in accordance with Chinese laws and regulations.
SCM in China

Supply chain management is introduced and accepted by the companies in China in recent years, so SCM is on initial stage in China. People are not familiar with supply chain management concept. At present, SCM is mainly adopted in manufacturing industry in China. According to Wei, Wu and Chen (2006), the implementation for the software of supply chain management in China is not mature. Most SCM system softwares are used in medium and large enterprises in manufacturing industry. In other words, many small companies have not adopted SCM system, so SCM is not common adopted in China. It should be spread not only in large enterprises but also in small companies.

Although the SCM has not been applicable in large scale, more and more Chinese companies are aware of the importance of SCM. They realize supply chain management could help them to minimize cost, get higher profit and increase their competitive strength. Many companies try to develop their own supply chain process. However, a lot of problems arise during this process. Zhang et al. (2010) describe some problems, for example, blind development, only pursuing profit, lack of quantitative data for publishing policies and constructing logistic infrastructure. Wei, Wu and Chen (2006) argue that the cost of supply chain implementation takes up 5% to 20% of net sales revenue, which is too high. In addition, there are some problems such as the high cost of inventory level and the gap between the customers’ demand and the ability to satisfy the customers’ requirements. They also argue that a large amount of Chinese companies dig out the technology such as ERP, MRP but ignore other supply chain technologies.

Purchasing Process Integration

Monczka et al. (2008) defines integration as “the process of incorporating or bringing together different groups, functions, or organizations, either formally or informally, physically or by information technology, to work jointly and often concurrently on a common business-related assignment or purpose.”

Van Weele (2010:8) describes purchasing process as follows:
“The management of the company’s external resources in such a way that the supply of all goods, services, capacities and knowledge which are necessary for running, maintaining and managing the company’s primary and support activities is secured at the most favorable conditions.”

According to Van Weele’s description, the purchasing process integration should be adopted within the company, and between the company and its supplier. Monczka et al. (2008) argue that purchasing process integration can be identified as internal integration and external integration. For internal integration, all members in purchasing process system including quality assurance, finance, operations, purchasing, etc cooperate in helping the company to get more profit through effective purchasing. Meanwhile, external integration aims at integrating external suppliers into the organization.

Great deals of companies have tried many methods to increase their competitiveness, and then they could get more profit. They have to make quick respond to the changes of market and meet the different requirements of different customers. This is hard work for these companies. According to Lee et al. (2009), for manufacturing firms, products are made of a lot of raw materials and different components. Thereby purchasing is an essential process in an enterprise’s development.

Burt and Pinkerton (1996) point out that purchasing is the systematic process of deciding what, when and how much to buy; the act of purchasing the materials and the process to make sure that the right goods with right quantity and good quality could be received in time. Companies should carry out the best control of the materials cost and services on the basis of the right people from different departments to be involved in purchasing process.

1.2 Problem discussion

Purchasing process integration for manufacturing industry

As one of the leading activities included in supply chain, purchasing process integration has been given more focus to fulfill customers’ requirements and make them satisfied. With the maturity of network and the development of computer
technology, many leading companies have adopted enterprise resource planning (ERP) systems and various software packages to smooth their operation in different kinds of supply chain activities and improve performance. Technical applications such as ERP systems are able to “define, standardize and automate operational processes” according to Harper (2010). Furthermore, potential great amount of savings can be achieved by reducing purchasing costs and increase efficiency, i.e., in supplier selection (Lin, et al, 2011). These techniques such as SAP and e-purchasing are becoming increasingly mature and widespread in manufacturing industries recently (Wang, 2010; Lin, et al, 2011).

However, this solely focus on technical area is seen not enough and problematic by Marjanovic (2010). Thereby he suggests a supplement to consider non-technical aspect of business process management (BPM) and business intelligence (BI) integration to dig out the potential of integration, i.e., in terms of strategy alignment, alignment, human-centered knowledge management and ongoing improvement of BI supported processes.

**Purchasing process integration for companies in China**

China’s supply chain has still seen as in its early stage and there’s a huge gap compared with developed countries. According to Zhang & Zhu (2010), total social logistics cost accounts for approximately 20% of GDP in China in 2000 while compared to about 10% in Germany. The problem of high costs and low efficiency limits rapid economic development of China.

According to a survey conducted by the Network Economy Research Center in Beijing University (2001), 16.5% of Chinese firms have significant integration with internal databases and information systems. Only 7.9% of Chinese firms have serious electronic integration with suppliers and customers and the percentage of the firms had implemented online purchases accounts for only 4%. In Chang (et al, 2008)’s study, they observed low level of integration of e-purchasing systems are very common in China and it can hardly achieve high performance when facing dynamic business environment and suggests highly integrated information systems between suppliers and buyers to enhance performance.
Furthermore, in a survey conducted by Chinese logistics and purchasing Association (2008), they investigated 316 enterprises in China. Among these companies, state-controlling companies, foreign-funded companies and private-owned companies account for 9.5%, 23.1%, 32% respectively, and others account for 35.4%. The result shows 92.9% of the foreign-funded companies have separate purchasing department, which is apparently higher than state-controlling companies (72.4%) and private-owned companies (64%). From the perspective of process management, supplier management and supplier partnership, foreign-funded companies are also superior to its counterparts. For instance, 97% of them have established supplier evaluation system, when compared to 43.7% of state-controlling companies and 65.7% of private-owned companies. All of this shows the enormous discrepancy among the companies of different ownership.

**Motivation**

In China, coexisting three types of companies (state-controlling companies, foreign-funded companies and private-owned companies) differ in their respective internal and external processes and the extent of purchasing process integration as well within the same context but different competitive business environment and law frameworks. As less mature business processes (including purchasing processes) achieve less profitability (Welch & Dmitry, 2007), supply chain leaders needs to exhibit tight coordination in integration to remain competitive in their markets (Harper, 2010).

It is observed that the private-owned companies are more flexible in its rules and foreign-funded companies have highest level of integration in terms of supplier-buyer relationship in general compared with its domestic counterparts. However, there is lack of empirical material in realizing the differences and analyze according to their different characteristics. Motivated by this, investigation of this area by analyzing respectively is adopted and this leads to the research question.

**1.3 Research question**

In accordance with the problem discussion mentioned above, the research questions of
this paper are:

1. What is the current situation of purchasing process and purchasing process integration for some manufacturers of different ownerships in China?
2. How can purchasing process be integrated for some manufacturers of different ownerships in China from manufacture’s perspectives?

1.4 Purpose

The purpose of this thesis is to study the current situation in purchasing process integration in Chinese manufacturing industry of three kinds of ownership and evaluate the purchasing process of three kinds of companies in China: state-controlling companies, foreign-funded companies and private-owned companies, give some suggestions to remove the obstacles of purchasing process, and aims to obtain competitive advantage in the long run.
2 Methodology

In this Chapter, methodological choices for this thesis are illustrated. Qualitative strategy would be employed as research strategy. Empirical foundation is intended to be on multiple case study approach. In addition, the approach of deductive, selection of samples and data collection is described in detail. Furthermore, analytic strategy for interpreting the empirical material, the validity and reliability of this thesis are presented.

2.1 Research strategy—Qualitative

<table>
<thead>
<tr>
<th>Research Strategy</th>
<th>Qualitative</th>
<th>Quantitative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inquiry mode</td>
<td>Nonstatistical methods</td>
<td>numerical data or statistical procedures</td>
</tr>
<tr>
<td>Data collection methods</td>
<td>Case study, interview, participative observation, documentation, etc.</td>
<td>Survey, experiments</td>
</tr>
<tr>
<td>characteristics</td>
<td>open-ended, and less structured; concerned with process, context, and intricate detail which are variable</td>
<td>highly structured; has universal application and is invariable across time and space</td>
</tr>
</tbody>
</table>

Bryman and Bell (2007) give the definition of quantitative research as “entailing the collection of numerical data and as exhibiting a view of relationship between theory and research as deductive, a predilection for a natural science approach… and as having an objectivist conception of social reality.” Qualitative research, in contrast,
rejects the mode of the natural scientific model and emphasis on the ways in which
individuals interpret their social world. To make it clear, the differences between
these two concepts (Prasad, 2005; Bryman and Bell, 2007) are summarized in Figure
2.1 as above.

In this thesis, non-statistical methods such as interviews and review of documents are
undertaken to understand deeply about the companies to be studied. As the research
question—“What is the current situation of purchasing process and purchasing process
integration for some manufacturers of different ownerships in China?” and “How can
companies be integrated for some manufacturers of different ownerships in
China from manufacture’s perspectives?” are concerned to contexts and points of
view of employees, therefore, qualitative research strategy is adopted.

2.2 Scientific approach--Deduction

Ghauri and Gronhaug (2005) argue that there are two approaches of setting up what is
ture or false and to depict conclusions. One is the approach of induction and the other
one is deduction.

According to Bryman and Bell (2007), deductive theory holds the commonest view of
the relationship between research and theory. Through this method, people describe
the conclusion based on logical reasoning. Researchers build or deduce hypotheses
from literature, and compare the empirical result with hypotheses, then can be
confirmed or rejected (Ghauri and Gronhaug, 2005). Figure 2.2 below shows the
deductive process.

![Diagram](image)

Figure 2.2 the process of deduction (Bryman and Bell, 2007)

Inductive is the process to formulate theories on the basis of observing facts. The
theory of this type of research is the result of research (Bryman and Bell, 2007). In
another words, inductive process is the systematic process of formulating a universal
proposal based on observation or particular facts (Ghauri and Gronhaug, 2005). Figure 2.3 below shows the deductive process.

![Observations → Findings → Theory](image)

Figure 2.3 the process of induction (Bryman and Bell, 2007)

Deduction is employed as the scientific approach of this thesis. Case analyses are based on the relevant theories. According to this, this thesis tends to get the findings according to the analysis of different types of companies.

### 2.3 Scientific method—Multiple Case Study

Phenomena should be linked to its social background, and then we can understand it better. There are a lot of ways in collecting data in business studies, such as different kinds of reports, interviews and so on (Ghauri and Gronhaug, 2005). Figure 2.4 compares the different research method. Through combining our research questions with the information stated in figure 2.4, case study is the best research method for us to employ because it is a good method when “how” and “why” questions need to be studied. Additionally, it is not necessary for researchers to control the behavioral events and it should focus on contemporary phenomenon in social background.

<table>
<thead>
<tr>
<th>Method</th>
<th>Form of research question</th>
<th>Requires control of behavioural event?</th>
<th>Focuses on Contemporary Event?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment</td>
<td>how, why?</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Survey</td>
<td>who, what, where, how many, how much?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Archival Analysis</td>
<td>who, what, where, how many, how much?</td>
<td>No</td>
<td>Yes/no</td>
</tr>
<tr>
<td>History</td>
<td>how, why?</td>
<td>No</td>
<td>no</td>
</tr>
</tbody>
</table>


According to Yin (2008), there are four types of case study: single case design (holistic), single case design (embedded), multiple case design (holistic) and multiple case design (embedded). The primary difference between these four types of case study is shown in figure 2.5.

Three different Chinese companies are chosen in this thesis, so multiple case study is a good way to be chosen. Yin (2008) depicts that embedded design is used for the analysis of quantitative data, so multiple case design—embedded (type 4) is an ideal scientific method of this paper.

2.4 Sample selection

According to Ghauri and Gronhaug (2005), in qualitative studies, the aim of sampling is to understand, get views and dig out the new theory or explanations. Sampling issues is very important in qualitative studies. Variability of company’s forms is necessary.

In order to describe the purchasing process integration in manufacturing industry in China, three different kinds of companies are selected as research objects and get the empirical materials from. The criteria of sample selection are as follows: types of company, industry and location. Three companies selected are located in China. They are in the same industry—manufacturing industry. As mentioned in the first section, there are three forms of enterprises in China: state-controlling companies, foreign-funded companies and private-owned companies. We select one company of
each form. Based on Chinese feature, state-controlling companies and foreign-funded companies mainly focus on tech industries, and they are in large scale. However, as the financial constrains, the private-owned companies mainly focus on low-end industries, such as textile, apparel, toy industry, etc and this kind of companies are in small or medium size. There are only three companies as our research objects, but to some extent, they can represent the general characteristics of Chinese purchasing process.

2.5 Data collection

2.5.1 Primary data

Ghauri and Gronhaug (2005) argue that primary data refers that people collect the relevant data directly. This kind of data is more unanimous with the research questions and research ideas. People can understand the hidden meaning of different activities. There are three different ways to get the primary data. Figure 2.6 describes the sources of primary data.

![Figure 2.6 sources of primary data (Ghauri and Gronhaug, 2005)](image_url)

Interview is a good way to understand the interviewees’ ideas. The qualitative interview helps a better understanding of communication content. People who join the interviews are encouraged to express their views freely (Lindlof, 1995). According to Bryman and Bell (2003), there are several types of interviews, for example, unstructured interview, intensive interview, qualitative interview etc. Semi-structured interview is not highly structured and is the most useful interview format in qualitative research. This thesis plans to adopt the methods of semi-structured interviewing for gathering information. As China is far away from Sweden, it is better for us to adopt the interview through phones and contact them with email. The
information gained is more intuitive.

Three interviewees are from different Chinese companies in manufacturing industries. They are encouraged to express their ideas or answers freely. Figure 2.7 is detailed information of these people and their companies.

Preparing questions is an important aspect of interview. The questions help the interviewer to collect the data or information from the views of interviewees (Bryman and Bell, 2003). The questions would be broad, open-ended questions that allow the interviewees to talk more (see Appendix I).

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Company’s Type</th>
<th>Interviewees’ Name</th>
<th>Job Title</th>
<th>Interview Mode</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nypro Plastic &amp; Molding (Suzhou) Co., Ltd</td>
<td>foreign-funded companies</td>
<td>Ming Tong</td>
<td>Senior Buyer</td>
<td>Interview through telephone</td>
<td>18th. March, 2011</td>
</tr>
<tr>
<td>Qingdao Haier Parts Purchasing Co.</td>
<td>state-controlling companies</td>
<td>Xin Lv</td>
<td>Buyer</td>
<td>Interview through telephone</td>
<td>21st. March, 2011</td>
</tr>
<tr>
<td>Gao Xiang Knitting Weaving (Zhangjiagang) Co., Ltd.</td>
<td>private-owned companies</td>
<td>Rui Wang</td>
<td>Buyer</td>
<td>Interview through telephone</td>
<td>16th. March, 2011</td>
</tr>
</tbody>
</table>

Figure 2.7 interview schedule

2.5.2 Secondary data

Secondary data is used to search information related to research question and can help people understand or solve the research question. Secondary data also can save a lot of time and can suggest the suitable methods or data to tackle the research question.
Secondary data could be divided into two parts: internal source and external source (Ghauri and Gronhaug, 2005). Figure 2.8 explains the types of secondary data.

Figure 2.8 types of secondary data (Ghauri and Gronhaug, 2005)

The secondary data in this thesis is gathered from external source and internal source. Literature review is an indispensable tool for this thesis. Internal reports of relevant department are also necessary part for us to study. Meanwhile, relevant information of the company is searched from companies’ own website, for example, annual report, company’s structure and so on.

2.6 Analytic techniques-Within-case study and Cross-case synthesis

In this thesis within-case study is chosen as one of the analytic techniques. The goal of that is to analyze the case study data by building an explanation about the case (Yin, 2008). Furthermore, replication logic is applied to multiple case studies. Even though the three cases chosen in this thesis differ from each other, a general explanation would be created for the findings to fit each individual case. When the findings of one case conflict with the theoretical statement coming from previous case, revision are made until all the cases fit in the same final explanation. It is used to enhance validity as mentioned in chapter 2.7. Therefore, cross-case synthesis, which is specifically
related to two or more cases, is combined with within-case in this thesis to achieve high level of case studies.

2.7 Scientific credibility

According to Yin (2008), the quality of any empirical social research can be judged by logical tests such as trustworthiness, credibility, confirmability and data dependability. Specific case study tactics for four tests include construct validity, internal validity, external validity and reliability.

Construct validity

To increase construct validity, Yin (2008) suggests three tactics including multiple source of evidence, establishing a chain of events and having the draft case study reported reviewed by key informants. In this thesis, two elements, namely multiple sources of evidence and establishing a chain of evidence have been applied to achieve construct validity.

Multiple sources of evidence are adopted by combining documentation and interviews in this paper. Specifically, documentation include internet search of corporate background such as vision, mission, industry, product and scope of the corporation. In addition, written reports such as memos, minutes of purchasing meeting, working report, guidelines, action plan related to purchasing are also included. These two methods complement each other and ensure the case study investigator has more convincing and accurate findings or conclusions. Chain of evidence is achieved in this thesis by two investigators working together and being reviewed by both tutor and examiner to reduce the carelessness and bias.

Internal validity

Saunders et al. (2009) defines internal validity as the extent to which findings can be attributed to interventions instead of any flaws in the research design. The problem of internal validity for case study research is making inferences. Therefore, within-case study—an analytic technique for case study data by building an explanation about the case (Yin, 2008), will be used to deal with this problem. Rival explanations among the three companies of different ownership chosen in this thesis are revised and
managed to fit into each other in order to achieve internal validity. Moreover, both interview and documentary evidence are collected to enhance the correctness of inference.

**External validity**
Saunders et al. (2009) defines external validity as the extent to which finding can be generalized and applied to other research settings. Multiple case studies will be adopted in this thesis to produce more powerful and stronger effect than single-case studies. Furthermore, the empirical inquiries coming from companies of three different types in China will be *analytic generalized* and contributes to and be compared to existing theories (Yin, 2008). As mentioned in sample selection part, state-controlling companies and foreign-funded companies are usually large-scale while private-owned companies are usually small and medium sized. Based on Chinese feature, state-controlling companies and foreign-funded companies mainly focus on tech industries while the private-owned companies mainly focus on low-end industries, such as textile, apparel, toy industry, etc. The case companies are chosen based on above characteristics. Therefore, we choose three sample companies of different type of ownership without the same size. They cannot represent all the companies within their own types of ownership. However their respective purchasing process, strength and weakness are quite similar within their type of ownership so that the research result can be spread to other companies and generalized.

**Reliability**
Whether the same findings and conclusions can be obtained by different investigators to conduct the same case study over time or not is identified by Yin (2008) as reliability. Two tactics are used in this paper to enhance reliability. Firstly, the design of *case study protocol* requires the investigator to answer the questions such as what is the research question and what method will be adopted. Specifically, in this thesis, key interviewees are included; both interview and documentation methods are adopted, and all the data collection activities are executed within specified schedule. Secondly, *case study database* consists of interview notes by the investigators, and audio-recorded interviews which can be easily retrieved for later use or by a third party. Scientific credibility of this paper is summarized in Figure 2.9.
### Scientific credibility

<table>
<thead>
<tr>
<th>Construct validity</th>
<th>Internal validity</th>
<th>External validity</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple sources of evidence: combining interviews and documentation of internet search and internal written reports</td>
<td>within-case study: rival explanations among the three cases are revised and managed to fit into each other</td>
<td>Analytical generalization: multiple cases instead of single case are adopted. Case companies are chosen according to Chinese characteristics and thereby the result can be spread to other companies and generalized.</td>
<td>Case study protocol: both methods of interview and documentation analysis are adopted, data collection activities are executed according to schedule. Case study database: notes and audio records of the interview</td>
</tr>
</tbody>
</table>

Figure 2.9 summary of Scientific credibility for this thesis

### 2.8 Summary

In the following figure 2.10 presents summaries of methodological choices relevant for this thesis.

<table>
<thead>
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<th>Research strategy</th>
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Figure 2.10 Summary of methodological choices relevant for this thesis
3 Theoretical framework

Theoretical framework is presented in this chapter. In order to give some advice on purchasing process integration in Chinese manufacturing companies from manufacture’s perspectives, relevant literatures are reviewed carefully. In addition, there is strong relationship between theoretical framework presented and empirical material guided by interview guide.

Figure 3.1 shows the theoretical model of this chapter. There are two sections in chapter 3. Theories mentioned in chapter 3.1 are used for analyzing the current situation of three companies and finding obstacles in purchasing process. Theories in chapter 3.2 are related to purchasing process integration which can help to tackle the obstacles in purchasing process.

Research Question

What is the current situation of purchasing process and purchasing process integration for some manufacturers of different ownerships in China?

How can purchasing process be integrated for manufacturing enterprises in China from manufacture’s perspectives?

3.1 Purchasing Process Model
3.1.1 Determine specification
3.1.2 Select supplier
3.1.3 Contracting
3.1.4 Ordering
3.1.5 Expediting and evaluation
3.1.6 Follow-up and evaluation

3.2 Purchasing Process Integration
3.2.1 Internal Integration
3.2.2 External integration
3.1 Purchasing Process Model

Purchasing process is defined by Handfield et al. (2009: 38) as to “identify user requirements, evaluate the need effectively and efficiently, identify suppliers, ensure payment occurs promptly, ascertain that the need was effectively met, and drive continuous improvement”. The purchasing process works like a cycle and starts with forecast and plan requirement, and includes need clarification/requisition, supplier identification/selection, contract/purchase order generation, receipt of material or service and documents and ends with settle, pay, and measure performance.

According to Leenders et al (2001: 521), purchasing processes are used in "...improving administration of the purchasing system, ensuring speed and cost-effectiveness by eliminating unnecessary steps, and automating where possible through Internet and intranet application". The activities of purchasing process include: supplier selection and sourcing, purchase ordering systems, supplier assessment, accounts payable, internal approval processes, early supplier involvement and selection, inventory control and e-business.

As mentioned in introduction part, Van Weele (2010) describes purchasing process as the management of the company’s external resources to ensure the supply of all goods, services, capacities and knowledge running smoothly. Figure 3.2 describes the purchasing process model. It covers activities which aim at:

- determine specification of the service and goods which need to be purchased
- select the most appropriate suppliers, meanwhile design and improve procedures & routines to choose the suppliers
- negotiate with suppliers, in order to reach an agreement and sign the legal contract
- releasing purchasing order (PO) to suppliers and/or administrate purchasing order and handling schedules
- manage and control of the purchasing order to secure supply (expediting)
- Follow up and evaluation (tackling the claims, review the supplier profile, supplier rating and supplier ranking).
Out of all above definitions, Leenders et al. (2001) pay more attention to e-business application while the other two definitions are quite similar in essence. This paper focuses more on making use of all the resources available both internal and external. Therefore it is preferred to adopt Van Weele’s model, which is more widely used and detailed.

3.1.1 Determine specification

According to Heinritz et al. (1991), it is necessary to decide on the function of material or part based on customer requirements. Customer requirements are communicated in different ways such as telephone, email or EDI. This is also the first step in achieving customer satisfaction (Van Mossel, H.-J., Van der Valk, W., 2008). It prepares for the second step in providing quality standard, comparing competitive bids and then selecting the suppliers among possible ones.

Purchase order specification may comprise of below elements: quality specifications, the logistics specifications, maintenance specification, legal and environment requirements, and target budget (Van Weele, 2010).

**Quality specifications**

Quality specifications depict how the goods should be delivered and the standards and norms which the goods should meet (Ibid).
Leenders et. al. (2001) depict that there are four basic facets of quality specifications. *Specification by physical or chemical characteristics* provides the materials which the purchaser desires. *Specification by material and method of manufacture* is usually used in governmental purchases, so it is not related to organizations referred in this thesis. *Specification by performance or function* is another important item. If the quality does not perform as required, it will not fulfill the function of the products. The last one is *specification by engineering drawing*. It is the most precise in all description and is adopted to purchase the goods with higher accuracy.

Testing and samples are another quality specification. According to Burt and Pinkerton (1996), samples are compulsory when purchasing materials with specific colour, style, look and so on. Testing goods is a necessary stage before buyer decides to have business deal with supplier. Buyer is likely to accept the sample which is better than the products in current use (Leenders et. al, 2001).

Supplier quality system is also an important specification. Buyers need to assure that the supplier can supply the material required. Quality certification can help buyer to better understand the quality situation of the organization and increase their confidence in the upcoming cooperation. There are three quality management frameworks which are widely used. They are ISO 9000:2000, ISO14000, and the Malcolm Baldrige National Quality Award. ISO registration can be seemed as proxy evidence of supplier’s quality capability (Monczka et. al, 2009).

**Logistics specifications**

Van Weele (2010) defines logistics specification as related to the quantities needed, the place and time of delivery and the physical conditions of the goods.

Forecasts are widely used in making both quantity and delivery decisions when considering key elements such as usage, supply, market conditions, technology and prices (Leenders et al, 2001). However, variation between forecast and actual demand often occurs and it makes forecasts unreliable. Thereby information sharing between customers and suppliers and regular update as well is required to ensure accuracy. The information exchange between purchasing function and other internal functions such as marketing, operations, finance and information technology are also extensive.
(Monczka et. al, 2009).

The physical conditions to be respected also affect the quantity decision. For example, the purchased items can be solids, liquids or gases. Different handling, storage conditions, and purchase quantity rules are required if the material, size or shape is special or the purchased items are unstable, perishable or even dangerous (Leenders et al, 2001).

**Maintenance specification**

According to Van Weele (2010), the maintenance specification describes how the supplier maintains and provides services for products.

There are four main services offered by suppliers: pre-order service, service from order to delivery, service during delivery and post-delivery service. Pre-order service refers the service of condition required by customers. Examples are delivery time, place of delivery and so on. Service from order to delivery includes conveying information at an early stage about the changes of delivery time. Service during delivery mainly includes the length of delivery time, and what extent pledged delivery time could be reached. Post-delivery could be seemed as after-sale service, it normally contains handling the complaints or claims etc. (Jonssonn, 2008).

**Legal and environment requirements**

Van Weele (2010) depicts that both product and production process should respect people’s health, safety and related environment legal. Environment protection agency of United States defines the definition meaning of environmentally preferable in executive order 13423.

“...products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose”.

There are many kinds of environmental standards and regulations. Requirements for environment management of them are different. Take ISO14000 for example, it refers that a company has improved the processes which handle, follow up and continuously
develop environmental requirement and objects. It is an extension of ISO9000 which is a quality standard (Jonssonn, 2008).

**Target Budget**

Managers may prepare purchasing budget which covers a specified period of time and is usually a management commitment (Anthony & Govindarajan, 2007). They are authorized to spend money within specified amount. The suppliers are expected to provide products at the most favorable prices obtainable, and the purchasing department will, to a great extent, evaluate the cost based on the purchasing prices. Within a targeted budget, the purchasing of low ultimate cost may be chosen (Heinritz et al, 1991). A target budget sets the cut-off line for purchases and will be an important input for the next step in choosing a supplier (Van Weele, 2010).

### 3.1.2 Select supplier

Figure 3.3 shows the process of supplier evaluation and selection. In this section, this thesis tends to discuss the content of supplier selection corresponding to following steps.

1. Recognize the need for supplier selection
2. Identify key sourcing requirements
3. Determine sourcing strategy
4. Identify potential supply sources
5. Limit suppliers in selection pool
6. Determine method of supplier evaluation and selection
7. Select supplier and reach agreement

Figure 3.3 Supplier Evaluation and Selection Process (Monczka et. al, 2009)
**Recognize the need for supplier selection**

This step usually includes recognizing the requirements for evaluating and selecting suppliers. As mentioned in chapter 3.1.1, sound specification is a good start for beginning a preliminary assessment of new source. There are many ways to identify the needs for evaluating suppliers. The company have to execute supplier evaluation and make selection decisions mainly in following cases: during new product development; the poor performance of supplier; current suppliers have insufficient capacity and so on (Handfield et. al, 2009).

**Identify key sourcing requirements**

According to Monczka et. al. (2009), the purchaser should determine the critical sourcing requirements by collecting information from both internal and external customers. Possible requirements for the suppliers include: delivers on time, provides consistent quality, gives a good price, has a stable background, provides good service back-up, is responsive to customers’ needs, keeps promises and provides technical support according to Baily et al. (2008).

**Determine sourcing strategy**

Van Weele(2010:10) defines sourcing strategy as “describing how many suppliers the company are favored for that commodity or category, what type of relationship to pursue (arm’s length or partnership) and what type of contract to negotiate for (one year to multi-year)”.

Handfield et al. (2009) list key strategy options such as following:

- Single versus multiple supply sources: Single supply may lead to close partnership but it is very risky. Sourcing from multiple suppliers reduces supply risk.

- Short-term versus long-term purchase contracts: long term contracts usually bring better price, delivery or reliability and leads to a closer relationship between suppliers and purchaser.
Domestic versus foreign suppliers: Purchasers need to consider the total cost of ownership when sourcing from foreign suppliers, for instance, big price difference compared to local suppliers or transport economies by purchasing a large quantity.

Expectation of a close working relationship versus arm’s-length purchasing: what kind of partnership the purchaser needs to keep with its suppliers decides on short-term or long-term contracts. Is it operational, tactical or strategic?

Identify potential supply sources
Lysons and Farrington (2006) illustrate that various sources of information help purchasers recognize potential source of supply. Suppliers can be located by checking comprehensive sources.

Some useful ways for purchaser to identify potential supply source are as follows:

- Current supplier
  It is a main source for the purchasing company to choose from. On one hand, purchaser does not need to find new suppliers, it can save a lot of time; on the other hand, purchaser has already cooperated with existing suppliers and they are more familiar with each other. However, purchaser will never know whether there is better supply source, so using the current supplier is not the good approach for long-term (Monczka et. al, 2009).

- Information database
  Lysons and Farrington (2006) point out that information database can help to provide latest information of suppliers. Companies can search the various databases and find out proper information which can meet their needs. Many companies has already achieved this by keep record of suppliers.

Besides the method mentioned above, there are many other ways to help purchaser to find the potential supply source. For example, sales representatives, exhibitions, trade journal, second-part or indirect information, Internet and internal source (Monczka et.
al, 2009).

**Limit suppliers in selection pool**

Based on the strategy options and various sources, the buyer makes up a list of possible available suppliers. Adequate study must be given in deciding on the qualification of suppliers (Leenders et al., 2001).

Monczka et al (2009) lists several criteria in narrowing the list:

- A purchaser needs to do a preliminary financial risk analysis to understand the overall financial health of the supplier.

- For those suppliers who already have business with purchasers, the latter is likely to consider them based on prior performance record and experience.

- A preliminary survey in screening suppliers may adopted to match buyer’s requirement and supplier’s capabilities, information are provided in terms of supplier’s cost structure, process technology, quality performance, market share data and so on.

**Determine method of supplier evaluation and selection**

According to Handfield et. al. (2009), there are several ways to evaluate and choose the supplier from the companies which remain in the pool. It includes the methods of assessing the supplier-provided information, supplier visits and using suppliers which are preferred by purchasers.

- Assessing from supplier-provided information

These kinds of information are mainly from request for quotation (RFQ) or demand for proposals. It is adopted frequently not long ago. However, purchasers tend to adopt more direct and in-depth methods to evaluate their suppliers (Handfield et. al, 2009).

- Supplier visits

Visiting the suppliers’ company can help purchaser to grasp the accurate information of suppliers’. Purchasers have to gain the positive information as well as negative
information of supplier to know wholly about their suppliers. Figure 3.4 provides main evaluation criteria which should be paid attention when purchasers visit suppliers’ company (Burt et al. 2009).

<table>
<thead>
<tr>
<th>Key supplier evaluation criteria</th>
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<tbody>
<tr>
<td>1. Financial strength</td>
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<tr>
<td>2. Production capacity</td>
</tr>
<tr>
<td>3. Experience with the product, material, service</td>
</tr>
<tr>
<td>4. Quality control and assurance</td>
</tr>
<tr>
<td>5. Research and development ability</td>
</tr>
<tr>
<td>6. On-time delivery</td>
</tr>
</tbody>
</table>

Figure 3.4 Key supplier evaluation criteria (Handfield et. al. 2009; Burt et. al 2009).

➢ Use of preferred suppliers

Buyer can identify the preferred suppliers in existing supplier list according to the purchasing database and suppliers’ history performance records. This method can simplify the process of supplier evaluation and selection to a great extent. However the process of determining preferred suppliers will take a lot of time (Handfield et. al, 2009).

Select supplier and reach agreement

After deciding on the supplier short list, the request for quotation (RFQ) will be sent out to the suppliers. Suppliers are invited for submitting a bid to meet the requirements as listed in RFQ so that the purchaser is able to compare bids among different suppliers. After that a balanced analysis of quotations is conducted in collaboration with the user, the technical, logistic, quality, financial and legal aspects needs to weighted, usually with a method of ranking the suppliers (Van Weele, 2010).

The risk analysis needs to be done more deeply than the preliminary evaluation as mentioned in section of limiting suppliers in selection pool. Besides, all the qualified suppliers need to be allowed to quote instead of “blacklisted”. The purchaser should
not discriminate or have inclination to some particular suppliers (Heinritz et al, 1991).

### 3.1.3 Contracting

According to Heinritz et al (1991), negotiation is the “...process of working out a purchasing and sales program together, to the point of reaching a mutually satisfactory agreement”. After that, supplier and customer will sign contract.

Jonsson (2008) depicts that there are many types of contracts, for example, escalation clause; quantity flexibility; buy-back contract; sales rebate contract and so on.

Van Weele (2010) explains that technical contents in purchasing agreement rely on the project or product. Meanwhile, specific commercial and legal terms are different in different cases. Commercial regulations in the contract contain contract period, payment issues, and rules for handling changes, sanction clauses and agreements for disputes. The contract varies among different types of service, product, culture and so on (Bryntse, 1996).

Van Weele (2010) illustrates important aspects of purchasing contract as follows:

- **Price and term of delivery**
  There are mainly four kinds of price agreements in contracts. They are fixed price plus incentive, cost-plus contract, cost-reimbursable contracts and agreement with price adjustment.

- **Payment terms**
  Since supplier has to invest money and keep liquidity to produce the right product, there are several payment terms for soothing the pressure. Account and the price of product will be affected by payment terms..

- **Penalty clauses and warranty conditions**
  Clauses in the contracts have to be subject to the legal systems. It has to be mentioned in the contract that the clauses should be used to ensure the good performance of
products. It is also very important that supplier should take responsibility for the products delivered during certain period.

- **Trade term**

Generally speaking, international trade terms are included in contracts. They are, i.e., EXW, FCA, FAS, FOB, CFR, CIF, CPT, CIP, DAF, DES, DEQ, DDU and DDP.

### 3.1.4 Ordering

According to Leenders et al (2001), a satisfactory purchase order includes the serial number, date of issue, quantity and description of the ordered items, date of delivery required, shipping directions, price, terms of payment, the name and address of the supplier receiving the order and conditions. Usually the suppliers are requested to send an acknowledgement back to the purchasing department after receiving purchase order. This process indicates mutual consent and the acceptance of the purchase order from the perspective of legislation. Besides, definite delivery information in advance will be important for the purchasers to run operations effectively.

To control stock and reduce waste, some companies decides on the order quantity of stock by choosing a method of Economic order quantities (EOQ), which is the quantity that results in the lowest total of variable costs. For order quantity of production, material requirements planning (MRP), which schedules the end products to be completed week by week during the planning period, is used to calculate the quantities of components, subassemblies and material required to make complex products. (Baily et al., 2008)

There are some ways in improving the ordering process. For example, purchasers may sometimes issue blanket purchase order, an open order which is usually effective for one year, for repetitive purchases from one supplier. This reduces the time in order releasing and makes the ordering of material a routine process. Online ordering system are also adopted in linking purchaser’s and supplier’s system electronically to faster order cycle time, reduce ordering errors, track order more efficiently and visualize back-ordered items better (Monczka, et al., 2009)
3.1.5 Expediting and evaluation

According to Leenders et al. (2001), expediting is defined as “the application of pressure on a supplier to get it to meet the original delivery promise, to deliver ahead of schedule, or to speed up delivery of a delayed order”. Severe delay or incapability to meet the purchaser’s responsibility may lead to order cancellation or even withdraw of future business.

There are three types of expediting according to Van Weele (2010):

- Exception expediting: the buyer takes action only when there is a shortage of material. This is a passive method and thus not recommended.

- Routine status check: this method is active and the supplier will be contacted a few days earlier than the promised delivery time to secure delivery.

- Advanced status check: this method is even more proactive and usually used for critical purchase parts/suppliers. Periodical checks and inspections at critical moments are adopted in order to monitor production progress.

After receiving the products, all incoming material is recorded and inspected in terms of quantity and quality. Receiving and Inspection reports are issued if the products meet the requirement of purchaser, or else they will be rejected. Meanwhile, an invoice will be issued from the supplier. If there is any discrepancy between actual shipment and invoiced shipment, prompt adjustments must be done in order to clear payment within the discount period (Heinritz et al., 1991).

3.1.6 Follow-up and evaluation

According to Jonsson (2008), he argues that supplier evaluation is the necessary step for considering the future corporation with suppliers. If suppliers perform well, the companies could add their name into the companies’ approval vendor list. Based on the performance evaluation, companies will gradually pay more attention in doing business with the vendors who get high performance rating scores (Van Weele, 2010)
Most evaluation measures are carried out in two directions: effectiveness and efficiency. Measuring performance can help the buyer make better decisions. It can also promote the communication among supplier, buyer, and other departments. Meanwhile it can help the suppliers to improve their performance. In addition, it also inspires and guides the behavior of supplier toward the desired direction (Monczka, et al., 2009)

Most performance measures are among following items (Jonsson, 2008):

- Significance of the deal for the company
- Financial position
- Quality and process development
- Environmental policy
- Technological policy
- Technological status and know-how
- Corporate culture, work organization and management
- Purchasing process
- Manufacturing process
- Distribution process
- Customer service performance

3.2 Purchasing Process Integration

As mentioned in Chapter 1, Van Weele argues that purchasing process integration should be adopted within the company, and between the company and its supplier, so in this part, this thesis describes the purchasing process integration in two section: internal and external.

3.2.1 Internal integration

Sourcing Strategy

According to Monczka et al (2009), sourcing strategy of the company is typically formulated by cross-functional team which is composed of professionals from different department, such as sourcing department, financial department, and
operation department and so on.

The content of sourcing strategy includes activities of identifying a certain category from the number of suppliers, the relationship development, contract duration, types of contract which need to be negotiated, the location of sourcing material. Conducting the purchasing portfolio analysis will be the first step in formulating sourcing strategy (Van Weele, 2010).

Monczka et al. (2009) describe portfolio analysis is a tool to construct and segment the supply base. There are four aspects: Critical; Routine; Leverage; Bottleneck. They create a model of strategy portfolio matrix for category management (see figure 3.5 which could be used in chapter 6.3). According to portfolio analysis, the cross-functional team will formulate suitable sourcing strategy.

- Critical: the aim of critical commodity is to improve competitiveness, support and balance the supplier’s main competencies, support the company’s overall strategy and develop value-added service.

- Routine: the goal is to reduce the number of items, clear the small-value expenditure, control cost, make the purchasing process simpler through adopting e-tools and find the potential supplier who can fit the purchasing process to the greatest extent.

- Leverage: it provides chances for saving internal consumption. However, a high level of supplier’s service and quality of products will be required, as it can decrease the total managing cost. One of the tools is online auction.

- Bottleneck: It has unique requirements or items will influence the business largely. The goal of this aspect is to make sure smooth supply, reduce uniqueness of suppliers and manage supply.
Quadrants Lead to Strategy, Then to tactics and Actions

**Actions**
- Widen specification; Increase competition; Develop new suppliers; Medium-term contracts; attempt competitive bidding
- Heavy negotiation; Supplier process management; Prepare contingency plans; Analyze market/competition; Use functional specifications

**Tactics**
- Decrease uniqueness of suppliers.
- Manager supply
- Increase role of selected suppliers
- Form partnerships with suppliers

**Strategy**
- Ensure supply continuity
- Critical: Critical to profitability and operations; Few qualifies sources of supply; Large expenditures; design and quality critical; Complex and/or rigid specifications
- Bottleneck: Complex specifications requiring complex manufacturing on service process; Few alternate productions/sources of supply; Big impact on operations/maintenance; New technology or untested processes
- Routine: Many alternative products and services; many sources of supply; Low value; Small individual transactions; Everyday use, unspecified items; Anyone could buy it
- Leverage: High expenditures, commodity items; Large marketplace capacity, ample inventories; Many alternate products and services; Many qualified sources of supply; Market/price sensitive
- Routine: Many alternative products and services; many sources of supply; Low value; Small individual transactions; Everyday use, unspecified items; Anyone could buy it
- Maximize commercial advantage
- Concentrate business. Maintain competition
- Promote competitive bidding; exploit market cycles/trends; Procurement coordination; Use industry standards; Active sourcing
- Simplify acquisition process
- Increase role of systems. Reduce buying effect
- Rationalize supplier base; Automate requisitioning, e.g., EDI; Stockless procurement; Minimize administrative costs; Little negotiating

Figure 3.5 Strategy portfolio matrix for category management (Monczka et al, 2009)
After doing the portfolio analysis, sourcing strategy team could formulate the most suitable sourcing strategy: single VS multiple sourcing; globally VS local sourcing; partnership or competitive relationship; price agreement VS performance agreement; buying on contract or buying on spot basis (Van Weele, 2010).

**E-systems**

Electronic systems play a pivotal role in purchasing process. Figure 3.6 shows the issues which purchasing department has to discuss with other departments.

Through figure 3.6, internal departments have to cooperate with purchasing department in different aspects (Leenders et al, 2001). There are several ways to be adopted to improve the internal integration in purchasing process. Monczka et al. (2009) describe the evolution of E-systems (figure 3.7). E-system is related to internal integration system. They are MRP-DRP, ERP, collaboration and advanced sourcing analytics.
**Solution** | **Time period** | **Focus** | **Primary use of system**  
--- | --- | --- | ---  
MRP-DRP | 1970s | Internal/managing inventory | Inventory planning, inventory control & distribution efficiency  
EDI | 1980s | external | Electronic transmission of PO  
ERP | 1990s | internal | Integration of all business functions for process and reporting  
SRM & CRM | 2000s | External | Managing and controlling the interface between buyers, suppliers, and customers  
Collaboration | 2000s | Internal & external | CPFR (Collaborative Planning, Forecasting and Replenishment) systems permit constant communication within the supply chain via RFID (Radio Frequency Identification) and point of sale systems.  
**Advanced sourcing analytics** | 2010 & beyond | External & internal | Sourcing analytics and computerized negotiations.  

Figure 3.7 the evoluation of E-systems (Monczka et al. 2009)

ERP (Enterprise resource planning) system is used to enhance the competitiveness of the organization. It was developed on the basis of MRP system. It provides wide information to help company manage operational and support process (Riggle, 2000; Van Weele, 2010; Parush et al, 2007). It supports widespread management of financial, operation, purchasing, distribution, human resources and other aspects in business process (Shhtub, 2011). Furthermore, ERP helps the company optimize the internal resources (Wang et al, 2009). However, ERP packages cost hundreds of thousands and even millions of dollars so company has to pay a large amount of money to buy ERP software (Jacques & Alannah 2003).

Nowadays, people pay more attention on the collaboration among supply chain participants via RFID and other information-sharing systems, such as internal and external databases system. According these information-sharing systems, people in different departments could share information mutually. The information is related to engineering requirement, forecasted demand (Monczka et al. 2009).

In aspect of advanced sourcing analytics, it mainly includes spend analysis,
e-sourcing (RFQ, E-auction, etc), total cost reporting and so on. E-auction optimization is advanced software of sourcing which provides a tool for buyers in company to expand their analytical abilities in reviewing bids and finding more optimal ways to solve the sourcing problem. It provides suppliers more transparency in the quotation price. (Hartley, Lane, & Hong, 2004; Monczka et al. 2009).

3.2.2 External integration

According to Gattorna & Walters (1996), the manufacturing company tries to reduce operating costs and overall lead time to meet the customers’ requirements. Therefore, the suppliers should be integrated in the supply chain. A combination of strategic partnerships and implementation of information systems are necessary for achieving the external integration.

Supplier evaluation and supplier partnership

Leenders et al.(2001) says that purchasing process management includes managing buyer-seller relationship which requires extensive coordination to ensure supplier performance and achieve customer satisfaction. In order to measure the performance, Heinritz et al(1991) points out that an objective rating and evaluation of suppliers should involve at least three basic considerations: Quality, Service, Price. Different factors are given corresponding weights and this depends on the nature of the item being bought, the quality required, and competition within the supplying industry. The total scores are calculated and can be easily compared among different suppliers. Performance reports are delivered to suppliers periodically. The suppliers who fail to meet the quality and delivery standards are warned of losing the business or removed from the approved list.

The best current suppliers with both capable hard factors such as quality, delivery, cost, financial and management stability; and good soft factors, such as employee involvement and supplier relationships should be considered as partners of the buying organization. Suppliers can be classified to following five categories according to their performance as per Leenders et al.(2001):
Unacceptable suppliers: They fail to meet the buying companies’ requests and should be substituted by better ones.

Acceptable suppliers: They meet the current requirements as specified in the contract but they have no competitive advantage compared to other purchasers.

Good suppliers: They provide value-added activities than acceptable suppliers. This usually includes huge effort of both buying company and the supplier to move further from acceptable to good.

Preferred suppliers. They meet both current and some of the strategic requirement of the buying company. Purchasers usually work with preferred suppliers on electronic basis and speed up transactions. Both parties work together to eliminate unnecessary non value-added activities.

Exceptional suppliers. They meet and exceed the operational and strategic needs of the buying company. However, long-term cooperation between both parties should be maintained to achieve mutual breakthroughs.

Jonsson P. (2008) has distinguished four business relationships between purchasers and suppliers:

- Procurement in direct competition: There are no contracts or agreement between both parties and the supplier is subjected to competition on every purchase. Information exchange occurs only during enquiry to order confirmation phase and covers usually short-term. Transaction cost is quite high for evaluating, selecting and negotiating with suppliers.

- Procurement through contracts in direct competition: Some forms of contracts or agreements have been set up to facilitate the purchasing process and thereby reduces transaction costs compared to the preceding relationship. Price and delivery terms are regulated and sometimes the contracts include minimum quantities per year to be delivered or to be ordered.

- Procurement through operative contracts: This level concerns seldom change of suppliers. Only a few suppliers are designed to deliver fixed allocations of volumes purchased according to the contracts. More extensive and frequent information exchange take place and long-term commitment are achieved. It is common to adopt delivery plan in this relationship.

- Procurement through strategic contracts: In this level it includes more than
operative contracts and is even wider than procurement process. Collaboration and product development is included to secure long-term production capacity. Forecast and planning work are usually included and sometimes there is no clause regarding termination time.

**E-purchasing**

Monczka et. al, (2009) suggests that purchasing process external integration should link the external suppliers with the focal company by virtue of systems such as internet linkages, network communications and e-purchasing applications to source items, share information, forecast demand and balance the levels of supply and demand, giving updates and make payments. Van Weele (2010) argues that e-purchasing aimed at “...support the purchasing process and all electronic data exchange that is needed for efficient transaction processing.” E-purchasing includes aspects such as electronic marketplaces and electronic auctions.

According to Bakos (1997), with the development of internet and IT, a new kind of marketplace is generalized, that is electronic marketplaces (EMs). It is a virtual marketplace in which buyers and suppliers can meet and communicate via electronic data interchange (EDI). While EDI is the most common communication tool to facilitate the purchasing process by managing the inventory status, speed up ordering process, issuing documents such as shipping notice and invoice, managing material movement process. By using EDI, it can save a great deal of time and paperwork (Gattorna & Walters, 1996; Monczka et. al, 2009).

Through Internet, e-auctions allow suppliers to compete with each other. With e-auction, suppliers make the quotation in an Internet platform over a fixed time. Meanwhile, the price of the item will decreased during the bidding process. E-auctions could help the buying company to buy the items with lower price, get a large number of potential suppliers and make order-cycle times shorter (Hartley, Lane, & Hong, 2004).
E-purchasing could improve information flows between both parties in areas such as:

- transmission of the product specifications from buyer to supplier
- submission of a bid
- acceptance of the contract
- inspection and receipt of documents associated with the shipment
- accounting audits and submission of payment

3.3 Summary of the theoretical framework

### 3.1 Purchasing Process Model

#### 3.1.1 Determine specification

- **Quality specifications:**
  - specification by physical or chemical characteristics
  - specification by material and method of manufacture
  - specification by performance or function
  - specification by engineering drawing; testing and samples and supplier quality system.

- **Logistics specifications:**
  - quantities needed
  - place and time of delivery
  - physical conditions of the goods.

- **Maintenance specification:**
  - pre-order service, service from order to delivery
  - service during delivery and post-delivery service.

- **Legal and environment requirements:** product and production process should respect people’s health, safety and related environment legal.

- **Target Budget:** purchasing budget which covers a specified period of time and managers are authorized to spend money within specified amount.

#### 3.1.2 Select supplier

- **Recognize the need for supplier selection:**
- recognizing the requirements for evaluating
- selecting suppliers.

➤ **Identify key sourcing requirements:**
- deliver on time
- provide consistent quality
- gives a good price
- stable background
- provide good service back-up
- respect customers’ needs
- keep promises
- provide technical support.

➤ **Determine sourcing strategy:**
- single VS multiple supply sources
- short-term VS long-term purchase contracts
- domestic VS foreign suppliers
- close working relationship VS arm’s-length purchasing

➤ **Identify potential supply sources:**
- current supplier
- information database
- sales representatives
- exhibitions, trade journal
- Internet and internal source, etc.

➤ **Limit suppliers in selection pool:**
- preliminary financial risk analysis
- consider existing suppliers based on prior performance record and experience
- a preliminary survey in screening suppliers

➤ **Determine method of supplier evaluation and selection:**
- assessing the supplier-provided information
- supplier visits
- using existing suppliers preferred by buyers

➤ **Select supplier and reach agreement:**
- send request for quotation (RFQ)
- compare bids
- further risk analysis
### 3.1.3 Contracting

- **Price and term of delivery**
- **Payment terms**
- **Penalty clauses and warranty conditions**
- **Trade term**

### 3.1.4 Ordering

Including the serial number, date of issue, quantity and description of the ordered items, date of delivery required, shipping directions, price, terms of payment, the name and address of the supplier receiving the order and conditions.

### 3.1.5 Expediting and evaluation

- **Exception expediting**
- **Routine status check**
- **Advanced status check**

### 3.1.6 Follow-up and evaluation

Suppliers are evaluated based on effectiveness and efficiency, Evaluation criteria include:

- **Significance of the deal for the company**
- **Financial position**
- **Quality and process development**
- **Environmental policy**
- **Technological policy**
- **Technological status and know-how**
- **Corporate culture, work organization and management**
- **Purchasing process**
- **Manufacturing process**
- **Distribution process**
- **Customer service performance**
### 3.2 Purchasing Process Integration

#### 3.2.1 Internal integration

- **Sourcing Strategy**: execute portfolio analysis: Critical; Routine; Leverage; Bottleneck.
- **E-systems**: MRP-DRP, ERP, collaboration and advanced sourcing analytics.

#### 3.2.2 External integration

- **Supplier evaluation and supplier partnership**: score suppliers according to Quality, Service, Price and classify them into Unacceptable suppliers, Acceptable suppliers, Good suppliers, Preferred suppliers and Exceptional suppliers. Four business relationships between purchasers and suppliers: Procurement in direct competition; Procurement through contracts in direct competition; Procurement through operative contracts; Procurement through strategic contracts.
- **E-purchasing**: includes aspects such as electronic marketplaces and electronic auctions.

Figure 3.8 summary of the theoretical framework
4 Empirical material

There is a short introduction of three companies in this chapter, followed by empirical material. All of the empirical materials described here were collected through interview by telephone. The description of each empirical material corresponds to the purchasing process model: determine specification, select supplier, contracting, ordering, expediting & evaluation, follow-up and evaluation.

A structured questionnaire (See Appendix A) was sent to interviewees and provides the general information needed.

4.1 Foreign-funded company-Nypro Plastic & Molding (Suzhou) Co., Ltd

Company profile

Nypro group is the leading global solutions provider in the field of manufactured precision plastic products. There are 44 branches in 15 countries, employing over 17,000 people. Sales for the most recent fiscal year were approximately $1.1 billion.

As a vertically integrated leader in plastics manufacturing, Nypro offers virtually all aspects of the plastics production processes required by the world's leading companies, including product design and development, mold making and design, precision injection molding, advanced decoration, assembly, contract manufacturing for full-finished and shipped goods, supply chain management and diversity supply. There are eight industries in Nypro group. It includes Healthcare, Consumer & Electronics, Packaging, Tool Making, Strategic Business, Molding Assembly Operations, Product development and sales center.

Nypro's mission is "to serve our customers with integrated, innovative and environmentally sound manufacturing solutions, built on Nypro's global plastics leadership, creating value for our team members, communities and shareholders."
The research company chosen is Nypro Plastic & Molding (Suzhou) Co., Ltd, a subsidiary of Nypro group in the field Consumer & Electronics. It is a foreign-funded company. Its customer list includes many world-level largest companies, such as Nokia, Motorola, HP, Dell, Logitech, Palm and so on. Figure 4.1 shows the company structure of Nypro (www.Nypro.com, 2011).

![Nypro Group Structure](www.Nypro.com, 2011)

**4.1.1 Determine specification**

Before a project kicks off, customer will send different requirements to Nypro. Some of the requirements are the specifications of finished goods (FG). Buyers are responsible for purchasing all kinds of materials, for example: raw material, semi-finished products, outsourcing products and so on. It is necessary for buyers to identify the specifications of material according to customers’ specifications.

Buyers pay more attention to the quality of product. Nypro mainly produce the plastics of mobile phone, laptop and so on. The requirements of components’ standards are very high. Product samples will be submitted to Nypro after RFQ. Before selecting suppliers, buyer will ask supplier to provide a file named “Sample Specification for Approval” in triplicate. The product inspectors and engineers will...
sign on it.

Before a project starts, forecast will be sent to Nypro from its customers. From the forecast, buyers can get to know the quantities demanded in the following period. It is very important for them to calculate the target budget. Buyers in Nypro will negotiate the unit price of material with suppliers according to the target budget. Sometimes the material can be purchased in other cities or foreign countries, so the delivery terminal and delivery time are very important. They will take these kinds of factors into target budget.

Some of the products of Nypro are exported to the foreign country. According to customer requirements, the products should consist with the legal or environment policies. For example, European Union requires that all of the electronic products should respect to ROHS agreement which is an environment regulation.

**4.1.2 Select supplier**

The sourcing strategy of Nypro varies for different products. The elements of formulating sourcing strategy as follows:

- The number of suppliers who produce the similar materials. If there are many suppliers producing the material, it is not necessary to find multiple suppliers. In other words, if there are a few suppliers who produce the material, buyer has to develop more suppliers in case there is shortage of material.

- The historical performance record of material quality. If the supplier cannot produce the products with good condition, buyer will turn to other suppliers. It will also affect the long-term corporation of each other.

- Customer designates suppliers. Sometimes the customer designates a certain supplier. Nypro has to buy the material from this supplier no matter where this supplier is from.
The criteria of supplier selection vary. They are: quality, price, location, on time delivery, production capacity, production scale, quantity, specific certificates and so on.

For most materials, buyer will send the request for quotation (RFQ) to three or more suppliers, the suppliers should be in Approved Vendor List (AVL). Buyer will choose some of them to produce the material. Price, delivery term, payment term will be taken into first consideration. Buyer will negotiate these items with suppliers one by one until these items are up to in ideal level. Comparing these items of different suppliers, buyers will select the appropriate suppliers which can provide the lowest price with same payment term and delivery term. Then the buyers will ask the suppliers to provide sample again and again, until the sample is approved.

Nypro will find new suppliers through internet, colleague introduction, and exhibition. Sometimes, the supplier will contact the buyer and introduce themselves. For the new suppliers who have not cooperated with each other, buyer and staff in quality department will visit the supplier’s company to get the direct information. The information covers: production capacity, certificate, manufacturing process, purchasing process, delivery process, environment, suppliers’ attitude. They will also ask the supplier to provide some old samples to check out. If they are satisfied with the supplier, buyer will send RFQ to this supplier.

4.1.3 Contracting

There are mainly four contracts related to purchasing in Nypro: purchasing contract, VMI contract, confidentiality agreement, and rebate agreement.

In order to keep secret, buyer will ask supplier to sign confidentiality agreement and purchasing contract with supplier.

Purchasing contract is the most important type of contracts. It includes normal clauses, such as delivery term, price, material description, and other specifications. There are punishment clauses in case that the supplier cannot deliver the right goods with right quantity on time, or the quality of material cannot meet the requirement.
VMI contract and rebate contract are not applicable to every supplier. Buyer or purchasing manager has to negotiate it with suppliers. A few suppliers sign VMI agreement and rebate contract.

Besides, Nypro has its own legal advisor. The content of contract will be revised by legal advisor before sending to suppliers.

4.1.4 Ordering

The ordering process of Nypro is quite complicated. The interviewee sent us an official ordering process of Nypro. Figure 4.2 shows the ordering process of direct material. Nypro adopts MRP system. After running MRP system, material controller will provide information to buyer, these information will include: what kind of material and how many need to be bought, when will the material should be delivered to warehouse. The direct material purchasing order should be reviewed by material manager and financial manager. For indirect material, purchasing order needs to be reviewed by material manager, financial manager and general manager. Figure 4.3 shows the indirect material ordering process in Nypro. Then the buyer can send the purchasing order to supplier and wait for supplier confirmation.

New PO Process Flow Chart - DM

![New PO Process Flow Chart - DM](image)

Figure 4.2 Nypro direct material purchasing order process (Nypro, 2011)
4.1.5 Expediting and evaluation

For the supplier who has perfect historical record, buyer will not pay more attention to them after supplier confirms the purchasing order to the buyer.

For the supplier who did not perform well, buyer will track the material status. Buyer has to contact the supplier frequently until the material was delivered to warehouse. If the material is not in good condition, buyer has to inform the supplier to get the material back or ask supplier to come to Nypro’s factory for sorting.

4.1.6 Follow-up and evaluation

Buyer and staff in quality department will fill a form to evaluate suppliers’ performance quarterly. There will be an annual performance evaluation form for them to fill. They will give score to the supplier. For the suppliers who get low score, Nypro will not use these suppliers or ask buyer and staff in quality department to go
to the suppliers’ factory for audit again. For suppliers who get high score, Nypro will try to improve the cooperation with them. They will get more PO in future.

The performance evaluation mainly includes: quality, on time delivery (OTD), customer service, price and so on.

4.2 State-controlling company- Qingdao Haier Parts Purchasing Co.

Company profile

Haier starts as a refrigerator company in 1984 and after 26 years of development it has become the world's biggest refrigerator manufacturer and also diversified to be the world's No.1 brand of consumer appliances operating in more than 160 countries. It is a state-controlling company. The turnover has reached $20.65 billion in 2010. It has established 61 trading companies (19 outside of China), 8 design centers (5 outside of China), 29 manufacturing facilities (24 outside of China) and 16 industrial parks (4 outside of China) so far. It was selected as one of the world's Top 10 innovative companies issued by USA Newsweek.

Haier's businesses include the following six units:

- Brown Goods: digital and personal product such as personal computers and MP3 player.
- Client Solution Business: central air conditioning systems, integrated kitchens, intelligent home appliances, medical freezers, U-Home solutions and so on.
- Equipment Components Manufacturing Group: home appliances, electronic, telecommunication, and automobile manufacturing covering sectors such as molding, plastic injection, sheet metal pressing, computer boards, etc.
- Retailing: Haier has established its own home appliance sales channels.
Finance: Haier enters also into the finance and real estate businesses.

Haier aims to satisfy the personalized needs of users with large-scale customization rather than massive production with the help of internet in a short time. In future developments, Haier will place emphasis on more advanced technology, try to control the say on patent standards, further improve global marketing networks and create more user resources.

Haier has a business unit for purchasing all related parts, and this function is executed by Qingdao Haier parts purchasing Co., Ltd. This company provides purchasing for the group and also provides purchasing outsourcing service for other companies such as parts in terms of plastic, electrical appliances, machinery, etc. ([www.haier.cn](http://www.haier.cn), 2011)

### 4.2.1 Determine specification

The company has target budget, which comes from systematic cost analysis, for bidding. Also they have decided specific specification for suppliers as below:

- The potential suppliers (bidders) must have business license and the registered capital should be over USD$ 76,250.
- The potential suppliers (bidders) must have a good management system and have at least 2 professional management staffs with bachelor degree or above.
- To be chosen as the final supplier, the company must have fulfilled ISO9000 quality certification or can achieve that goal in three months.
- The potential suppliers (bidders) must have advanced office network system which can have electrical data exchange with Haier's logistics management system.
- The supplier who has cooperated with the electrical appliance industry is preferred.

In addition, in order to reduce the number of its suppliers and enhance the quality of its suppliers, Haier requests all the potential suppliers must pay USD$ 3,050 as
deposit for bidding. The deposit of chosen final supplier will be transferred to deposit for ensuring the implementation of contract. The suppliers who don’t get the bid successfully will have their deposit back after 30 days without interest.

4.2.2 Selecting suppliers

Sourcing strategy
Haier has focused on building strong global supply chain network system when reengineering their internal process. Accordingly, they have decided tailored sourcing strategies to achieve their goal.

First, Haier optimized supplier network by reducing the quantity of suppliers and keep only the best ones. They cut the number from 2336 to 978 suppliers.

Second, Haier expanded the proportion of international suppliers. At present the proportion of international suppliers has reached 67.5%, 20% higher by comparing with the number before their business process re-engineering (BPR). There are 44 out of Fortune 500 companies have become the suppliers of Haier.

Third, Haier also established a supply chain relationship with 19 local international suppliers who have already or be prepared to enter the Haier industrial park in Qingdao.

Criterion
Haier has solid supplier selection criterion for ensuring high quality products. By using Haier supplier evaluation report, specific grading standards are given to different suppliers. They are evaluated with a full grade of 100 and the standards include, to name just a few:

- Design control
- Document control
- Purchasing and warehouse
- Product identification and traceability
- Procedure control
- Inspection and Testing
- Internal quality audit
- Training

Besides all the criterion listed above, financial strength, competitive price and e-system capability are among the key aspects of selection decisions.

4.2.3 Contracting

There are various purchasing contracts signed with suppliers in Haier: purchasing contract, VMI contract, Confidentiality agreements, etc.

Standard procurement contracts are signed between all the suppliers and Haier. It includes price, material description, quantity, delivery term, etc. If the supplier fails to fulfill the contract, Haier will deduct the account payable directly from the deposit.

Besides, over 80% of suppliers have signed VMI contracts with Haier. It reduces both parties’ inventory and realizes the information sharing between Haier and its suppliers. Confidentiality agreements to keep secret and prevent from unfair competition, and as well as additional quality agreements for suppliers responsibility are also adopted in Haier.

4.2.4 Ordering

Every month, Haier will receive nearly 6000 purchasing orders of finish goods (FG). The variety of material which has to be purchased is up to 150 thousand.

Figure 4.4 shows the ordering process of Haier. Dealers will enter the purchasing order of finished goods (FG) into ERP system. The system will transform the production order to production department automatically. Meanwhile, inventory control center will identify the components of FG, and transform PO for shortage material directly. Buyer and supplier will receive the PO separately at the same time. Buyer will confirm the PO with suppliers. Supplier will check the demand information of Haier through BBP (Best Business Practice) system which is used for
material purchasing. After that supplier will download PO from BBP system and confirm it with buyer. Supplier will deliver the material to the warehouse of Haier. The lead time (L/T) of this ordering process is 1 day.

Figure 4.4 Ordering process of Haier (Haier, 2011)

### 4.2.5 Expediting and evaluation

As mentioned above, nearly 80% of Haier’s suppliers sign VMI agreements with Haier. The buyers just need to focus on the suppliers who have not signed VMI agreements. Buyers will check the material condition after suppliers confirm the purchasing orders (PO) until the material are tested by quality inspectors.

### 4.2.6 Follow-up and evaluation

There is an annual supplier evaluation in Haier. The evaluation areas are mainly about design ability, document and data control, procurement and storage, product identification and traceability, production process control, inspection and testing, internal quality audit, training, etc. Haier will develop the suppliers who get high scores (>90), and remove the supplier from approved vendor list (AVL) whose score is below 70.
According to annual report of Haier (2009), the total purchasing amount of top 5 suppliers was USD$ 2.7 billion which accounted for 61.50% of total purchasing amount. Haier keeps a good relationship with supplier through VMI management. VMI management helps Haier strengths the partnership with suppliers. Meanwhile, through implementation of VMI, Haier and suppliers can achieve "win-win."

4.3 Private-owned company - Gao Xiang Knitting Weaving (Zhangjiagang) Co., Ltd.

Company profile

It is a private-owned company built in 2001 in Zhangjiagang, Jiangsu Province. It is a manufacturing enterprise to produce knitted fabric. The company's mission is "To provide good quality of goods to our customers, to develop our company with a good reputation." There are approximate 100 staffs in the company. The average sales revenue in recently financial years was nearly $5 million per year. The customers of the company are around the world, mainly in EU, USA and Other countries in Asia. The average amount of exporting was around $2 million per year.

There are diversified knitted fabric products, such as double series (air layer, double mesh, cotton cloth and so on), rib series (French rib, pumping needle rib and so on), flannel series (Single cashmere, terry cloth .etc).

The company's mission is "To provide good quality of goods to our customers, to develop our company with a good reputation." ([Http://Gao Xiangzhengfang.cn.alibaba.com](Http://Gao Xiangzhengfang.cn.alibaba.com), 2011)

4.3.1 Determine specification

The company focuses on whether or not the products can meet the final customer’s requirements. Therefore the buyer needs to assure that the supplier can supply the material required. Samples and necessary testing are required. Quality certifications are required to prove the qualification of the suppliers. They require their suppliers to fulfill the requirement of ISO 9000 and ISO 14000 standards of the textile industry.
As textile is a low-ended industry, the company focuses mainly on price. They have target budget to ensure the profit.

### 4.3.2 Select supplier

The company chooses domestic suppliers mainly based on factor of price. The buyer usually chooses a few suppliers and asks them to quote. The potential supplier list comes from B2B network, search engine or by recommendation of colleagues.

If the purchasing price is too high, they will not do the business. Also the terms of payment decides on the choice of suppliers. The buyer chooses the suppliers who provide favorable payment terms. Besides, certificates, quality and the factory scope of the suppliers are the major elements that the buyer considers in choosing suppliers. For example, firstly the supplier must have necessary qualification such as business license, tax registration certificate. Quality certificates are required if the customer asked.

If the price is acceptable, the suppliers are required to send samples for testing the quality. Sometimes the quality is to be further assured by a factory visit in addition to testing samples. Once the quality is confirmed to meet the company’s requirements, the testing results are compared so that the buyer will decide on the final supplier. The samples are required to be delivered for a few times, they are checked and compared repetitively with the first batch of sample to ensure the stability of the product. If there is no significant discrepancy for different batches of samples, the supplier will move on to the next step by signing contracts.

### 4.3.3 Contracting

The buyer attaches great importance in including quality standards in the purchasing contract. In addition, unit price, quantity, terms of payment, delivery terms, etc are also key elements. Penalty and warranty clauses are included in the contracts as well as an important part.
4.3.4 Ordering

The ordering quantity is decided directly by the customers’ requirements. The knitting weaving company doesn’t employ MRP or prepare safety stock. The delivery time depends on the suppliers’ schedule and capacity.

4.3.5 Expediting and evaluation

The buyer contacts the suppliers a few days earlier than the promised delivery time. Once suppliers finish manufacturing, the company arranges quality inspection people to the supplier’s site to inspect quality. And then transportation is arranged. The company sometimes chooses their designated forwarder to ensure on-time delivery. However, late delivery is one of the major problems. And the company needs to expedite almost all the orders. Sometimes new suppliers promise to deliver on time but missed the deadline, and this causes a lot of problem in committing to the requirements of the company’s customers.

4.3.6 Follow-up and evaluation

The suppliers invite the company purchasing staff for dinner or by greeting them on holidays, but the buyer does not manage relationship with their suppliers actively. If the suppliers cannot deliver on time for long time, they are “blacklisted” in Gao Xiang. There is no formal system of supplier evaluation in the company. Quality issue is the major problem that the buyer faces.
5 Analysis-current situation in some Chinese manufacturing companies

This chapter intends to answer RQ1 according to the analysis of the empirical evidence collected from three case companies is conducted. Firstly, within-case analysis is applied to analyze cases individually. Secondly, cross-case analysis method is used to reveal similarities and differences among the cases with the developed theoretical framework. Meanwhile, it reveals the current situation in development of purchasing process integration in Chinese manufacturing industry.

The following Figure 5.1 is empirical analysis mode. Firstly, within-case analysis (I.) is used. Each case is analyzed respectively for an explanation of the phenomenon with the help of theoretical prepositions. Secondly, cross-case analysis (II.) is conducted. It allows revealing similarities and differences among the cases. Cross-case synthesis, which is specifically related to two or more cases, is combined with within-case in this thesis to enhance validity and compare companies of different ownership in China.

Research question | Theory | Empirical Evidence
--- | --- | ---
What is the current situation of purchasing process and purchasing process integration for some manufacturers of different ownerships in China? | 3.1.1 Determine specification | Foreign-funded company: Nypro
3.1.2 Select supplier | 3.1.3 Contracting | State-controlling company: Haier
3.1.4 Ordering | 3.1.5 Expediting and evaluation | Private-owned company: Gao Xiang
3.1.6 Follow-up and evaluation

Figure 5.1 Empirical analysis
5.1 Within-case Analysis

5.1.1 Foreign-funded company-Nypro Plastic & Molding (Suzhou) Co., Ltd

Determine Specification
Nypro does very well in this process. The specifications Nypro taken into consideration include all aspects mentioned by Van Weele (2010), which are quality specification, logistics specification, maintenance specification, legal and environment specification.

Select supplier
Based on Monczka et. al, (2009), there are seven steps of supplier selection: recognize the need for supplier selection; identify key sourcing requirements; determining sourcing strategy; identify potential supplier source; limit supplier in selection pool; determine method of supplier evaluation and selection; select supplier and reach agreement, The method of Nypro choosing appropriate supplier is almost the same as Monczka described.

According to Nypro regulation, buyer should ask three or more supplier to make quotations. On one hand, through comparing the price, quality and so on, buyer could choose the most appropriate supplier. This is a good method to adopt, but buyers have to spend a lot of time on price negotiation. On the other hand, buyer will ask many suppliers to make quotation for one part. Buyers control the whole bidding process while suppliers do not know each other’s price. They cannot bid for material in a fair way. It is prone to a black-box operation.

Contract
The content of Nypro’s purchasing contract includes all issues described by Van Weele (2010). Purchasing contract and confidentiality agreement are mandatory if the supplier want to make deal with Nypro.

Nypro holds a rigorous view to contract. It has its legal advisor to check the contract,
so in this part there are no obstacles about content of contracts.

Jonsson (2008) depicts other kinds of contracts. Nypro signs some of them with its suppliers, such as rebate contract. There are also other different kinds of contracts Johsson has not mentioned, for example, VMI agreement. These contracts are based on the specific business condition of company. In this section, there are no obstacles.

Ordering

In this part, Nypro follows the regular ordering process depicted by Baily et al. (2008). Nypro adopt MRP system to arrange the material and production. According to the purchasing order process of Nypro which are showed in figure 4.1 and figure 4.2, the ordering processes are very meticulous. The processes of direct material and indirect material are different. The requirements of two kinds of material are different.

Expediting and evaluation

According to Van Weele (2010), there are three types of expediting: exception expediting; routine status check and advanced status check. Nypro adopts routine status check to ensure to receive the material in time.

Furthermore it is a good way for buyers in Nypro to understand the historical performance record of suppliers. They take different measures to different suppliers to ensure to receive the right material with right quantity in right time. In this process, there is no obstacle.

Follow-up and evaluation

The supplier evaluation content is similar as Monczka, et al. (2009) mentioned. In Nypro, buyer and people in quality department evaluate supplier performance quarterly, and give scores on the basis of performance. They remove the suppliers who get low score. Van Weele (2010) argues that company should pay more attention on doing business with the vendors who get high performance rating scores. Nypro improves the relationship with suppliers who get high score. However, it seems that Nypro takes little measures to enhance the cooperation between Nypro and supplier. Nypro just gives more PO to them.
Another problem is that the buyers in Nypro have not realized the importance of enhancing the relationship with supplier. They do not know how to manage the supplier. They just know to enhance the relationship with suppliers who get high scores.

5.1.2 State-controlling company- Qingdao Haier Parts Purchasing Co.

Determine Specification
Haier starts purchasing process by considering customer requirements first and focusing on achieving customer satisfaction. Their purchase order is comprised of quality specification, logistics specifications, legal and environment requirements and target budget. All necessary specification has been included in this part according to Van Weele (2010).

According to empirical material, Haier plays very well in this part. Besides, according to its own condition, Haier formulates its own specifications such as deposit for bidding. It is a good measure for Haier to reduce the amount of suppliers. Meanwhile, it can help Haier to optimize the quality of suppliers.

Select supplier
Haier has very strict rules in choosing suppliers. All the suppliers are scored according to a standard form, information about supplier business record are kept and easily tracked for future selection usage, which means the sourcing requirement are clear and all the suppliers have gone through the same process of selection in a fair way.

The company also has implemented good sourcing strategy. By keeping current competitive suppliers, increasing the proportion of international suppliers and as well as developing new local multinational suppliers, multiple supplier sources are achieved. Furthermore, Haier limits the supplier pool efficiently by reducing the supplier quantity and keep the most competent ones. Finally, Haier chooses the supplier which has the best bidding price if other factors are identical. The selection
process in Haier is very clear and matches the 7 steps mentioned by Monczka et. al. (2009), therefore, it is not problematic at all.

**Contracting**
Haier has done a good job in contracting part as well. According to Van Weele (2010), price, term of delivery, payment terms, penalty clauses and warranty conditions are necessary and contract should subject to the legal systems. By setting standard procurement contracts with suppliers, Haier controls the legal risks efficiently. Penalty clauses such as confidentiality agreements and additional quality agreements for supplier responsibility and deposits further reduce the risk that Haier may incur in case the supplier fails to fulfill the contract. In addition, Haier has extra VMI contracts, which are widespread among most of Haier’s suppliers.

**Ordering**
Ordering process is terrific in Haier group. As there are a lot of suppliers and a large amount of material need to be purchased, so it should be very hard for Haier to manage the ordering process.

The ordering process is similar as mentioned by Baily et al. (2008). It integrates the supplier, buyer, warehouse, dealer, production department together through ERP and BBP. It make the lead time (L/T) from dealer to supplier more efficient. As the ERP system transforms the PO automatically, so workload of buyer is reduced, the relevant cost is decreased.

**Expediting and evaluation**
Nearly 80% suppliers of Haier have signed VMI agreement. Buyers do not need to track the material any more to those supplier. Buyers just focus on the other 20% suppliers. For these 20% suppliers, Haier employs routine status check method which mentioned by Van Weele (2010).

Meanwhile, VMI helps Haier to achieve the goals of JIT purchasing raw material and JIT on raw material distribution. After suppliers receive PO, they will deliver the right good at right time. The relevant cost of inventory is decreased.
**Follow-up and evaluation**

Haier follows the supplier evaluation content depicted by Monczka, et al.(2009). The range of supplier performance evaluation is comprehensive. It includes many aspects. High score means Haier plans to take priority to develop the relationship, which is similar to what Van Weele (2010) referred. However, no matter what score the suppliers get, suppliers still have to bid for the material through internet to get PO. It means there is no function of supplier performance evaluation, suppliers had to bid on Internet, and the supplier whose price is lowest will get the PO.

As mentioned in 4.2.6, the total purchasing amount of top 5 suppliers was USD $2.7 billion which accounted for 61.50% of total purchasing amount. It seems that there are no effective measures to manage these suppliers except VMI agreement. In other words, Haier has strategic contracts with almost all suppliers without classification.

**5.1.3 Private-owned company-Gao Xiang Knitting Weaving (Zhangjiagang) Co., Ltd.**

*Determine Specification*

The specification in Gao Xiang is acceptable. The company focuses on meeting the final customer’s requirements (Van Mossel, H.-J., Van der Valk, W., 2008) and all the important specifications mentioned by Van Weele (2010) has been included, such as quality specification, legal and environment specification. Specifically, ISO9000 and ISO 14000 standards of the textile industry are required for the suppliers if the final customer requests. Besides necessary logistics specifications such as quantity and delivery time, the company also has a target budget to ensure the profit.

*Select supplier*

The company identifies key sourcing requirements such as quality and capacity. In addition, they have multiple potential supply sources coming from both colleagues and B2B network. However, Gao Xiang misses a few steps as listed in Figure 3.3 by comparing with Monczka et. al, (2009). Therefore, this process is found very problematic when comparing with the theory. It can be summarized as below:
➢ Lack of sourcing strategy
After interviewing the buyer, it is found that the company has very little knowledge about sourcing strategy. Though the company search and do business with mainly local companies, their decision is on the basis of price instead of a long-term development.

➢ Lack of efficient criterion in limiting suppliers in selection pool
The company visits the suppliers’ factory to inspect the quality standards. However, auditing financial status is neglected. In addition, manufacturing capacity of new suppliers is a huge obstacle for Gao Xiang and it affects committed delivery severely. Therefore, this sub-process of selection needs improvement.

**Contracting**
Gao Xiang and its suppliers will sign purchasing contract after negotiating. Important aspects such as penalty and warranty, price and terms of payment (Van Weele, 2010) are specified in the contract. Since this is a low-end industry, suppliers are mainly in the surrounding local area. Therefore, there is no need to include trade terms. It is found the contracting process is satisfied.

**Ordering**
Instead of adopting advanced order quantity calculation method such as EOQ or MRP (Baily et al., 2008), the order quantity in this company, without any scientific systematic calculation, seems too random. The order quantity bases on the customers’ order directly. Manual calculation makes the ordering process rough and affects optimization of inventory. Therefore, this process is an enormous obstacle.

**Expediting and evaluation**
During the interview we found the biggest obstacle for Gao Xiang is late delivery. The company adopts a method of routine status check (Van Weele, 2010) to ensure delivery. The suppliers are contacted a few days earlier than the promised delivery time. The expediting process in Gao Xiang is acceptable. However, late delivery may partly come from improper selection criterion for new suppliers, as mentioned above.
Follow-up and evaluation

As Jonsson (2008) suggests, supplier evaluation is necessary for considering the future corporation with suppliers. In Gao Xiang, however, this process is missing. Without supplier management and evaluation, for instance, in terms of financial position, process development, manufacturing process, customer service performance, it is more than difficult to select suppliers for future business. If the suppliers cannot deliver on time for long time, they are “blacklisted” in Gao Xiang. However, it is already too late. Therefore, a sufficient rating system as a basis for supplier partnership and cooperation is suggested here.

5.1.4 Summary of within-case analysis

According to within-case analysis, a lot of obstacles related to purchasing process are found in these three companies. Figure 5.2 shows the main obstacles found in these three companies according to within-case analysis.

Nypro, a foreign-funded company, has to improve its supplier selection process and make it fair. Meanwhile, in supplier relationship management and supplier performance evaluation aspects, Nypro has to continue improving them.

Haier, a state-controlling company, performs very well. Through combining the tradition process described in theory and its own situation, it formulates its purchasing process. In terms of determining specification, a barrier is built for qualified suppliers. Haier also has to improve its ability to manage supplier and function of supplier performance evaluation.

Gao Xiang, a private-owned company, has to improve its purchasing process. It lacks sourcing strategy and supplier selection criteria. Because of lack of E-system, the whole process including required quantity, required delivery date are controlled by buyer are operated by buyer manually. Gao Xiang also has to takes more measure to enhance the relationship with suppliers and evaluate supplier performance.
<table>
<thead>
<tr>
<th>Company</th>
<th>Nypro (foreign-funded companies)</th>
<th>Haier (state-controlling company)</th>
<th>Gao Xiang (private-owned company)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determine Specification</td>
<td>No obstacle</td>
<td>No obstacle</td>
<td>No obstacle</td>
</tr>
<tr>
<td>Select Supplier</td>
<td>➢ Buyers operate the whole auction process so it is not transparent for suppliers.</td>
<td>No obstacle</td>
<td>➢ Lack of sourcing strategy; Lack of auditing financial status and manufacturing capacity of new suppliers.</td>
</tr>
<tr>
<td>Contracting</td>
<td>No obstacle</td>
<td>No obstacle</td>
<td>No obstacle</td>
</tr>
<tr>
<td>Ordering</td>
<td>No obstacle</td>
<td>No obstacle</td>
<td>➢ The order quantity is calculated manually, without any scientific systematic calculation</td>
</tr>
<tr>
<td>Expediting and evaluation</td>
<td>No obstacle</td>
<td>No obstacle</td>
<td>➢ Late delivery is common although they have asked expedition frequently.</td>
</tr>
<tr>
<td>Follow-up and evaluation</td>
<td>➢ Little measures to enhance corporation with suppliers who get high score.</td>
<td>➢ Obstacles on managing suppliers.</td>
<td>➢ Without supplier management and evaluation</td>
</tr>
<tr>
<td></td>
<td>➢ How to manage supplier</td>
<td>➢ Have strategic contracts with almost all suppliers without classification.</td>
<td></td>
</tr>
</tbody>
</table>

Figure 5.2 Within-case analysis
### 5.2 Cross-Case Analysis

Figure 5.3 shows the comparison among Nypro (foreign-funded company), Haier (state-controlling company) and Gao Xiang (private-owned company). "Yes" means that the company has taken the items into consideration. On the contrary, "no" means that the company has not taken relevant items into consideration. Through comparing all the companies, it is easy to find that Nypro and Haier do very well in their purchasing process, while Gao Xiang has to make more efforts to improve its purchasing process.

<table>
<thead>
<tr>
<th>Company</th>
<th>Nypro (foreign-funded company)</th>
<th>Haier (state-controlling company)</th>
<th>Gao Xiang (private-owned company)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Determine Specification</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>quality specifications</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>the logistics specifications</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>maintenance specification</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>legal and environment requirements</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>a target budget</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Select Supplier</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recognize the need for supplier selection</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Identify key sourcing requirements</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Determine sourcing strategy</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Identify potential supply sources</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Limit suppliers in selection pool</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Determine method of supplier evaluation and selection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Financial strength</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>- Production capacity</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>- Quality control and assurance</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>- Research and development ability</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>- On-time delivery</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>- Purchasing expertise</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>- Price/cost control and document</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
All of these three companies played well in realm of determining specification. In this stage, they all think more about quality specifications, the logistics specifications, maintenance specification, legal and environment requirements and target budget.

In terms of supplier selection, Nypro and Haier perform very well in all aspects. However, there is no sourcing strategy in Gao Xiang. Criteria of supplier selection are all contained by Nypro and Haier, so it is very comprehensive. There are some criteria when Gao Xiang selects suppliers but it does not pay attention on supplier financial strength and manufacturing capacity, so the supplier selection criteria is unilateral.

These three companies sign the relevant contracts based on their own situation. Nypro signs purchasing contract, VMI, rebate and confidentiality agreement with suppliers. Nypro has done this process further than Haier by having rebate agreement. Gao
Xiang only signs purchasing contract with its supplier.

Nypro and Haier have advanced ordering process. Nypro adopts MRP system while Haier employs ERP as its e-systems. They rely on e-systems to control the process. However, because of the financial constrains, Gao Xiang has to control the whole process manually.

Through comparing the expediting process, it is very obvious that both buyer of Nypro and Haier track the material situation through the supplier category which identified by their own method. But Gao Xiang has to expedite the material to almost all the purchasing orders. From this point, the method of tracking material for Gao Xiang is disadvantage. Haier and Nypro can receive the right goods on time. Although Gao Xiang tracks the material to almost all orders, late delivery often happened.

Nypro and Haier have their own supplier performance evaluation systems but they have not link it to supplier management. Comparing to Nypro and Haier, Gao Xiang has no supplier performance evaluation system, and does not take supplier management measures either.

5.3 Summary of within-case and cross-case analysis

All of these three companies take specifications into consideration. Before they select suppliers, they will consider the quality specifications, logistics specifications, maintenance specifications, legal and environment requirements, and a target budget. They will ask their supplier to provide samples until the samples are qualified. There are also certificate requirements like ISO and so on. Meanwhile, both of them have target budget to ensure profit.

Both of Nypro and Haier have sourcing strategy, but Gao Xiang does not formulate its sourcing strategy. All of these three companies’ sources of suppliers are almost the same. They search supplier information from B to B platform on internet, colleague introduction, exhibitions and so on. Haier has integrated its RFQ process with suppliers, so they select suppliers through bidding openly, while Nypro follows the
traditional way in selecting supplier. Buyers control the whole selection process, so it is not transparent for suppliers. Meanwhile, it takes a lot of time for buyers in Nypro in negotiating the price. Gao Xiang follows the simple way in choosing supplier, let along the integration in this process. Furthermore, Gao Xiang don’t have a sound selection criteria.

As the company’s scale of Gao Xiang and total purchasing amount is not very large, Gao Xiang just signs the ordinary purchasing contract with its suppliers. However, Haier and Nypro sign many kinds of contract and agreements with suppliers.

Both Nypro and Haier have their own e-systems which can help them to integrate all resources internally and externally. E-systems also can calculate information based on L/T and other things automatically. As financial constrains, material controllers in Gao Xiang have to calculate the quantity of requiring material and delivery date by themselves. It is manual work.

Nypro and Haier classify the supplier with their own judgments. Nypro expedites PO of suppliers whose performance records are not well. Haier expedites only 20% non-VMI supplier. Gao Xiang has to expedite almost all PO, but late delivery happened frequently.

Nypro and Haier evaluate the suppliers’ performance in a certain period, and take measures to manage suppliers. However, Gao Xiang does not have ideas to evaluate the supplier s’ performance. It does not have the measures to manager its suppliers.

<table>
<thead>
<tr>
<th>Company Process</th>
<th>Nypro (foreign-funded company)</th>
<th>Haier (state-controlling company)</th>
<th>Gao Xiang (private-owned company)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Determine Specification</strong></td>
<td>➢ Include of the content of all specifications</td>
<td>➢ Include of the content of all specifications</td>
<td>➢ Include of the content of all specifications</td>
</tr>
<tr>
<td><strong>Select Supplier</strong></td>
<td>➢ Have its sourcing strategy ➢ Sources of suppliers are similar</td>
<td>➢ Have its sourcing strategy ➢ Sources of suppliers are</td>
<td>➢ Have no sourcing strategy ➢ Sources of suppliers are</td>
</tr>
<tr>
<td>Contracting</td>
<td>Ordering</td>
<td>Expediting and evaluation</td>
<td>Follow-up and evaluation</td>
</tr>
<tr>
<td>-------------</td>
<td>----------</td>
<td>---------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>- The tradition way for selecting supplier. The selection process is not transparent. Have not integrated it with suppliers. - Time-consuming for negotiation the price.</td>
<td>- A lot of kinds of contracts and agreements</td>
<td>- Nypro has adopted MRP</td>
<td>- Evaluation and score the suppliers - It lacks of linking performance evaluation with partnership as well as lacks of focusing on high performance suppliers, although it has some measures to manager its suppliers.</td>
</tr>
<tr>
<td>similar</td>
<td>similar</td>
<td>similar</td>
<td>similar</td>
</tr>
<tr>
<td>- Integrate its RFQ process with suppliers. Selects suppliers through bidding openly</td>
<td>- A lot of kinds of contracts and agreements</td>
<td>- Haier has adopted ERP, SAP, JIT and the order quantity is optimized</td>
<td>- Evaluation and score the suppliers - It has measures to manager its suppliers but lacks of linking the performance evaluation with its partnership with suppliers and has strategic contracts with almost all suppliers without classification</td>
</tr>
<tr>
<td>similar</td>
<td>The ordinary purchasing contract</td>
<td>Gao Xiang is based on manual calculation of order quantity, lack of e-systems</td>
<td>No supplier evaluation system No supplier partnership concept, so there are no measures to manager its suppliers.</td>
</tr>
</tbody>
</table>

Figure 5.4 summary of current situation in purchasing process integration of three companies
From the above figure 5.4, it could be obviously found that Nypro and Haier perform very well in their purchasing process integration, while Gao Xiang do have an simple purchasing process, let along the purchasing process integration. All the potential obstacles have been marked with italic. This result is almost the same as the survey conducted by Chinese Logistics and Purchasing Association which is mentioned in introduction chapter.
6 Suggestions- purchasing integration in some Chinese manufacturing companies

In this Chapter, through combining the theories in 3.2 with analysis result in Chapter 5, suggestions for purchasing process integration (RQ2) are proposed in two aspects: internal and external. These suggestions are corresponding to the obstacles found in chapter 5.

In this chapter, it is planned to answer the research question 2. Figure 6.1 shows the structure of this Chapter. It adopts theory in 3.2. In order to improve purchasing process integration, suggestions will be given to tackle the obstacles which are mentioned in chapter 5.

Figure 6.1 structure of this section

6.1 Purchasing process integration in Nypro

Internal
According to the within-case analysis and cross case analysis, Nypro asks three or more suppliers to quote the material. It is the traditional way in sourcing areas. Suppliers do not know each other, buyer operate the whole process. The bidding price is not transparent, so black-box may be happened. Meanwhile, the price negotiation process is time-consuming.

According to Hartley, Lane, & Hong (2004) and Monczka et al. (2009), e-auction is a platform for supplier making quotation. It not only can help the company to purchase the material with lower price, but also make the whole sourcing process more transparent. Thereby from the internal perspective, Nypro could consider to set up an e-auction platform like Haier’s model.

It needs the support of different departments: IT, financial, purchasing and so on. It is an electronic platform, the support from IT department is necessary. Meanwhile, building a new platform may cost a lot of money, so people in finance department also should calculate the cost and so on. Optimizing the number of suppliers, move the suppliers who perform not well away, and classifying the suppliers according to the areas of their products, it is a very hard work.

**External**

Based on prior analysis, it is recommended that Nypro links the performance evaluation with its supplier partnership. Nypro does well in scoring the suppliers, thereby the company is able to classify their suppliers, according to Leenders et al. (2001), into five categories: Unacceptable suppliers, Acceptable suppliers, Good suppliers, Preferred suppliers, and Exceptional suppliers. Among which unacceptable suppliers should be wiped out in the suppliers’ pool while Exceptional suppliers are the top suppliers which exceeds both the operational and strategic needs of Nypro.

The cooperation and partnership should be progressive, from short-term to long-term, be adopted in this company with different categories of its suppliers. That is, with the help of Jonsson P. (2008)’s theory of four kinds of business relationships between purchasers and suppliers: Procurement in direct competition; Procurement through contracts in direct competition; Procurement through operative contracts;
Procurement through strategic contracts, the company should link the above categories with contracts and possibly need to reconsider the existing contracts and agreements based on the suppliers’ performance. Therefore, VMI contracts and rebate contracts may need to be given to the top suppliers or terminated with the current suppliers by reclassifying suppliers into the five categories.

In addition, it is suggested that Nypro adopts E-sourcing system for all the benefits that Monczka et. al. (2009) raised. As a subsidiary of foreign-funded enterprise, the company is able to afford the cost of E-auction applications and E-auction applications will, conversely, reduce the transaction costs in the long run. This can also help in increasing the transparency of quotation. Information exchange, demand forecast and the balance of supply and demand level could be enhanced by virtue of that. Also, the un-transparent bidding process which is controlled by buyers could be improved by E-auction. Furthermore, the cooperation with the exceptional suppliers requests the most extensive information exchange and could be improved further by efficient E-system applications.

The suggestions above can be demonstrated in following Figure 6.2:
6.2 Purchasing process integration in Haier

**Internal**

On the basis on the analysis in chapter 5, there is no apparent obstacle in Haier in internal aspect, which means Haier performs very well in its internal integration.

**External**

When seeing through cross-case analysis of Haier, it is found to be quite similar to Nypro in lack of linking the performance evaluation with its partnership with suppliers. However, Haier does a better job in having classified its supplier into different categories such as unacceptable or preferred ones. Thereby the suggestion to this company will skip the classification of falling suppliers into five categories - Unacceptable suppliers, Acceptable suppliers, Good suppliers, Preferred suppliers, and Exceptional suppliers. The main area will be focusing on connecting categories with supplier relationship.

What is the most problematic is that Haier classifies their suppliers but all the bidding process goes through procurement in direct competition, which is the lowest level of business partnership. It is believed, as similar to Nypro, the cooperation and partnership should be progressive for different categories of suppliers, from short-term to long-term. Procurement through contracts in direct competition; Procurement through operative contracts; Procurement through strategic contracts should be widely adopted in the relationship with suppliers instead of encouraging price competition. Besides, the company has signed VMI contracts with 80% of suppliers. It is suspected about the necessity of this: If almost all the suppliers are strategic partners, why should the bidding process repeats again and again with the only focus on price? Only the top suppliers should be given strategic contracts. And the unnecessary steps in bidding should be simplified.

The suggestion to Haier is shown in following figure 6.3.
6.3 Purchasing process integration in Gao Xiang

**Internal**

Chapter 5 analyzes the obstacles existing in Gao Xiang through two sides: within-case analysis and cross-case analysis. There are three big obstacles in Gao Xiang in internal. It lacks of sourcing strategy. As the financial constrains, It do not willing to pay the money to purchasing the e-systems. The criteria for supplier selection is not comprehensive.

Monczka et al. (2009) argue that sourcing strategy should be formulated by cross-functional team which includes professionals from different department. They should formulate the sourcing strategy together. So When Gao Xiang plans to formulate its sourcing strategy, the professionals from different department should get together and make sourcing strategy.

Van Weele (2010) describes that the content of sourcing strategy mainly includes five elements: category of the number of suppliers, the relationship development, contract duration, types of contract which need to be negotiated, the location of sourcing material. Gao Xiang could take these 5 elements into consideration. Portfolio analysis is the initial step in making the sourcing strategy. There are four aspects in Portfolio analysis: Critical; Routine; Leverage; Bottleneck (Monczka et al, 2009).
Cross-functional team formulates suitable sourcing strategy according to portfolio analysis. In chapter 3, figure 3.5 (Strategy portfolio matrix for category management) explains how to make sourcing strategy in detail. Critical aspect is used to improve competitiveness develop value-add service (Monczka et al, 2009). In this aspect, Gao Xiang should take the relationship between Gao Xiang and its suppliers into consideration, long-term or short-term relationship and what kind of measures should be adopted. For the routine aspect, the aim of it is to simplify the acquisitions process and control cost. How to achieve these goals? Professionals from different departments in Gao Xiang should think about it. For the leverage aspect, it is employed for saving of internal consumption. How to improve the commercial advantage? There are several ways which are mentioned in figure 3.5. The sourcing strategy team should formulate the sourcing strategy according to the company’s own condition. For the aspect of bottleneck, it is used to make sure the supply can go on continuity. Professionals have to identify the bottleneck of company. Overall, Figure 3.5 the model of strategy portfolio is a good model. Professional in Gao Xiang should combine it with company’s own situation together and making sourcing strategy.

Although the financial constrains, Gao Xiang do not willing to buy the software of MRP or ERP system, it is still recommend that Gao Xiang thinks about the MRP or ERP system. Like Shtub (2011) says, it could help the boss manage of financial, operation, purchasing, distribution, human resources and other internal aspects in business process. Gao Xiang can enhance the competitiveness of the organization in long-term.

The last obstacle is the supplier selection criteria. Financial position and manufacturing capacity of new suppliers are necessary. Gao Xiang should add them to its supplier selection criteria list. Financial position can help Gao Xiang know if the supplier is a well operation company and manufacturing capacity can help Gao Xiang avoid problems which will be happen in future. Buyers, people in financial department and quality department should audit supplier together according to the supplier selection criteria list.
External

Gao Xiang has no supplier evaluation or supplier rating at all. It is suggested this company setting up its own evaluating standards based on important factors such as quality, cost and delivery. It is necessary to follow up delivered orders and evaluate suppliers afterwards. Based on the recorded history of a specific supplier, the company would be able to judge if a supplier is unacceptable, good or exceptional. A possible prototype can be like this:

- Choose key factors that affect supplier performance, such as quality, delivery. Giving weights to each.

- Identify sub-factors that affect supplier performance under the category of quality, for example. Also giving weights to each.

- Scoring suppliers by choosing numbers from 1 to 5. The number 1 indicates unacceptable while 5 mean the highest, which is corresponding to five categories of Leenders et al. (2001).

- Calculate the weighted average score. List the range of i.e., an unacceptable, acceptable, exceptional supplier based on the conditions of suppliers.

Similarly Gao Xiang should also link performance evaluation with partnership. However, it is found that it is not possible for this company to set up different partnership with different contracts because of company size limits of both itself and its suppliers. Therefore it is suggested that this company classifying suppliers into three large categories: unacceptable; acceptable and good; preferred and exceptional suppliers. Again the unacceptable ones should be wiped out while the best ones should be given more priority and more contracts or ordering quantity.

However, it is very difficult to maintain good supplier relationship without efficient in-time communication and information exchange. Furthermore, it is noticed that late delivery is a huge barrier. Thereby it is strongly recommend Gao Xiang to have E-system applications such as EDI or SAP to improve the late delivery. Although it is
quite costly for a low-end textile industry, to expedite almost all the orders and facing the big challenge of having on-time delivery makes E-system application a good fit for Gao Xiang. By virtue of adopting EDI, the order delivery between key suppliers and Gao Xiang could be improved to a great extent.

The suggestions to Gao Xiang can be summarized in below Figure 6.4:

![Diagram](image)

Figure 6.4 Suggestions to Gao Xiang: Supplier evaluation and relationship with EDI

**6.4 Summary of suggestion on purchasing process integration**

Figure 6.5 concludes the suggestions on purchasing process integration of three companies. It is easy to find integration is a good way to solve the obstacles in purchasing process.
<table>
<thead>
<tr>
<th>Company</th>
<th>Purchasing process obstacles</th>
<th>Suggestion on integration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nypro</strong> <em>(foreign-funded company)</em></td>
<td>The quotation submitted is not transparent and it is time-consuming for negotiating the price.</td>
<td>Set up e-auction platform or buy e-auction software.. Many departments (IT, finance, purchasing, etc) should assist to build the e-auction platform.</td>
</tr>
<tr>
<td>Internal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>External</td>
<td>➢ Lack of linking performance evaluation with partnership</td>
<td>➢ Categorize suppliers</td>
</tr>
<tr>
<td></td>
<td>➢ Lack of focusing on high performance suppliers</td>
<td>➢ Reconsider partnership and set up long-term contract with high performance suppliers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>➢ Adopt E-system progressively according to partnership</td>
</tr>
<tr>
<td><strong>Haier</strong> <em>(state-controlling company)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal</td>
<td>No obstacle</td>
<td>No suggestion</td>
</tr>
<tr>
<td>External</td>
<td>➢ Lack of linking the performance evaluation with its partnership with suppliers</td>
<td>➢ Only the top suppliers should be given strategic contracts.</td>
</tr>
<tr>
<td></td>
<td>➢ Have strategic contracts with almost all suppliers without classification</td>
<td>➢ The company should strengthen partnership with suppliers with high performance instead of encouraging price competition.</td>
</tr>
<tr>
<td><strong>Gao Xiang</strong> <em>(private-owned company)</em></td>
<td>➢ Lack of sourcing strategy.</td>
<td>➢ Professional should get together and formulate sourcing strategy through combing the current situation and model of strategy portfolio.</td>
</tr>
<tr>
<td>Internal</td>
<td>➢ Gao Xiang is based on manual calculation of order quantity, lack of e-systems</td>
<td>➢ Add financial position and manufacturing capacity to its supplier selection criteria list. Buyers, people in financial department and quality</td>
</tr>
<tr>
<td>Department</td>
<td>Suggestions</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>-------------</td>
<td></td>
</tr>
</tbody>
</table>
| External   |  - No evaluation  
           |  - No supplier partnership concept  
           |  - Late delivery  
           |  - Set up scoring protocol and evaluation system  
           |  - Classify suppliers into three large categories  
           |  - The unacceptable ones should be wiped out while the best ones should be given more priority and more contracts or ordering quantity  
           |  - Link EDI with suppliers to improve late delivery  |

Figure 6.5 purchasing process integration suggestions
7 Conclusion and theory contribution

This chapter concludes the whole thesis and states the theoretical contribution of this thesis. Moreover, the possible criticism of this thesis is stated. This chapter also proposes the suggestions for future research.

7.1 Conclusion of findings

The purpose of this thesis is to improve the purchasing process for Chinese manufacturing companies. There are two research questions of this thesis.

RQ1: “What is the current situation of purchasing process and purchasing process integration for some manufacturers of different ownerships in China?”

According to the analysis and results get, it is easy to find that foreign-funded company (Nypro) and state-controlling company (Haier) perform better in purchasing process than private-owned company (Gao Xiang), although there are some obstacles in purchasing process of these two companies. To some extent, they integrate their purchasing process internally and externally. They do very well nearly in all aspects besides supplier management, or it can be said supplier relationship management. It is better for these two kinds of companies pay more attention on supplier management.

Private-owned companies, which are represented by Gao Xiang, could be said that almost have no systematic purchasing process. Their purchasing process is very simple. A lot of obstacles are run through the whole purchasing process. They have to exert more effects to optimize the purchasing process of their own and integrate it. Meanwhile, they also should pay their attention in long-term profit instead of short-term outcome.

RQ2: “How can purchasing process be integrated for some manufacturers of different ownerships in China from manufacture’s perspectives?”
In Chapter 6.1, this thesis gives some suggestions of purchasing process integration of these three companies. These suggestions are correspond to the obstacles in purchasing process found in Chapter 5.

From internal perspective, Gao Xiang should exert more effects to improve its purchasing process. Professionals in different departments should get together and formulate its sourcing strategy through the strategy portfolio analysis, as sourcing strategy is very important to a company. Although the financial reasons, Gao Xiang is not willing to pay the money to set up e-systems which can help it integrate internal and external resources. It strongly recommends that Gao Xiang should take into consideration for long-term profit. Gao Xiang also has to make its criteria list more comprehensive and staffs in relevant departments should audit suppliers together. As Nypro has its own MRP system, People of interrelated departments should work together to set up its own e-auction platform. For Haier, it does very well in internal integration, so there is no need for it to improve its purchasing process internally.

From external perspective, all of these three companies have obstacles in supplier management, which means there is lots of space for Chinese companies to improve in purchasing integration. Both Nypro and Haier fail to link the performance evaluation with their partnership with suppliers. According to specific cases, classification of suppliers is a must for improvement in Nypro. E-sourcing system is also recommended especially for Nypro to reduce transaction cost and increase trade transparency. Both Haier and Nypro should improve supplier relationship by setting up contracts according to supplier performance. By seeing through the case of Gao Xiang, which is a typical private-owned enterprise, seems to be the worst. Supplier evaluation concept and system needs establishing and greatly developed.

7.2 Theoretical contribution

Narasimhan and Das (2001) argue that the key factors in purchasing process integration are early supplier involvement, supplier development, supplier certification and so on. Companies should focus on the integration with suppliers. Supplier should be involved in the whole purchasing process.
Researchers conclude that there are three purchasing practices developed from formal literatures: supplier development and evaluation (Lascelles and Dale, 1990), buyer–supplier relationships (Kamath and Liker, 1994), and supply base optimization (Monczka et al., 1993). Holger (2010) studies the importance and the method of supplier involving the purchasing process.

It seems that there are a large amount of people who study the purchasing process integration. Most of them link integration of purchasing process to supplier management. They emphasize that company should integrate the purchasing process with its supplier. However, it is not very easy to find the literature which focus on the internal purchasing process integration.

Based on the theory studies and empirical findings, the core finding and contribution of this thesis to the theory on purchasing process integration are that it emphasizes that the internal and external integration on purchasing process are indispensible. People in the companies should pay more attention not only on external integration but also on internal integration. The purchasing process will be optimized through the combination of internal integration and external integration.

### 7.3 Suggestions for future research

This thesis focuses on three manufacturing companies in China. The result of this thesis cannot represent all the obstacles in purchasing process in manufacturing industry in China. But the purchasing process, characteristics, strength and weakness are similar in the same type of ownership. Meanwhile, the recommendation on purchasing process integration also cannot solve all the obstacles found, due to the companies’ own condition. In future research, it recommends to add more case companies. Furthermore, more studies could be included to identify common obstacles and dig out solutions related to purchasing process integration in Chinese manufacturing industry.
Reference


Network Economy Research Center in Beijing University (2001), White Book of the Internet and e-Commerce within China’s Enterprises. Beijing University, Beijing, China.


Prasad, P.( 2005), Crafting qualitative research: Working in the post-positivist traditions. Armonk


Qingdao Haier Parts Purchasing Co. (www.haier.cn, 2011)

# Appendix 1

## Interview Questions

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>What kind of specifications are taken into account before selecting suppliers? Please explain it in detail.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>How does the target budget for purchasing be met?</td>
<td></td>
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<tr>
<td>3</td>
<td>Please specify the purchasing process in your company.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>What factors decide on implementing sourcing strategy?</td>
<td></td>
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<tr>
<td>5</td>
<td>How do new suppliers be chosen?</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>What supply sources are employed for selecting suppliers?</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>What selection criterions are involved in supplier selection?</td>
<td></td>
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<tr>
<td>8</td>
<td>How is contracting be monitored to ensure the benefit and control risks?</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>What clauses or part do you think is indispensable and/or unnecessary at all?</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Please describe your ordering process.</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>What kind of products do you expedite and how do you monitor to meet your needs?</td>
<td></td>
</tr>
</tbody>
</table>
12. How is order quantity and date of delivery decided?

13. What have done to manage and evaluate suppliers?

14. How is supplier relationship maintained?

15. Are there any other obstacles related to purchasing process happened in your company?