How can supply network management be used to improve the quality of corrugated cardboard suppliers in China?

A case study of Tetra Pak in China

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ABSTRACT

This thesis involved Tetra Pak and corrugated cardboard suppliers in China at various locations to understand how this industry looks like, the reasons for inconsistent quality and analysis of the current state of whole industry, and recommendations for improvement.

As innovation can bring competitive advantage to companies, our thesis focused upon making extended value of material flow from Tetra Pak and suppliers. The aim of this project is to investigate how strategic intelligence can create value and strengthen Tetra Pak business relationship with its customers in big emerging markets like China. Theoretical framework creates a foundation for how to structure the efficiently utilize intelligence in the decision-making process for a MNC.

Another aspect of the thesis was to examine supply network management process and the supplier relationship development in China, as well as the strategic, social, macro economy aspects that influence change management in medium and large organizations.

Corrugated cardboard industry in China is still in a transitioning to a mature market. One conclusion drawn from the trip to China is that the dairy producer should start emphasizing visual control on quality, and less concern on price. They should see their suppliers as long term partners but not just treat them as providers. Because it is fundamentally undercutting the ability of the organization to improve what it provides to customers through better quality and productivity. It hinders efforts from reducing cost.

Finally, the research problems we focus throughout this thesis will be answered after the analysis. Moreover, we will provide some suggestions about corrugated industry and our case company-Tetra Pak.

Key words: Supply Network Management, Supplier Relationship Management, Strategic Intelligence, China, Corrugated Cardboard Industry, Dairy producers, Suppliers, Quality
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TABLE OF CONTENT

1 INTRODUCTION........................................................................................................................1
1.1 Research Background.................................................................................................................1
1.2 Dairy Industry in China.............................................................................................................1-3
1.3 Case Company Presentation....................................................................................................3
1.3.1 Company Overview – Tetra Pak.........................................................................................3-4
1.3.2 Dairy Primary Packaging in China......................................................................................4
1.3.3 Dairy Secondary Packaging in China..................................................................................5-6
1.4 Research Problem....................................................................................................................6-10
1.5 Purpose..................................................................................................................................10
1.6 Delimitations............................................................................................................................11
1.7 Outline of the thesis................................................................................................................11-12

2 METHODOLOGIES.....................................................................................................................13
2.1 Research Strategy.....................................................................................................................13-14
2.1.1 Case Study.........................................................................................................................14-15
2.1.2 Case Study Design.............................................................................................................15-16
2.2 Research Approach................................................................................................................16-17
2.3 Research Method....................................................................................................................17-18
2.4 Data Collection.......................................................................................................................18
2.4.1 Design a Questionnaire.....................................................................................................19-20
2.4.2 Primary Data......................................................................................................................20-22
2.4.3 Secondary Data..................................................................................................................22-23
2.4.4 Sample selection................................................................................................................23-24
2.4.5 Date Collection Model......................................................................................................24-25
2.5 Quality of research................................................................................................................26
2.5.1 Internal Validity..................................................................................................................26
2.5.2 External Validity.................................................................................................................26-27
2.5.3 Reliability..........................................................................................................................27-28
2.6 Research Model......................................................................................................................28-29

3 THEORETICAL FRAMEWORKS............................................................................................30
3.1 The Institutions Network Model.............................................................................................30-31
3.1.1 Societal Sectors.................................................................................................................31
3.1.2 Organizational Sectors......................................................................................................32-33
<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.2 Network Mapping</td>
<td>33-34</td>
</tr>
<tr>
<td>3.3 Strategic Intelligence</td>
<td>34</td>
</tr>
<tr>
<td>3.3.1 Difference between Information and Intelligence</td>
<td>34</td>
</tr>
<tr>
<td>3.3.2 Definition of Strategic Intelligence</td>
<td>35-36</td>
</tr>
<tr>
<td>3.3.3 Managing and Supporting the Strategic Intelligence Process</td>
<td>36</td>
</tr>
<tr>
<td>3.3.4 Sources of Intelligence</td>
<td>36-37</td>
</tr>
<tr>
<td>3.3.5 Fitting supplier information network into a Strategic Intelligence System</td>
<td>37</td>
</tr>
<tr>
<td>3.4 Supply Network Management</td>
<td>37</td>
</tr>
<tr>
<td>3.4.1 Supply Network</td>
<td>37</td>
</tr>
<tr>
<td>3.4.1.1 Definition of Supply Network</td>
<td>38</td>
</tr>
<tr>
<td>3.4.1.2 Development roles of purchasing (direct &amp; indirect cost)</td>
<td>38</td>
</tr>
<tr>
<td>3.4.1.3 Win Win Situation</td>
<td>38-39</td>
</tr>
<tr>
<td>3.4.2 Supply Base Design</td>
<td>39</td>
</tr>
<tr>
<td>3.4.2.1 Sourcing Strategies</td>
<td>39</td>
</tr>
<tr>
<td>3.4.2.2 Design of Supply Base</td>
<td>39-40</td>
</tr>
<tr>
<td>3.4.2.3 Cooperation</td>
<td>40-41</td>
</tr>
<tr>
<td>3.4.2.4 Power and Dependence</td>
<td>41</td>
</tr>
<tr>
<td>3.4.2.5 Trust and Commitment</td>
<td>41-41</td>
</tr>
<tr>
<td>3.4.3 Supplier Relationship Strategies</td>
<td>42</td>
</tr>
<tr>
<td>3.4.3.1 High and Low Involvement Relationship</td>
<td>42-44</td>
</tr>
<tr>
<td>3.4.3.2 Economic Consequences of Supplier Relationship</td>
<td>44-45</td>
</tr>
<tr>
<td>3.4.5 Developing Supplier Relationships</td>
<td>45-46</td>
</tr>
<tr>
<td>3.4.5.1 Monitoring and Modifying Relationships</td>
<td>46-47</td>
</tr>
<tr>
<td>3.4.5.2 Partnerships require an interest supplier</td>
<td>47-48</td>
</tr>
<tr>
<td>4 EMPIRICAL STUDY</td>
<td>49</td>
</tr>
<tr>
<td>4.1 China Empirical Report</td>
<td>49</td>
</tr>
<tr>
<td>4.1.1 The Trip to China</td>
<td>49-51</td>
</tr>
<tr>
<td>4.1.2 Corrugate cardboard industry development in South and North</td>
<td>51-52</td>
</tr>
<tr>
<td>4.2 Description of Suppliers</td>
<td>53</td>
</tr>
<tr>
<td>4.2.1 Company Visiting-AMB Interpac Containers</td>
<td>53-55</td>
</tr>
<tr>
<td>4.2.2 Company Visiting-Guangzhou Panlong Paper</td>
<td>55-57</td>
</tr>
<tr>
<td>4.2.3 Company Visiting-Shanghai Huali Packaging</td>
<td>57-59</td>
</tr>
<tr>
<td>4.2.4 Personal Interview-Zhejiang Jian Paper</td>
<td>60-63</td>
</tr>
<tr>
<td>4.2.5 Personal Interview-International Paper</td>
<td>63-64</td>
</tr>
<tr>
<td>4.2.6 Company Visiting-Hohhot SCA</td>
<td>64-66</td>
</tr>
<tr>
<td>4.2.7 Company Visiting-Hohhot New Paper Asia</td>
<td>66-68</td>
</tr>
<tr>
<td>4.2.8 Company Visiting-Zonestar Group</td>
<td>68-70</td>
</tr>
</tbody>
</table>
5 ANALYSIS

5.1 Institutional Analysis
5.1.1 Identification of Relevant Societal Institutions
5.1.2 Social Factors
5.1.2.1 Culture and Business Mores
5.1.2.2 Education and Training System
5.1.3 Organizational Field
5.1.3.1 Government
5.1.3.2 Labor Market
5.1.3.3 Economy
5.1.3.4 Financial Market
5.1.3.4.1 Currency
5.1.3.4.2 Inflation
5.1.3.5 Product and Service
5.1.3.5.1 Porter Five Forces Model
5.2 The Analysis of Chinese Corrugate Cardboard Industry
5.3 Network Mapping
5.3.1 Competitors
5.3.2 Corrugate Cardboard Producer
5.3.3 Suppliers
5.3.4 Customers
5.3.5 Government
5.4 Corrugated Cardboard Industry Prediction
5.5 Comparison between SCA China and SCA Europe
5.6 Analysis of corrugated Cardboard Suppliers
5.6.1 AMB Intrpac Containers
5.6.2 Guangzhou Panlong Paper
5.6.3 Shanghai Huali Packaging
5.6.4 Zhejian Jian Paper
5.6.5 Smurfit Stone
5.6.6 Hohhot SCA
TALE OF FIGURES

Figure 1: Average Retail Price of Fresh Dairy Product in China, 2000Q1-2006Q2 ……2

Figure 2 Thesis Outline ………………………………………………………………………12

Figure 3 Research model…………………………………………………………………29

Figure 4. The basic institutional model…………………………………………………31

Figure 5 Porter’s Five Forces of Competition framework…………………………..32

Figure 6. Relationship characteristics in terms of conflict and co-operation ………40

Figure 7 Wasted paper import and paper export in China ...............................75

Figure 8 General Cardboard Supplier Structure in China .................................98

Figure 9 Network mapping ……………………………………………………………..99

Figure 10 Summary of Strengths & Weakness of Interviewed Suppliers……….117-118

TABLE OF TABLES

Table 1: Relevant Situations for Different Research Strategies .........................14

Table 2: Basic types of case study designs …………………………………………16

Table 3: Date Collection Model of the Thesis ............................................25

Table 4. Financial consequences of supplier……………………………………….44
**LIST OF ABBREVIATIONS**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B2B</td>
<td>Business to Business</td>
</tr>
<tr>
<td>ERP</td>
<td>Enterprise Resource Planning</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>IP</td>
<td>International Player</td>
</tr>
<tr>
<td>ISO 9001</td>
<td>International Organization Standardization</td>
</tr>
<tr>
<td>MNC</td>
<td>Multinational Corporation</td>
</tr>
<tr>
<td>RPDSQ</td>
<td>Relationship, Product, Delivery, Service, Quality</td>
</tr>
<tr>
<td>RMB</td>
<td>Ren Min Bi</td>
</tr>
<tr>
<td>TFA</td>
<td>Tetra Fino Aseptic</td>
</tr>
<tr>
<td>TP</td>
<td>Tetra Pak</td>
</tr>
</tbody>
</table>
I. INTRODUCTION

In this chapter, we will explain the research background of this thesis. Further, we will make a brief introduction of the case company Tetra Pak. The general situation of Chinese dairy industry and the secondary packaging industry will be described. The research problem will be defined along with three sub problems and delimitations. Finally, the outline of the thesis will be laid out.

1.1 Research Background

As one of the biggest in the world, Chinese market is the most attractive one for the foreign companies to explore because of the tremendous increasing domestic demand. More and more MNCs establish themselves in China to utilize the cheaper costs which also generate the competitive advantages when they compete in the worldwide. Hence, it is worth for big MNC to make great efforts on enhancing their business performance in China as well. Since the competition has become sharply and sales growth has slowed, company was forced to find new solutions which could help them to overcome these obstacles. Moreover, many companies have been present in China for more than a decade and their target key customers are normally price sensitive. However, lower price and high quality are not always the winning criteria to compete in the market. Provide proper business solutions for their customers can be one of the strategies helping the company to achieve the sustainable competitive advantages in Chinese market.

1.2 Dairy Industry in China

China dairy market has developed into a modern food manufacturing industry with advanced techniques and complete varieties in the past ten years. The total output of milk was 28.648 million tons in 2005, up by 20% over last year, which is 3.3 times than that of
1995. The total industry value of dairy product alone reached RMB 88.67 billion. With the improving living conditions of Chinese people, dairy consumption market is now getting expanded and matured gradually.

Currently, China dairy consumption per capita is still at a low level with huge potential. Meanwhile, consumption of cheese, cream, blue cheese and butter takes a relatively large part in the total dairy product consumption, while only single variety of dairy products like liquid milk, yoghurt and powder milk are popular in China, which leads to fierce competition in liquid milk and milk powder markets, surging up a constant price war among enterprises.

![Figure 1: Average Retail Price of Fresh Dairy Product in China, 2000Q1-2006Q2](Sourcefrom:www.packingmachine.blogspot.com/2007/10/chinese-dairy-demand-drives-Tetra-pak.htm)

The market is also becoming more sophisticated with consumers moving from milk powder to UHT milk and Chinese consumers becoming more brand conscious to ensure quality and food safety. Currently there are 1600 dairy processing enterprises in China, Yili Group is the number one dairy producer in China and The State Commission of Economy and Trade listed it as a key state enterprise. As the main competitor to Yili,
Mengniu occupies the second place in the dairy market. One of the major factors in Mengniu and Yili success has been their purchase of state-of-the-art equipment and business liaisons with leading international companies such as Tetra Pak in the dairy industry. Tetra Pak works closely with Mengniu and Yili to optimize performance and minimize impacts. Especially they are paying more attention on secondary packaging solutions.

1.3 Case Company Presentation

1.3.1 Company overview - Tetra Pak

Tetra Pak is one of three independent industry groups that belong to the Tetra Laval Group which is a private industrial group of Swedish origin headquartered in Switzerland. Tetra Pak was founded in 1951, Lund Sweden, and today is operating in more than 165 countries with over 20,000 employees, as the largest global carton packages and filling machine manufacturer. The company applies its commitment to innovation, its understanding of consumer needs and its relationships with suppliers to deliver these solutions, wherever and whenever food is consumed. Also, the company believes in responsible industry leadership, creating profitable growth in harmony with environmental sustainability and good corporate citizenship.

Tetra Pak is offering packaging machines for a wide range of packaging alternatives. The company provides packaging machines as well as packaging material such as Tetra Birk, Tetra Brik Aseptic, Tetra Classic Aseptic, Tetra Fino Aseptic, Tetra Prisma Aseptic, Tetra Gemina Aseptic, Tetra Recart, Tetra Rex, Tetra Top and Tetra Wedge Aseptic.

The company invested CNY 2 billion in China since it arrived in 1972, and also runs
factories in Shanghai, Kunshan in Jiangsu Province and Foshan, Guangdong Province. Tetra Pak has expanded its total packaging output in China to 40bn containers following completion of a €100m plant in a bid to meet the huge increases in demand for dairy products. Its early entry to the market coincided with the development of China's dairy industry and it has benefited from the explosion in milk consumption, controlling a majority share of the country's aseptic beverage cartons market.

Tetra Pak plans to tighten its grip on China's growing beverage and dairy markets with a €60m state-of-the-art packaging materials plant in the country. Besides investing to meet rising dairy demand in the country, group managing director Hudson Lee said that processors and packagers have the responsibility to ensure that the growth remained sustainable by encouraging innovation. Tetra Pak's claims come as milk and dairy producers in China face calls for greater innovation in how they operate.

1.3.2 Dairy Primary Packaging in China

TFA is a carton-based pillow shaped package, which has introduced in 1997. This roll-fed packaging system offers good economy for producers as well as for consumers. The concept of the TFA packages is simple—it combines all the safety and hygiene factors associated with the aseptic production process. Tetra Pak pioneered packaging that is cost-effective to produce, easy to transport and requires little display space.

China is the biggest market of TFA in the world. Most of the economical milk is package in TFA format in China because of the lower cost of packaging. Tetra Pak have developed new filling machine meets the demand of customers for a low-investment system, which produces packages with a focus on high performance and quality.
1.3.3 Dairy Secondary Packaging in China

There are two main packaging solutions available from Tetra Pak. The main business is primary packaging which refers to provide preferred processing and packaging solutions for food. China is the biggest market of TFA in the world and one of Tetra Pak’s most important in emerging markets. Secondary packages in China refer to cardboard boxes that protect TFA or other primary packages Tetra Pak provides. Tetra Pak provides packaging machines and packaging materials with printing service for primary packaging to dairy producers. However, Tetra Pak only provides packaging machines for secondary packaging but not involve in secondary packaging materials.

The reason of secondary packaging is for the convenience of Chinese consumers, almost all the Tetra Pak packed dairy products will be further packed in a bigger cardboard box by Tetra Pak secondary packaging machine (cardboard wrapper) or by hand from the production line in China. Usually between twelve to twenty packs of dairy products are contained in one cardboard box. Corrugated cardboard is the main secondary packaging material in China. The secondary packages consist of two parts, the cardboard box and a plastic handle. As mentioned before, Tetra Pak would not product cardboard box and a plastic handle to their dairy producers, so the dairy producers have to source cardboard box and a plastic handle separately from cardboard suppliers and plastic handle suppliers.

However, Tetra Park’ key dairy producers in China is facing the problems from current cardboard suppliers. The current situation in which they sometimes deliver good standard cardboard that works well in Tetra Pak’s machines and sometimes they deliver very poor standard cardboard that cause problems in the machines (cardboard wrappers) of Tetra Pak. The problem is that the dairy producers do not know when the quality is good and when it is bad, the cardboard wrapper stop working properly.
Moreover, another problem is the plastic handle on the secondary packages which are easily broken. Nowadays, Chinese consumers prefer to buy dairy products from multi packs. Each box are weight over four kilos (20*200ml packs). They need to carry it for a rather long distance, and the boxes are either carried by hand or hanged on the bicycle. Thus the handle’s function is very important to consumers. No one will buy a box with a broke handle which is hard to bring home.

In order to enhance the operational performance of secondary packaging in China, the empirical work is focused on finding as many qualify cardboard suppliers as possible across over four Chinese regional: Hohhot, Beijing, Shanghai, Guangzhou and also explore their interest to provide more homogenous high quality standard. All those new potential suppliers would be geographically close to dairy producer’s production plants in order to save the transportation cost. Also, those new suppliers should be able to provide added value services such as integrated handle with cardboard, anti dirty and moisture function of cardboard to dairy producers.

1.4 Research Problem

Being based on our reasoning, we can formulate the following main research problem:

<table>
<thead>
<tr>
<th>Main Research Question</th>
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<tbody>
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<td>How can supply network management be used to improve the quality of corrugated cardboard suppliers in China?</td>
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</table>

Understanding Chinese Marco environment and overall situation of corrugated cardboard industry will be the foundation for finding as many as high quality standard corrugated cardboard suppliers and improve the quality of suppliers in China. Therefore, the research
will describe the overall Chinese Marco environment such as economy, political, culture, labour market factors by the institutions network model (Jansson 2007)

Besides, Porter’s Five Forces of Competition model (Porter, 1986) will be illustrated to describe and analyze Chinese corrugated cardboard industry in term of threat of entry, buyer power, industry rivalry, supplier power, threat of substitute. Also, the model offers a systematic and widely applicable approach to describing corrugated cardboard structure, predicting industry profitability, designing strategies to influence industry structure, and identifying key success factors. Also, the intensity of competition of corrugated cardboard industry will be determined in this section and it also provides a good foundation for us to identify new potential cardboard suppliers in China.

Moreover, Network mapping (Jansson 2007) will be used to map the marketing network situation in Chinese corrugated cardboard and the characteristic of corrugated cardboard industry in China in order to understand the general understanding about this industry. The whole network of this industry will be described in term of buyers, competitors, suppliers and cardboard producers.

In particularly, since SCA Packaging is one of main corrugated cardboard suppliers in China, the deep analysis about SCA Packaging will be taken in the thesis. For example, the project will investigate how does SCA Packaging work in China and how does this differ from Europe and how SCA Packaging source their raw materials in Europe and China.

From this research problem, three major sub-research problems are identified: First of the sub-research areas is to find suitable cardboard suppliers which are able to provide high quality to Tetra Pak’s key dairy customers. Second sub question is to find out the reasons
of the poor quality problems from current corrugated cardboard suppliers and try to explore their interest to provide a more homogenous high quality standard in China. Also, developing close relationship with qualify suppliers is also important issues to improve the quality. The last sub research is to fit supplier information network into a Strategic Intelligence. Consequently, answering these sub-problems will automatically lead to answers for the main research problem.

### Sub-Research Question 1

**How can supply network management be used to find suitable corrugated cardboard suppliers?**

The ability to handle the supply side is to a large extent affecting the competitiveness and profit generating capacity of the individual firm. It is one of the reasons that more and more MNCs invest much resource on handling supply side and it is also one of the ways to enhance the competitiveness in the market. In response to sub question one, we will describe how supply network management be used to find suitable cardboard suppliers. In this case, many of corrugated cardboard suppliers couldn’t ensure to deliver high quality of cardboard to their dairy customers constantly. It will strongly affect the dairy customers’ secondary packaging operation. Finding new qualify corrugated cardboard suppliers is one of the solution to solve the current problem of the dairy secondary packaging. Supplier selection and categorization is considered to be one of the main tasks in purchasing. Several criteria for assessing supplier performance in the supplier selection process have been widened from supplier search to supplier analysis to supplier selection.
Sub-Research Question 2

How can supply network management be used to manage supplier development?

Regarding sub research questions two, supply network management will be used to manage supplier development. The supplier development is divided into two issues: supplier quality and relationship management. There are several aspects under supply network management for the company to improve the quality of corrugated cardboard supplier.

First of all, the research will find out the gap between the current offering and the required quality expectation of key dairy producers. Since different customer has different quality requirements on cardboard suppliers, the research will only focus on key Tetra Pak customers such as Mengniu, Yili. After finding out the quality gap, we will find out the reasons to explain why current corrugated cardboard suppliers deliver very irregular quality. Also, we will come up some suggestions regarding to the quality improvement in conclusion part.

Moreover, one of major supply network strategies is to handle the relationships with suppliers. How to develop a proper customer-supplier relationship will be described in the thesis in term of high & low involvement relationships, monitoring, modifying relationships, determining appropriate interfaces with suppliers. Through the close relationship between dairy producers and corrugated cardboard suppliers, the problem of delivering irregular quality will be minimized. The cardboard suppliers will pay more attention on specific needs of their customers. The cardboard supplier will be convinced that it is worthwhile to invest the time, money and resources for more thorough
interaction. At last, the benefits from increasing interaction with a certain counterpart will be more substantial than the sacrifices and the win-win situation will be achieved.

Sub-Research Question 3

| How to fit supplier information network into a Strategic Intelligence System for Tetra Pak? |

As for sub research question three, in response to study and evaluate the behavior and performance of corrugated cardboard suppliers, Strategic Intelligence will be illustrated in the thesis. Nowadays, the organizations that apply Strategic Intelligence effectively will be the survivors in a very competitive environment. McNeilly (1996,) defined Strategic intelligence that ‘it is not enough to merely gather the information; an infrastructure must be in place to ensure that market information is getting back to the decision makers’. Therefore, it is necessary to acquire the information of corrugated cardboard in China and develop an incentive system to encourage the suppliers to deliver better quality.

1.5 Purpose

The purpose of the thesis is to identify what are the possible reasons of the poor quality in corrugated cardboard industry in China. We will explore cardboard supplier interests in order to solve these problems. The research would help Tetra Pak to have a better understanding on how to optimize its secondary packaging business so as to enhance the combined (primary and secondary packaging) value proposition in China. We will recommend the approaches for improvement in order to strengthen the relationship among corrugated cardboard suppliers, Tetra Pak and their key dairy customers.
1.6 Delimitations

The thesis is focus on analysis of corrugated cardboard industry in China; there are some limitations to the study that should be recognized.

- Tetra Pak will be the only case company in this thesis. We will only visit Tetra Pak headquarter in Sweden and manufactory in China.
- Tetra Pak is offering packaging machines for a wide range of packaging alternatives, our research only focus carton packaging platform.
- Our research will not represent all current Tetra Pak dairy consumers in China, but focus on their biggest customers Mengniu and Yili.
- Our research is country specific; China is the only country being investigated among those emerging markets.
- The target cardboard suppliers are restricted to four main large regions in China: Hohhot, Beijing, Shanghai and Guangzhou which are the geographical close to Tetra Pak consumers’ production location.
- The interviews with Chinese suppliers will be conducted in Chinese in order to avoid misunderstanding and improve reception on the dialogues.

1.7 Outline of the thesis

The below is the overall outline of the thesis. There are four parts of the thesis:

Introduction party, research part, Empirical and Analysis part and Conclusion part.
**Figure 2 Thesis Outline**  
(Source: Author’s own)
2. METHODOLOGY

In this chapter, the methodology used in this thesis will be presented. We will introduce the methodology applied for the thesis. First of all, the choices of research strategies, methods and research design, will be described and discussed. Furthermore, we will explain how we have collected primary and secondary data, and how we have selected the sample. Finally, a discussion about the quality of the research by presenting validity and reliability will be depicted in the end.

2.1 Research Strategy

“Establishing a research strategy and a research tactic are the most important issues facing the social scientist in that they provide a basis from which the researcher may asset the validity of his or her findings.” (Dan, 1998)

Ying (1994) categorizes five specific types of research strategies: experiment, surveys, archival analysis, histories, and case studies. Meanwhile, he suggests that the choice of which strategy depends on three factors: (a) the questions being asked (b) the extent that investigators have control over actual events (c) the degree of focus on historical (or contemporary) events.
<table>
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<th>Focus on contemporary events</th>
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</tbody>
</table>

Table 1: Relevant Situations for Different Research Strategies (Source: Yin, Rebert K, 2003)

The above table shows different research strategies. Further, Yin (2003) explains that these strategies, when being employed on its own, could serve three purposes for a research: exploratory, descriptive or explanatory. The choice of which strategy the users apply, depend on what kind of questions are to be answered and the problem to be solved. In this case, we have chosen case study as the research strategy.

2.1.1 Case Study

*A case study may be defined as an empirical enquiry that investigates a contemporary phenomenon within its real life context, when the boundaries between phenomenon and context are not clearly evident, and in which multiple sources of evidence are used.* (Yin, 1994)
The purpose of our thesis is to find out how to improve the quality of corrugated cardboard suppliers in China in order to strengthen Tetra Pak secondary packaging business performance and relationship with their key dairy customers in China. According to Yin (2003) when the problem is unknown and the questions mainly concern how and why questions, the control over the actual behavioral events are not needed and the focus of the research is on contemporary events, then the case study is the appropriate method to be used.

In addition, Yin also mentions that case study is frequently used as a research tool in a real-life business context, and would fit better the situation when the boundaries between phenomenon and context are not clearly evident. In the light of these specifications, it is obvious that case study strategy is the most suitable for our research objectives. Merriam (1998) said the case study on a fieldwork angle, ‘a qualitative case study is an intensive, holistic description and analysis of a single instance, phenomenon, or social unit’

However, we should take its weaknesses into our consideration as well. Yin (2003) also agrees with this perspective, and confirms which the biggest weakness of this approach is. Besides this, researchers leave unknown gaps and biases among the case studies, which will influence the results of the findings and conclusions. To avoid this, researchers should report preliminary findings so that the likelihood of bias will be reduced. Understanding the weaknesses of case study mentioned above is to remind us on the quality of our research throughout the study processes.

2.1.2 Case Study Design

Yin (2003) uses a matrix to classify four basic types of designs for case studies as illustrated in table 2. Those are Holistic single-case design, embedded single case design,
holistic multiple–case design and embedded multiple-case design.

<table>
<thead>
<tr>
<th></th>
<th>Single Case Design</th>
<th>Multiple Case Design</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Holistic</strong></td>
<td>TYPE 1</td>
<td>TYPE 2</td>
</tr>
<tr>
<td>(Single unit of analysis)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Embedded</strong></td>
<td>TYPE 3</td>
<td>TYPE 4</td>
</tr>
<tr>
<td>(Multiple units of analysis)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2 Basic types of case study designs (Source: Yin, 2003)

The holistic case study deals with one unit that is being studied, while the embedded case study deals with a number of units being investigated within the same case study (Yin, 2003).

Since our research focuses on more units and processes, the case study is designed in accordance with Yin’s embedded design. Therefore type 3(single-case design and multiple unit of analysis) is applied in our case.

2.2 Research Approach

This study will serve to be a pioneer and consequently an explorative and inductive approach will be needed on the areas with limited theory. Meanwhile, there is also a need to be theoretical founded, when connecting supply chain network management and strategic intelligence to our case. It can fit the characteristics of the abductive approach described and advocated by Dubois and Gadde (2002). They suggest an abdicative
approach to case study as a combination of inductive and deductive approach. The abdicative approach will allow researchers more flexibility in carrying out the research. In another hand, using abdicative approach, researchers depart with a theoretical base and then move on to real-life context to collect empirical data. Researchers then move back to their theoretical framework and make adjustments if necessary. Hence, abductive approach allows flexibility for researchers when dealing with real-life context and makes the research more thorough. It also ensures that theoretical framework and empirical data fits well to each other.

2.3 Research Method

There are two types of research approaches explained as quantitative and qualitative. Since Merriam (1998) identifies that quantitative research takes apart a phenomenon to examine components parts which become the variables of the study, qualitative research can reveal how all the parts work together to form a whole.

Quantitative research is usually exemplified with surveys and experiments and qualitative research with participant observations and unstructured interviews. Quantitative research tends to view to the social reality as something static that lies beyond the actor, while qualitative research describes the same social reality as something procession that is construed socially (Bryman, 1997).

The usage of more than one method, and thereby more than one type of information, has been referred to as triangulation. From this aspect, quantitative and qualitative research can be seen as different ways of studying the same topic. The acceptance of both quantitative and qualitative methods does not neglect the importance of being aware of the characteristics of different methodologies. On the contrary, such awareness is directly
necessary to be able to fit the best technique available with a given research question (Bryman, 1997)

In our study, we take a mixed approach, meaning that both qualitative and quantitative analysis will be used. However, we believe our study is more of qualitative research since there will be analysis concerning whole secondary packaging industry, and how to get data from the corrugated cardboard industry and develop incentive system to improve the quality of cardboard box.

2.4 Data Collection

Yin (2003) singles out six most commonly used sources of evidences when doing case study: documentation, archival records, interviews, direct observations, participant observation, and physical artifacts. Having kept in mind that time and data quality will be directly impacted by the method we have chosen, we have tried to use the most relevant sources in terms of increasing the validity. In addition to the attention given to these individual sources, some overriding principles are important to any data collection effort in doing case studies. These include the use of (a) multiple sources of evidence (evidence from or more sources, but converging on the same set of facts or findings) (b) a case study database (a formal assembly of evidence distinct from the final case study report) (c) a chain of evidence (explicit links between the questions asked, the data collected, and the conclusions drawn).

According Merriam (1998) consists of either primary data or secondary data or the combination of the two. In our study, both primary data and secondary data are used for analysis. In this present study interviews will be one of the main methods, but as to enhance the reliability, more methods and sources are used in the later research. As far as possible, observations will be used simultaneously with the interviews. Moreover,
documents and databases such as company report are used both in the case study and the investigation.

2.4.1 Design a Questionnaire

According to Yin (2003), questionnaires must be carefully designed to yield valid information. Meticulous attention must be paid to ensure that individual questions are relevant, appropriate, intelligible, precise, and unbiased. The order of the questions must be carefully arranged, and the layout of the questionnaire must be clear. It is wise to draft a clear personalized covering letter. It must first be piloted and evaluated before the actual survey.

Well designed questionnaires are highly structured to allow the same types of information to be collected from a large number of people in the same way and for data to be analyzed quantitatively and systematically. Questionnaires are best used for collecting factual data and appropriate questionnaire design is essential to ensure that we obtain valid responses to our questions.

To maximize our response rate, we have to consider carefully how we administer the questionnaire, establish rapport, explain the purpose of the survey, and remind those who have not responded. The length of the questionnaire should be appropriate. In order to obtain accurate relevant information, we have to give some thought to what questions we ask, how we ask them, the order we ask them in, and the general layout of the questionnaire.

We found out the questionnaire designed before the interviews are not aiming at the most concerned issues of target respondents. One possible reason for that is the subsidiary and head office is holding different priorities on what should be addressed in the project. Thus, if the questionnaire was designed according to only one party’s requirements, the
applicability of the questionnaire while collecting data from the other party will be comparatively low. So after the meeting in Tetra Pak Shanghai, we decided to add few new questions into our questionnaires.

It is important to ask for the exact level of details required. On the one hand, it might not be able to fulfill the purposes of the survey if we omit to ask essential details. People are less inclined to complete long questionnaires. This is particularly important for confidential sensitive information, such as a financial matter is likely to produce either no response or negative responses. It is often difficult to obtain truthful answers to sensitive questions. Therefore, we intend to ask such questions less direct.

Since our project needs to compare SCA Packaging business model between Europe & China, and to search potential suppliers in China, we have designed 3 different questionnaires for Tetra Pak in Shanghai (English), SCA in Europe & China (English), corrugated cardboard suppliers in China (English & Chinese).

The order of the questions is also very important. We started the questions from general to particular, from easy to difficult. All questions were designed as closed questions. They can be used even if a comprehensive range of alternative choices cannot be compiled, and it allows exploration of the range of possible themes arising from an issue.

2.4.2 Primary Data

Primary data are gathered for the first time by researchers specifically for the study. Normally primary data are needed if secondary data cannot answer questions being asked. Evidence can be collected from a primary source when the researcher goes directly to the originator of the evidence. Merriam (1998) presents several ways of collecting data to a
thesis. The most common strategies are interviews, observations and document analysis. Yin (1994) also states that one of the most important sources of primary data is an interview. We have focused on the interviewing and observing as major ways of gathering data for our case study.

The main advantages of primary date are that by conducting interviews we have obtained data which base on the research problems. We could get specific, relevant and up-to-date information that fits well with single case study and allows us to look at the problem from different perspectives. The main disadvantages are time consumption, high costs, low response rate and the lack of interviewer’s skills.

During the process of collecting primary data, we are not only focus on direct face-to-face interviews but also on telephone interviews. Face-to-face interviews involve visiting people to collect primary data. It is a good approach for ensuring a high quality and relevant data. However, the respondents may not always be available for interviews and the travel costs of the interviewer could be much higher than other methods. In our project, we decided to visit local secondary packaging producers in China. We have talked to the relevant peoples who were able to answer the questions about organization in general and quality of the product. During the interviews, most of the interviewees had well presented their companies. In addition, they introduced us how they understood this industry. So in our case, we have successfully collected a lot useful information through the face to face interviews.

Telephone calls interview is quicker and less expensive than face-to-face interviewing. However, the respond rate would be relatively lower than face to face interview. And the respondent can end the interview very easily.
Initially, we selected 30 Chinese cardboard producers as our target interviewees. But most of the manufactories are located far away from the central of cities, and it is not possible to visit all of them in very limit time, so we decided to conduct some telephone interviews. We found out it was hard to find right respondent by using telephone interview. Some of the interviewees did not understand our questions. We learnt that some interviewees did not totally open themselves to give right answers as Chinese people normally do not trust others at the beginning. Moreover, it is difficult to ask the questions into detail via telephone. So compare to the face to face interview, telephone interview can save a lot of time but with a much lower feedback rate.

2.4.3 Secondary Data

A secondary source would be information that is already published or available indirectly. Thus secondary sources of evidence are available in some intermediate form, such as market price, interest, and are not delivered personally the researcher (Dan, Brian, Arthur, Ethne, 1998). At the same time, Merriam (1998) mentioned that secondary data are previously collected data with no particular connection to the study and are chosen by researchers explicitly to support the analysis. Secondary data include articles, books, journals and internet sources etc. Secondary data can take form of qualitative or quantities sources. Merriam define that qualitative data consists of direct quotations from people about their experiences, opinions, feelings, and knowledge obtained through interviews; detailed descriptions of people’s activities, behaviors recorded in observations; and excerpts, quotations or entire passages extracted from various types of documents”.

The Advantages of secondary date is that it can be obtained from the home base without huge financial and time-based costs, and it gives quick background information. Furthermore, it
can give an objective collection and appraisal of information, since it is still in the introduction phase.

The disadvantages of it would be too general and not targeted towards the organisation’s specific problem. The data cannot be insured available, relevant and credible. It can be difficult to obtain in underdeveloped markets. Also the collection and treatment of data could have been statistically incorrect. The degree of detail can be too broad or too narrow.

In our thesis, we need to go deep insight of the secondary data presented in books, e-books, articles, journals, databases. We first sought suggestions to some employees from Tetra Pak’s in Lund about general information of secondary packaging in Sweden and China. Tetra Pak internal research report and power point presentation which describes are crucial for us to have a better understanding of our project.

There are thousands of secondary packaging suppliers in China, it is not possible to contact to all of them. Using internet source is crucial for us to pick up the potential suppliers. We made a brief analysis about our target interviewees by navigate their company homepage. The information such as company size, contact person, number of employees, assets, revenue, total output and name of the customers are very important to evaluate those suppliers.

2.4.4 Sample selection

From the point of view of positivist, empirical research normally requires the selection of those individuals who are to provide the information. This set of individuals is called sample (Dan, Brian, Arthur, Ethne, 1998). They divided sampling fall into two broad categories, namely non-probability samples, which are domain of the phenomenologist,
and probability samples, which are used by the positivistic research. Merriam (1998) argues “generalization in a statistical sense is not a goal of qualitative research; probabilistic sampling is not necessary or even justifiable in qualitative research. Thus non-probability sampling is the method of choice for most qualitative research.”

Through the study of research strategy, case study, and the research method, qualitative research, non-probability sampling has been selected as the sampling method. NON-PROBABILITY SAMPLE consists Convenience sample (the researcher selects the most accessible population members), Judgment sample (the researcher selects population members who are good prospects for accurate information), Quota sample (the researcher finds and interviews a prescribed number of people in each of several categories) and Expert sample / snowball sample (choice of respondents suggested by the original respondents / from one expert to another).

In our study, we have used judgment sample method. We selected the secondary data such as cardboards producers in Hohhot, Beijing, Shanghai and Guangzhou area through the internet. By evaluate those companies’ website, 11 potential companies were selected.

Primary data are collected through interviews with secondary packaging producers in China. All the interviews are in semi-structured form meaning that some questions are closed questions whereas some are open to gain in-depth understanding about how the interviewers think about the corrugate cardboard industry, what kind of integrate handle solution can be provided and how they control the quality of the product and so on.

2.4.5 Date Collection Model

As a conclusion for the data collection part, a model has been used as below:
<table>
<thead>
<tr>
<th>Data collection method</th>
<th>Category of research</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exploratory</td>
</tr>
<tr>
<td>Secondary data</td>
<td></td>
</tr>
<tr>
<td>Information in the company</td>
<td>X</td>
</tr>
<tr>
<td>Information from reports of different organizations</td>
<td>X</td>
</tr>
<tr>
<td>Websites etc</td>
<td>X</td>
</tr>
<tr>
<td>Primary data</td>
<td></td>
</tr>
<tr>
<td>Qualitative research</td>
<td></td>
</tr>
<tr>
<td>unstructured interviews with small samples (expert opinion, depth interviews, focus group interview)</td>
<td>X</td>
</tr>
<tr>
<td>Surveys structured collection of data directly from representative samples of respondents e.g. mail interviews, phone interview, personal interview</td>
<td>X</td>
</tr>
<tr>
<td>Experimental</td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Data Collection Model of the Thesis  
(Source: Authors’ own)

X => very relevant method  Y=> somewhat relevant

Explorative (e.g. group interviews), Descriptive (e.g. store checks), Causal (e.g. group interviews)
2.5 Quality of Research

It is very important for researchers to assure the quality of research in order to maximize the value of this project. Yin (2003) refers to three criterions in order to examine the quality on the research that is being made. The three criterions are internal validity, external validity and reliability.

2.5.1 Internal Validity

Internal validity can be described as the degree to which the researcher studies and measures what is intended (Merriam, 1994).

According to Yin (1994) links internal validity to the analysis phase. In case the internal validity is low, our findings would be risky to base strategic decisions on. Internal validity has to be checked upon whether the empirical material matches the research question or not. Internal validity need to deal with how the research findings match the reality and it also refers to whether or not the effects you obtain in your study are due to your conceptual variable. This internal validity can be enhanced by using multiple sources in the research.

To improve the validity in our thesis, we have used different sources as a way of looking at the information from different angles and trying to represent more than one opinion about the subject. Besides, we worked in close contact with the case company which is trusted source of information.

2.5.2 External Validity

External validity refers to how generalizable findings are across times, settings and individuals (Scandura and Williams, 2000). The use of a variety of methods might result
in higher external validity. From this point of view, the use of both interviews and questionnaires may have contributed to a more robust and generalizable set of findings. From another perspective, the external validity may be questioned regarding the respondents in the interview study and the classification of quality attributes in the questionnaire study (Martin, 2004)

We have strived to generalize our findings by considering the theory, empirical findings and the analysis of the empirical results and present them as a general pattern for companies. With this awareness of external validity in minds, we have tried our best to write the paper in a clear, simple, understandable way.

2.5.3 Reliability

It is one of the important challenges for us is to ensure that the information is being collected reliable. The reliability is related to the quality of the empirical work of the research. According to Merriam (1998) reliability concerns to which extent the research can be replicated and then result in the same findings. Yin (1994) agrees on this, but adds that reliability is about minimizing the errors and biases in the research. The goal of reliability is to minimize the errors and biases in a study. Emphasis is on doing the same case over again, not on replicating the results of one case by doing another case research.

All the data collection procedure and methods will be described clearly and precisely in order to ensure the reliability of the thesis. During the time of the research, we always kept in mind the reliability of our thesis. Therefore, before interviews we have worked closely with our supervisor and the companies in order to avoid misunderstanding from these sides. We conducted our case study, and pay attention to the interview process and data collection. We tried to minimize the possibility of misunderstanding the interviewees,
collecting the data very prudentially, and keeping in mind the research ethics throughout
the course of the research, we believe that all of them will guarantee the reliability of our
research.

2.6 Research Model
The below Figure 3 is a summary of the research structure. There are three sub research
questions are divided by main research question.
Main Research Question

How can supply network management be used to improve the quality of corrugated cardboard suppliers in China?

Sub-Research Question 1
How can supply network management be used to find suitable corrugated cardboard suppliers?

Sub-Research Question 2
How can supply network management be used to manage supplier development?

Sub-Research Question 3
How to fit supplier information network into a Strategic Intelligence System for Tetra Pak?

Analysis

Analysis of the empirical findings in China based on Theoretical Framework

Conclusion and Recommendations

Figure 3 Research model
(Source: Author’ own)
3. THEORETICAL FRAMEWORK

The theoretical framework serves as the fundamental basis for our thesis and presents the different theoretical perspectives applied in our study, as well as the research model that emerged from these theories. The framework reflects the author’s perception and interpretation of various existing theories and concepts regarding the topic. In our thesis, the framework will be created as a solution for how supply network management can be used to improve the quality of corrugated cardboard suppliers and how to find suitable suppliers in China.

3.1 The Institutions Network Model

The Institutions network model creates a general understanding of how the complex and rapidly changing external environments of emerging country markets work fundamental models for analyzing them, and basic ideas on how to operate there. Hence, the institutions network model of Jansson (2007) is used in the thesis to describe the overall environment of China and provides a good foundation to analyze the corrugated cardboard industry because the development of corrugated cardboard industry is quite related to the Chinese business environment. The external institutional setting of China is described and explained in order to make an environmental analysis of the external institutional framework of Chinese market, using factors that are most significant for corrugate cardboard industry.

The institutions approach captures the major characteristics of emerging country markets: the embeddings of groupings at different societal levels and how they are related. Hence, society is divided into different social groupings characterized by different regularities and rules. The groupings are embedded into each other, forming a
multilayered system of institutions. How one part of society is organized is influenced by how other parts of society are organized. According the basic institutions divided into three levels of description for the rules: micro institutions (e.g. the MNC), meso institutions (e.g. an organizational field), and macro institutions.

These basic types of societal organizations affecting MNC are segmented into two major groupings or institutional systems: organizational fields and societal sectors.

![Figure 4. The basic institutional model](Jansson, 2007)

### 3.1.1 Societal Sectors

According to Jansson, the societal fields are included several factors: country culture, family/clan, religion, business mores, legal system, political system, educational/training system, professional and interest associations. However, there are only several factors such as labour, economy, government...etc. will be described in the thesis, because those
four factories are main related to Chinese corrugated cardboard industry.

3.1.2 Organizational Sectors

A distinction is made between product/service markets, financial markets, labour markets, and government in organizational fields. In order to better analysis of the product and service market, Porter’s (1986) Five Forces model will be applied to provide a clear view of the corrugated cardboard industry. Therefore, Porter’s five forces model will be used in thesis for how the Chinese corrugated cardboard market works, for example rules regarding the way major actors related to each other through competition.

Five Forces analysis models that the determinant in terms of identifying the key factors that drive a firm’s relative profitability within an industry. It is to identify the key elements of the industry’s structure such as the producers, the customers, the suppliers, and the producers of substitute goods- then examining some of the key structural characteristic of each of these groups that will determine competition and bargaining power. The centerpiece of our approach is Porter’s Five Forces of Competition framework, which links the structure of an industry to the competitive intensity within it and to the profitability that it realizes. Although every industry is unique, competition and profitability are the result of the systematic influences of the structure of that industry. The Porter framework provides a simple, yet powerful organizing framework for classifying the relevant features of an industry’s structure and predicting their implications for competitive behavior. The framework is particularly useful for predicting industry profitability and for identifying how the firm can influence industry structure in order to improve industry profitability.
3.2 Network Mapping

This network mapping methodology is used to analyze the marketing situation of MNCs in the emerging country market. Mapping the marketing network situation is the basic strategic foundation for the MNCs to understand the industry situation and build relationships. In our thesis, mapping networks is used to analyze the whole market network, inclusive of buyers, customers, competitors, suppliers and government of corrugated cardboard industry in China.

According to Jansson (2007) Network mapping model which is presented containing three dimensions which the different parts of the network are grouped: The vertical
dimension take up the parties included along the valued added product chain: first-tier
customers and second-tier customers such as customers’ customers, etc.; first-tier
suppliers and second-tier suppliers such as suppliers’ suppliers, various kind of
intermediaries. The horizontal dimension includes competitors, while the diagonal
dimension concerns connections to other organizational fields such as the financial
market network and the government network. The primary part of the network of the first
tier of relationships consists of direct business marketing relationships consists of direct
business marketing relationships, the second part of the network consist of the second tier
of indirect relationships of MNC, they are only considered when they are of critical
importance for business marketing in the primary network. Sometimes, a third tier of
relationship is included, for example when the MNC as seller wants to know about the
customers’ customers of its dealers.

3.3 Strategic Intelligence

3.3.1. Difference between Information and Intelligence

It is important to grasp the differences between information and intelligence. Information
is static, process, not necessarily rational, necessarily human. (Gerald M. Goldhaber,
Harry S. Dennis III, Gary M. Richeto, Osmo A. Wiio, 1979)

3.3.2 Definition of Strategic Intelligence

Many authors agree that intelligence results can serve as immediate support for strategic,
tactical and operational decisions (Ashton and Stacey, 1995; Dhar and Stein, 1997).

Originally, SI was a military term, which has gradually entered the corporate dictionaries
Strategic intelligence can be described as the ‘sword and the shield’ of the enterprise. It has an indispensable role to play in each phase of a firm’s strategy process, and in practice represents the only formal organizational function that claims no stake in the outcome of decisions. Its purpose is to help advance the aims and objectives of the organization by minimizing uncertainty... (Bernhardt, 2002, 24)

Strategic intelligence is the ability to interpret cues and develop appropriate strategies for addressing the future impact of these cues. This unique intelligence includes timing, instinct, political savvy, curiosity, flexibility, expertise to simplify, fit ability, imagination, and the ability to interpret circumstances as they unfold. (Service and Arnott, 2004)

Leibow, Jay (2006) also mentions the relationship between Strategic intelligence and strategic decision, ‘Strategic intelligence is the aggregation of the other types of intelligence to provide added information and knowledge toward making organizational strategic decisions.’

Strategic intelligence is useful in decision making for decision making by top-level managers and their staffs for combining pertinent external with internal data, information, and knowledge for future periods, say from two to five years and beyond, to accomplish an organization’s strategic plans as related to its objectives and goals. (Robert J. Thierauf, 2001)
Robert W Service (Mar 2006) defined Strategic intelligence as the ability to interpret cues and develop appropriate strategies for addressing the future impact of these cues. This unique intelligence includes timing, instinct, political savvy, curiosity, flexibility, expertise to simplify, fit ability, imagination, and the ability to interpret circumstances as they unfold”. Moreover, there is further explanation Strategic intelligence which should provide a company with the organization its needs about its business environment to be able to anticipate change, design appropriate strategies that will create business value for customers and create future growth and profit for the company in new markets within an across industries.

3.3.3. Managing and Supporting the Strategic Intelligence Process

Farcot (2003) holds that successful delivery of SI requires (1) a clear understanding of the customer’s reporting requirements; (2) a clear workflow to document the analysis; and (3) a clear and concise summary of the key facts. McNeilly (1996, 8) holds that ‘it is not enough to merely gather the information; an infrastructure must be in place to ensure that market information is getting back to the decision makers’. Based on experience and empirical research, the high-level recommendations of Tyson (1986) and McNeilly (1996) can be translated into more concrete terms: by infrastructure, we could understand a people-based process that links up the sources of information with the analysts who can interpret the data, and who then forward the relevant parts of that new information to executives for action on a timely basis. It would seem that this is how SI with operational impact can be created.

3.3.4 Sources of Intelligence

Legitimate sources of intelligence are in abundant supply for the manager and company
willing to apply imagination and effort in structuring a Strategic Intelligence System. While it would be of doubtful value for any given company to pursue all sources on a continuing basis, companies should review a wide range of potential sources before choosing which one to use. In our case, the information of corrugated cardboard suppliers is gathered from variety of sources to ensure the information that could relate to the current situation of cardboard industry.

3.3.5 Fitting supplier information network into a Strategic Intelligence System

A strategic intelligence system is an organizational process of learning about the environment; it contributes to organizations the ability to assess opportunities as well as potential threats in the environment (Visudtibhan, Kanoknart, 1990).

It seems the way of the future is for all organizations to embrace and apply Strategic Intelligence in order to improve their strategic decision-making process. It is important for Tetra Pak that applies Strategic Intelligence effectively will be the survivors of today’s and tomorrow competitive environment.

In our thesis, we will describe how to get the data on Chinese corrugated cardboard industry environment through different process such as gathering, integrating and disseminating Chinese corrugated cardboard information and how to develop a system to incentive corrugated cardboard suppliers to deliver better quality It contributes to Tetra Pak the ability to assess opportunities as well as potential threats in corrugated cardboard.

3.4 Supply Network Management

3.4.1 Supply Network
3.4.1.1 Definition of Supply Network

All are part of interconnected network of not only their own customers and suppliers, but their customers’ customers and suppliers’ suppliers. In considering how an operation fits into the supply network, most companies are at the crossroads of market positioning and resource development.

A supply network, however, can be defined as an interconnection of organizations which related to each other through upstream and downstream linkages between the different processes and activities that produce value in the form of products and services to ultimate consumers.

3.4.1.2. Development roles of purchasing

Direct and indirect costs are affected by purchasing activities. The most obvious direct cost is price, i.e. what appears on the invoice from the supplier. The buying firm can affect price through its purchasing behavior (for example, by buying large volumes and/or skillful negotiations). Indirect costs are also dependent on the approach of the buying company. However, these costs represent than the price tag. In some firms, these costs (installation, maintenance, training, retirement...etc.) represent a much greater potential for rationalization benefit. Therefore, the company would try to detect the ‘hidden’ costs that are affected by its procurement strategy and behavior.

3.4.1.3. Win Win situation

Buying and selling transactions were considered ‘zero-sum-contest’ – what one stands to gain the other stands to lose. Selling firms were thus considered adversaries rather than collaborators. However, numerous examples show that win-win situations do exist and that suppliers can contribute substantially to the fulfillment of the new requirements
imposed on purchasing. Achieving this support from suppliers requires reconsideration of the view of efficiency in customer-supplier relationships. The prevailing attitude, stressing and the need to avoid dependence on individual suppliers, was modified when the potential advantages of close collaboration were discovered.

3.4.2 Supply Base Design

3.4.2.1 Sourcing Strategies

Designing supply networks involves sourcing strategy. A buying company may use either single or multiple sourcing. Single sourcing means relying on only one supplier in the acquisition of a specific. Sometimes, a buying firm may prefer to use two or more suppliers (dual or multiple sourcing). There are the pros and cons of these choices.

Multiple sourcing is used by firms to reduce dependence on individual suppliers and reduce the risks associated with being locked into certain technical solutions, which later become outmoded. Multiple sourcing also can lead to price reduction through stimulating competition among suppliers. However, multiple sourcing may involve more direct and indirect costs and make it hard for the buying firm to exploit economies of scale. (Ibid)

A recent trend concerning the sourcing strategies is the buying firms’ increasing reliance on single sourcing. The main advantage of single sourcing was perceived to be the increase in bargaining power. In addition, reducing indirect costs requires high-involvement relationships with suppliers, and these relationships call for investments which, in turn, necessitate a reduction of the supply base.

3.4.2.2 Design of Supply Base

Managing the supply network in terms of numbers of suppliers is an important strategic
issue because handling many relationships is costly. It is not possible to have close relationships with too many suppliers; therefore, the company would reduce the supply based. MNC would combine the requirement of all the divisions and negotiated long-term contracts with suppliers, resulting lower prices and major reductions of the company’s supplier base, with accompany with cost savings.

3.4.2.3 Co-operation

There is the simultaneous occurrence of conflict and co-operation prevailing in the interaction among firms. When buyer and seller develop close relationship, conflict would not be avoided. In fact, effective relationships require both co-operation and conflict at the same time. One should not be surprised that conflicts arise even in what seems to be well functioning co-operative relationships. On the contrary, the absence of conflicts is likely to reflect the fact that the two companies have not really ‘clinched’ with each other, and are not really trying to explore the potential for collaborative actions. Conflict has to be handled. It is important to observe that handling conflict should not be confused with elimination of conflict. Gemunden (1985, p.405) who argues that ‘buyer and seller should neither smooth over existing conflicts nor let them escalate’.

![Figure 6. Relationship characteristics in terms of conflict and co-operation](Source: Gadde & Hakansson, 105)
The four cells in the matrix represent relationships with different combinations of co-operation and conflict. There are four different combinations, the most ideal combination is a relationship scoring high on co-operation and low on conflict can tend to be somewhat too ‘nice’. Provided that it can be handled well, an increasing conflict level might enable a better climate for innovation and development. Therefore, the only possibility for establishing well-functioning relationships is for all the parties involved to have the courage to work on the basis of their own ambitions at the same time as they accept the fact that their collaborators have different motives and that these must also be taken account.

3.4.2.4. Power and Dependence

Significance imposes dependence and the way in which power and dependence issues are handled thus becomes an important issue for purchasing. In the past, it was recommended that buying firms should try to behave in such a way that dependence would not arise, because avoiding dependence on individual suppliers was a key objective. However, the purchasing strategy and purchasing behavior has changed recently. The present situation is thus characterized by more mutual dependence between customer and supplier and the focus of purchasing efforts has been shifted from avoiding dependence on suppliers to finding mechanisms to handle dependence. This does not mean that power is less important than before, but it is used in a more constructive way.

3.4.2.5 Trust and Commitment

Developing trust and commitment, which is prerequisite for high-involvement relationships. These relationships build on mutual adaptations and investments, which is one of the reasons they tend to be of a long-term nature. The supplier also has to consider the future prospects of the potential partner and how the customer fits into the whole
network which the supplier is a part. Furthermore, engaging in a high-involvement relationship requires trust, because it is quite different to do business in terms of market exchange as compared with strategic partnerships, in the terminology of Bensaou (1999). One important function of interaction is to reduce uncertainty. Society interaction is necessary because it is the primarily driving force for development of trust. Developing trust is important because trust is a prerequisite for commitment (Hakansson and Snehota, p.198). Commitment is central to business relationships. Gaining benefits from relationships requires a long-term perspective. Building trust and commitment are time-consuming processes in which relationships between individuals are crucial. Therefore, trust and commitment are the key elements to develop close relationship between buyer and seller.

3.4.3 Supplier Relationship Strategies

One of major supply network strategies deals with relationships with suppliers. Buying firms develop various types of relations with different vendors there are different types of supplier relationships within one and the same company, since suppliers make different types of capabilities and resources available to the buying firm. Therefore, the different relationship strategies are introduced as the below and the classification of buyer-seller relationships is based on the level of involvement between customer and supplier (Gadde and Snehota 2000)

3.4.3.1. High and Low involvement Relationships

To decide on the level of involvement is thus a complex task for the buying company. High and low involvement relationships have their own advantages and disadvantages. A high involvement approach is never an outcome of a one-sided decision. It requires a similar interest of the supplier side.
Regarding the advantages of low involvement relationships, first, by having a number of alternative suppliers to reply on the buying firm can reduce transaction uncertainty. Second, there is also about avoiding being locked into a specific relationship. Third, buying firm could make it possible to encourage competition among a group of suppliers. The opportunities for playing off suppliers in terms of price have been considered an important determinant of efficient purchasing.

In fact, there are also several disadvantages of low involvement relationships. The relationship can be handled with limited co-ordination, adaptations and interaction. Activity links are weak owing to standardized order processing and shipments from centralized inventories. This relationship is characterized by low relationship handling costs, but splitting orders among vendors may affect direct procurement cost negatively. Also, the low-involvement approach may also lead to substantial hidden costs in other activities in the company. There may be costs for adapting internal resources to fit with what suppliers have to offer.

Regarding the advantages of high involvement relationships, it may be possible to attain costs benefits in terms of reduced costs in production processes and material flows as well as improved service levels and flexibility. Furthermore, it is possible for the customer to take advantage of supplier skills and capabilities to improve the quality of its own products and services which, in turn, has revenue benefits.

However, the gains of the benefits cannot be attained without substantial co-ordination, adaptation and interaction, which entail costs. In particular, high involvement increases relationship-handling costs. Reaping these benefits most often requires non-standardized solutions and customer specific adaptations. Also, applying the low-involvement
approach implies limited adaptations to stay free to choose the ‘best’ supplier in each transaction, because adaptations would mean reducing this type of freedom.

3.4.3.2. Economic Consequences of Supplier Relationships

No business can do without suppliers, and as a rule, there is a substantial continuity in the relationships with suppliers. Therefore, the relationship in the supply base of a company represents one of the most important assets of the company. The specific supplier relationship depends on how it fits into the operations and the strategy of the buying company and how other supplier and customer relationships are affected. Therefore, the role and value of a particular relationship cannot be evaluated from its product and service content only.

In order to develop effective supply strategies, buying companies need to understand the multiple economic consequences of supplier relationships. A number of technical, commercial and organizational solutions in a supplier relationship affect costs and benefits of both companies. In particular, it is important to be aware of the possible effects of changes in the level of involvement. The costs and benefits a supplier relationship can entail are analyzed by Gadde and Snehota (2000, p.308)

<table>
<thead>
<tr>
<th>Relationship costs</th>
<th>Relationship benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct procurement costs</td>
<td>Cost benefits</td>
</tr>
<tr>
<td>Direct transaction costs</td>
<td>Revenue benefits</td>
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<tr>
<td>Relationship handling costs</td>
<td></td>
</tr>
<tr>
<td>Supply handling costs</td>
<td></td>
</tr>
</tbody>
</table>

Table 4. Financial consequences of supplier relationships

(Source: Gadde and Snehota, p.308)
One the relationship cost side, the most obvious item is what shows up on the invoice from the supplier – the direct procurement costs, which are easy to identify and measure. Each purchasing transaction is also associated with direct transaction costs such as costs of transportation, handling of goods, ordering, and so on. These costs are more difficult to measure but can be traced both to the specific transaction and the specific supplier. In addition, there are costs on continuous interaction for maintaining the relationship which are identified as relationship handling costs. In addition, the ‘supply handling costs’ are structural costs and are common for the purchasing organization as a whole, including communication and administrative systems, warehousing operations and general process adaptations, etc.

There are two types of relationship benefits are distinguished in the table. Cost benefits represent cost savings in the operations of the buying firm that can be related to relationships with suppliers. The revenue benefits represent the impact on the income side of the buying firm. The effects can be linked to improvements in product quality or process performance that affect the competitiveness of the customer. Compared to the relationship costs, the relationship benefits are even more difficult to measure.

3.4.5. Developing Supplier Relationships

It is necessary for any company to actively manage its supplier relationships. Managing is required to make the best use of resources of suppliers. There are three managerial issues which are related to management on the supplier relationships. Firstly, there is a continuous need to monitor relationships to ensure that benefits keep pace with costs. Secondly, buyer-seller relationships are two-sided. What is available from suppliers depends to a large extent on the way the customer intervenes in the operations of suppliers. Thirdly, suppliers must be motivated to enter a high-involvement relationship
then receive support to continue to be a resource provider for the buying firm.

### 3.4.5.1 Monitoring and modifying Relationships

The evaluation of supplier and monitor of the relationship are keys things on supplier network management. The level of involvement is crucial issue in any relationship. High-involvement relationships may provide substantial benefits, but they also entail substantial costs. Therefore, the first managerial issue is about assessing these costs and benefits. In many cases, these assessments take the form of evaluation of the supplier rather than relationship. Many firms tend to enter high-involvement relationships and reduce the supplier base without analyzing the prerequisites and consequences of these strategic changes, the firms ‘appear to be pursuing supplier reductions without a clear assessment of the costs and benefits involved’ (Cousins 1999).

The second managerial issue is that the level of involvement must be continuously monitored and adapted to changing conditions. Modifying involvement in terms of what is justified in the specific relationship is one of the critical issues in supply network strategies. If this is omitted buying firms may end up in either over- or under–designed relationships, both of which have been found to be paths to failure (Bensaou 1999). Over-designed relationships evolve where resources utilized in the relationship exceed the benefits gained, while under-designed relationships go in the opposite direction, where the investment is too little to gain from the supplier’s potential.

Develop training programmes is one of the important managerial issue to avoid low performing Improving the quality of the products required extending quality assurance to suppliers. Suppliers affect quality more than any factor in the equitation except for design. Nowadays, formal training programmes are no longer the most important means of
enhancing supplier performance. Working closer together gives new insights through collaboration which support performance improvements.

3.4.5.2. Partnerships require an interested supplier

High-involvement relationships are costly for suppliers as well. Therefore, a key task for buying firms is to continuously mobilize and motivate suppliers to engage in relationships. This is important not only in the early phases of the relationship but has to be maintained during its total life-time to make the best use of the suppliers. The buyer would identify the incentives and improvements offer to the suppliers involved in the partnerships. Long-term business of the buyer can be secured, which make the buyer better able to plan for the future investments and use of resources. The supplier can thus sharpen its resource utilization and focus on meeting the specific needs of fewer, key customers. Also, understanding the directions and needs of a demanding customer may lead to new development opportunities. Furthermore, the supplier may reduce its administrative burden and improve its use of resources when it has lower bidding and quotation requirements.

Once suppliers have been mobilized they must be continuously encouraged to continue the relationships and contribute to performance enhancement. The prerequisites of high-involvement relationships are trust and commitment, because it is quite different to do business in terms of market exchange as compared with strategic partnerships, in the terminology of Bensaou (1999) these relationships build on mutual adaptations and investments, which is one of the reasons they tend to be of a long-term nature.

In high-involvement relationships joint investments, product adaptations and other strategic issues require that customer and supplier agree on a common approach, in spite
of the fact that their views may be quite different. The higher the involvement between
the companies the greater the interdependence and the more pronounced the potential for
conflict. This does not mean that conflicts should be avoided. On the contrary, diversity
of goals and convictions are prerequisites for innovation and dynamics. Therefore, it must
be accepted that the counterpart has other interests and objectives that also need to be
taken into consideration.
4. EMPIRICAL STUDY

In this chapter, we will present our empirical findings in China. The chapter is based on both primary and secondary data. The primary data is collected from face to face interviews of corrugate cardboard packaging suppliers as well as the people with an experience of working in this business. The secondary data is based on company presentations, company brochures, webpage, and articles.

4.1 China Empirical Report

4.1.1 The Trip to China

The overall trip to China was intense but joyful. Most of the interviewers were very friendly and open minded. There were lots of valuable pictures taken under the permission of relevant organizations to support the findings.

The trip to China started from Dongguan in Guangdong province as the place is well-known in producing secondary packaging in China. The first company we visited is AMB Interpac Container. It was a good commencement. We had a very nice conversation with the people in sales department. We were given a lot of useful information about AMB and cardboard industry, so we felt more confident to continue our further investigation. The second company we visited was Panlong Paper in Panyu, Guangzhou. The company is a very typical local private company in South China. It was little difficult to ask questions as they did not fully understand our project at beginning. Fortunately we got a chance to talk to the owner of Panlong. Through introducing his personal experience, we finally had a deeper understanding about the packaging industry in South. The next stop was Shanghai; we first of all had a meeting in Tetra Pak head office in Pudong. According to the feedback from one of the manager, Mohsen Djalali,
we revised our questionnaires to be a more professional way. After that, we interviewed the sales managers of International paper and Zhejiang Jian Paper. And then we got a chance to visit one of the biggest corrugated cardboard producer in Shanghai namely Huali Packaging. We were very impressed to their business scale, advanced equipment and management style.

Since Inner Mongolia is the base of Mengniu and Yili, we went to Hohhot to interviews some of their existing suppliers. We visited three local suppliers for Mengniu and Yili, namely SCA Hohhot, Xinya Paper and Baotou Zonestar. We were shared different opinions about the industry and issue regarding to the quality.

The general manager from Baotou Zonestar introduced us to visit their head office in Hubei as they have a lot experience about integrate handles solutions. So we decided to move to Beijing as next shop. We visited Baoding Yuejin and Zonestar, the two biggest private own corrugate cardboard producers in Baoding. Base on their long experience working with Mengniu and Yili, we have benefited greatly from the conversation with general managers of Zonestar and Managing director of Yuejin. Due to the time limit, we could not manage a meeting with another large supplier, namely Gaoshi Group, so we interviewed one of sales assistant through the telephone.

After that, we went back to Shanghai to meet Simon Shaw, print and packaging director in IPS Ltd. He used to work in SCA more than ten years. He shared to us his experience of working in SCA and opinions of corrugate cardboard industry in China.

The final stop is Hong Kong, we got chance to have two face to face interviews with sales assistant of AMB HK and senior manager of Smurfit-Stone HK and one tele
interviews with director of New Asia Paper.

4.1.2 Corrugated cardboard industry in South and North

Generally, the growth in South is quite fast, especially in Guangdong and Zhejiang, Fujian where a lot of international companies are having the production lines in those regions. There are numerous corrugated cardboard suppliers target those MNC as main customers. Those customers such as electronic companies and cosmetics companies normally require higher quality for secondary package in order to protect their product. They ask for high quality product especially in use of materials and the technology of printing. The advanced equipment is widely applied in many manufactories in south. In addition, a lot of corrugated cardboard packaging companies right now are focusing on quality and service improvement rather than price.

Generally, the growth in South is quite fast, especially in Guangdong and Zhejiang regions. There are many big corrugate cardboard suppliers with over 100million revenue annually. The advanced equipment is widely applied on many producers in south. Those companies are focus on improving the quality of the products and better service rather than price.

Compare to South, the corrugate cardboard industry is relatively less developed in North. The large and medium sizes of enterprises are dominating the secondary packaging industry in northern China. The small suppliers are not widely distributed within the area. The big producers with total revenue above 50 million RMB and the medium size producers with total revenue above 10 million RMB are the main players in the market. Besides that, there is a huge difference in quality and quantity for smaller enterprises between north and south.
The companies possess strong positions are mainly MNC and joint venture companies. But the secondary packaging companies are distributed rather uneven in North. Most of them are centralized in Tianjin, Hubei with a capacity at 73% of total output in north. Moreover, the 2008 Olympic Game will stimulate the demand as well. The corrugate cardboard packaging business in other provinces within north such as Shandong and Inner Mongolia are relatively underdeveloped.

Hubei is the most developed region in corrugate cardboard packaging business in Northern part of China. There are more than 800 producers with 8% growth rate annually in Hubei, and the total revenue is around 1.5 billion RMB. 70% to 80% products are come from Baoding, Langfang.

Cardboard packaging business is labor intensive industry. 75% of the employees are low level workers. The workers without a high school or a technical school diploma are still occupying a big percentage of total employees. Most of manufactories focus on practicing of basic operational skill rather than technical skill. Therefore, the cost on salary is lower compare to other industries. The average salary for secondary packaging industry in Beijing, Tianjin, Hubei and Inner Mongolia is around 2000 RMB per month. The income level in North is still lower than South, some of the senior technicians month salary is no more than 3000 RMB. So it is common that people change the jobs very frequently. The tendency of high autoimmunization to improve the productivity in China will require more skilled workers, the increase in salary need to be considered as first priority. (Source from: http://news.pack.net.cn)
4.2 Description of suppliers

We have conducted 11 face to face interviews with corrugate cardboard suppliers and 2 face to face interviews with relevant companies (IPS Limited & Tetra Pak in Shanghai). The general information about companies and important issue in relation to our questionnaires pointed out by the respondents will be described as below: The detail information about interviewed suppliers profile is attached in Appendix 1.

4.2.1 Company visiting - AMB Interpac Containers (Guang Dong) Ltd

Company brief

AMB Package Group has 11 plants and sale/service point in five countries – Singapore, Indonesia, Malaysia, Thailand, China, and Hong Kong. AMB Group provides their customer high quality packaging and services for more than twenty years. The annual sale is above USD 100 million. Their average profit margin is estimated at 15%.

AMB Interpac Containers (Guang Dong) Ltd. is part of AMB Group. The company is located at Dongguan, Guangdong Province with an annual capacity of 50,000 metric tones. AMB Interpac makes a range of packaging products including corrugated fiber boxes, corrugated paper board, A, B, C and E flute paperboard, single and double wall, litho-laminated boxes and offset printing paper boxes.
**Equipment**

AMB Interpac has established a modern plant in Dongguan. The company owns high speed production line, flexo and offset printing, die-cutting machineries, and computerized artwork which provide a comprehensive packaging service under one roof. The business is able to provide the right packaging solution by matching customers’ needs with box design, dimensions and shape, box strength and special coating requirements.

**Customer**

The company mainly provides comprehensive services to customers in the Pearl River Delta Region such as Hong Kong, Shenzhen, Dongguan, Guangzhou and Zhuhai. The company has established a steady client list such as Kyocera Mita, Philip, IBM, HP…etc. The company has experience on deal with dairy producers such as Vitasoy which is one of largest manufacturer and distributor of non-carbonated drinks based in Hong Kong.

**Service**

AMB Interpac Containers aims to one-stop packaging solution to their customers. The company offers comprehensive training programs for their employees. Besides that, they also provide professional advice on tailor-made products design from elite technical support team, precise production and quality controls, well-planned delivery and after sales services.
Quality control and Test Standard

Quality is always the cornerstone of continuous progress of the company. Therefore, the company is committed to one common goal to meet the customers’ needs and expectations. Consistency in quality is achieved through precise workflow and efficient management system, plus the skilled and committed workforce.

AMB Interpac Containers follows their customer quality standard for quality control process. They will use Chinese National Standard when customer does not have any requirement. There are no current customers asking for premium quality. The company has qualified ISO9002:2000 quality management system and ISO 14001 environment management system.

Sourcing Raw materials

Around 80% of paper material is recycled fibers and only 20% is virgin fiber. Most of the raw material is from large domestic paper mill suppliers such as Nine Dragons Paper, Lee and Man Paper Manufacturing, because the price of domestic paper price is much cheaper than the import paper.

Integrated handles

The company only produces the boxes with holes for plastic handles without applying plastic handles to the current dairy customer Vitasoy. However, the company is quite interested in invisible tape issue and willing to provide another integrated handle solutions to customers in the future.

Incentive towards quality improvement

AMB considered large volume and the shorter payment term are the main incentive for the company to promote better and more homogenous cardboard. As mentioned before,
the economy of scale would be enjoyed when the production quantity is large.

4.4.2 Company visiting - Guangzhou Panlong Paper Products Co. Ltd

Company brief

Guangzhou Panglong is a private owned company which is located at Guangzhou. The company was registered in 1992. The production area is about 20,000 square meters. Their daily output is around 100,000 packages per day.

Unfortunately, the company is not willing to disclose the annual sale figure.

Guangzhou Panglong makes a range of packaging products including corrugated fiber boxes, corrugated paper board, A, B, C and E flute paperboard, single and double wall.

Machine

The company owns advanced facilities including two corrugated paper production lines, paper width are 29 and 63 inch, two sets of flexo-printer. The company mainly uses roller die cut, but sometimes stamping need to be used to ensure the precision of size and shape.

Customer

Their customers are mainly from local fruit producers. The company doesn’t have any experience in dairy producers. Since the interviewee was not quite open to answer our questions, we didn’t get detail information about the names of their customers.

Service

The company is very flexible in production and transportation time. They can promise their customers from placing order to deliver the products no more than 3 days. For urgent order, they can even deliver the products within one day. Also, the company
provides other added value services to customer such as packaging and graphic design, material combination and printing proof reading…etc.

**Quality and Test Standard**

The product quality is based on Chinese National Standard. There is no quality requirement from their customers so far. The main reason is most of customers are quite small companies. Usually, they don’t have any detail quality specification. The quality control department with around 40 employees is responsible for quality measurement from raw materials to final products.

There is no current customer asking for premium quality because the quality issue is less important than the price. Moreover, the company gained ISO90001:2000 and China Export Packaging Test Certification in 2000.

**Sourcing Raw materials**

The company purchases all raw materials from domestic paper mills because they have acceptable quality in a lower price compare to import paper. 90% of the raw materials are made by recycled paper.

**Innovation ambitions**

The company is not quite interested in the innovation and they don’t invest capital regularly on product development or quality improvement. The company shows a little interest in cooperating with customer in product development.

**Integrated handles**

The company only produces the boxes with plastic handles to their current customers. Also, the company does not expect to apply integrate handle on cardboard boxes, they
considered it would involve the additional labor cost.

**Incentive towards quality improvement**

Panlong refers to a short payment term (only accept the maximum 30 -45 days) and reasonable price would be key factors for them to provide better and more homogenous cardboard quality.

### 4.2.3 Company visiting-Shanghai Huali Packaging Co Ltd

**Company brief**

Shanghai Huali Packaging Co., LTD is located at Xiangyang industry Zone Heqing Town of Shanghai Pudong New Area. Registered in 1997, the company is a large packaging printing enterprise, held 100% by Hong Kong Huali Holding group CO., LTD, Specializes in production and sale corrugated boards, cartons, boxes, paper shelves, paper cushion materials and any other paper productions. The ability of production is about 80,000,000 m2; the annual sale is about RMB 300,000,000 Yuan. Huali produces a different kind of structure and dimension of flute: type A, C, B, E and single wall and double wall.

The company has win many prizes, such as “National 200 Advanced Packaging Enterprise”, “National 100 Advanced Printing Enterprise”, “Shanghai 50 Advanced Packaging Enterprise”, “Foreign Investing Advanced Technology Enterprise”. They are strictly implementing ISO9001 and ISO14001.
Machine

The company owns many advanced facilities, including two corrugated paper production lines, paper width are 2.5m and 2.2m respect, five sets of high-precision multicolor, flexo-printer-sлотter-diecuter production lines. Some of them were directly imported from France (Martin DRO1628) Taiwan. In addition, they own two sets of offset press (5 colors & 4 colors) made by Germany and one flexo-plate-making machine comes from France.

Customer

Their main customers include Konka, Arawana, Fujitsu, Sony, Panasonic, Mitsubishi, Lenovo, Sharp, Nestle, Nokia, Morse, Daikin, Family, GE, Siemens, Wyeth, Kohler, GSK, Bright etc. In these fields, the company has built a long-term cooperation relationship with many famous companies from domestic and abroad. The company has worked with Bright Dairy for almost 6 years and they have around 3 year’s business relationship with Yili Dairy. Yili adopts a pitching suppliers policy, Shanghai Huali participate in pitching every year, Yili would promise approximate annual sale amount of the order to the company but it is not fix amount.

Service

The packaging service of Shanghai Huali involves many industry fields, such as home electrics, food, communication, high-precision machine etc. They provide a wide range of
services for their customers, including designing proof-testing, plate-making, printing processing after-printing and storage services.

**Business Principle**

“The base of honesty, the paramountcy of customers” is the business principle of the company. Shanghai Huali Packaging depend on large resources of group corporation, make an effort with “keep ahead in the domestic, overtake the world level” and trend the arm of more advanced technology, larger group, more international company with the business principle of management creating.

**Quality and Test Standard**

Shanghai Huali quality control process is base on their customer quality standard. Chinese National Standard would be applied when customers do not have special requirement on quality. In fact, the customer quality standard is higher than the Chinese National Standard. There are no current customers asking for premium quality because the quality can always meet their requirement.

Shanghai Huali strictly controls the quality on each process of the production. They have a strong quality control team (around 30 employees) which is responsible to ensure high quality of cardboard. The final products must be approved by random quality test. The customers will receive a test report when the products are arrived.

**Sourcing Raw materials**

Shanghai Huali doesn’t own any paper mills. They purchase most of the raw materials
from domestic paper mills such as Nine Dragons Paper Limited & Lee and Man Paper Manufacturing Limited. Some of the materials are directly imported from Japan and U.S according to customer special request.

**Innovation ambitions**

Shanghai Huali packaging has involved in the pack’s innovation by the way of science and technology advancement. Create more packaging products accord with environment protest’s demand, depend on the promotional equipments and professional experiences. The company holds ‘average’ attitude towards innovation ambitions on new product development and quality improvement.

**Incentive towards quality improvement**

Huali pointed out that the key factors affect the quality improvement would be large quantity with reasonable price. They believe the production cost can be reduced when customers order in big volume. They might consider to accept the lower price if the offer is big.

**4.2.4 Personal interview-Zhejiang Jian Paper Co., Ltd**

**Company brief**

Zhejiang Jian Paper is medium size company under the Taison Group. The company located at Haiyan, Zhejiang province. Taison Group has five subsidies in center of the Shanghai, Hangzhou and Suzhou golden delta. The company is regional providers (provinces). The group business covers in whole production chains: paper mill, cardboard production, printing service packaging and logistic business. It called fist tier of manufacturer because the group handle whole production chains. Hence, Zhejian Ji’an Paper Package Co., Ltd. sources the cardboard paper from own paper mill. Besides, they
operate printing process in their own printing factories, and handle the delivery through their own transportation company.

Jian Paper was founded in December 2002. The company has a 30,000 square meter production area and employs over 500 peoples so far. They produce over 95 million square meters of corrugated paperboards and cartons each year with an annual sales income of approximately 300 million RMB. The products are sold to places such as Zhejiang, Shanghai, Jiangsu and Anhui etc. Provide a variety of paperboards and paper containers for domestic and international market. The company is able to produce type of flute from A, C, B to E and single and double wall

**Machine**

The company owns a set of advanced US-Taiwan corrugated paperboard production line. They have a four color Flexo printing slotting/die-cutting machine imported from Taiwan. As for design packaging, the company uses Apple image processing system together with professional designers, so the quality of design could be secured.

**Customer**

Their main customers cover many industry fields: electric appliances, food, dairy, daily products, kitchen appliances, paint, and cigarette .etc. They have built a long-term cooperation relationship with some international companies such as GE, Wahaha, Philips, CIMIC, ICI, and Amoy Food. They also provide cardboard to two dairy producers Miaoshi and Dairy Instant W. Yili used to be their customer for several years. But they had to end up the business relationship with Yili because of the low price and long payment term.
Quality and Test Standard

The company was credited with ISO 9001 quality management system in November 2003. They applied professional ERP system, complete standardization system, advanced and efficient quality control technology, ensuring the product quantity and quality. They approach three “Don’t” principles of quality management: Don’t accept unqualified products, don’t produce unqualified products, and don’t allow unqualified products to go out”. The company passes their quality test result report to customer when the delivery is completed. As same as the most of cardboard suppliers, they follow the customer quality standard for quality control. Chinese National Standard will be implemented when customers do not have any special requirement on quality.

Sourcing Raw materials

The company mainly used recycled paper which is combined with a little of virgin fiber. Moreover, Taison group has paper mills in China, so the part of raw materials can be supplied by themselves but most of them are from domestic paper mills.

Innovation ambitions

Zhejian Ji’an Paper Package has involved in the pack’s innovation by the way of science and technology advancement. Create more packaging products accord with increasing awareness of environment protection, depend on the promotional equipments and professional experiences.

The company holds ‘average’ attitude towards innovation ambitions on new product development and quality improvement. The company is planning to invest one more corrugated cardboard production line and two printing machines in the future in order to cope with the future expansion.
**Incentives towards quality improvement**

Zhejiang Ji’an Paper Packages indicated that price and payment term are essential for the company to provide better quality. No more than 3 months payment term would be reasonable for them to ensure the quality. Now the net profit margin is around 4%.

**4.2.5 Personal interview—International Paper Shanghai**

International Paper is a global leader in paper and packaging products, International Paper participates in any industry which is related to paper. The company has office in 40 countries, more than 90,000 employees and the product reach at more than 120 countries. The company has established since 1898. It is a diversified global company with manufacturing operations in the western hemisphere, Europe, Asia and Africa. There are three main business areas: First, paper industry is with the widest selection of writing and printing paper. Second, packaging industry is from corrugated shipping products to high-impact packaging designs. Third, forest industry is to make the forest products that are essential for today's high-quality buildings.

From 2005 to 2008, International Paper has been invested several billions USD in China, the main business in China is sales & marketing and manufacturing. International Paper has three factories in China: International Paper (Chengdu) Packaging Co. Ltd.—containers, International Paper (Shanghai) Co, Ltd.—beverage packaging, and the consumer packaging arm Shorewood Packaging Guangzhou Co., Ltd.

International Paper has set up their first factory since 1994 in Shanghai; today the company owns more than twenty production plants and sales offices in China. International Paper is one of the largest companies in paper packaging for beverage such as fruit, milk products in China and even in the world. The company has already
cooperated with large beverage and milk producers in China such as Newhope dairy, Sanyuan and Yantang milk, Bright, Mengniu. International Paper is the main competitor for Tetra Pak in packaging material business. They have a strong position on producing roof shape packages.

The company business strategy is focus towards high quality products. This was because they realized that low to medium priced products were not the key to success in the Chinese market. Since it would be impossible to succeed throughout China in all product sectors, it decided to focus on the market for high value-added currently popular and technologically advanced products. Since the quality of products manufactured by Chinese companies is likely to improve rapidly, ordinary products will not be able to compete. Moreover, such products do not fare well against local products in terms of scale of production and cost competitiveness. International Paper could not possibly compete against local Chinese enterprises and other MNC even if it was to build new mass production facilities. As IP advances aggressively into the China market, it is not trying to compete through lower labor costs but to create higher value added products. It is not focusing on volume but on profitability. IP has a higher cost in sourcing raw materials and equipment maintenance in order to ensure the quality. So require high price is their main concern towards high quality.

4.2.6 Company visiting-Hohhot SCA

Company brief

SCA Hohhot started to be operational at 2004 with a total investment around USD 6 million. It is a 70/30
(SCA/Yili) joint venture with the Yili Group specializes in production and sale corrugated boards, cartons. The Yili Group consumes 1/2 (5000 ton per month) of the plant’s capacity for its packaging needs. So far the company has 600 employees. The annual sale is about 130 million RMB.

**Sourcing Raw materials**

SCA sources the raw material mainly from domestic paper mills. There are less than 15% of raw material from Europe and South America. They will increase the purchasing aboard because of the Chinese currency appreciation. 90% of their raw material comes from recyclable paper.

**Customers**

SCA Hohhot is targeting on dairy producers. The company provides 10% of total demand of Yili Dairy in Inner Mongolia. So around 80% of SCA total output goes to Dairy makers, only 20% cardboard packages are supplied to other companies such as TCL(TV, computer mobile phone etc), Chuanwei(TV), Luhua(food).

**Service**

SCA endeavors to develop and launch products with a higher value-added content within all segments. SCA always try to understand the needs and preferences of customers by offering the packaging design and cost saving solutions. This also means that SCA’s role is changing from that of an easily replaced supplier to a strategic partner, which not only produces but also accepts responsibility for product development and complete solutions. SCA dispatch people to work in Mengniu and Yili to enhance the after sales service.
Quality and Test Standard

Quality is one of key factors for SCA to expand successfully in China. ISO9001/2000, ISO 14000 quality assurance systems are implemented strictly in SCA. Quality measurement is mainly base on the test method specification from customers. For example, Yili requires a particular tolerance in cardboard size and color dimension at ±2mm.

If the customers do not have any requirement on quality, SCA will follow the Chinese national standard. Normally, they make a sample cardboard to the customers before each offer is being placed. The random sample method is widely used for raw materials, production process.

4.2.7 Company visiting-Hohhot New Asia Paper Hohhot

Company brief

New Asia Paper is a medium size company mainly producing 3 layers and 5 layers of corrugate cardboard packages. The company is located in Hohhot Shengle Industry Zone. The company established in 200. It is a joint venture between Xindongyang Corrugated Paper in Singapore and Xintaijia investment in Inner Mongolia. The company has approximately 100 employees. The sister company is in Vietnam.

So far New Asia Paper main customers are Mengniu Dairy and Yili Dairy. Initially the company was built for the purpose of increasing demand from Mengniu. They chose to build the company just the next door to Mengniu. The company can produce 5000 tons per year. But New Asia Paper only suppliers around 2% of Mengniu total purchasing on corrugate packages per year; it is far below the full capacity. New Asia Paper purchased raw materials are mainly from North such as Tianjin, Hebei, Shandong and Henan. The
biggest supplier for New Asia Paper is Nine Dragon Paper. Like other packaging companies, New Asia Paper is under the pressure of increasing cost on raw material. Recently New Asia is trying to reduce the production quantity to Mengniu because they pushed the price too low to be accepted. Besides that the longer payment term causes a big financial burden to the company. The 7 months payment term also force New Asia Paper to reduce production quantity to Mengniu. How to reduce the waste during the operational process is another difficulty for New Asia Paper to be solved.

Right now they are interested in develop high end products and finding new customers such as electronic producers. They believe fast delivery, focusing on new products development would be the competitive advantages for New Asia Paper in the future.

**Quality and Test Standard**

Maintain a good quality is always the most important aspect for New Asia Paper to achieve. The quality control department is responsible for the whole production process. They need to follow the test method specification from customers to fulfill their requirement. Also New Asia Paper has set up an internal quality standard in accordance with ISO 9001. The quality measurement is start from the raw materials receiving to final products delivery. They use random sample measurement to test the quality. A final test report is made when the products are delivered each time. The inspector from Mengniu comes regularly to check the quality.

They consider the good equipment, short payment term and reasonable price would be the important factors to maintain the high quality. They mentioned that many local packaging suppliers try to cut the cost in order to against increasing price on raw materials. This is so-called jerry-build means that many local suppliers try to produce quickly and cheaply without concern for quality due to the vicious competition on price.
They reduce the gram-mage of the cardboard, simplified the quality measurement and test, so it decreased the rigidity and compress strength. If the dairy producers like Mengniu refuse to increase the price on secondary packages, the situation will be worse.

4.2.8 Company visiting- Zonestar Group (Baoding and Baotou)

Company brief

Zonestar Group is a family controlled company which consists of Baotou Zonestar packaging, Baoding Zonestar packaging and Baoding Zonestar electric power. The headquarters of Zonestar is located at Baoding in Hebei province. Baoding Zonestar established at 2003 with over 300 employers. Besides producing corrugate cardboard packages, Zonestar can provide customers soft print, offset lithograph and the color of various categorists in upscale paper packing. The company can offer business solution aim to increase in value for the customer such as packaging design, paper article examination etc.

Baotou Zonestar is located in Inner Mongolia. It is one of Zonestar’s subsidiary aims to meet the demand of customers in Inner Mongolia such as Mengniu and Yili. The company was founded at 2005 with over 100 employees.

Quality and Test Standard

Zonestar Group mission is to provide the best quality for the customers with the lowest price. Zonestar always put a lot of attention on improving the quality
of product. The company has invested 300,000 RMB on testing facilities. Random sample test method is applied during the whole production process. They check the quality mainly base on customer’ own quality test standard. Zonestar has already qualified ISO9001-2000. The measurement is started from the raw material arrive to the final product being delivered. In addition, more than 3% of total avenue is using for new equipment investment and product development in order to improve the quality and productivity.

**Equipment**

Zonestar Baoding owns 20 machines and equipments including high speed corrugated paper production line, automatic pre-printer, automatic 4-colour printer. Zonestar Baotou has one automatic production line, 2 flexo printers and multi color printers. All the equipments using in Zonestar group are from domestic packaging machinery companies.

**Sourcing Raw materials**

Zonestar sources the raw materials mainly from North such as Shandong and Tangshan. Nine Dragon Paper is its biggest suppliers within the domestic based paper companies. All the material is made by recyclable fiber.
Customers

As one of the largest corrugate packaging suppliers for Mengniu, Zonestar hold around 10% of Mengniu’s total purchasing on corrugated cardboard packages. With a long experience working with Mengniu and Yili, Zonestar believes the concept of “see customer's brand as our own”. Besides that, Zonestar is maintaining the partnership with Jinlongyu (food oil), Huayun (supper market) and some local food companies.

Integrated handles

The company is very active in packaging innovation. Zonestar is the first corrugated cardboard supplier in China to promote the integrate handle solution. The company suggested the integrated tape handle solution to Mengniu and it was applied by Mengniu since 2006. Unfortunately, Mengniu stopped using this integrated tape handle in corrugated cardboard box. There are some reasons behind for this decision from Mengniu, according to Ms. Pei General Manager from Baotou Zongstar explain that the sales decreases in the market because most of final customers do not aware of how to use integrated handle. Customers regard that it is difficult for them to carry Mengniu milk for long distances.

Zonestar is also suffering the lost of profit. Zonestar has a full capacity of 400,000 packages per month, but the output is around 250,000 per day
because of the non-promising orders from Mengniu. Under such a rigorous situation, it is hard to survive by only depending on few customers. Zonestar started seeking new customers recently, but they will only target on food producers.

4.2.9 Company visiting - Baoding Yuejin Packaging

Company brief
Yuejin established at 1991, specializes in corrugated cardboard and boxes. As one of the biggest private owned corrugated cardboard packaging company in the north, Yuejin shares more than 30% of Mengniu total demand on flexo-print packages. The company achieved a total revenue at 180 million RMB in 2007. Approximately 67% of annual sale was made for Mengniu and around 17% was made for Yili.

Yuejin has more than 400 employees with total output at 200,000 square meters. Yuejin’s headquarter is in Baoding, Hebei province, and the company has one subsidiary in Haerbin, Heilongjiang province. Recently Yuejin is investing a paper company in Inner Mongolia to meet the increasing demand in paper market. In addition, Yuejin is planning to invest another corrugate packaging company in Xian.

Quality and Test Standard
Instead of only competing on price, Yuejin has put much effort on improving the quality and providing good solution in order to help their customers to save the cost. Yuejin uses Chinese national standard to control the quality since 1991. The company started business with Mengniu in 2000 and became its one of the biggest corrugated cardboard suppliers. Mengjiu has 22 factories in China, Yuejin is supplying for 21 of them. At the beginning, they used their own test method. Through a fast growth in recent years, Mengniu has set up a system on quality. Today, the quality measurement within Yuejin follows Mengniu’s
own specification. Besides that, the company acquired the qualification of ISO 9001.

**Equipment**

So far, Yuejin owns 3 cardboard production lines, one 8 color pre-printers and 9 flexo printers with a full capacity at 600,000 cardboard packages a day. All the equipments are come from domestic companies. Yuejin focuses on flexo print packaging product associating with pre-print techniques. From 2007 to now, the company invested 2 million RMB on technology improvement, 4.5 million RMB on new production lines.

**Integrate handle**

In March 2008, Yuejin started providing the integrate handles to Mengniu. But just one month later, Mengniu decided to stop because of unsatisfactory market reflection and decreasing sale.

In the future, Yuejie will continually expand the business within the areas of Northern China. Yuejin regards the importance of cost and optimization. High speed automatic machinery will be widely applied to enhance the productivity. How to implement the suitable strategies to improve logistic efficiency at the same time to improve the quality of the product is crucial for Yuejin in future expansion.

**4.2.10 Personal interview-Smurfit-Stone in Hong Kong**

**Company brief**

Smurfit-Stone is a leading manufacturer of paperboard and paper-based packaging. The company operates approximately 250 factories worldwide. They distribute primarily in the U.S. Canada and Mexico. The company offers global solutions ranging from paper packaging and printing through logistics and retail store programs of any scale.
Smurfit provides variety of corrugate boxes such as retail packaging, standardized boxes, courier boxes, food service boxes, coated or treated boxes, multi-walled boxes, specialty flute boxes and bag in box.

Smurfit-Stone is one of the world’s largest collectors of recycled paper and non-paper based recovered materials in the world. Its own paper mills can collect and process 6.8 million tons of paper annually. 45% of collected paper is used for their paper company.

**Customer Service**

The company offers creative services that support the products such as structural and graphic design are key components to the overall packaging process. First, their structural design teams develop packaging to efficiently protect and effectively merchandise customer product. Second, the graphic team could provide design to customer to shorten lead time and packaging solutions.

Smurfit-Stone understands that every product has its own protection and promotion requirements. That’s why even their “standard” brown boxes are custom designed and use varying materials. Therefore, the company has local engineers in every packaging plant to meet their customer’s needs. One of their competitive advantages would be tailor made customer service.

**Smurfit-Stone China**

Smurfit Stone is one of the largest corrugated cardboard producers in China. Smurfit run 15 production plants in China. 12 of them are joint venture with local companies. Widely invest in China by joint venture can help company to reduce the pressure on cash flow, at same time gain experiences from their partners. That is main reason for Smurfit to expand in China so quickly. Most of their factories are located in South.
The company has adopted “Follow me policy” meaning if their existing customers from their home country move to somewhere, they will follow their step. They will set up factories close to their customers. 85% of their existing customers in China are MNC. They target big retailing company from US, Canada and Europe as their main customers.

**Sourcing raw materials**

Smurfit-Stone doesn’t own any paper mills in China. They need to import raw materials from their paper factory in U.S. The company is mainly source virgin fiber paper. Only small percentage of the raw materials made by recycled paper. What type of material need to be used will fully depend on the type of packages requiring by their customer.

**4.3 Empirical Finding in Raw Material**

In our research, understanding where the suppliers source the paper and what kind of materials they are using are important to affect the quality of corrugated cardboard. The below is our finding about the raw material information in our China trip.

Corrugated, made from a natural, renewable resource, is a frequently manufactured using high percentage of recycled fiber, is often reused multiple times, and is recycled more than any other packaging material used today.

Today about 60 percent of the fiber used to manufacture paper and paper board products in China is derived from wastepaper--a substantial portion of which comes from the US, Europe, and Japan. In the last ten years China's wastepaper imports increased by more than 500 percent--from 3.1 million metric tons in 1996 to 19.6 million metric tons in 2006. Zhang Yin, the owner of China's largest paper company, Nine Dragons Paper--and reportedly China's wealthiest woman--got her start in the business driving around the United States collecting wastepaper from landfills and shipping it to China. Today, most of the corrugate cardboard producers purchase raw materials from Nine Dragons Paper.
They believe that Nine Dragons provides the best products in China.

The price of imported waste paper soared. In 2007, the average imported price of waste paper was US$179.2/tonne, an increase of 27.9% year on year, among which, in the single month of Jan 2007, average import price was US$151.4. Afterwards, the price began surging all day long. In November 2007, the price broke the mark of US$200/tonne to US$ 202.3/tonne and in December it recorded the highest of US$ 209.3/tonne. As to why the price surged so significantly, Mr. Song, general manager of New Asia Paper mentioned:

*It is mainly because Chinese demand was increasing. Demand in European countries and the US were increasing too. All these demand drove up the price. The growth of packaging demand in China is expectedly raised because of Beijing Olympic Games.*

<table>
<thead>
<tr>
<th>Year</th>
<th>Imports</th>
<th>Exports</th>
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<tbody>
<tr>
<td></td>
<td>Quantity (1,000 tonnes)</td>
<td>Sum (USD million)</td>
</tr>
<tr>
<td>1996</td>
<td>356.3</td>
<td>195.0</td>
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<tr>
<td>1997</td>
<td>453.4</td>
<td>217.0</td>
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<td>2000</td>
<td>210.7</td>
<td>120.0</td>
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<tr>
<td>2001</td>
<td>153.7</td>
<td>93.1</td>
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<tr>
<td>2002</td>
<td>199.2</td>
<td>95.1</td>
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<tr>
<td>2003</td>
<td>351.4</td>
<td>152.5</td>
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<tr>
<td>2004</td>
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<td>58.0</td>
</tr>
<tr>
<td>2005</td>
<td>135.9</td>
<td>73.8</td>
</tr>
</tbody>
</table>

Figure 7 Wasted paper import and paper export in China
(Source: Research In China, 2007 pp.165)

The price hike in raw materials had an obvious influence on corrugate cardboard industry.
In order to address the rising cost, many Chinese corrugated cardboard producers began to or were prepared to raise price. The big consumers like Mengniu refuse to increase the price. However, high inflation rate and RMB appreciation and increase labor cost will push the price of raw materials up continually. The cardboard producers are suffering the huge pressure on cost. It will force the existing suppliers to consider whether they can still supply to those dairy producers.

4.4 Factors Affect the Corrugated Cardboard Quality

One of our research tasks is how to improve the quality of corrugated cardboard, before we suggest some incentives to supply to provide high and homogenous quality; we must investigate the reasons of the inconsistent quality in China now.

Most of the interviewees were agreed that price, raw materials are the key factors affect the quality of corrugate cardboard. The domestic customers as Mengniu and Yili always bargain a lower price. In China the macro environment such as increasing price on resources, inflation and labor cost lead to increasing price for raw material. Prices increased at annualized rate of 7.1% in January 2008 in China. The suppliers need to ask a higher price from their customers. But the responds from dairy producers are not very positive. In some case, some of customers only accept the lower quality because of the benefit of an agreed lower price from suppliers.

There is big markup from upstream companies, but the downstream refuse to increase the price on final product. How can we survive in such “crevice”? Therefore, Jerry-built phenomenon is getting worse and worse. (Source: Interview with Ms Pei, managing director of Zonestar Baoding, 9th April 2008).
Have as many suppliers as possible is one of the strategy for local dairy customers to keep the price down. Tetra Pak’s largest customer namely Mengniu Dairy has more than 80 corrugate cardboard suppliers in China. Good and bad quality are intermingled means some of suppliers could be extremely unprofessional. Many small suppliers are very much cost saving oriented. In order to gain more market shares, they started to raise a price war. All suppliers were forced to lower the price to gain the market and it reached to the lost control. They simplified the production process or reduce the quality of raw material to cut the cost. Under such circumstance, the quality is being less concerned compare to the price.

Although the quality of cardboard paper between domestic and overseas looks almost the same, there is still big difference in fiber. Normally, the paper from Europe and America is 100% made by wood pulp. But the domestic paper is largely made by waste paper pulp as raw materials. It is less smooth and strength and easier to break compare pure wood pulp base paper.

To some extent, the weather condition can affect the quality of the cardboard and raw materials. The weather condition between south and north are quite different. It is quite humid and rainy in south but dry and windy in north. The paper cardboard can be broken apart after a long transportation from north to south. The length of cardboard would shrink when the weather is different, so the cardboard boxes could not fit in the cardboard wrapper, the machine can’t work properly. Besides, the cardboard producers usually purchase and store big amount raw material in warehouse. When some of cardboard paper is not being used for a long time, the texture of paper would be change or damage. The environment and temperature within the factories can affect the texture of cardboard paper as well. Hence, it is important for suppliers to control and monitor the temperature
on the whole production process.

Ms Suo, the manager of quality control department in SCA Hohhot pointed out that the control of the production process would be very important factor to affect the quality. There are several factors in production process would be affect the quality of final product. The condition of cardboard machine may be depreciated and it doesn’t work properly. The workers are unprofessional in operation or lack of knowledge, so the control of machine is not properly. Poor quality caused by careless and irresponsible during the whole production process is also common. High degree of manual labor both in the suppliers and customers like dairy producers is possible to “digest” poor quality.

### 4.5 Integrated Handle Solution

Another research tasks is to investigate the plastic handle and integrated tape in China. The below are our findings about the handle:

Nowadays, plastic handle is widely used in dairy packages. The work for plastic handles is fully depending on manual packers, the dairy producers have to hire a lot of additional workers. Sometimes, Mengniu and Yili require cardboard packaging suppliers to insert the plastic handles before delivery. Not only the manual packing for plastic handle is very time consuming but also it requires a large place, so the production cost is rather high. Therefore, integrated solution can help company to save the cost as well as increase the productivity. The integrated handle solution implemented by Mengniu was to create hand holes in the cardboard by in-plant the invisible tape.

According to our interview, Zonestar Group is the first company promoting the integrate handle solution. The company started producing the corrugated cardboard packaging with integrated handles at 2006. Somehow, it was stopped in April, 2008.
Integrated handle solution could increase the production efficiency as well as save the cost. It is also benefit for the environment. But the market effect was not as good as we expected. I think it is because Mengniu did not put so much effort on promoting this solution in the market. No sign or explanation for integrate handle on the milk packages to remind the customer, so the customers do not recognize how to use of integrate handle. (Source from interview with Mr Feng, General Manager of Baoding Zonestar)

Mr Pei, the President of Baoding Yuejin obviously has the second opinion. He believes the design of the handle hole is not suitable for customers to carry. The strength of invisible tape is not good enough to burden the heavy boxes. So it could break the packages. Also the handle hole is very uncomfortable for hand carry. A lot of female customers feel the handle holes are too narrow and rough for their hands. In future, he think that Mengniu have to think other handle solutions which is better than this one.

4.6 Study of Corrugate Cardboard Industry

After the whole Chinese trip, we can say that corrugate cardboard packaging industry is in vicious circle and out of order. It is hard to be profitable for most of the producers under such circumstance. In the long term, it will also have bad effects to the consumers. The relationship between suppliers and consumers is getting worse, so some of corrugated producers are not willing to have relationship with Mengniu and Yili and they tends to change their target customers from low end to medium or high end products.

In order to survive in the market, they have to cut the cost by raw material selection and operational process simplify. Therefore, they cannot always ensure the quality of the product. During the interviews with many suppliers, most of them expressed their feeling that it is very difficult to survive in this industry, the below is some of suppliers opinion
about this industry as reference.

In China, the situation for corrugate cardboard industry is under perfect competition. The supply exceeds the demand. A lot of suppliers do not have any advantages in technology and service, but they have a very high capacity on production. Therefore, they can only compete to each other on price. (Source from interview with Mr. Xu, Sales Manager of International Paper in Shanghai)

The price of dairy has increased very fast. But the government try to control the price, the dairy producers is under the pressure on earning more profit. Hence, they must keep the cost of purchasing as low as possible. However, cardboard packaging industry is already a low profit industry. We cannot bear the increasing cost on raw materials by our own. (Source from interview with Mr. Song, General Manager of New Asia Paper)

The payment term must be shortened; otherwise it is difficult for corrugate cardboard producers to keep the business with Mengniu and Yili. (Source from interview with Mr Zheng, Sales Manager of Zhejiang Jjian Paper)
5. ANALYSIS

The function of analytical part is a section where the empirical evidence is investigated by exploring the theoretical framework. The theories that have been introduced are applied when making analysis. In this chapter, the main function is to apply the major theoretical concepts of Supply Network Management to the case of Tetra Pak and dairy producers (Yili, Mengniu). The main analysis consists of three parts as below:

First of all, we will give detailed description of the Chinese societal sectors as well as its organizational fields in Institutional Analysis. Forer’s Five Forces Model is applied in the analysis of the competitive level of corrugated cardboard industry.

Second, Network Mapping will be used to present Chinese corrugated cardboard industry environment. Also, we will use SCA to analyse the differences between Western and Chinese business model in corrugated cardboard industry. After understand the Chinese business environment and corrugate cardboard industry situation, we will analyse the strengths and weakness of each interviewed suppliers and suggest potential suppliers in our case.

5.1 Institutional Analysis

5.1.1 Identification of Relevant Societal Institutions

In this chapter aims to present the macro environmental factors in China that have influences on the corrugate cardboard industry. The institutions of China will be analyzed by using the modified model of Hans Jansson’s Basic Institutional Model. The following institutions factors were chosen as the most relevant to corrugated cardboard industry in China:
5.1.2 Social Factors

5.1.2.1 Culture and Business Mores

Chinese have a collective view, where people believe that it is important to belong to groups, they prefer to avoid standing out, and risk being punished for showing initiative. Morality has to do with views on what is right or wrong, good or bad and virtues. Causality is a dimension that directly focuses on the mental process itself, for Chinese people, their thought style is abstract and logic connections are made between categories.

Chinese is a highly particularistic country, meaning that relationships and unique circumstances override the important of abstract rules in determining what is right and good. Relationships and trust for individuals carry more weight than legal contracts. Also according to Hampden –Turner and Trompenaars (2000), in Chinese business culture responsibility in the work place is more specifically assigned than diffusely accepted.

Harmony is seen both as an ideal for society and social relationships and as the means through which people come together and attain their goals. The Chinese tend to value acts which generate greater harmony among different participants with diverse interests. It is
also important to achieve textual coherence amid apparently disorderly talk.

The Chinese prefer to deal with people they know and trust. Belief in the government's policy line will be a dominant influence in all negotiations. Except for those educated in the West, Chinese businesspeople largely rely on subjective feelings and personal experiences in forming opinions and solving problems. In Chinese business culture, the collectivist way of thinking still prevails, even in sectors experimenting with free enterprise. Chinese business persons are likely to search for personal wealth and the respect that bring among others and doing mostly so on his or her own. This is well aligned with the traditional Chinese cultural behavior.

By all means relationships are still the key to all business in China. In order to ensure successful business expansion in the long run, it is very important to understand the concept of "Guanxi". It is generally refers to informal and based on personal affiliations and it is extremely important in the early stages of business development. Often, it is acquiring the right with the relevant authorities that will determine the competitive standing of an organization in the long run in China. Thus developing a long term trust base relationship with its customers and suppliers is crucial for secondary packaging industry as well. Although developing and nurturing the "Guanxi" in China is very demanding on time and resources, the time and money necessary to establish a strong network is well worth the investment.

5.1.2.2 Education and Training System

The focus of China's education is to improve the country's intellectual outlook and bring about competent students in all aspects of China's development. China's future relies on the younger generation to take China into the new century.
In China, the education is divided into three categories: basic education, higher education, and adult education. The Compulsory Education Law of stipulates that each child has nine years of formal education; it is the nine-year compulsory education. Basic education in China includes pre-school education, primary education and regular secondary education. Higher education at the undergraduate level includes two- and three-year junior colleges and universities offering programs in both academic and vocational subjects.

Vocational schools offer programs ranging from two to four years and train medium-level skilled workers, farmers, and managerial and technical personnel. Technical schools typically offer four-years programs to train intermediate technical personnel. “Schools for Skilled Workers” typically train junior middle school graduates for positions requiring production and operation skills.

Because the business nature of corrugate cardboard industry so far in China is less technology intensive, it does not require so many high level skilled labors. But most of cardboard manufacturers would like to cut the cost and improve the productivity in the long run. High automatic machinery will be largely applied in the secondary packaging industry along with the increasing wages. Finding enough qualified skilled workers to operate the machine will be a problem for all the companies.

5.1.3. Organizational Field

5.1.3.1 Government

Chinese government has always been heavily involved in business activities in the marketplace. Chinese government usually gives strong support to those business firms it had close relationship with and developed business strategies according to the
government plans and events towards social responsibility. The government also had the power to manipulate the entrance of companies in specific sectors of the economy by requiring explicit approval, and to force company out of specific sector such as pollutant industry.

The day is meant to increase awareness and encourage people and governments to care more of environment and take action to save the planet. The wave also swept across China. Actions were taken from government, and each year features a theme ranging from energy-saving to sustainable development. Some types of companies will need to pass an environmental assessment to go public or raise new capital. The regulation targeted companies engaged in power generation, steel, cement and aluminum production, and provincial companies classified as energy-intensive or highly polluting. The "green credit policy" was launched. It instructed banks to limit lending to energy-intensive, polluting industries. Under this policy, companies with violations could be barred from getting loans and those with outstanding loans could have their loans called in.

Besides the "green securities policy", China has introduced two other green policies -- one for insurance, one for credit -- in a bid to solve severe environmental problems through economic measures. The "green insurance system", which aimed to have all industries with pollution risks insured, will be implemented nationwide by 2015 after a trial period. The goal would be to have insurers compensate victims of environmental accidents, avoid bankruptcy by the polluting company and lessen the government's financial burden.

The Chinese government passed more than five new regulations and national standards in 2005 and 2006, reflecting the mounting concerns regarding environmental protection and health. The newly launched regulations govern various aspects of the packaging industry, quality standards in paper-based packaging. These regulations have had a strong impact on
the packaging industry. For example, the labeling regulations involve huge replacement costs for dairy manufacturers and more stringent recycling standards require improvements in and reconstruction of manufacturing processes.

Hence, in the long run, the secondary packaging industry need to pay more attention on environmental protection such as improve in the recyclables of their product, reducing energy use, improving transportation efficiency, reducing the variety of materials used in a product, optimizing logistics and distribution during the whole life cycle, reducing production losses. In addition, production processes should be investigated to identify opportunities to improve environmental performance.

5.1.3.2 Labor Market

China's labor market is one of the most challenging in the world, and many companies list human resources as their top operating issue in China, largely because of rising labor costs and high turnover rates. There is still a shortage of suitably skilled persons to hire for key technology and managerial positions in the firms. All together, this also implies that companies have to educate their personnel within the firm instead of hiring trained personnel because of a shortage of training opportunities.

Workers in China today is increasingly demanding better wages and working conditions. Even if they not yet are engaged in trade unions they work with joint force to put pressure to the employer. The lack of strong labor unions leads to a buyer market, at least in industry section of the economy. This often results in short-term employments and a fluent labor market that means that not many get lifetime employments.
China’s new Labor Contract Law came into effect at the beginning of the year. The government and state-run media has hailed the legislation as a milestone in the protection of the rights of Chinese workers. In reality, it formally guarantees only the most minimal working conditions, which in many sweatshops will simply be ignored.

The new law has generated much debate. Capitalists at home and abroad are complaining that the law will raise their costs – by forcing them to observe minimum wage rates and other legal requirements – and thereby cut profits. The key provision is that all workers in China must be employed on the basis of a written contract that stipulates their wage rates and under what conditions they can be fired. Previously, at least 40 percent of employees of private companies had no contract at all. Companies will need written contracts with all full-time employees, and anyone who works for more than four hours a day is likely to be considered a full-time employee. Once they are full-time, employees who are laid off must be bought out at a multiple of their average monthly salary. Making more than 20 employees or 10% of the workforce redundant is allowed, but must be done on the basis of seniority not merit distribute to a social insurance or unemployment fund for each worker.

But most Chinese employers have adjusted their human resource practices by revising contracts and updating employee manuals. They know that overall operating costs for businesses will almost inevitably rise, but penalties for violations will be even more severe. Companies must sign open-term contracts with employers who have worked at one company for 10 years or more, and with workers who have had two, continuous fixed-term contracts.

Human resources costs will almost certainly increase for Chinese businesses, mainly due to higher administrative costs and very likely because of rising salaries and compensation
costs. But costs for those who violate the law is even higher, provided the law is fully and equally enforced for all businesses in China.

The cost of labor has increased around 10% for many industries after the enforcement of new labor law. There is only 5-10% of net profit margin in corrugated cardboard industry, so corrugated cardboard producers are difficult to maintain business. There is quite big labor income gap among Chinese cities. For example, the monthly minimum salary income in Guangzhou is around RMB 700-800 while there is only around RMB 400-500 in inner western China. Hence, there are many factories that tend to move their factories from development area to underdevelopment area.

Due to lack of high educated mechanic and professional sales people, investing in human resources is also crucial for secondary packaging industry in China which deals with the development of new technologies and maintenance of high quality. Keeping necessary people in the company by creating good working conditions becomes easier than finding and training new employees.

Chinese government has more sharply limited the use of temporary workers and overtime working. At the same time, the increasing wage level could have been prompted by quite a number of companies moving from a fast developing area such as Beijing and Shanghai to the less developed places because of relatively cheaper labor there.

Labor costs continued to increase and a shortage of unskilled labor had developed with a million or more employees being sought. Operations which relied on cheap labor were contemplating relocations to cities in the interior or to other low-cost countries such as Vietnam or Bangladesh. Many young people were attending college rather than opting for minimum-wage factory work. The demographic shift resulting from the one-child policy continued to reduce the supply of young entry-level workers. Also, government efforts to
advance economic development in the interior of the country were beginning to be effective at creating better opportunities there.

Moreover, it comes at a time of decade-high inflation in China and a wave of labour disputes inspired by rising food prices. The passage of the law has led to claims from business lobbies that jobs will be lost to Vietnam, Bangladesh or India where wages are even lower than in China.

5.1.3.3 Economy

China has the second largest economy in the world after the US with a GDP of nearly $7 trillion (2007) when measured on purchasing power parity (PPP) basis. In November 2007, it became the third largest in the world after the US and Japan with a nominal GDP of US$3.42 trillion (2007) when measured in exchange-rate terms. China has been the fastest-growing major nation for the past quarter of a century with an average annual GDP growth rate above 10%.

China's per capita income has grown at an average annual rate of more than 8% over the last three decades drastically reducing poverty, but this rapid growth has been accompanied by rising income inequalities. The country's per capita income is classified as low by world standards, at about $2,000 (nominal, 107th of 179 countries/economies). China has emphasized raising personal income and consumption and introducing new management systems to help increase productivity. But rising inequality is evident between the more highly developed coastal provinces and the less developed, poorer inland regions. According to World Bank estimates, around 300 million people in China in 2007 mostly in rural areas of the lagging inland provinces still live in poverty, on
consumption of less than $1 a day (roughly the size of the United States population). About 47% of the Chinese population lives under $2 a day. (Source from www.en.wikipedia.org/wiki/Key_performance_indicators)

Economic development has generally been more rapid in coastal provinces than in the interior, and there are large disparities in per capita income between regions. The three wealthiest regions are along the southeast coast, centered on the Pearl River Delta; along the east coast, centered on the Lower Yangtze River; and near the Bohai Gulf, in the Beijing-Tianjin-Liaoning region. It is the rapid development of these areas that is expected to have the most significant effect on the Asian regional economy as a whole, and Chinese government policy is designed to remove the obstacles to accelerated growth in these wealthier regions.

Nevertheless, key bottlenecks continue to constrain growth. Available energy is insufficient to run at fully-installed industrial capacity. The transport system is inadequate to move sufficient quantities of such critical items as coal and the communications system cannot yet fully meet the needs of an economy of China's size and complexity.

China's underdeveloped transportation system combined with important differences in the availability of natural and human resources and in industrial infrastructure has produced significant variations in the regional economies of China. As China's currency has strengthened sharply against the dollar, the government has scrapped export tax rebates, while more stringent labor laws and even the ice and snow storms in southern and central China have further driven up costs.
5.1.3.4 Financial market

5.1.3.4.1 Currency

Chinese currency RMB (Chinese yuan) has been appreciating at a fast pace in the past few years, today’s American mercantile pressure on China to appreciate the RMB, it is more likely to appreciate five percent in the whole year of 2007. Actually, the exchange rate policy alone cannot solve China’s international payment imbalance problem, and that Chinese government apply fiscal and tax policies to expand and encourage domestic consumption and realize the trade balance. The rate of exchange (Chinese yuan per US$1) in march-2008 was RMB 7.013, while in early 2006 was RMB 8.07. It becomes a new barrier for MNC to enter the Chinese market.

China has become the manufacturing engine of global economy. Therefore, RMB is appreciating; the prices of the goods manufactured in China would go up quickly. Over the year, export prices have increased 0.9 percent, so concerns were being raised that rising price in China were beginning to create inflationary pressure in the United States and Europe, which had depended on cheap prices for consumer goods from China exerting downward pressure on prices. China is one of the largest consumers of nature resource. It is a good opportunity to increase the import rate, especially for corrugate cardboard industry that the raw materials mostly depend on importing wasted paper from U.S and Europe. (Source from www.en.wikipedia.org/wiki/Key_performance_indicators)

5.1.3.4.2 Inflation

During the winter of 2007-2008, inflation ran about 7% on an annual basis, rising to 8.7% in statistics for February, 2008, released in March, 2008. The food and fuel sectors were major problem areas, with meat and fuel posing special difficulties.
Shortages of gasoline and diesel fuel developed in the fall of 2007 due to reluctance of refineries to produce fuel at low prices set by the state. These prices were slightly increased in November, 2007. Price controls were in effect on numerous basic products and services, but were ineffective with food, prices of which were rising at an annual rate of 18.2% in November, 2007. China's inflation rate jumped to a new decade high of 8.7 percent in February 2008 after severe winter storms disrupted the economy and worsened food shortages. Thus rapid rises in the value of the Yuan permitted in December, 2007 are possibly related to efforts to mitigate inflation by permitting the Renminbi to be worth more. (Source from www.en.wikipedia.org/wiki/Key_performance_indicators)

Increased cost of production interacted badly with increased demand resulting from rapidly rising wages. It also causes a fast raising on the price of raw materials such as petroleum and paper. The paper price has been increased over 40% since 2007. 80 percent of secondary package suppliers producers intend to raise prices this year in response to higher raw material costs. Meanwhile, in order to cutting the cost by improving the production process, reducing the loses, adjusting the structure, keeping continuous development for Chinese foundry enterprises are very important for the cardboard producers to reply the appreciation of raw material

5.1.3.5 Product and Service

Nowadays, a big change for the Chinese business environment has been changed in consumer’s attitudes and their customer service expectation. Suitable customer service strategies are needed in order for companies to be successful in the new market environment with its increased emphasis on services and after sale service. Based on the cardboard industry, the competition is extremely high in China, it is the trend that the
customers regard the service such as fast delivery, in door technical support and cost saving solutions providing would be more important than only competing on price.

5.1.3.5.1 Porter Five Forces Model

For this institution, located in the organizational fields of the basic institutions model of Jansson (2007), we make use of the “five forces model” created by Porter (Kotler, 2005) to have a better understanding of the current competition situation in corrugated cardboard industry

Threat of New Entry

Overall, around 10,000 corrugate cardboard producers with certain scale are registered in China. Due to the low entrance barrier, more and more players want to enter this market. It is not necessarily to require high technology and so much start-up cost. Also it does not take so much time to build up expertise which the other large players already has accumulated, so the threat of entry is considered being high. It is hard to differentiate them from direct competition except price. Moreover, the resources such as labor do not to be extremely skilled, but the production equipment might be considered expensive only if the company is willing to invest more money on quality improvement. The existing producers will have a hard time competing because the new competitors could be very flexible in price.

Threat of Substitute Product and Services

As mentioned the technology and investment level is not so high. There is no need high advanced technology in this industry and low investment level, so the threat of substitute is quite high in the corrugated cardboard business. This industry must be very flexible and diversify to meet the customer needs, so the threat of substitutes both short term and
long term are also high. Furthermore, the product is not complicated; there are lot
competitors in this industry, so the credibility and relationship in the business are very
important. However, in the long term, risk of substitute is getting higher as the strong and
large corporation will expand their scale through merge or join venture with local
corrugate cardboard producers, the threat of small players will be getting serious.

**Bargaining Power of Buyers**

They do not have commitment and mutual understanding on each other, so the price is
always the first consideration of the buyers; the suppliers also depend heavily on their
customers, meaning that buyers are easy to change to other suppliers. This indicates that
the buyers bargaining power is high. Because there is high competition and lower of entry
barriers in corrugated cardboard industry, the buyers have many choices among different
suppliers. As a result, the danger of bargaining power to the customers will start or
increase at the moment that the direct competitors are offering a similar product with a
lower price, since price has been an important role in the decision making process.

**Bargaining Power of Suppliers**

The bargaining power of the suppliers in the Chinese corrugated cardboard industry is
considered to be high. The main supplier of corrugate cardboard industry is paper mill.
This is primarily because there is a very limit number of the paper suppliers to meet the
huge demand, the price of corrugated paper are going up very serious, the price of
corrugated paper this year has been increased around 30% compared with the price in last
year. There are some reasons to explain this phenomenon. First of all, China has been the
fastest-growing major nation for the past quarter of a century with an average annual
GDP growth rate above 10%, so the internal consumption is getting high and export
business is developing well, the demand of corrugate paper has been increased on every
industries. Also, the government have been starting to control the paper industry, because most of pollution is come from paper mill, so the government set up a lot of environmental protection policy especially for paper mill, there is a lot of small paper mill has closed down, do the supply of paper is getting less. The last reason is the currently there are more than 6000 enterprises involved in the corrugate cardboard industry, so the demand of corrugated paper is quite high.

Nowadays, most of paper mill is facing a shortage of raw material supply, so many waste papers imported to China from foreign countries such as U.S., Japan. However, import wastepaper alone is not sufficient to keep up with China's production demand continued to outstrip supply within China and with no new paper sources coming on stream for the next 1-2 years, paper prices will continue to be pushed upward. Therefore, Chinese corrugate cardboard producers are suffering the high price; the cost of production is getting really high.

**Rivalry between Competitors**

There are a few really big players and a lot of medium and smaller players in this segment. The competition is quite intense at the moment, which pressures the price down and improves service and quality for benefit of the consumer. Lower price, good quality, fast delivery and good services are the key factors to increase the competitive advantage.

There are two level of competition in China; one is to compete with price. Another is to compete with quality and services. Competition between local companies is normally in price and relationship, especially in a price-sensitive market like China, but competition between MNCs is normally in service and quality. When the customer is high or medium end products, they usually demand high quality
and service with a little high price. If the customers are low end of products, they would tend to choose the lowest price of corrugated cardboard boxes with reasonable quality.

5.2. The Analysis of Chinese Corrugated Cardboard Industry

From its beginnings in the mid 1990s, the industry’s growth has been impressive. Today producing over 14.8 billion square meters of board per year. Equally impressive are the technical developments in the product itself and in the manufacturing processes, the result of investments exceeding £100m. Since then China has became the second biggest corrugated cardboard provider just next to U.S.

Even though corrugated packaging industry has existed for almost 100 years, it is still far from saturated. Compare with others, the start-up cost for corrugated packaging industry is quite low, so more and more small size companies have been established in recent years. Most likely they have less pressure on maintenance and operation. Lower investment leads to lower level on quality and technology, so most of them are competing on price drastically in the market. Hence, the price of raw material increased frequently, but the price of the corrugate cardboard packages is increasing not that much than the price of raw material under the serious competition.

It can be say that corrugated cardboard packaging industry is in vicious circle and out of order. It is hard to be profitable for most of the producers under such circumstance. In the long term, it will also have bad impacts on the consumers. In order to survive in the market, they have to cut the cost by raw material selection and simplify operational process. Therefore, it is difficult to always ensure the quality of the product. Some of corrugated cardboard producers try to choose the less good quality of fiber when they buy
the paper from paper mills in order to save the costs, so the quality of corrugated cardboard is not so good and it also reduces the compression strength of cardboard.

Corrugated box producers are strategically located throughout the country and therefore near to potential customers. By working closely together, corrugated case makers and customers can optimize the use of packaging lines and improve production flexibility.

The industry could not have maintained its record of innovation without itself undergoing a major transformation. Change has come through investments in advanced, automated manufacturing processes. The latest graphic design and color printing techniques demonstrate one area where corrugated packaging excels. Case makers have also rationalized a labor-intensive industry into one that is better able to support customers. Improved customer-service processes can now interact at any stage from pre-design through to product delivery.

But large in volume does not prove Chinese corrugated packaging industry which has already matured. The industry tends to develop in high quality and advanced technology. How to save the resources, develop high quality and good services are going to be crucial for corrugated cardboard packaging industry.

Simultaneous advances in technology, business processes and customer relationships mean that the packaging industry now offers some potential based organizations an unrivalled competitive advantage.

The industry is helping customers to monitor stock levels and produce packaging on demand. This reduces customer stockholding costs and concentrates planning on the most logical point - the final stage of production. It demonstrates the key objective of today’s corrugated case manufacturers is listening and responding to customers' needs. This
will enable packaged products to be supplied as demand requires. It will also mean both parties benefit from more efficient production, better working practices, more reliable schedules, improved long term forecasts, and continual improvement in product quality and consistency.

The industry has worked with the paper manufacturers to improve recycled papers and liners in terms of increased strength, lower moisture absorption and improved predictability in use. This has made possible the increased use of recycled paper. A much more systematic grading system has also been developed enabling the industry to specify different types of material for different applications more precisely, in terms of moisture absorption. This affects printing and cold storage performance. The improvement of cheaper materials has improved print performance; it allows the industry to use more efficient printing plant with lower running costs that uses more environmentally friendly inks and brings overall cost savings.

There is a profit squeezed by rising costs situation in corrugate cardboard packaging industry. Profit decreased from 2005 to present across the secondary packaging industry as the cost of raw materials climbed dramatically towards the end of the review period. The hike in costs affected the industry’s profitability as a whole, even though some of the costs were passed downstream. The situation was also exacerbated by the increase in competition, which forced some manufacturers to lower their prices, despite the higher production costs.

Moreover, operational costs such as rising salaries, management and utility costs also began climbing. This was most significant for packaging players in the south and east of the country where most of the production is concentrated. The rampant economic growth
in these regions quickly uplifted local manufacturing costs. To many MNCs point of view, China is an unknown and full of uncertainty, difficult to relate to how it conducts business. Nowadays, there are not so many large foreign corrugated cardboard companies in China, that it is difficult to earn large profit in this industry because of low profit margin, fierce competition, high production cost, and low bargaining power. Another reason is that large dairy companies like Mengniu & Yili are establishing a significant regional presence, mainly choosing to work with local suppliers with lower price.

Figure 8 General Cardboard Supplier Structure in China

(Source: Tetra Pak internal from Karin Holmkvist, YiMin Li & Ida Svensson/2008-02-28)
5.3 Network Mapping

Network mapping (Jansson 2007) is introduced to describes and analyze the corrugated cardboard industry in China. The whole market network is divided into several parties: suppliers, buyers, competitors, government and producers. The below figure 9 is the Chinese corrugated cardboard network mapping.

![Network Mapping Diagram](source: Jansssson, 2007)

5.3.1 Competitors

The horizontal dimension includes competitors. In this corrugated cardboard industry, there are four different competitors: International players, Pan--Asia Providers, Region...
suppliers and local suppliers.

There are only few MNC such as SCA, Smurfit-Stone and International Paper share a total 6% of market. With very strong capital support, those MNCs have many subsidiaries and production plants in all over the world. Some of MNCs, such as Smurfit-Stone, invest in China only for manufactory. They have a lot of factories in China and only for export, not for local customers.

Also, International players use “A little follows me” policy in China. It means that those international players have already handled a lot MNCs customers globally. When those MNC customers set up production plants in Chinese market, some of international players would follow those customers and set up the factories along with those customers, then international players’ cam continue to have business relationship with those MNCs customers in China.

The second kind of competitors is called “Pan-Asia Providers”, which is around 6% in total market share. The owner of the company is from Southeast Asia area such as Taiwan, Hong Kong, Korea and Singapore. The representative companies would be APP Group (Indonesia), Yuen Foong Yu Paper (Taiwan), and Pacific Millennium (Taiwan).

Actually, the feature of this kind of player is similar with the International Players. Both types of players are also strong in customer service and quality. They usually able to provide excellent comprehensive services to customers such as product design, technical support, consulting service and product development. Also, the quality of product is quite high and consistent but the trade off is the relative high price. Because they have rich experiences on services to customers from other countries and have strong capital support from the group. Moreover, Pan-Asia Providers adopts “Follow me” policy. It is
similar with International Players. Pan-Asia Providers usually set up the factory which is close to their customers.

The regional suppliers and local suppliers occupies 48% and 40% respectively. Small & medium of regional suppliers and local suppliers are dominated in the whole corrugated cardboard industry. The regional suppliers refer to the company who is owned by local people and has a several production plants and sales office in China. Zonestar Packing, Zhejiang and Jiaan Paper Package are the example of this type of players. The price of them is usually lower than the International or Pan Asia players; they are quite flexible in terms of production time, allocation of resource because the scale of company is small.

There are two different policies between International Players, Pan-Asia Providers and Regional & local suppliers. As for International Players, Pan-Asia Providers, they focus on “PDSQ”; it means that product function, delivery time, customer services and product quality are very important for them. However, Regional & local suppliers focus on “RPDSQ”, it means relationship become before on the others. It shows that the relationship is the key issue to do the business for local suppliers. If suppliers don’t have relationship with customers, it may be difficult to do the business even though they do well in product, delivery, service and quality.

5.3.2 Corrugate Cardboard Producer

There are three-tier of producers in this industry: First-tier of producer, second-tier of producer and third-tier of producer. First-tier producer is related to the corrugated cardboard producer has their own paper mill and corrugated cardboard factory and the customer is the final customers.
Second-tier of producer is about the corrugated cardboard producers who don’t have own paper and sell the products to final customers.

Third-tier of producer is about corrugated cardboard producers sell the products to the other manufactures that use their cardboard to do additional manufactory work (B2B). Nowadays, some of corrugated cardboard producers could be both first-tier and third-tier producers as the same time.

As for the selling price of corrugate cardboard producers, the price is quite variety of different producers. There is around RMB 3.5 per square meter on double wall and around RMB 2.7-3.0 per square meter on single wall. The price of corrugated cardboard is only increased 10% this year compared with last year. The increase corrugate cardboard price is not able to catch up the increase price of paper that is increased 30% this year compared with last year. Therefore, they are suffering much pressure on cost. Because the keen competition in this industry, the bargaining power of corrugated cardboard producers are low, thus it is difficult to ask their customer to increase the price. Actually, most of our interviewed corrugated cardboard procedures have proposed to increase the price to milk producers, but they usually were not success. It is one of reason most of small scale of corrugated cardboard producers has closed down in China.

5.3.3 Suppliers

There are two types of suppliers in this industry. paper mills and accessories such as plastic handle and invisible tape.

Paper mills

There are more than several thousands paper mills in China and most of mills are quite small scale and the government was no strictly control on this paper mill industry in
China. Paper mills are very fragmented with no control over quality compared to Europe where only have a few but very large mills. Nowadays, the government is starting to implement a lot environmental polices to control the paper mill in order to reduce the pollutions, so most of small scale of paper mill could not afford the cost of pollution, most of small scale paper mill have been close down. Only a few large domestic paper mills are dominated in this industry such as Nine Dragons Paper (Holdings) Limited & Lee and Man Paper Manufacturing Limited. They usually provide similar quality with lower price compared to import paper from other country.

Because the shortage of paper supply and the excess increase the demand of paper in China, the price of paper is going up very seriously. The price of paper is quite different on the grading, weight, brand and function. The average price of paper has increased around 30% this year compared with last year. Normally there is around RMB 2700-3700 per ton from domestic paper mill and around RMB 4000 per ton from import paper.

Actually there is big price different between virgin fibber and recycled paper, the price of virgin fibber is around 40% higher than the recycled paper. Therefore, most of local corrugated cardboard suppliers prefer to use recycled paper, but the surface of cardboard is rough; it would affect the printing performance on the cardboard. Also the quality of the recycled paper is not so good when we compare with virgin fibber. It is one of reason the average quality of cardboard is not so good.

**Accessories producers (plastic handle or invisible tap)**

Nowadays, most of Mengniu and Yili milk use plastic handle on the cardboard box in order to make people easy to carry out. Nowadays, some of corrugated cardboard producers apply plastic handle on corrugated cardboard box, but some of them only
provide hole on the box then dairy producers apply the plastic handle by themselves.

There is one new integrated handle solutions – an invisible tape which put inside of the cardboard to strengthen the handle position. Some of Mengniu product has used this solution. This invisible tape is exclusively provided by Adalis who provides innovative packaging and supply chain solutions to customers. Adalis provides tape and also equipment for integrated tape installed to cardboard producers. It is the US based company who is the company able to produce this tape in China.

5.3.4. Customers
There are two types of customers in corrugated cardboard industry. Most of local customers are looking for lower price refer to low-end and medium-end product. Those customers don’t require high quality and specific functions. Most of international customers are expecting for good customer service. It usually refers to high value product, those products needs to have good quality of secondary packaging, so they are willing to pay a higher price.

5.3.5. Government
The government plays as indirect role in corrugated cardboard industry. The government is strongly influencing on the paper industry. As we mentioned before, the government is getting more concern on the pollution problem from paper mill. The government formulates new rules and regulations to control the paper mill industry, the paper producers have to bear higher cost on pollution reduction. Many small companies exit the market. The paper price is getting increased seriously. It would directly affect the cost of the corrugated cardboard producers as well.
5.4 Corrugated Cardboard Industry Prediction

After understanding the current characteristic of corrugated cardboard industry, we will forecast the developing tendency of this industry in five years. It is important to have a picture of the future development of corrugated cardboard industry in order to plan proactive strategies.

First, cardboard producers will gradually shift their strategic focus towards higher value added products in the latter. These moves were based on the realization that it is nearly not possible to make so much profit on low to medium priced products in China. The lower price approach will offer little in the longer term. Since the quality of products manufactured by Chinese local companies is likely to improve rapidly, ordinary products will not be able to compete.

Second, the weak and less qualified cardboard producers will be phased out sooner or later. Due to the rising price on resources, inflation rate and labor cost, cardboard producers are suffering the pressure of increasing the cost of raw material.

Facing the sharp competition from the industry, the cardboard producers can not only compete with the price, but also have to increase the productivity and improve quality of product to maintain the business. Suppliers will shift attention from price to customer service. For example, the suppliers could provide consultation solution that help customer to save the cost in term of material, design, transportation.

Third, due to increase environmental awareness in China, more corrugated cardboard producers will prefer to use environmental flexo ink instead of traditional ink. There is a tendency of applying multi color flexo printing machine in cardboard industry. Along
with the rapid development of food, electric appliances, medicine, light industrial products, corrugated cardboard is not only to use for protection, the demand of high and attractive outlook of secondary packaging is increasing. Cardboard producers tend to

Fourth, faced with foreign micro-corrugated cardboard status and the rapid development of China's packaging market demand, China's corrugated board industry will quickly change technology, equipment and management of the relative backward state of micro-corrugated intensify efforts to develop the market, equipment manufacturers will step up the development of small cardboard tile, improving the system box machinery, actively promote micro-corrugated cardboard and packaging products development.

Fifth, the shortage for high compression strength cardboard has been getting serious in the market. The most popular corrugated paper is around 220-300g/m, the ordinary corrugated paper is around 140-180g/m. Lack of wood pulp and waste paper in China leads to a problem on storage of high compression strength paper. In 2005, more than 80% of Kraft paper and high compression paper was imported to China. Domestic supply could not suffice the increasing demand. Although many large domestic and foreign paper mills has been invested in recent years, it is sill not enough to meet the market.

Furthermore, relative smaller flute of corrugated cardboard such as F, N, G flute will be prevailed in the market. Those type of flute has stronger compression strength than A, B, D, E flute. Also, those flutes could directly use into the printing machines, the printing performance would be better and it wouldn’t affect the compression strength during the printing process. The future demand on those flues especially in G flute is estimated at 10% of the market.
Finally, the corrugated cardboard market will still be dominated in two parties: MNC and large local enterprise five years in the future. Normally, MNCs have strong brands names, large scale of production, advance technology, high level of management, strong capital support, and high quality of product. Therefore, they are very competitive in medium or high end of products with a higher market price. The local enterprises are quite flexible in this business. There will be big players in low end segment. Since the quality of products manufactured by Chinese companies has being improved, more and more companies will move the focus on high value added product. So competing in price might be a threat for MNCs in the future.

5.5 Comparison between SCA China and SCA Europe

Base on the macro environment in China and general situation of corrugated cardboard industry, we will take SCA as an example to examine the differences between Chinese and Western business model in this industry.

Sourcing materials

Regarding to source of materials, there is big different between SCA in China and in Europe. SCA doesn’t own any paper mills in China, so there is no guarantee of source of paper by SCA in China. Less than 15% of paper is come from Europe, SCA in China mainly source from domestic paper mills. While SCA Europe has a lot of own paper mills in Europe and will typically give guaranteed source of paper from Europe. However, SCA in Europe adopts a flexible policy on sourcing. The price for SCA own paper is market price, SCA Europe will choose to import from other company paper mills such as from America if the price of their own paper price is higher than other companies. SCA Europe is only approximately 120 paper mills with very strict process control; most of paper mills in Europe are quite standardized in quality measurement. They are very
sensitive with environmental aspect.

**Raw material**

In China, most of paper mills are quite old. 90% raw material comes from waste paper. Whereas, SCA Europe paper mills are using a high degree of virgin fiber. Also, the craft paper is supposed to be made by virgin fiber, but this is not always the case in China. But the craft paper from Europe is always virgin fiber base, the quality of paper can be guaranteed.

**Grammage**

In China, the packaging designers put in more gram-mage to compensate for the poor raw material. On the contrary, SCA in Europe put in the required gram-mage without a need to compensate for poor quality.

**Quantity of labor**

The quantity of labor is different, high degree of automation drives SCA Europe higher productivity with less labor turnover. But in China, the situation is less automation and very high turnover of plant staff drains the skill-base. Due to the cost of labor is much cheaper than Europe, so they hire a lot of peoples working in the production lines, but there is not enough skill labor.

**Quality control & Pressure of Quality**

There is no quality follow up from customers in China, it means that if there is any problem of quality which point out by customers, SCA China doesn’t have any policy to follow up, because there is not so much pressure on deliver of quality. Fortunately, SCA did not get a single customer complaint in 3 years. Compare to SCA China, the situation
is totally different in Europe. There is strict rule in quality control, and customer follow up on quality all the time. The quality is always the first priority for SCA customer in Europe.

**Customer base**

The customers in SCA China are mostly domestic companies. Around 65% are local customers and only 35% are international companies. But SCA in Europe expand the market all over the world. They target the big MNC as their main customers.

**Relationship**

SCA in Europe implement a ‘PDSQ’ strategy: P (reasonable price), D (fast delivery), and S (good service) Q (high quality) to maintain a relationship with their customers. Good relationship plays a significant role in Chinese social life and the business world, thus SCA in China uses a ‘RPDSQ’ strategy for maintaining a relationship with the local customer. They have deep understanding of importance of the concepts “Guanxi”. “Renqing. So they put relationship at first.

**Customer services**

There is similarity between SCA in China and Europe. Both of them focus on cost of ‘using’ the box, not on cost of ‘made’ the box. It means that SCA would provide consulting service on cost saving solution such as provide excellent packaging and graphic design in order to save the materials of packaging and make the packaging more attractive to final users. Therefore, SCA looks the value added service is more important to increase competitiveness advantages.
5.6 Analyse of Corrugate Cardboard Suppliers

As we mentioned before, the dairy producers are facing the problem of inconsistent quality cardboards from current cardboard supplies. Therefore, find suitable suppliers are one of major task in this project.

There are several procedures to select suppliers according to supply network management. First step is supplier search which relates to find as many suppliers as possible. Second step is supplier selection, which relates to define the qualified suppliers. This selection was based on certain criteria like size, revenues, number of employees, number of sites across China, etc. The last step is supplier analysis which relates to compare and analyze the selected suppliers in terms of product offerings and quality level. Based on the above criteria, the following part is to evaluate and analyse the strengths and weaknesses of each interviewed corrugated cardboard suppliers in our empirical study.

Guangdong Province

5.6.1 AMB Interpac Containers (Guang Dong) Ltd

Strengths

AMB Interpac has strong capital support from Mother Company. It is an important to support the company to invest in product development or quality improvement. The company can provide varied services to customers such as graphic design, technical support, short delivery time…etc. The company has higher standard on quality control. The company holds ISO 9001 & ISO14001 Environment Management System. They always provide training for new & exiting labour. Furthermore, the company has experience to handle the beverage customers such as Vitasoy soya milk.
Weaknesses
The company doesn’t have any experience to apply integrated handle on the boxes. They only have one production plant in China, and their customers only concentrate in the Pearl River Delta Region and Hong Kong, it may be difficult to deliver the product to middle or Northern part of China.

5.6.2. Guangzhou Panlong Paper Products Co. Ltd.

Strengths
The company is very flexible in production and delivery time. The owner can make a decision very quick. The company has very low employment turnover rate meaning that the employees are loyal to company. They are maintaining a good relationship with local customers.

Weaknesses
The company is quite small in business scale, so they are limited in production capacity. With limited capital, it is difficult for them to update the machines or technology of product development. There are no so much procedures on quality control and there is not so many skilled labour to operate the machine, they just base on their past experience to manage the operation. Moreover, the owner quite concerns on the price and cash flows rather than innovation or quality improvement. Also, the company doesn’t have any experience on applying integrated handles and they seem not willing to investigate on this area.
5.6.3 Shanghai Huali Packaging Co Ltd

Strengths

Shanghai Huali is one of our suggested suppliers. Shanghai Huali Packaging is one of the largest corrugated cardboard producers in Shanghai. With a powerful support from Huali Group, the company is very strong in capital.

Shanghai Huali has high production capacity by widely using advanced machine. Through the high standard quality control system, the company is very reliable on quality. It is not common for corrugated cardboard producers to acquire both ISO 9001 & ISO 14001 certification.

Shanghai Huali has long term relationship with customers. The company has 5 to 6 years business relationship with Bright and around 2 to 3 years business relationship with Yili.

One of the important criteria for dairy producers to select suitable suppliers is the location. Huali group owns five factories in China: Shanghai, Shenzhen, Chong Shan, An Hui, and Mu Dan Jiang. So the company has advantage geographically. Beside, Huali can provide various to the customers. For example, create zero storage for Yili. The company promise to customer to delivery the product frequently and in a short time.

Weaknesses

The company doesn’t have any experience on applying plastic handle or invisible tape in corrugated cardboard box. Another limitation is the most of their production plants are located in Southern part of China. Therefore, it is not convenient to deliver the product to North.
5.6.4 Zhejian Ji’an Paper Package Co., Ltd

**Strengths**

The group business covers in whole production chains: paper mill, cardboard production, printing service, packaging and logistic business. It is much easier for the company to control the cost and time in the production process. The company can be more flexible in production time. Also, the company has advanced cardboard production machines which directly import from US & Taiwan.

Furthermore, the company provides comprehensive services for customers such as packaging & printing design service and storage services. The company has business experiences with several dairy producers. For example, the company had around two year’s business relationship with Yili in the past.

**Weaknesses**

The company doesn’t have any experience on applying the invisible tape with the boxes even though they have applied plastic handles to cardboard box in the past. Also, the Taion Group mainly located in Zhejiang province, a centre of the Shanghai, Hangzhou and Suzhou golden delta. Most of production plants located in Southern part of China, it would be quite high transportation cost to deliver the products to customers from Northern part of China.

5.6.5 Smurfit-Stone

**Strengths**

Smurfit-Stone is one of industry leader in integrated manufacturer of paperboard and paper-based packaging in the world. The company has strong capital supports and rich experiences on corrugated cardboard production. Also, the company is quite strong in creating innovative packaging solutions.
company has the capabilities to serve all of customers packaging needs including corrugated packaging, mill products, recycling solutions, point-of-purchase displays, packaging equipment.

Moreover, Smurfit-Stone has own paper mills in U.S. Some of paper of Smurfit-Stone China sources from their own paper mill, so the company is guarantee of source of paper. Furthermore, Smurfit-Stone China has around 15 factories in China and most of them are joint venture with local manufactures. The company is quite wide geographical spread in China.

**Weaknesses**
More than 85% of current customers of Smurfit-Stone China are MNCs, the company only focuses on medium and high end product, so the selling price of corrugated cardboard is much higher than the market price. Most of MNCs request high quality and customer’s services, so the customers are willing to pay a little bit higher price. Also, Smurfit-Stone China is only for production and not for internal sell, even though the company has local customers who use their cardboard boxes for export purpose. Hence, Smurfit-Stone is not the appropriate choice for Chinese dairy producers.

**Hohhot Province**

**5.6.6 Hohhot SCA**

**Strengths**

SCA Packaging is a leading provider of customer-specific packaging. SCA has around 18 production plants in China. Also, SCA in China usually does good performance on quality and seldom has customer complaints or return the goods.

Moreover, SCA Hohhot is a 70/30 (SCA/Yili) joint venture with the Yili Group, so more than 80% of customers are from milk producers such as Yili, Mengniu. SCA Hohhot has already developed long term business relationship with milk producers; the company fully understands how to meet the requirement of milk producers. Also, the company
provides a lot of services to customers such as consulting solution, design service and technical support. Also, Hohhot SCA is just located next to the headquarter of Yili. The response time and transportation time could be very short and the cost of transportation could be saved.

**Weaknesses**

There two of weakness of SCA Hohhot, first, there is no guarantee supply of paper because all of paper is sourced from domestic paper mills. Second, the price of corrugated cardboard is a little higher than the local cardboard suppliers.

**5.6.7 Hohhot New Asia Paper**

**Strengths**

The main advantages for New Asia Paper would be good location which creates zero storage for Mengniu. So the company can have quick response to their customer. The company is capable to delivery in 24 hours. Also, New Asia Paper has experience work with Mengniu and Yili.

**Weaknesses**

The weakness is that the company scale is not big enough. As we mentioned in empirical part, the company is trying to reduce the production to Mengniu because of the low profit margin and long payment term, it is difficult to New Asia Paper to maintain the business. Also, the current business relationship with Mengniu is difficult to be improved. Thus, New Asia Paper is expanding their production plants in order to get the orders from new customers from on high or medium end of product. The company is lack of skill workers, due to it’s difficult to find qualified workers. New Asia Paper has no experience on producing integrate handle packages. But they are willing to challenge themselves to
attempt this new business.

5.6.8 Zonestar Group (Baoding and Baotou)

Strengths
Zonestar Group is one of our suggested suitable suppliers in the thesis. Good location and fast delivery would be their main advantages. Zonestar Group is a regional local supplier. The scale of the company is quite large compared with other local suppliers in North. Zonestar Group has long experience work with Mengniu and Yili. Since Zonestar Group holds around 10% of Mengniu’s total demand in corrugate cardboard packages, it shows that Zonestar is one of key suppliers for Mengniu. Also, Zonestar has long term business relationship with Mengniu and Yili. Besides, Zonestar has strong innovative attitude towards quality and productivity improvement. For example, the company is the first company to proposal integrated handle to Mengniu.

5.6.9 Boading Yuejin Packaging

Strengths
Boading Yuejin Packaging is one of our suggested suitable suppliers in the thesis. The company is one of largest corrugated cardboard suppliers in northward part of China. Yuejin has long experience on corrugate cardboard production. They are maintaining a good relationship with big Mengniu and Yili. They have a better understanding of what their customer need.

The company has powerful production capabilities. Also, their business scale is getting bigger. The company is planning to invest another corrugated packaging factory in Xian. Moreover, the company invests a paper mill in Inner Mongolia. It would be easier for
them to control the supply and cost of paper. Also, the company has strong sense of innovation. For example, the company invested 2 million RMB on technology improvement and 4.5 million on new production lines from last year to now.

**Weaknesses**

Both Zonestar Group and Boading Yuejin Packaging are using domestic made equipment and machinery. Both of them have high waste rate in the production process. There is a lack of skillful workers problem needs to be recognized.

### 5.6.10 Summary of Strengths & Weaknesses of Interviewed Suppliers

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Type</th>
<th>No. of Factories in China</th>
<th>Customers</th>
<th>Location close to Dairy Producers</th>
<th>Quality Control</th>
<th>Advance machine</th>
<th>Innovation Ambition</th>
<th>Handle (integrat e tape)</th>
<th>Source Raw Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMB Interpac Providers (Singapore)</td>
<td>Pan Asia</td>
<td>Only 1 factory</td>
<td>MNCs + local customers</td>
<td>NO, locate in Guang Dong</td>
<td>Average: ISO9002: 2000 &amp; ISO14001</td>
<td>Average level</td>
<td>Low to Average</td>
<td>No</td>
<td>Domestic: 80% recycled + 20% virgin</td>
</tr>
<tr>
<td>Panlong Paper</td>
<td>100% Local Providers</td>
<td>Only 1 factory</td>
<td>All of local customers: Fruit producers</td>
<td>No, locate in Guang Dong</td>
<td>Low: ISO9001-2000</td>
<td>Low level</td>
<td>Low</td>
<td>No</td>
<td>Domestic: 90% recycled</td>
</tr>
<tr>
<td><strong>Shanghai Huali</strong> Pan Asia Providers (Hong Kong)</td>
<td>5 factories: Shanghai, Shenzhen, Chong Shan, An Hui, Mu Dan Jiang</td>
<td>Average, locate in North &amp; South China</td>
<td>Relative High</td>
<td>Relative High</td>
<td>Relative High</td>
<td>Average</td>
<td>No</td>
<td>Most domestic + little import Most of recycled</td>
<td></td>
</tr>
<tr>
<td>Company Name</td>
<td>Type</td>
<td>No. of Factories in China</td>
<td>Customers</td>
<td>Location close to Dairy Producers</td>
<td>Quality Control</td>
<td>Advance machine</td>
<td>Innovation Ambition</td>
<td>Handle (integrate tape)</td>
<td>Source Raw Material</td>
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<tr>
<td>Zhejiang Jian</td>
<td>Regional Local Providers</td>
<td>5 factories (include own paper mill)</td>
<td>MNC+ local: dairy: Miaoshi (used to be Yili)</td>
<td>Average: locate in south China</td>
<td>Average: ISO 9001</td>
<td>Medium</td>
<td>Average</td>
<td>No</td>
<td>Domestic + own paper mill, most of recycled</td>
</tr>
<tr>
<td>SCA Hohhot</td>
<td>MNC</td>
<td>70/30 (SCA/Yili) joint venture</td>
<td>MNC + local: main customers: Yili</td>
<td>Yes: close to Yili headquarter</td>
<td>Relative High: ISO14000, ISO9001 /2000</td>
<td>Relative high</td>
<td>Relative high</td>
<td>No (only apply plastic handle)</td>
<td>Most domestic + little import, most of recycled</td>
</tr>
<tr>
<td>New Asia Paper</td>
<td>Pan Asia Providers (Singapore)</td>
<td>1 factory</td>
<td>Most of local: Mengniu, Yili</td>
<td>Yes: close to Mengniu headquarter</td>
<td>Average: ISO9001</td>
<td>Medium</td>
<td>Average</td>
<td>No (only apply plastic handle)</td>
<td>Domestic, most of recycled</td>
</tr>
<tr>
<td><strong>Zonestar Group</strong></td>
<td>Regional Local Providers</td>
<td>3 factories</td>
<td>Mengniu &amp; Yili, 10% of Mengniu’s total demand of cardboard</td>
<td>Yes: Baotou, Tianjin, Baoding</td>
<td>Average: ISO9001-2000.</td>
<td>Medium - High</td>
<td>High</td>
<td>proposal integrated tape + apply plastic handle</td>
<td>Domestic, most of recycled</td>
</tr>
<tr>
<td><strong>Baoding Yuejin</strong></td>
<td>Regional Local Providers</td>
<td>2 factories, investing paper mill Mongolia &amp; one more factory in Xian</td>
<td>Mengniu &amp; Yili shares more than 30% of Mengniu total demand</td>
<td>Yes: Baoding, Haerbin</td>
<td>Average: ISO 9001</td>
<td>Medium - High</td>
<td>High</td>
<td>Apply integrate tape &amp; plastic handle</td>
<td>Domestic, most of recycled</td>
</tr>
<tr>
<td>Smurfit Stone</td>
<td>MNC</td>
<td>15 factories (3 own +12 join venture)</td>
<td>85% MNC + 15% local (not for domestic use)</td>
<td>No. located in South China</td>
<td>High:</td>
<td>High</td>
<td>High</td>
<td>No</td>
<td>Domestic + own paper mill in US, most of recycled</td>
</tr>
</tbody>
</table>

**Recommended potential suppliers**

Figure 10 Summary of Strengths & Weakness of Interviewed Suppliers.……………( Source: Author’s own)
6. CONCLUSION & RECOMMENDATION

The conclusions and recommendations are based on the results of our theoretical framework, empirical findings and the analysis of the empirical results. We will answer the three sub questions as well as the main research questions. Furthermore, the thesis will be ended by recommendations for Tetra Pak how to implement the proposed strategy and recommendations for further studies those are relevant to this research paper.

6.1 Conclusions

<table>
<thead>
<tr>
<th>Main Research Question</th>
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<tr>
<td>How can supply network management be used to improve the quality of corrugated cardboard suppliers in China?</td>
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</table>

According to supply network management, the increasing significance of suppliers is recognized in many fields. The increasing interest in collaboration with suppliers is a reflection of the fact that buying firms have reconsidered efficient purchasing. Therefore, supply network management is very important issue to improve the quality of corrugated cardboard suppliers in China. Finding suitable suppliers and developing close relationship and collaboration with them would be one of solutions to improve the quality of corrugated cardboard in China. Nevertheless, there others aspects can enhance the quality of corrugated cardboard in China.

Quality control through the production process

Less degree of depending on manual labor will reduce the risk of production process. The cardboard producers should concentrate on adjusting the production process. Enhance the quality control from the raw material arrive to producing process and the final product.
Improve the network and database management in order to increase the efficiency and reduce the rate of waste as well as the duplicating.

**The quality of machines**

The quality of the machines will largely affect the quality of the products. The cardboard producers should choose the reliable brands when they select the new machinery. China's corrugated board industry will intensify effort on technology, equipment and management of the relative backward state of machinery. Speed up the equipment technical improvement in order to improve the quality.

**Skilled labor**

The poor quality problem caused by unprofessional operation during the process is quite often. Due to the fact that the cardboard packaging producers are widely hiring unskilled labors in order to cut the cost. Therefore, cardboard producers should enhance the employee management. Encouraging the employees keep a strong sense of responsibility through the entire production chain. Optimize the number of employees and delivers skilled employees at a competitive cost to enhance the quality.

**Training programs & collaboration**

To develop training programs is one of the important managerial issues to avoid low performance. Improving the quality of the products required extending quality assurance to suppliers. Nowadays, formal and informal training programs are important means of enhancing supplier performance. Working closer together gives new insights through collaboration which support performance improvements.
Reasonable Price

Obviously, dairy producers should consider offering a reasonable price to corrugate cardboard suppliers. General speaking, the “jerry built” phenomenon will be getting worse when the price is getting lower and lower. The cardboard suppliers are already operating their business at a low profit margin. If the customers squeeze the price so badly, the suppliers could consequently choose inferior materials and turn out sub-stranded products. It is difficult for cardboard producers to raise the price because the dairy producers are also under the pressure of cost. The purchasing of milk price has constantly increased in recently years. They try to increase the price of dairy product, but the government manipulates the price and keeps it in a lower level. It is hard for dairy producer to acquire more profit. So they need to keep the cost as low as possible, the cardboard producers do not accept the raising price from cardboard producers. Both parties should concern each other difficulties and compromise the suitable price.

Large quantity order with lower price, low quantity order with higher price

In that case, dairy producers can promise on offering big volumes to those suppliers who have high production capacity in a lower price. Because the suppliers can enjoy the economic of scale, they would accept the lower price. The orders with less quantity can be provided to those smaller suppliers in a higher price. An important prerequisite condition is that suppliers should guarantee the quality.

Long term relationship

Dairy producers should not treat their suppliers just as providers. Dairy producers need to build a long term relationship base on trust and mutual benefit with their suppliers. They can evaluate and rank their existing suppliers, and identify the suppliers with the best performance. Meanwhile, they should eliminate those suppliers who are not able to
always provide the product in consistent quality. It will distract the competition from price to quality oriented.

**Increase moisture resistance methods**

First, the suppliers should balance the gram-mage of the cardboard to ensure the strength. Second, the suppliers can choose anti-water additives in paper board raw material to enhance moisture resistance. The price of this kind of corrugated raw material is around 100-300 yuan per ton. It is higher than the normally paper Another method is additives in glue for lamination on cardboard surface during the production process. It is very effective for anti-water function. The price of this glue is around 5 % higher. Also, print or spray costing anti-water printing on the final printing process is also a method to increase moisture resistance. Those methods would be used are depend on customers requirement and price.

<table>
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<tr>
<th>Sub-Research Question 1</th>
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<tbody>
<tr>
<td>How can supply network management be used to find suitable corrugated cardboard suppliers?</td>
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</table>

In response to sub question one, we describe how supply network management which be used to find suitable cardboard suppliers. Finding new qualify corrugated cardboard suppliers is one of the solution to solve the quality problem of cardboard suppliers. We try to find suitable suppliers with potential to deliver high and homogenous quality of cardboard.
There are some of strategic variables to select the suitable suppliers under supply network management. First, the ability to provide high and homogenous quality is the first priority to define the suitable suppliers. Second, finding suppliers should be geographically close to milk producers (Yili, Mengniu). It would save transportation time and costs.

The next step is to analyze those target suppliers in detail. This is based on criteria like size, revenue, number of employees, number of sites across China, etc. The additional criterion is customer services such as product consultation, handle, and storage services. Beside, help customers to find valid solutions to replace the plastic handle can improve the productivity.

According to the detail analyse on the strengths and weaknesses of each interviewed suppliers in chapter 5, we suggested three corrugated cardboard suppliers:

- Zonestar Group in Baoding and Baotou
- Boading Yuejin Packaging in Baoding
- Huali in Shanghai.

We believe these three suppliers are capable to fulfil the above four selection criteria. First, the selected suppliers are able to provide high and homogenous quality of cardboard box for cardboard wrapper, because they constantly invest on quality improvement and product development. Meanwhile, all of three suppliers have a quite comprehensive quality control system. Moreover, they have very innovative sense towards quality and productivity improvement.
Secondly, the scale of those companies is noticeable. They all establish subsidiaries somewhere in China. For example, Huali Packaging has five cardboard packaging across China: Mudan Jiang, Anhwei, Shanghai, Shengzhen and ZhongShan. Zonestar Group has total three cardboard packaging factories in Baotou, Tianjin and Baoding. As for Boading Yuejin Packaging is one of the biggest private owned corrugated cardboard packaging company in the north, the company has cardboard packaging factories in Boading and Haerbin and plan to have another cardboard packaging factory in Xian and paper mill in Inner Mongolila.

Finally, they are geographically close to the dairy producers. It won’t be difficult for three selected suppliers to deliver cardboard box close to Mengniu and Yili production plants across China. They have already established long term business relationship with Mengniu and Yili. For example, Zonestar hold around 10% of Mengniu’s total purchasing on corrugated cardboard packages. Yuejin shares more than 30% of Mengniu total demand on flexo- print packages and approximately 67% of annual sale was made for Mengniu and around 17% was made for Yili. The company has worked with Yili for 3 years. Hence, they have better understanding of their customer’s needs. It could be easy for them to develop further collaboration in the future.

Sub-Research Question 2

How can supply network management be used to manage supplier development?

As we mentioned before that the ability to handle the supply side is great affecting the competitiveness and profit generating capacity of the individual firm. It is important for dairy producers to manage the supplier network and relationship in order to achieve
win-win situation. After supplier selecting process, the following issue is to define how dairy producers handle these suitable cardboard suppliers. Good relationship between dairy makers with selected corrugated cardboard suppliers is the foundation to improve the quality so that and the cardboard wrapper can run properly.

There are several issues related to supply network management: the benefit of supply network management, sourcing supplier strategies, supplier relationship strategies and developing & managing supplier relationships.

**Sourcing Strategies and Supply Base**

Nowadays, Yili and Mengniu are using multiple sourcing strategies. Mengniu is using more than eighty corrugated cardboard suppliers in China. There are pros and cons of these choices of the sourcing strategy.

Dairy producers could avoid dependence on individual suppliers because the demand of corrugated cardboard is quite large in quantity. It would be a huge problem if individual suppliers are not able to accomplish order on time under certain circumstances. However, the weakness of multiple sourcing strategies is the high cost on handling many suppliers such as administration, transaction cost and transportation costs...etc.

Another benefit of multiple sourcing is the lower price. If Mengniu and Yili place the large quantity of orders on one or a few of suppliers, they fear that those suppliers might bargain to higher price. Therefore, they are still using multiple sourcing which lead to price reduction through stimulating competition among suppliers.
We encourage dairy producers to choose several suppliers. It can spread the risk of so much depending on only one supplier. But they should concentrate on those who can provide higher quality rather than price. The below is to describe the potential advantages of close collaboration.

Firstly, communication between two parties is very important for running successful business. Corrugated cardboard suppliers should be aware of the dairy producer's own activities, knowledge and capabilities. At the same time, dairy producers try to reduce involvement in certain relationships with many different suppliers in order to release more existing resources and focus on maintain good relationship with qualified corrugated cardboard suppliers possible.

On the one hand, corrugated cardboard suppliers must be convinced to direct the attention to the specific needs of the dairy producers. Dairy producers explain the benefit of developing close relationship to the suppliers. On the other hand, these qualified suppliers must consider that the relationship with dairy producers is worthwhile to invest the time, money and resources. When both of them develop partnership, they would enjoy many indirect benefits. All those benefits are exceeded as the cost of close collaboration.

**Potential advantages of close collaboration**

There are some benefits for milk producers. First of all, if Mengniu and Yili limit the number of suppliers, the handling cost can be reduced.

The second indirect benefit is to enhance the production efficiency on cardboard wrapper. The existing problem is that cardboard wrapper could not run properly because of inconsistent quality of cardboard boxes. Sometimes, the machines even have to stop. It is
the indirect costs to dairy producers. If the quality of corrugated cardboard could be secured, the cardboard wrapper could be run smoothly and productivity can be increased at the same time.

Besides, corrugated cardboard suppliers could also enjoy the benefits in close relationship. However, it is quite costly to develop close relationship. For example, dairy producers need to pay a little higher price to get higher quality cardboard. Obviously, those suppliers are willing to fulfil the requests from different customers. But it is necessary for suppliers to invest more money on facilities in order to improve the quality of the products. Thus, the investment cost would be shared by suppliers and dairy producers.

**Trust and Commitment**

Dairy producers should develop trust and commitment with several main cardboard suppliers. High involvement relationship build on mutual adaptations and investments, without trust and commitment, it is difficult for them to do the business in the long term. Also, most of corrugated cardboard suppliers always keep in touch with their customers, so society interaction is quite important to develop relationship in China. Corrugate cardboard suppliers have to develop good ‘Guan Xi’ to gain trust from dairy producers.

**Supplier Relationship Strategies**

There are different supplier relationship strategies. The classification of buyer-seller relationships is based on the level of involvement between customer and supplier. In our thesis, dairy producer and cardboard suppliers could develop high involvement relationship. There are several reasons to support on this. Under high involvement relationship, dairy producers could reduce cost of handling many different suppliers such as cost of procurement, cost of production process, communication cost etc. Also, the
relationship can be handled with co-ordination, adaptations and interaction. The production process would be more efficiency. Suppliers and customers could acquire skills and capabilities from each other to improve the quality of product. Obviously, there are also disadvantages for this relationship. For example, high involvement means increase relationship-handling cost. There should be balance and adaptation between both parties.

**Developing and Managing Supplier Relationships**

The following content is to analyze how dairy producers develop relationship with potential cardboard suppliers.

Firstly, the level of involvement is crucial issue in any relationship. Dairy producers should evaluate their existing or potential corrugated cardboard suppliers, and then select the best to have high involvement relationship. After that, they need to continuously monitor relationships with suppliers to ensure that benefits keep pace with costs. Dairy producers could support the suppliers in order to motivate them to enter a high-involvement relationship.

Secondly, it is not too difficult to develop relationship with suppliers; the most challenging task is to maintain the relationship. Dairy producers can identify the incentives and improvements offer to the suppliers involved in the partnerships. Refer to our empirical result, large quantity of order with shorten payment term are main concerns of cardboard suppliers to have business with dairy producers. After develop high involvement relationship, dairy producers should place the order to only few suppliers. Nowadays, suppliers need to bid to win the orders from Yili and Mengniu every year, if dairy producers focus on those key suppliers to become partners, then the supplier may
reduce its administrative burden and improve its use of resources when it has lower bidding and quotation requirements.

<table>
<thead>
<tr>
<th>Sub-Research Question 3</th>
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<tbody>
<tr>
<td>How to fit supplier information network into a Strategic Intelligence System for Tetra Pak?</td>
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</table>

In order to answer this question, it focuses on two areas: how to get data on cardboard suppliers and how to develop a system to incentive them to deliver better quality.

Nowadays, the organizations that apply Strategic Intelligence effectively will be the survivors of today’s and future’s competitive environment. McNeilly (1996) defined Strategic intelligence that ‘it is not enough to merely gather the information; an infrastructure must be in place to ensure that market information is getting back to the decision makers’. The following part will explain how to get data from corrugated cardboard suppliers including company profile, quality issue and production structure. Strategic intelligence is used to fully understand of the corrugated cardboard industry, then analyses the information deeply and make sure Tetra Pak could apply the information effectively into execution on their business strategies to improve the quality of cardboard suppliers in China.

There are several procedures to get the data on corrugated cardboard suppliers. First of all, we tried to get as much useful data as possible. We searched the corrugated cardboard supplier information through internet, there are more than thousands corrugated cardboard suppliers in China, we tried to understand more about basic status of this industry. After that, we selected around 30 suppliers, and conducted telephone interviews to those suppliers. Most of respondents were quite positive; we asked a several questions
in related to their company background. We realized that not all of suppliers could meet our selection criteria, so we eliminated some of them. 17 potential suppliers were identified for the further study. Due to time constraints, we have conducted 11 face to face interviews and 6 telephone interviews during the trip in China. We got a lot of useful information such as the source of raw materials, testing method, quality standard, the production capacity, innovation ambition…etc. We tried to gather all the data that relate to the current corrugated cardboard industry situation and our research questions as well.

Another important part of Strategic Intelligence System is the development of incentive system to improve the quality from suppliers. The current situation in which suppliers sometimes deliver good standard cardboard that works well in Tetra Pak’s machines and sometimes they deliver very poor standard cardboard that cause problems in the machines (cardboard wrappers) of Tetra Pak. The below is the incentive system to improve the quality form suppliers in China.

There are two levels into the incentive system. First level is related to the business offers from dairy producers. Dairy and cardboard producers have to compromise in business contract term. Reasonable price, big order in volume and close relationship are definitely incentives for cardboard producers.

Chinese government controls the price of dairy products, so dairy producers try to keep the costs as low as possible. Hence, both parties should comprehend the seriousness of the situation. Sometimes, it is quite difficult to comprise on price and the quantity each other because they have their own difficulties. Hence, the second level of incentive system is to promote Key Performance Indicators (KPI). KPI is financial and non-financial metrics used to help an organization define and measure progress toward organizational goals.
Dairy producers can set annual target figures on quality improvement progress to suppliers. They should monitor supplier quality improvement statues via KPIs. If the supplier is gradually improved quality of product, they will be get rewards such as large orders. Both parties could participate in quality improvement progress and this KPI program will be more practical into implementation.

6.2. Recommendation

In this section, we will suggest some recommendations for Tetra Pak how to implement the proposed strategy to improve the quality of Chinese corrugated cardboard suppliers. Tetra Pak’ key customers are facing the quality problems from current cardboard suppliers; it is getting attention for Tetra Pak on secondary packaging industry in order to enhance business performance in China. There are two recommendations as below:

Collaboration

As we mentioned before, Tetra Pak would identify potential suppliers based on several criteria such as innovation ambition, quality level, product offerings, company profile, no of sites across China. Tetra Pack can cooperate with selected suppliers on quality improvement. Tetra Pak can propose a quality improvement plan with a range of measurement to those suppliers. The suppliers evaluate this plan in accordance with their real capacity. And then they will make a new plan to Tetra pack as feedback.

Also, Tetra Pak could provide a different kind of assistants to selected suppliers. It is especially in technology support. Tetra Pak can provide training program to suppliers to improve the essential skills. Also, Tetra Pak could educate the suppliers about quality. Increasing the quality awareness and quality knowledge to suppliers is most essential
topic for realizing quality and quality integration in practical cases. Besides, quality testing is one of the important processes in quality control. Tetra Pak can support quality testing of mills. Tetra Pak could invest or provide information about a variety of quality testing appliances to mills to reduce the deviation of quality on each production process from raw materials to final products.

**Joint Venture or Partnership**

If Tetra Pak expects to have better control on the quality of cardboard, investing capital and resources directly to supplier factory would be one of the solutions. It might too costly to merge cardboard factories, so we suggest Tetra Pak form joint venture with some potential suppliers. The parties agree to create a new entity by both contributing equity, and then they share in revenues, expenses, and control of the enterprise. The new joint venture companies should only focus on Tetra Pak customers. Tetra Pak could improve the business operation and profitability of operations in primary and secondary packaging industry in China.

Refer to sub research question one; we identified three potential suppliers during our Chinese trip. Tetra Pak would consider the suppliers we have proposed. Firstly, Tetra Pak can establish joint venture with Zonestar Group and Baoding Yuejin. Those two suppliers are the biggest suppliers for Mengniu so far. They have sufficient experience of working in corrugate cardboard packaging industry. Also both of them have the experience on providing integrate handle. They are keeping the leading position in North of China. Both of them have subsidiaries within North China. They are very interested in innovation. Since both of them right now are only use domestic made machinery. Tetra Pak can invest in new equipment to improve their productivity. Additionally, Tetra Pak can help them to improve their management level by implement the advanced managing strategy that Tetra
Moreover, raw material is also important for quality of cardboard. If Tetra Pak would get control over raw material supply, it would be assured of the quality in the quality control process. Since the increasing price on raw material has become the key factor affect the corrugate cardboard industry. Baoding Yuejin is investing a paper company in Inner Mongolia to meet the increasing demand in paper market, so Tetra Pak could guarantee the supply of raw material and manage the quality of raw materials when Tetra Pak establish joint venture with that company.

Secondly, Tetra Pak can have a partnership with Huli Packaging. Huli has a strong position in Shanghai. The company also owns several subsidiaries both in North and South. Huli is quite strong on quality control and gained a lot awards on quality aspect. Tetra Pak can work with them on developing innovation solution on cardboard products or integrated handle.

The above approaches require strong customer interaction; it means that Tetra Pak needs to have strong interaction with their customers such as Mengniu & Yili. Tetra Pak ought to explain the consequences of poor cardboard quality to their customers. It is important to point out how poor quality of cardboard would affect the business operation on secondary packaging to both Tetra Pak and dairy producers. They should try to get the agreement on their recommended potential suppliers from Mengniu & Yili. Hence, communication and collaboration among three parties (cardboard suppliers, Tetra Pak customers, Tetra Pak) are very important to improve the quality of cardboard and enhance secondary packaging performance in China.
7. AREAS FOR FUTURE RESEARCH

Due to limited time and delimitations of this thesis, we have been focusing on specific areas. However, during the time we carry out the research, we have found out that there are some research topics those might be interested for future researcher who would like to make more investigation into relevant subject.

**Explore paper industry**

The raw material market has tremendous impact on corrugated cardboard packaging industry. The demand and price of paper have been increasing significantly in China; it has seriously affected the production cost of corrugated cardboard industry. If we want to understand the future development of corrugated cardboard industry, it is important to explore deeply in paper industry.

**Conduct customer market research on integrated handle solution**

Tetra Pak can make market research about integrated handle solution in order to examine people interest towards using integrate handle. The aim of the research will be to assess perception and attitudes to integrated handle among end customers, their opinion about handle design. It may provide useful insight for dairy producers to create new integrated handle solution which meet the customer need.

Moreover, during our empirical study, we found out that unsatisfied market result may cause by the insufficient market promotion. Tetra Pak is well known in environment protection in China. Associate dairy producers and cardboard suppliers to promote the integrate handle will increase the awareness of integrate handle as well as Tetra Pak’s image.
Greater concern on Chinese environmental issues

The Chinese government has placed a greater concern on environmental issues since the early 21st century. Efforts to control China's pollution problem have become a top priority of the Chinese leadership, environmental policy from Chinese government plays an important role on paper industry, it would indirect affect on cardboard industry business, and hence, Tetra Pak would pay more attention on the Chinese government policies on environmental issues in order to understand more the corrugated cardboard industry.

Investigate on the entire industry

As we have mentioned in the previous part, the corrugated cardboard industry divided into three tiers. In our thesis, we concentrated on those suppliers in the second tiers and little on first tiers. To have a better understanding about the entire of corrugated cardboard industry, we think it is necessary to investigate those companies in the first and third tiers as well.
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http://www.zonestars.cn

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The PowerPoint presentation “Cardboard Supplier Visits China January 2008” from Kann Holmkvist, YiMin Li & Ida Svensson, Tetra Pak in Lund, 2008-02-28
Appendix 1

Questionnaire to corrugated cardboard suppliers In English

(Face to Face Interview)

A. Company Profile

1. How many employees do you have? What is your annual revenues / turnover?
   What is your company capital? Does your company have any other subsidiaries in other Chinese cities?

2. How much (people or money) do you invest in new product development quality improvement?

3. What is your company production output and amount per month or per year?

4. Who are your existing customers? Do you have any dairy producers as your customers? If yes, what are the names of those customers?

B. Structure of Cardboard:

5. What type of cardboard does your company provide?

6. Do you produce single wall or double wall corrugated cardboard?

7. What kind of raw materials do you use to produce cardboard?

8. Does the company use recycled fibers? If yes, what is the proportion?

9. What is the structure and dimension of flute? (Type A or C or B or E)

10. What compression strength of corrugated cardboard do you produce now?

11. What factors affect the compression strength of corrugated cardboard?
   raw material? Manufacturing process? Production environment? Others factors?

12. How can tolerance dimension deviations be minimized?

13. What is the tolerance dimension of corrugated board?

14. Does your company use Chinese National Standard for corrugated cardboard?
15. Where does your company source their raw materials? Does your company have own raw materials supply / production?

16. What kind of die cut method do you use? Roller die-cut or flat die-cut/ stamping?

C. Customers concern on quality:

17. Do your current customers provide their cardboard qualities & test method specification to you in order to ensure the quality standard?

18. Does your company already have customers asking for premium quality?

19. What are the key factors to maintain high quality standard of cardboard?

20. How can your company ensure high quality standard of cardboard delivery all the time to your customers?

21. What are the main concerns/difficulties for you when your company tries to provide consistent high quality cardboard to your customers?
   (such as high cost, time constraints, raw materials supply...etc.)

22. Are there any incentives that promote better and more homogenous cardboard for company?

23. What conditions does your company willing to deliver consistent quality of cardboard?

24. How much profit margin would your company prefer in order to deliver consist quality of cardboard?

D. Additional Functions:

25. Does your company provide anti-water additives in paper board raw material?

26. Can your company provide coating to enhance moisture resistance of cardboard?

27. Is your company able to produce corrugated cardboard boxes with integrated handles?
If yes, is your company able to produce boxes with integrated strengthening tape?
If no, is your company willing to provide integrated handle solutions?

E. Testing Quality Aspect:

28. Does your company use international or specific internal test methods to verify the quality on corrugated fiberboard? If yes, what kind of tests? (such as bursting strength of liner, folding, grammage, internal stress of liner, moisture content, wetness, width)

29. Does your company use international or specific internal test methods to verify the quality on cardboard? If yes, what kind of tests? (such as tear strength, edge wise crush test, bursting strength test, print)

30. What kind of test methods does your company use on final corrugated box in order to verify the box quality? (such as box compression strength, drop test, inner dimensions, puncture energy test)

F. Industry Analyses:

31. What are the characteristics of the cardboard industry in China? What does the business model look like?
   - Own raw material supply
   - Local vs. China wide operations
   - Domestic vs. International players

32. How does the company look at the industry five years ahead?
   (more players or consolidation)

33. How can your company start or develop relationship with new customers?

34. How can your company maintain relationship / develop long term relationship with current customers?
Appendix 2 供应商问卷调查中文

公司情况
1. 有多少员工？总年收入是多少？公司的资产是多少？有没有分布在中国其他地区？
2. 每年在新产品研发跟提高质量方面投入多少？
3. 每月或者每年的产量是多少？
4. 现有的客户是那些？是否给奶业公司供货？如果有，都是那些公司？

纸板结构：
5. 你们公司都提供什么型号的纸板？
6. 是否生产单楞或者双楞的瓦楞纸板？
7. 现在使用什么原材料？
8. 是否使用可回收再利用的材料？如果是，大概这种材料占总原料多大比例？
9. 你们公司都生产什么样的楞型？
10. 冲击力度大概是多少？
11. 都有哪些因素影响冲击力？原材料？生产过程？加工环境？其他因素？
12. 如果将偏差降低到最小？
13. 你们公司的瓦楞纸板偏差大小是多少？
14. 你们公司是否使用中国国家统一标准？
15. 你们从什么地方采购原材料？有没有自己加工原材料？
16. 你们使用那种切割方式？滚动式还是平切，还是人工切割？

客户对质量的关注：
17. 你们公司的客户是否提出关于纸板质量跟检验方式的特殊规格以确保达到质量标准？
18. 你们的客户是否提出在质量方面的优先要求？

19. 有哪些是决定维持高质量标准关键因素？

20. 你们公司如何能保证每一次都能发送高质量的纸板？

21. 对于你们公司提供给客户高质量产品的一致性，什么是最值得关注/难题？例如高成本，时间限制，原材料供应？

22. 那些是激励你们提供更好的或者同品质的产品？

23. 什么样的条件下你们公司乐于交付品质一致的纸板？

24. 你们期望获得多大的边际利润？

额外功能：

25. 你们公司在原材料方面有没有特殊防水措施？

26. 是否提供遮盖材料加强抗潮能力？

27. 是否有能力建造可替代塑料提手的纸箱？
   a. 如果有？是否能够生产加入加固胶带在纸板里面以便取代塑料提手？
   b. 如果目前没有？你们是否愿意提供关于这方面的方案？

质量检测：

28. 是否使用国际认证的或者国内特殊检验方法去检测原材料质量。例如爆破？折叠？克重？含水量？抗潮？宽度？

29. 是否使用国际认证的或者国内特殊检验方法去检测纸板质量？

30. 是否使用国际认证的或者国内特殊检验方法去检测纸箱质量？
行业分析:

31. 你对中国整个瓦楞纸板行业怎么看？什么样的商业模型？

自己加工原料/现地或者国内范围内加工/国内生产商主导或者国际生产商主导市场

32. 你对这个行业未来 5 年的发展如何看待？（更多的公司加入还是联盟或者个别大公司垄断？

33. 你们公司是如何发展于新客户的的关系？

34. 如何去维系与现有客户的关系/发展长远关系？
Appendix 3

Questionnaire to Tetra Pak in Shanghai office
(face to face interview)

Industry trend

1. What does Tetra Pak think about secondary packaging industry in China?
2. How does Tetra Pak look a secondary packaging industry five year ahead?
3. What is the business situation of cardboard industry in China now?
4. How does Tetra Pak think about the trend of carton economy packaging especially in TFA in China in five years ahead?

Cardboard wrapper

5. How is the investigation statue of cardboard wrapper for TFA products? When the cardboard wrapper will be available to the market?
6. What are the Tetra Pak ‘target customers of this cardboard wrapper machine in China?
7. What are quality requirements of cardboard on your cardboard wrapper?

Dairy Customers

8. What are the main problems facing by Tetra Pak dairy customers on secondary packaging?
9. What do dairy customers think on cardboard wrapper? What do they concern either using the wrapper machine or the labour? (Cardboard wrapper cost? cardboard cost? Productivity? cardboard quality? additional service from suppliers?)
**Tetra Pak Strategy on secondary packaging industry**

11. What are the purposes of Tetra Pak trying to solve the quality problem of cardboard from suppliers in China?

12. What is the role of Tetra Pak between dairy customers and cardboard suppliers?

13. Are other competitors trying to solve the quality problem of cardboard to their dairy customers? If yes, how can they solve the quality problem?

14. What would Tetra Pak do on the new potential cardboard suppliers list?

15. Would Tetra Pak like to offer incentives to promote better and more homogenous standards of cardboard in China?
Appendix 4

Questionnaire to SCA Europe & China

1. Industry Mapping: Who are the main suppliers/providers of cardboard in China?
   a. Who are the main-players?
   b. What does their business model look like?
   c. How does their business model differ from that of Western companies?
   d. How do they look at the industry five years ahead?

2. How does SCA work in China and how does this differ from Europe?
   a. Supply Chain: Where do they source their raw materials (EU vs. CN)

3. Differentiation/Premium Quality/Product Portfolio/Innovation Leadership
   a) Are there any premium offerings in China? If not – why?
   b) Any possibilities of implementing a differentiation strategy in China – offering premium cardboard at higher price?
   c) Do they already have customers asking for premium quality?
   d) Are there any incentives that promote better and more homogenous standards of cardboard in China?
   e) Can they provide integrated handles – as example of premium quality?
   f) Can they provide coating to enhance moisture resistance?
   g) Any other premium quality offerings?
4. Tetra Pak Business Opportunity (advice on the prospective opportunity)
   a) Can a premium cardboard (high performance downstream equipment) be bundled with a guarantee for longer meantime between failures?
   b) How can a supplier be involved in this business model?
   c) Make a curve on payback related to distance to supplier?

5. Need Analysis: Is there a gap between the current offering and the required quality in China?
## Appendix 5

### Interview Schedule

<table>
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<th>Name</th>
<th>Organization</th>
<th>Position</th>
<th>Place</th>
<th>Date</th>
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<tr>
<td>IDA Svensson</td>
<td>Tetra Pak</td>
<td>Specialist Secondary Packaging &amp; Logistics</td>
<td>Headquarter in Lund, Sweden</td>
<td>Feb 29 2008</td>
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<tr>
<td>Richard L. Sanders</td>
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<td>Consultant</td>
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<td>March 19 2008</td>
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<tr>
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<td>Lund University</td>
<td>Visiting Professor</td>
<td>Lund, Sweden</td>
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<tr>
<td>Ms. Chung</td>
<td>AMB Inteprac</td>
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<td>Dongguan, China</td>
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<tr>
<td>Mr. Nie</td>
<td>Panlong paper</td>
<td>Sales Director</td>
<td>Dongguan, China</td>
<td>March 29 2008</td>
</tr>
<tr>
<td>Mr. XU</td>
<td>International Paper</td>
<td>Sales Manager</td>
<td>Shanghai, China</td>
<td>April 02 2008</td>
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<tr>
<td>Mohsen Djalai</td>
<td>Tetra Pak</td>
<td>Manager</td>
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<tr>
<td>Mr. Zheng</td>
<td>Ji’an Paper packaging</td>
<td>Sales Manager</td>
<td>Shanghai, China</td>
<td>April 04 2008</td>
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<td>Ms. Wu</td>
<td>Shanghai Huali</td>
<td>Sales Manager</td>
<td>Shanghai, China</td>
<td>April 05 2008</td>
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<tr>
<td>Mr. Song</td>
<td>New Asia Paper</td>
<td>Vice Managing Director</td>
<td>Hohhot, China</td>
<td>April 08 2008</td>
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<tr>
<td>Ms. Suo</td>
<td>SCA (Hohhot)</td>
<td>Manager of Quality Control</td>
<td>Hohhot, China</td>
<td>April 09 2008</td>
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<tr>
<td>Ms. Pei</td>
<td>Zonestar Paper (Baotou)</td>
<td>General Manager</td>
<td>Baotou, China</td>
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<tr>
<td>Mr. Pei</td>
<td>Yue Jin Packaging</td>
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<td>Mr. Shaw</td>
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<td>Joe</td>
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Appendix 6  
**Supplier Profile (interview base) (continue)**

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<td><a href="mailto:joe_sin@sscc-psc.com">joe_sin@sscc-psc.com</a></td>
<td><a href="http://www.smurfit-stone.com">www.smurfit-stone.com</a></td>
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</tbody>
</table>
### Supplier Profile (interview base)

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Employees</th>
<th>company size</th>
<th>Establish year</th>
<th>Avenue</th>
<th>Customer</th>
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</thead>
<tbody>
<tr>
<td><strong>Shanghai</strong></td>
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<tr>
<td>1 Huali Packaging Co Ltd</td>
<td>400</td>
<td>32000²</td>
<td>1997</td>
<td>3000000000yuan</td>
<td>Mengniu, Yili</td>
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<tr>
<td>2 Jian paper packaging</td>
<td>500</td>
<td>30000²</td>
<td>2002</td>
<td>300 million Yuan</td>
<td>Philips, GE, CIMIC, ICI</td>
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<td><strong>Guangzhou</strong></td>
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<td>3 AMB interpac containers</td>
<td>450</td>
<td>35000²</td>
<td>1990</td>
<td>USD 100 million</td>
<td>Kyocera Mita, Philips, IBM</td>
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<tr>
<td>4 Panlong paper</td>
<td>300</td>
<td>30000²</td>
<td>1992</td>
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<td>Local fruit producer</td>
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<td><strong>Baoding</strong></td>
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<td>5 Baoding paper packaging</td>
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<td></td>
<td>1991</td>
<td>1500000000yuan</td>
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<td>6 Zonestar paper</td>
<td>300</td>
<td>30000²</td>
<td>2003</td>
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<td><strong>Huhhot</strong></td>
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<td>7 New Asia Paper</td>
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<td>8 SCA</td>
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<td>10 Smurfit-Stone</td>
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<td></td>
<td></td>
<td></td>
<td>Walmark, Home Depot</td>
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</tbody>
</table>
The University of Kalmar

The University of Kalmar has more than 9000 students. We offer education and research in natural sciences, technology, the maritime field, social science, languages and humanities, teacher training, caring sciences and social service.

Our profile areas in research are: biomedicine/biotechnology, environmental sciences, marine ecology, automation, business administration and informatics, but we have research proceeding in most subject areas of the University.

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