Factors Related to Local Supply Base Development Affecting Production Localisation in China

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Abstract

Recent years, foreign manufacturers have extended their manufacturing footprint to include China. According to the World Bank China has overtaken Japan as the world’s second-largest economy since 2010. China’s growth is largely funded by a continuous manufacturing boom where both domestic industries and infrastructure have developed extensively, facilitating foreign-owned manufacturing companies to locate production in China. An important issue of common interest to all manufacturing companies in the course of localizing production to China is how to develop an efficient supply base.

The purpose of the thesis is to identify the factors related to local supply base development that affect production localisation in China. An identification and analysis of factors for foreign manufactures to consider when developing the supply base for their China production facilities is presented.

The thesis work is executed based on a comprehensive literature study and interviews with twelve manufacturing firms (comprising eight foreign manufacturers and four local supplier companies) in China from April to July, 2012. The thesis investigates factors of importance to supply base localisation in China. The analysis of the empirical and theoretical findings constitutes the bases for increased understanding supporting foreign manufactures, especially for those small and medium firms, in their development of a supply base and sourcing strategy for production in China.

**Keywords:** China, manufacturing, sourcing, supply base development, production localisation
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<th>Abbreviation</th>
<th>Meaning</th>
<th>Page</th>
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<tbody>
<tr>
<td>ESI</td>
<td>early supplier involvement</td>
<td>25</td>
</tr>
<tr>
<td>FDI</td>
<td>foreign direct investment</td>
<td>8</td>
</tr>
<tr>
<td>FIEs</td>
<td>foreign-invested enterprises</td>
<td>10</td>
</tr>
<tr>
<td>IJVs</td>
<td>international joint ventures</td>
<td>10</td>
</tr>
<tr>
<td>LCCs</td>
<td>low cost countries</td>
<td>15</td>
</tr>
<tr>
<td>MRO</td>
<td>maintenance, repair and operating</td>
<td>26</td>
</tr>
<tr>
<td>MNCs</td>
<td>multinational corporations</td>
<td>8</td>
</tr>
<tr>
<td>OBM$s$</td>
<td>original brand manufacturers</td>
<td>21</td>
</tr>
<tr>
<td>ODM$s$</td>
<td>original design manufacturers</td>
<td>21</td>
</tr>
<tr>
<td>OEM$s$</td>
<td>original equipment manufacturers</td>
<td>21</td>
</tr>
<tr>
<td>PCE$s$</td>
<td>private Chinese enterprises</td>
<td>27</td>
</tr>
<tr>
<td>SEZ$s$</td>
<td>special economic zones</td>
<td>19</td>
</tr>
<tr>
<td>SOE$s$</td>
<td>state-owned enterprises</td>
<td>13</td>
</tr>
<tr>
<td>WOFE$s$</td>
<td>wholly-owned foreign enterprises</td>
<td>10</td>
</tr>
</tbody>
</table>
1. Introduction

1.1 Background

Recent years, foreign corporations are increasingly extending their production footprint to Asia. According to the United World Investment Report 2012, Foreign Direct investment (FDI) inflows to developing countries in Asia continued to grow. China’s FDI inflow of 2011 is 123985 millions of dollars which takes the leading place in Asia. China saw a FDI inflow rise by approximate 8 per cent the past year (see Table 1). The ministry of Commerce of the People’s Republic of China’s commercial bureau reported that 490 corporations out of the global 500 have invested in China. The World Bank reported that statistics data from the governments of leading nations reveal that China has overtaken Japan as the world’s second-largest economy since 2010. China’s growth, to a large extent, has been funded by a continuous manufacturing boom in the recent twenty years. FDI flow to the manufacturing section has taken the larger proportion than those to the service section according to the statistics up to 2010. The manufacturing boom has greatly developed the domestic industries and infrastructure in China, which in turn facilitates the production localisation for foreign manufacturers. China continued to be in the top spot as investors’ preferred destination for FDI according to UNCTAD (2012).

Table 1 Status of FDI inflow 2006-2011 (reorganised according to UNCTAD, 2012)

<table>
<thead>
<tr>
<th>Regions</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
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<tbody>
<tr>
<td>China</td>
<td>72,715</td>
<td>83,521</td>
<td>108,312</td>
<td>95,000</td>
<td>114,734</td>
<td>123,985</td>
</tr>
<tr>
<td>Asia</td>
<td>290,907</td>
<td>349,412</td>
<td>380,360</td>
<td>315,238</td>
<td>384,063</td>
<td>423,157</td>
</tr>
<tr>
<td>World</td>
<td>1,463,351</td>
<td>1,975,537</td>
<td>1,790,706</td>
<td>1,197,824</td>
<td>1,309,001</td>
<td>1,524,422</td>
</tr>
<tr>
<td>China's percentage of Asia</td>
<td>25%</td>
<td>24%</td>
<td>28%</td>
<td>30%</td>
<td>30%</td>
<td>29%</td>
</tr>
<tr>
<td>China's percentage of World</td>
<td>5%</td>
<td>4%</td>
<td>6%</td>
<td>8%</td>
<td>9%</td>
<td>8%</td>
</tr>
<tr>
<td>China's annual increase rate</td>
<td>-</td>
<td>15%</td>
<td>30%</td>
<td>-12%</td>
<td>21%</td>
<td>8%</td>
</tr>
</tbody>
</table>

With increasing foreign manufacturers localising production in China, developing an efficient local supply base is an issue of common interest for all the foreign manufacturers who are in course of production localisation in China. China is acknowledged as one of the most attractive sourcing basins in the world due to the low manpower cost, the availability of various resources and increasingly convenient logistics conditions. Sourcing from China has been included in the strategic decisions of most multinational corporations (MNCs). Previous research has considered the local supply base development as an influential factor on production localisation, see e.g. MacCarthy and Atthirawong (2003). But there are few publications focusing on the perspective of local supply base development when localizing production in the context of China. Therefore, a comprehensive research and a deep investigation of the issues in supply base development are considered important for the production localisation of foreign manufacturers in China.
1.2 Objective

Under the trend toward developing manufacturing in China, modern researchers have become increasingly interested in China issues on investment policy (Zhang, 2001; Henley et al., 1999), determinants of the location of foreign investors (Cheng and Kwan, 2000; Fleisher and Chen, 1997; Broadman and Sun, 1997) and the implement of manufacturing in China (Fryxell et al., 2004; Pyke et al., 2000). Many of the previous research mentioned the influence of local supply environment and the proximity of supply on various decision-makings in production localisation processes.

The objective of the thesis is to investigate the factors related to local supply base development that affect production localisation in China. An identification and analysis of these factors is aimed to facilitate decision making for manufacturers on the perspective of supply base development when localizing manufacturing in China. The intention is to support foreign manufactures in their development of a supply base and sourcing strategy for production in China.

1.3 Research Questions

Research questions were designed to provide a framework for the investigation directly related to the objective mentioned above in the section 1.2 (the factors related to local supply base development that affect production localisation in China).

RQ1: What processes are foreign manufacturers going through during production localisation in China, particularly related to the activities on local supply base development?

By finding the common developing processes of production localisation in China, the research provides references for foreign manufacturers finding the right positions where they are staying, which can facilitate the strategy making at the corresponding process.

RQ2: What relevance does the local supply environment have in the decision-making of production localisation establishment in China?

By answering this research question, the research will find how a local supply environment affects the decision-making of production localisation in China and investigate the importance of the consideration of local supply base development for foreign manufacturers developing production in China, particularly how the factor of local supply environment affects the decision making of production localisation in China. This thesis work will also intend to investigate the motivations for foreign manufactures to set up production facilities in China and find the inherent connection between local supply base development and production localisation.

RQ3: What factors are to be considered both internally and externally when developing a supply base in China?
This question is aimed to find out the factors that need to be considered internally and externally when developing a supply base in China in order to facilitate foreign manufacturers make efficient decisions. Internally, the research will look into how foreign manufacturers look for suppliers for China plants, what sourcing parameters are crucial and what is the required core competence and so on. The investigation of external factors will focus on the characteristics of local Chinese suppliers, what are the opportunities and obstacles are faced by foreign manufacturers when developing supply bases in China and the corresponding countermeasures. This thesis work will also seek for the answers from the perspective of various types of local Chinese suppliers by investigating their practical experience from cooperating with foreign manufacturers in China, which can be used by foreign manufacturers as references in supply base development in China.

1.4 Project limitations

The thesis work is part of the project of Proloc, focusing on creating a decision model for efficient localisation of production. The factors affecting production localisation are various. This thesis focuses on the factors related to supply base development. And China is prescribed as the research area considering the modern trends of transnational production.

This thesis work was executed from April to August 2012. The research is based on a comprehensive literature study and interviews with twelve manufacturing entities (comprising eight foreign manufacturers and four local supplier companies) in China. The interviewed foreign manufactures were all wholly-owned foreign enterprises (WOFEs) which are the main investment form of foreign corporations investing in China since 2000 according to Ding and Zhu (2006). And the selection of supplier companies was considered on two types of ownership: private and foreign-invested because suppliers from foreign-invested enterprises (FIEs) which include both WOFEs and international joint ventures (IJVs) and private companies constituted a major proportion of the Chinese suppliers of the interviewed small and medium manufacturing companies. Other ownerships were not discussed in this thesis work.

1.5 Structure of the report

This report consists of five chapters. Chapter 1 gives a brief introduction of the thesis work including the research background, objective, research limitation, research questions and an outline of the report. The methodology of the research is presented in Chapter 2. Chapter 3, theoretical framework, provides a theoretical support to the thesis work. This chapter introduces theory of globalisation and transnational production, theory of production’s location, supply chain management and also presents an up-to-date review of previous research in sourcing and supply base management, particularly in the field within the context of China. The process of the research and the design of interview study and case study are explained in this chapter. Chapter 4 presents the results from the empirical studies – a summary of the interviews with 12 enterprises and an individual case study. A systemic analysis based on the empirical studies with reflection on literature studies is discussed in Chapter 5. Chapter 6 makes a conclusion of the research and gives answers to all the research questions.
2. Research Design and Methodology

This thesis work is based on a comprehensive literature review, interviews conducted among twelve companies April - June 2012 and an incisive case study selected from the interviewed companies. Figure 1 gives an outline of the processes of the research.

Figure 1 Process of the research

2.1 Literature review

A literature review aims to show an understanding of the main theories in the subject area and how they have been applied and developed, as well as the main criticisms that have been made of work on the topic, according to Hart (1998). The literature review of this thesis concentrates on the critical points of the theories on globalisation, production localisation, the role of purchasing function in supply chain management, and supply base management. Categorisation work has been done based on various sources of theory. In addition to condensed descriptions of the theories mentioned above, the author has made an up-to-date research on the publications from core journals and academic proceedings in the field of production localisation and supply base management. A number of arguments and analyses have been presented in the chapter 3.
2.2 Data collection

Interview questions directed at purchasing managers and suppliers were designed to contribute to finding elaborate answers to the research questions for this thesis by obtaining data for composing analyses relevant to the topic area which focuses on the objective. The preliminary interview question list comprising the concerning issues and various factors were designed based on literature study and discussed with the professor in charge of this research. Based on the comments, some of the questionnaire items were modified. From the feedback of 12 interviews, the revised question list was confirmed as understandable and closely related to the interest of the firms who are localising production in China.

Most respondents permitted voice recordings of the interview sessions. The recordings were transcribed and the obtained data was structured into forms and matrices, designed to provide a clear overview, partly for the reader of this report but primarily to facilitate data analysis.

2.3 Interview Study

To investigate the factors affecting a supply base development, interviews among the two key roles on the supply base activities – manufacturers (buyers) and suppliers have been deployed. The relationship between the two groups of interview objectives is shown Figure 2.

![Figure 2 Relationship of the two groups of interview objectives](image)

The twelve companies consist of eight foreign manufacturers who have production facilities in China and four local suppliers in China doing business with foreign manufacturers, see Table 2 and Table 3.

2.3.1 Respondents and interview design – foreign manufacturers

The manufacturing companies represent various industries which include automotive components, engineering manufacturing, chemicals, telecom and electronics. Most of the interviews were face-to-face interviews while two were telephone interviews. The respondents were mainly from management level; typically plant manager, logistics manager or purchasing manager from the foreign manufacturers’ factories and general manager, key account manager and sales manager from the local Chinese suppliers’ companies. The duration of each interview was between one to two hours, mainly closely to two hours. The foreign manufactures interviewed were all WOFEs which are the main investment form of foreign corporations investing in China since 2000, according to Ding and Zhu (2006).
The interviews with the foreign manufacturers in China were based on an interview document of organised questions (15-20 questions) comprising 10-14 open questions and 5-6 closed questions. The first part of the interview protocol comprised company background including organisational form, function of the production facility, information of industry and type of products. The second part dealt with supply base development, determination of local suppliers for their production facilities in China, how the supply base was managed, issues concerning relationship with the suppliers and obstacles for supply base localisation. At the end of each interview, the respondents were asked about their general opinion about the China supply market and how they compared the performance of local Chinese suppliers vs. foreign suppliers.

### Table 2 Companies’ information and respondents of the foreign manufacturers in China

<table>
<thead>
<tr>
<th>ID</th>
<th>Industry</th>
<th>Origin</th>
<th>Length of operation (Years)</th>
<th>Domestic sales in China</th>
<th>Local Sourcing</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Machine engineering</td>
<td>Sweden</td>
<td>1</td>
<td>100%</td>
<td>30%</td>
<td>Purchasing manager</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>China project team</td>
</tr>
<tr>
<td>B</td>
<td>Machine engineering</td>
<td>Denmark</td>
<td>4</td>
<td>100%</td>
<td>50%</td>
<td>Plant manager</td>
</tr>
<tr>
<td>C</td>
<td>Special materials</td>
<td>USA</td>
<td>6</td>
<td>98%</td>
<td>60%</td>
<td>Purchasing manager</td>
</tr>
<tr>
<td>D</td>
<td>Telecom and electronics</td>
<td>USA</td>
<td>10</td>
<td>80%</td>
<td>80%</td>
<td>Purchasing manager</td>
</tr>
<tr>
<td>E</td>
<td>Machine engineering</td>
<td>Sweden</td>
<td>6</td>
<td>95%</td>
<td>40%</td>
<td>Purchasing manager</td>
</tr>
<tr>
<td>F</td>
<td>Machine engineering</td>
<td>Spain</td>
<td>7</td>
<td>80%</td>
<td>80%</td>
<td>Purchasing manager</td>
</tr>
<tr>
<td>G</td>
<td>Chemical industry</td>
<td>Germany</td>
<td>16</td>
<td>80%</td>
<td>90%</td>
<td>Purchasing manager</td>
</tr>
<tr>
<td>H</td>
<td>Automotive supplies</td>
<td>UK</td>
<td>17</td>
<td>70%</td>
<td>60%</td>
<td>Purchasing manager</td>
</tr>
</tbody>
</table>

2.3.2 Respondents and interview design – Local suppliers in China

The Chinese suppliers could be divided into two categories; two of them being WOFEs which had the same background as the foreign manufacturers; and two of them being private companies (see Table 3). Suppliers from state-owned enterprises, i.e. State-owned enterprises (SOEs) were not included because most of the foreign manufacturers in the study had very few cooperation activities with this supplier category due to SOEs’ operation policies. Suppliers from WOFE/JV and private companies constituted a major proportion of the Chinese suppliers of the interviewed small and medium manufacturing companies.

The interview questions with local suppliers in China consisted of about 10 questions related to the identities of the suppliers, factors affecting customer selection, obstacles when working together with foreign manufacturers in China

---

1 Percentage of the volume of total production in China
2 Percentage of the value of total materials purchasing
and improvement suggestions for those foreign manufacturers building up a supply base in China.

Table 3 Companies’ information and respondents of the local suppliers in China

<table>
<thead>
<tr>
<th>ID</th>
<th>Industry</th>
<th>Origin</th>
<th>Length of operation (years)</th>
<th>Ownership</th>
<th>Products produced domestically</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Machine engineering</td>
<td>China</td>
<td>10</td>
<td>Private</td>
<td>20%</td>
<td>Sales manager</td>
</tr>
<tr>
<td>J</td>
<td>Electronics</td>
<td>Netherlands</td>
<td>10</td>
<td>WOFE</td>
<td>100%</td>
<td>Key account manager</td>
</tr>
<tr>
<td>K</td>
<td>Chemical industry</td>
<td>China</td>
<td>5</td>
<td>Private</td>
<td>100%</td>
<td>General manager</td>
</tr>
<tr>
<td>L</td>
<td>Power electronics</td>
<td>Denmark</td>
<td>2</td>
<td>WOFE</td>
<td>50%</td>
<td>Regional sales manager</td>
</tr>
</tbody>
</table>

2.4 Case Study

Case study is a research strategy which focuses on understanding the dynamics present within single settings. Case studies typically combine data collection methods such as archives, interviews, questionnaires, and observations (Eisenhardt, 1989). A typical and elaborated case study is a good way to build theory. The case study was deployed as the following processes:

Selection of the case company

Manufacturer Company A was chosen as the objective of the case study for the following two main reasons. First, the European background of Company A makes the case representative because of the modern trends of transnational production in Europe. Second, the production facility of Company A in China is relatively new (set up in 2011). The research from its activities can construct an up-to-date picture of the process of production localisation in China, which can be guidance for other manufacturers who are going to develop production China.

Determination of the respondents

First, an individual interview with a sourcing specialist was arranged. With the coordination of the supervisor at school, the thesis work gained great support from the case Company A. Five representatives including the manager from the sourcing department attended the interview meeting. The responsibility of the team was sourcing for both direct and indirect materials before the starting of the production facility till up-to running including seeking for local suppliers, dealing with purchasing questions and relevant logistics issues.

---

3 Percentage of values of total products produced within China
3. Theoretical framework

3.1 Theory of globalisation and transnational production

Globalisation describes businesses’ deployment of facilities and operations around the world (Krajewski and Ritzman, 2005). Globalisation refers to the expanding flows of capital, goods, service, and facilities across national border. Globalisation results in international exchanges which brings more exports to and imports from other countries. Krajewski and Ritzman (2005) suggested that the trend toward globalisation has been spurred by the following developments: improved transportation and communication technologies, loosened regulations on financial institutions, increased demand for imported services and goods and reduced import quotas and other international trade barriers. Today, the main forces driving global economic integration are internationalisation of production accompanied by changes in the structure of production, expansion of international trade in trade and services and widening and deepening of international capital flows according to Mrak (2000).

New technologies have made more flexible production forms possible. Manufacturers turning the strategies from traditional vertical integrations organised in one location toward new production sequences which allow spreading production across national borders. Large MNCs manufacturers rely on production chains that involve many countries, typically, for example, sourcing raw materials and component from different countries, assembling all the inputs in another country, while marketing and distribution taking place in still another country. The purpose of new flexible production systems is to lead firms to focus on their core competencies (Mrak, 2000). Vestring et al. (2005) suggested that firms should consider moving the right function to the right place rather than simply moving factories away as a whole. Manufacturers have been increasingly considering shifting part of or whole production function to developing regions or called low cost countries (LCCs) due to lower production costs, especially manpower costs. Developing countries in Asia have become the most important destination of western manufacturers.

This process of global integration is having a series of consequences for East Asia (Yusuf et al., 2004) which have been witnessed in China - a leading developing country of Asia. According to the authors, the following changes have been seen in the emerging economy. Firms’ opportunities have increased but the competitive pressures have become more severe. The opportunities are brought by more favourable business policy from local government, more freedom in information share and lower transport costs. The competitive pressures are caused by accelerated processes of survival of the fittest in the market. MNCs increasingly establish subsidiaries in East Asia, which makes local firms linked to global production networks. Certain functions have been considered to outsource and the production of numerous components has been subcontracted. Firms realised the importance of the capacity to innovate which is the key to productivity, growth and great profitability. These motivated the foreign-invested factories in China to seek to achieve greater independence in order to increase the competitive power. Geographic consolidation of certain industries is emerging in order to achieve a closer proximity to potential markets. Manufacturers in auto assemblers and
consumer electronics are streamlining their product lines to achieve higher volume production runs. These manufacturers are also seeking to reduce the complexity of products, for example, to reduce the number of components, to optimize the costs and to rationalize the supplier base.

**When producing in emerging countries**

Before introducing the global offshore strategy, it is necessary to understand what changes or risks are brought by producing in emerging countries. Avella and Fernández (2010) pointed out a few concerns when a manufacturing firm would develop production in emerging countries, as summarised below.

It is difficult for a firm to maintain a high level of quality if its production facility is located outside the country, especially when the distance between the firm and its offshore factory is large. Cultural and language barriers make it difficult for a firm to achieve effective communications with the offshore factory and market. The cultural and language barriers may also lead to a poor communication between the foreign engineering and local production staff and distributor representatives. A production system may require specific know-how which may depend on the localisation of the factory, for example, there may be suppliers with very specialist knowledge and advanced technology who are not available anywhere else and are not prepared to move with the firm. This is also suggested by Fruin (1997). In this case, a firm that are endeavouring to establish production facilities out of the country and chasing for much lower costs should not neglect the importance of its specific characteristics and localisation which may be real sources of competitive advantage. The delivery time (lead time) can be largely reduced when the production facility is close to the market. One important factor that is crucial to the lead time is support from the supplier base. Any delay from suppliers would have a big influence on the production system. In developing countries, it may be very difficult to find skilled suppliers whereas in the country of origin. Cost caused by high storage levels and transportation also need to be considered. An offshore production facility normally needs supply of some components or materials from its country of origin. To save the cost, the firm often transport a big quantity of needed components or materials at one time and make storages. This would also be a problem because a foreign production facility would have slow action in dealing with changes in demand. Selecting and transferring the right management team would be a difficulty for a factory in an emerging country. The selected management should have enough knowledge and skills in production localisation and communications. Policy and local government would have influences on the firm’s operations, for example, the local government would pressure the firm to include locally produced components in order to support the local auxiliary industry without considering the firm’s risks in quality control and technology requirement. In many circumstances, foreign firms have to make a certain compromise to the local government considering a long-term development. Other considerations include risks in financial situation (financial crisis, varied exchange rate), tariffs and duties (trade barriers have gradually been eliminated and are no longer so important.), the risks of losing job opportunities of the country of origin, etc.
Managing global offshore strategies

Since offshore production may bring potential risks and changes for a manufacturing firm, a good management on global offshore strategies is especially important. This should be implemented in a planned and systematic way. Farrell (2004) introduced a five-stage development process of a firm get to global which is summarised below:

- **Stage one: Market Entry.**
  Companies enter new countries using production models that are very similar to the ones they deploy in their home markets. A production presence is needed either because of the nature of their businesses or because of local countries tariffs and import restrictions.

- **Stage two: Product Specialisation.**
  Typically companies transfer the full production process to a LCC and export products to various customer markets. In this stage, companies start to consider the different locations for different products or components.

- **Stage three: Value Chain Disaggregation.**
  Companies start to disaggregate the production process according to the advantage of each location. It is typical that individual component of a single product might be produced in a few different production locations and assembly to final products might be finished in somewhere else.

- **Stage four: Value Chain Reengineering.**
  Companies start to reengineer their processes of production to suit local conditions instead of simply replicating the previous production processes in their offshore production facilities, for example, tailoring the production processes to take advantage of the low labour cost in LCCs. To redesign and build new capital equipment for their plants locally is required under some circumstances.

- **Stage Five: Creation of New Markets.**
  Companies start to expand the market close to the local production base. The value of new revenues generated in this stage is often greater than the value of cost savings in the other stages.

It can be seen from the development process summarised by Farrell (2004) that firms moving their manufacturing abroad can gain from making changes in production processes and value chains. Global expansion can be risky, especially when firms are lack of strong local knowledge or the scale of the local facility is small. Therefore, Farrell (2004) suggested that first firms that are expending offshore manufacturing should abandon incremental think and adopt bold performance goals soon. Second, firms should rethink the right allocation of capital and labour. Three things must be implemented simultaneously in this approach: increasing labour resources, improving shift utilisation and developing cheaper capital equipment. Third, firms should accommodate to the new circumstance and make active changes corresponding to the local conditions.
Forth, firms should aim for higher quality which can be fulfilled by providing training to local workers and managers.

### 3.2 Factors affecting location decisions

As mentioned in the previous section, to move or extend production facilities to another country is an important way to optimize cost and utility. The decision of production localisation addresses the question of what economic activities should be located where and why. Porter (2008) restated his famous theory of five competitive forces is an effective way to help firms to position their company in the industry they belong to. The model revealed where the firm stand versus buyers, suppliers, entrants, rivals and substitutes, which is a starting point of developing strategy (see Figure 3).

![Porter’s five forces analysis](image)

**Figure 3 Porter’s five forces analysis (redrew from Porter, 2008)**

Production localisation strategies normally have long-term impacts on manufacturing companies. A localisation program must be well planned and the communication between the parent company and its subsidiary is crucial (Fryxell et al., 2004). UNCTAD (2012) defined a series of factors as the FDI determinants and proxy indicators which can be considered in the location selection: 1) Market attractiveness: size of the market (GDP - purchasing power parity), spending power (per capita GDP - purchasing power parity), growth potential of the market (real GDP growth rate); 2) Availability of low-cost labour and skills: unit labour cost (hourly compensation and labour productivity), size of manufacturing workforce (existing skill base); 3) Presence of natural resources: exploitation of resources (value of fuels and ores exports), agricultural potential (availability of arable land); 4) Enabling infrastructure: transport infrastructure (road density: km of road per 100 km² of land area; percentage of paved roads in total; rail lines total route-km; liner shipping connectivity index), energy infrastructure (electric...
power consumption); telecom infrastructure (telephone lines/100 inhabitants; mobile cellular subscriptions/100 inhabitants; fixed broadband Internet subscribers/100 inhabitants).

Factors affecting localisation decisions in international operations have been analysed by e.g. MacCarthy and Atthirawong (2003) who presented a fully comprehensive set of factors and sub-factors that affect the international location decisions. Heizer and Render (1995) established the considerations and factors that affect location decisions based on different decision levels. Combining the two categorisations, the factors can be reorganised and categorised in Table 4.

**Industrial clusters’ impacts on supply base localisation**

A broad investigation with a comprehensive consideration among so many factors seems complicated and normally takes long time. To locate in an industrial cluster becomes popular in many industries. Cluster phenomena caught people’s attention from the great success of Silicon Valley. Porter (1998) characterizes the concept of clusters as “geographic concentrations of interconnected companies and institutions in a particular field”. Many cases in industrial history have shown that linked industries and entities concentrate in clusters have facilitated innovation and competitive success in many fields. Some of the most significant clusters in the world are Silicon Valley in USA, Baden-Württemberg in Germany and Emilia-Romagna in Italy which have been introduced in Porter’s research. The modern theory in industrial clusters is formed based on the researches on these areas. Porter (1998) expounded the advantage of industrial clusters in better access to employees and suppliers. A well-developed cluster can offer convenient conditions for obtaining important inputs – a deep and specialised supplier base that can make the sourcing more efficient with lower transaction costs, lower inventory and lower risk in delays.

Zeng (2011) made a deep analysis on the numerous special economic zones (SEZs) and industrial clusters that have sprung up since the reforms which are two important engines for driving the country’s growth. The mature industrial environment of industrial clusters and SEZs in China has increasingly absorbed the foreign manufacturers’ investment.
Table 4 Critical factors affecting international location decisions in different decision levels (organised based on Heizer and Render, 1995; MacCarthy and Atthirawong, 2003)

<table>
<thead>
<tr>
<th>Decision levels</th>
<th>Major factors</th>
<th>Sub-factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country decision</td>
<td>Labour characteristics</td>
<td>Quality of labour force; availability of labour force; unemployment rate; labour unions; attitudes towards work and labour turnover; motivation of workers and work force management</td>
</tr>
<tr>
<td></td>
<td>Proximity to suppliers</td>
<td>Quality of suppliers; alternative suppliers; competition for suppliers; nature of supply process (reliability of the system) and speed and responsiveness of suppliers</td>
</tr>
<tr>
<td></td>
<td>Proximity to markets/customers</td>
<td>Proximity to demand; size of market that can be served/potential customer expenditure; responsiveness and delivery time to markets; population trends and nature and variance of demand</td>
</tr>
<tr>
<td></td>
<td>Proximity to parent company’s facilities</td>
<td>Close to parent company</td>
</tr>
<tr>
<td></td>
<td>Legal and regulatory framework</td>
<td>Compensation laws; insurance laws; environmental regulations; industrial relations laws; legal system; bureaucratic red tape; requirements for setting up local corporations; regulations concerning joint ventures and mergers and regulations on transfer of earnings out of country rate</td>
</tr>
<tr>
<td></td>
<td>Economic factors</td>
<td>Tax structure and tax incentives; financial incentives; custom duties; tariffs; inflation; strength of currency against US dollar; business climate; country’s debt; interest rates/exchange controls and GDP/GNP growth, income per capita</td>
</tr>
<tr>
<td></td>
<td>Government and political factors</td>
<td>Record of government stability; government structure; consistency of government policy; and attitude for government to inward investment</td>
</tr>
<tr>
<td></td>
<td>Social and cultural factors</td>
<td>Different norms and customs; culture; language and customer characteristics</td>
</tr>
<tr>
<td>Region / Community Decision</td>
<td>Costs</td>
<td>Fixed costs; transportation costs; wage rates and trends in wages; energy costs; other manufacturing costs; land cost; construction/leasing costs and other factors (e.g. R&amp;D costs, transaction and management costs etc.)</td>
</tr>
<tr>
<td></td>
<td>Infrastructure</td>
<td>Existence of modes of transportation (airports, railroads, roads and sea ports); quality and reliability of modes of transportation; quality and reliability of utilities (e.g. water supply, waste treatment, power supply, etc.) and telecommunication systems</td>
</tr>
<tr>
<td></td>
<td>Proximity to competition</td>
<td>Location of competitors</td>
</tr>
<tr>
<td>Site decision</td>
<td>Quality of life</td>
<td>Quality of environment; community attitudes towards business and industry; climate, schools, churches, hospitals, recreational opportunities (for staff and children); education system; crime rate and standard of living</td>
</tr>
<tr>
<td></td>
<td>Characteristics of a specific location</td>
<td>Availability of space for future expansion; attitude of local community to a location; physical conditions (e.g. weather, close to other businesses, parking, appearance, accessibility by customers etc.); proximity to raw materials/resources; quality of raw materials/resources and location of suppliers</td>
</tr>
</tbody>
</table>
3.3 Processes of manufacturers’ production localisation

The Boston Consulting Group (Lang et al., 2008) developed a five-step model to reveal the process of localisation in China and India for foreign automotive manufactures describing a localisation process of most foreign manufactures in China: from being a home player with limited involvement in, and only a few exports to the Chinese market, to a global player based on China serving the world with products, see Figure 4.

<table>
<thead>
<tr>
<th>Home players</th>
<th>Exporters</th>
<th>Explorers</th>
<th>Settlers</th>
<th>Global players</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics</td>
<td>Serve the BRIC markets only through low-volume exports</td>
<td>Minor presence in the BRIC markets; key functions under tight control from headquarters (HQ)</td>
<td>Some independent presence; headquarters still exert strong impact on development</td>
<td>Fully independent from HQ; all key functions managed by local staff and organisation</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>No presence</td>
<td>No presence; vehicles exported with only minor adaptations</td>
<td>Conduct minor local R&amp;D activities</td>
<td>Conduct major local R&amp;D activities</td>
</tr>
<tr>
<td>Sourcing</td>
<td>No presence</td>
<td>Source simple parts</td>
<td>Source submodules</td>
<td>Source a wide array of products</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>No presence</td>
<td>CKD production or small local production⁴</td>
<td>Operate one or two full-scale plants</td>
<td>Operate several large plants for local and export markets</td>
</tr>
<tr>
<td>Sales</td>
<td>Low-volume exports</td>
<td>Only key functions localised</td>
<td>Sales network serves tier 1 and tier 2 cities</td>
<td>Sales network serves first-to-fifth-tier cities</td>
</tr>
</tbody>
</table>

Figure 4 Companies typically move through five stages of localisation (Lang et al., 2008)

Yusuf et al. (2004) introduced the change of the roles of firms that are original equipment manufacturers (OEMs) risen into the ranks of original design manufacturers (ODMs), and firms that have become original brand manufacturers (OBMs) and stand at the apex of their global production networks.

The Boston Consulting Group’s five-step model and Yusuf et al. (2004)’s finding can be interconnected. OEMs’ production is embodied with carryover the product designs from previous production system. The offshore factory has limited presence of the R&D function, which corresponds to the stages between the explorers. ODMs have corresponding characteristics of the stage of Settler and OBMs refer to the stage of Global players.

⁴ CKD: completely knowed down.
3.4 Supply chain management and purchasing

3.4.1 Value Chain and supply chain

Researchers have developed many definitions to describe supply chains. Considering the relationships of the roles of firms studied in this thesis, the concept defined as an extended value chain is suggested under below.

Porter (1985) introduced the concept of value chain which built up a linkage of activities within an organisation (see Figure 5). Porter differentiated between primary activities and support activities. Primary activities are those which are directed at the physical transformation and handling of the final products, which the company delivers to its customers. Support activities enable and support the primary activities. Each of these primary activities is linked to support activities which help to improve their effectiveness or efficiency. Porter argues that the ability to perform particular activities and to manage the linkages between these activities is a source of competitive advantage. Porter uses the term procurement rather than purchasing since the usual connotation of purchasing is too narrow among managers.

![Figure 5 Value chain (redrew from Porter, 1985)](image)

The concept of value chain mainly focuses the linkage among various internal functions whereas a supply chain focuses the concept internally and externally. Researchers have developed dozens of definitions to describe supply chains and supply chain management. Monczka et al. (2005) presented an extension of Porter’s value chain model that can define some important supply chains and also stated the importance of the function of managing effectively several tiers of suppliers, see Figure 6.
The extended value chain shows a general idea of a supply chain. It contains the external environment (suppliers and customers) and the internal processes. Practically, the supply chain could be complicated and could cross more functional parties. As Monczka et al. (2005) argued that the extended value chain model presents a relatively straightforward and linear view of the value and supply chain.

### 3.4.2 The role of purchasing function in a value chain

van Weele (2010) gave the definition of purchasing as “The management of the company’s external resources in such a way that the supply of all goods, services, capabilities and knowledge which are necessary for running maintaining and managing the company’s primary and support activities is secured at the most favourable conditions”. van Weele (2010) described purchasing function covers activities aimed at determining the purchasing specifications based upon “fitness for use”, selecting the best possible supplier and developing procedures and routines to be able to do so, preparing and conducting negotiations with the supplier in order to establish an agreement and to write up the legal contract, placing the order with the selected supplier or to develop efficient purchase order and handling routines, monitoring and control of the order in order to secure supply (expediting), follow up and evaluation (settling claims, keeping product and supplier files up-to-date, supplier rating and supplier ranking).

Monczka et al. (2005) introduced the objectives of a world-class purchasing organisation. The objectives include support operational requirements, manage the purchasing process efficiently and effectively, supply base management, develop strong relationships with other functional groups.
Procurement is one of the four categories of support activities. Procurement relates to the function of purchasing inputs used in the firm’s value chain. These may include raw materials, supplies, and other consumable items as well as assets such as machinery, laboratory equipment, office equipment and buildings. These examples illustrate that purchased inputs may be related to primary activities as well as support activities (van Weele, 2010).

Purchasing is a supportive function in a value chain. The objectives of a purchasing organisation in world class MNCs has moved far beyond the traditional perception that purchasing is primarily to get goods and services in order to satisfy the needs of a firm.

### 3.4.3 Make-or-buy decision

The procedure of evaluating whether to make internally or to buy from external vendors is a continuing process. The initial make-or-buy investigation can originate in a variety of ways.

Zenz (1994) introduced a few ways of originating make-or-buy investigations. A categorisation according to the two originating parties: originated by vendors and those originated by the manufacturing firms, is suggested as following. Vendors may offer quotations as an alternative of the components that the manufacturer is capable of producing. Originated by the manufacturing firms includes the manufacturing firm is unsatisfied with the performance of current vendors, normally problems in poor quality or delivery; price changes from vendors; a new product or substantial modification on existing products requires the analyses; and demand or production capacity has changed.

Organisations may have the capabilities to produce or assemble their required components, although for concentrating on the core competency or some other reasons, some of those are purchased from outside sources. According to Burt et al. (2010), at the tactical level, the make-or-buy decision generally involves two factors: total cost of ownership and availability of production capacity. A good make-or-buy decision nevertheless requires the evaluation of many less tangible factors in addition to these two basic factors. The following considerations summarised in Table 5 influence firms to make or to buy the items used in their finished products or operations.
Table 5 Factors favour making or buying (summarised from Zenz, 1994 and Burt et al., 2010)

<table>
<thead>
<tr>
<th>Considerations</th>
<th>Factors favour making</th>
<th>Factors favour buying</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality variables</td>
<td>Lack of supplier quality</td>
<td>Specialisation promotes perfection</td>
</tr>
<tr>
<td></td>
<td>Warranty provisions</td>
<td>Patent protection</td>
</tr>
<tr>
<td></td>
<td>Maintaining design and process secrecy</td>
<td>Flexibility</td>
</tr>
<tr>
<td></td>
<td>Unreliable suppliers</td>
<td>Managerial control</td>
</tr>
<tr>
<td></td>
<td>Maintenance of a stable workforce</td>
<td>Suppliers’ research and specialised know-how</td>
</tr>
<tr>
<td>Quantity considerations</td>
<td>Too-small orders to interest a supplier</td>
<td>Demand with small quantities (more standardised)</td>
</tr>
<tr>
<td>Cost considerations</td>
<td>base expensive to make the part</td>
<td>less expensive to buy the part</td>
</tr>
<tr>
<td>Other considerations</td>
<td>Desire to integrate plant operations</td>
<td>Limited production facilities</td>
</tr>
<tr>
<td></td>
<td>Productive use of excess plant capacity to help absorb fixed overhead</td>
<td>Desire to maintain a stable workforce</td>
</tr>
<tr>
<td></td>
<td>Design secrecy required</td>
<td>(in periods of rising sales)</td>
</tr>
<tr>
<td></td>
<td>Desire to maintain a stable workforce</td>
<td>Desire to maintain a multiple-source policy</td>
</tr>
<tr>
<td></td>
<td>(in periods of declining sales)</td>
<td>Indirect managerial control considerations</td>
</tr>
<tr>
<td></td>
<td>Need to exert direct control over production and/or quality</td>
<td>Procurement and inventory considerations</td>
</tr>
</tbody>
</table>

Make-or-buy decisions are also a frequent topic to discuss internally in production facilities in China. The discussion seems more complicated in China which will be further discussed in the Chapter 5.

3.4.4 Sourcing Strategy

Early supplier involvement

Early supplier involvement (ESI) is an approach in supply management to bringing the expertise and collaborative synergy of suppliers into the design process (Burt et al., 2010). ESI is helpful to find “win-win” opportunities in developing alternatives and improvements to production development, such as materials, services, technology, specifications and tolerances, standards, packaging, redesigns, assembly changes, design cycle time; and key elements on a supply chain, such as order quantities and lead time, processes, transportation, inventory reductions (see Burt et al., 2010). ESI shows great advantages in developing trust and communication between suppliers and the buying firm.

Centralised versus localised buying

When an organisation has several facilities, the management must decide whether to buy locally or centrally. This decision has implications for the control of supply-chain flows. The advantage of centralised buying is that cost saving can be significant because of the strong purchasing power. Krajewski and Ritzman (2005) stated that manufacturers who purchase from overseas suppliers prefer centralised buying because the buyers hold the specialised skills needed to buy from foreign sources, such as, language, cultures, international commercial laws, etc. The development of advanced information technology can also facilitate the centralised buying because the information that can only be accessed at local level now can be easily obtained by the headquarters with almost zero cost.
However, centralised buying has some disadvantages because local factories cannot have fully control of the supply (Krajewski and Ritzman, 2005). Centralised buying is not flexible for items unique to a specific factory and the centralised buying often cannot match the needs of the production schedule of local factories. While, localised buying shows great advantages, according to Burt et al. (2010): 1) the local manager and staffs have a better understanding of the local culture than a staff would at the overseas office. 2) Local buying can avoid the wastes of longer lead times and involvement from other level in the firm’s hierarchy.

Therefore, in practice, the best solution is usually a compromise strategy, whereby both local autonomy and centralised buying are possible, according to Krajewski and Ritzman (2005).

**Single versus multiple sourcing**

Concentrate purchases with a single supplier may be economical thanks to quantity discounts or low shipping rates (Zenz, 1994). Purchases in following conditions may encourage the use of a single supplier, according to Zenz (1994): JIT and blanket orders, the total amount needed may be too small to justify splitting the order among suppliers because it would increase per-unit handling and processing costs, easier supplier service, etc. Multiple sourcing can reduce the risks of sourcing with single supplier, e.g. fire, flood or strikes. Multiple sourcing also stimulates competition among vendors in price, quality, delivery and service. The decision to use multiple sources are influenced primarily by the amounts required, the relative size of the suppliers and their past performances. In practice, many buyers use multiple sources for most of the items purchased. Most buyers split orders between two or three suppliers (Zenz, 1994).

3.5 **Supply base development**

3.5.1 **The concept of supply base**

The supply base consists of raw materials, supplementary materials, semi-manufactured products, components, finished products, investment goods on capital equipment, maintenance, repair and operating (MRO) materials and services. Supply base management describes a process of the selection, development, and maintenance of supply. Supply base management is described as a process including selection, development, and maintenance of supply (Monczka et al., 2005). Previous research relating to supply base development is around the following issues:

- Sourcing performance and supplier selection
- Suppliers management
- Supply base’s rationalisation and its impacts

3.5.2 **Relevant research on supply base development**

**Types of suppliers**

Here are two relevant classifications of suppliers in this thesis work. One is to classify suppliers as direct manufacturers, distributors and foreign sources,
Zenz (1994) classified the suppliers as direct manufacturers, distributors and foreign sources and also made comparisons among the selections of supplier types. There are inherent natural advantages to buying from local suppliers whenever possible: 1) cost saving caused by short distance; 2) same political and tax concerns are followed by both buyers and local vendors; 3) close proximity permits more convenient communication and service, e.g. make-and-hold practices, shorter lead times and exchanges. A direct manufacturer often offers lower prices than its distributors but with a precondition on the volume of business. Manufacturers normally focus on large-quantity orders. Small-quantity purchases may be unprofitable because of the expenses involved. However, a distributor may offer lower prices on those purchases of small quantities.

Considering the different culture and enterprise management in China, it is necessary to classify the suppliers by different ownerships. From the perspective of ownerships, the suppliers can be classified as SOEs and non-state enterprises in which private Chinese enterprises (PCEs) and FIEs. FIEs include both IJVs and WOFEs.

**Sourcing parameters and suppliers selections**

Previous studies and literature frequently suggest that the problems with local sourcing in China mostly focus on supplier performance. The three major problem aspects often mentioned are poor quality components, poor performance in delivery as commitment, and delays in the delivery of components (Kaiser, 1997; Mummalaneni et al., 1996). Mummalaneni et al. (1996) examined the trade-offs made by Chinese purchasing managers among six attributes. The most concerns are quality and delivery, moderate improvement in performance, product knowledge and language proficiency. Millington et al. (2006b) made comparison among different ownerships of local suppliers in China. The result of their research suggested that PCEs have levels of performance that are at least comparable with foreign-invested suppliers (IJVs, WOFEs) because of the strong relationship performance, while SOEs didn’t get a positive feedback on the performance. PCEs have the flexibility and potential to perform well. The performance of PCEs suppliers is at least as good as that of WOFEs and significantly better than that of IJVs and SOEs. Millington et al. (2006b) also suggested that PCE suppliers need a long-term development to fully meet the buyers’ requirements which means for firms preferring short-term and arm’s length sourcing arrangements are not suggested to use PCE suppliers.

The relevant importance of sourcing parameters has been studied by many researches. With the consideration of offshore purchasing, the following sourcing parameters are specially concerned by the firms proceeding transnational production. A list of sourcing parameters are selected from the studies of Sarkar and Mohapatra (2006), Millington et al. (2006b) and Choi and Krause (2006) with the consideration of the context with offshore production in China, which includes cost, corporate culture, delivery commitment, industrial network relationships, quality reputation, technical capability, foreign background, financial stability,
relevant certificates, environmental aspects and other. These sourcing parameters provides the basis of the discussion in the following chapters.

**Supplier relationship management**

Burt *et al.* (2010) portrayed three levels of buyer-supplier relationships which develop from a transactional arm’s length relationship to collaborative relationship and further up to the close working relationship of an alliance. According to Burt *et al.* (2010), collaborative relationships require an awareness of the interdependence and necessity of cooperation comparing with transactional ones. Alliance relationships have higher requirement on established trusts.

From the supplier’s perspective, the most attractive supplier may not consider a collaborative or alliance relationship with their potential customers as an interesting strategy. Burt *et al.* (2010) suggested a list of questions need to be addressed when suppliers choosing good customers. These questions mainly aim to inspect if the customer are good in financial status, approachability, ethics and reliability, responsibility and professional quality.

In the context within China, Pressey and Qiu (2007) and Millington *et al.* (2006a) emphasised the implication of “Guanxi” in supplier-buyer relationship. Guanxi in Chinese means interpersonal connections which is an important feature in Chinese culture. Personal relationship may have important influence on business decisions. One typical phenomenon in China is that people rely on the trust of the people they know rather than the company’s. Millington *et al.* (2006a) gave two suggestions to reinforce foreign firms’ social networks. First, current customers and suppliers represent important contact points for information on suppliers. Second, manufacturers should foster extra-firm relationship building on an organisational basis, hence reducing problems caused by turnover of individual staff.

Another important issue in supplier relationship management is supplier development. The importance of supplier development is suggested in many articles and books in supply base management, e.g. Fryxell *et al.* (2004), Handfield and McCormack (2005), Burt *et al.* (2010). In many cases, the buying firm feels difficult to find suppliers that are good enough to meet all their needs. A supplier development plan is often required, especially in those large enterprises. Burt *et al.* (2010) named training in project management, teamwork, quality, production processes and supply management as supplier development items.

**Supply base reduction and optimisation**

After long-time operation, many traditional firms have accumulated a great number of registered suppliers. The great amount of suppliers used to increase the difficulty of firms’ management and reduce in additional cost. Sarkar and Mohapatra (2006) stated that a prerequisite for developing a strong buyer-supplier relationship is to have a small number of suppliers.

Choi and Krause (2006) made a holistic research on the complexity of supply base. Their research investigated how varying levels of supply base complexity affect transaction costs, supply risk, supplier responsiveness, and supplier innovation. the optimal size of the supply base may depend on the type of the product. Their
observations suggest that the reduction in complexity may lead to less transaction cost, and increased supplier responsiveness and proposed that there must be an optimal size for a supply base in terms of the level of complexity.

Supply base optimisation is the process of determining the appropriate number and mix of suppliers to maintain (Monczka et al., 2005). Monczka et al. (2005) introduced several formal approaches to supply base reduction include: 1) Twenty-eighty rule which means 20 percent of suppliers receiving the majority of purchase amount, or the minority of suppliers causing the majority of quality problem. 2) “Improve or Else” Approach: to give all suppliers a chance to improve required performance in order to stay in the supply base. 3) Triage approach: to allocate the suppliers into three categories based on a careful evaluation of overall performance – to be deleted immediately, potential to improve and the best. 4) Competency Staircase Approach: to pass the suppliers gradually according different perspectives of performance.

3.5.3 Forces of supply base localisation

Forces for and against localising the supply base in China have been discussed by e.g. Eberhardt et al., 2004; Kaiser, 1997. An analytical framework of forces acting for and against component localisation based on interviews conducted among 27 UK-invested MNC subsidiaries in China has been explored by Eberhardt et al. (2004). This framework lists 12 internal forces (the forces within the China venture firm and/or its parent firm) and 15 external forces (circumstantial and/or environmental influences on the China venture) of localisation in China. Millington et al. (2006a) have expatiated how the interpersonal connection affect the local sourcing work. A summary of identified forces for and against local supply base localisation can be found in Table 6. Major forces for localisation are here divided into cost reduction, strategic and managerial requirements, avoidance of risk of foreign purchasing, good local supply market environment, nature of supply process (reliability of the system), human factors and others. Major forces against localisation are technology and quality issues, internal management issues, product requirements, culture and communication, potential risks of suppliers’ business mentality and others.
Table 6  Summary of major forces for supply base localisation (based on Eberhardt et al., 2004; Kaiser, 1997; Zhou, 2004; Millington et al., 2006a; Choi and Krause, 2006; Handfield and Nichols Jr., 2004)

<table>
<thead>
<tr>
<th>For localisation</th>
<th>Against localisation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Major forces and sub-forces</strong></td>
<td><strong>Technology and Quality issues</strong></td>
</tr>
<tr>
<td>To reduce costs</td>
<td>No design authority &amp; testing facilities</td>
</tr>
<tr>
<td>• Low price, short lead-time, warehouse stock, cash-flow factors</td>
<td>Lack of component availability: lack of technology or economies of scale</td>
</tr>
<tr>
<td>• To reduce the influence by the quick changes in currency exchange rate</td>
<td>Lack of acceptable stable quality levels, linked to lack of QC and production mentality/culture</td>
</tr>
<tr>
<td><strong>Strategic and managerial requirements</strong></td>
<td><strong>Internal management issues</strong></td>
</tr>
<tr>
<td>• Existing supply link between parent and local Chinese supplier</td>
<td>Parent company authority oversourcing (global purchasing agreements, contractual sourcing for JVs, in-house sourcing, HQ mindset, no push for localisation/inertia)</td>
</tr>
<tr>
<td>• Positive attitude/support toward localisation on behalf of the parent</td>
<td>Length and cost of internal supplier approval procedures</td>
</tr>
<tr>
<td>• Conductive parent/subsidiary business strategy</td>
<td><strong>Products requirements</strong></td>
</tr>
<tr>
<td>• To seek for long-term partnership with local suppliers</td>
<td>External component approval authority, incl. customer approval</td>
</tr>
<tr>
<td><strong>To avoid the risk of foreign purchasing</strong></td>
<td>Customer prescription of overseas source</td>
</tr>
<tr>
<td>• Customs issues</td>
<td><strong>Culture and communication</strong></td>
</tr>
<tr>
<td>• Logistics issues</td>
<td>Language barriers</td>
</tr>
<tr>
<td>• Speed and responsiveness of suppliers</td>
<td>Cultural misunderstandings</td>
</tr>
<tr>
<td><strong>Local supply market environment</strong></td>
<td>Unfamiliar corporate values</td>
</tr>
<tr>
<td>• Industrial clusters</td>
<td><strong>Potential risks in suppliers’ business mentality</strong></td>
</tr>
<tr>
<td>• Component is available to desired quality levels</td>
<td>Short-termism, myopia</td>
</tr>
<tr>
<td>• Abundant resources and alternatives</td>
<td>IPR violations</td>
</tr>
<tr>
<td>• Competition for suppliers</td>
<td><strong>Human factors</strong></td>
</tr>
<tr>
<td><strong>Nature of supply process (reliability of the system)</strong></td>
<td>Incompetence, lack of training, cultural issues, fear of corrupted staff</td>
</tr>
<tr>
<td>• JIT, lean production</td>
<td>Turnover of staffs affects long-term relationship-building with local suppliers</td>
</tr>
<tr>
<td><strong>Human factors</strong></td>
<td>Other</td>
</tr>
<tr>
<td>• Keen and diligent local suppliers,</td>
<td>• Delivery performance</td>
</tr>
<tr>
<td>• Competent purchasing staffs</td>
<td></td>
</tr>
<tr>
<td>• Improved communication &amp; increased convenience of interaction with suppliers</td>
<td></td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
</tr>
<tr>
<td>• Government influence</td>
<td></td>
</tr>
<tr>
<td>• Improved local supplier search,</td>
<td></td>
</tr>
<tr>
<td>• JV with Chinese partner</td>
<td></td>
</tr>
</tbody>
</table>

To sum up, the theoretical framework has shown a gradual understanding of the thesis work and provides a solid foundation of the research. From a broad view to specific, the theoretical framework presents the globalisation and international production theory, the process of production localisation, the theory of supply chain and purchasing function and a review of researches on supply base management, particularly within the context of China. Fryxell et al., (2004) suggested four overall factors contribute to the success of localisation programs in China, which is summarised as: 1) good planning at the beginning; 2) effective recruitment; 3) effective training and retaining of local managers; 4) good collaboration between local managers and expatriate managers. These factors are also crucial in local supply base development. Next Chapter will present the empirical results of the thesis work. The question of supply base development and its effect on the decision of localising production in China is investigated from two perspectives: the foreign manufacturing companies (buyer/customer) and the local Chinese suppliers.
4. Empirical Results

4.1 Interview Study

The interview study in this thesis work was deployed among twelve companies which consist of eight foreign manufacturers and four suppliers. The results will be summarised in the following text.

4.1.1 Motivations behind production localisation decisions

The driving factors for localising production in China according to the respondents in the manufacturing companies were geographical proximity to customer factories, lower overall cost, potential market share, accessibility of resource and supply, and strategic requirements, see Table 7.

Table 7 Motivations for production localisation in China

<table>
<thead>
<tr>
<th>Key motivations</th>
<th>Foreign manufacturers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Geographical proximity to customers</td>
<td>√</td>
</tr>
<tr>
<td>Lower overall cost</td>
<td>√</td>
</tr>
<tr>
<td>Potential market share</td>
<td>√</td>
</tr>
<tr>
<td>Strategic requirements</td>
<td>√</td>
</tr>
<tr>
<td>Access to resources and supply</td>
<td>√</td>
</tr>
</tbody>
</table>

Five companies stated that they followed their customers to China; “Our customers moved to China, so we had to establish a factory close to them if we wanted to continue delivering to these customers.” The great potential market and strategic requirements were also frequently mentioned in the interviews. More than one respondent expressed that if China was left out of the discussion about the company’s future that would reflect a poor strategic management. At present, the Chinese factories mainly served the Chinese market, between 70% and 100% of the products were sold domestically on the Chinese market. However, all of the respondents also stated that they had intentions to enter new markets in East Asia such as Japan, South Korea, Thailand, Taiwan, etc., as well as Australia. The empirical findings further indicated the trend that the domestic percentage of the sales was decreasing along with the time duration the companies have been present in China (see Table 2), which implies an increased proportion of exported products over time. This is consistent with the intention of expanding the scope of market out of China based on the manufacturing in China.

Two respondents from different companies that had been in China over 10 years stated that the low production cost was their main motivation of their supply base development. However, respondents from companies with recent establishments in China stated that the production cost in China was currently not as attractive in comparison with the emerging LCCs in East Asia such as India, Vietnam, and Bangladesh among others. Only one company claimed access to resources to be a driving factor for production localisation in China. Other respondents expressed that although access to resources and supply was important it was usually not taken into consideration as much as the other factors.
4.1.2 Supply base localisation in China - Establishment and development

This section will give the results of the investigations on the supply base development in China based on the experiences of the interviewed foreign manufacturers.

Companies’ attitude towards supply base localisation in China

The respondents agreed on the following advantages of local sourcing in China:

- High flexibility of local Chinese suppliers
- Price advantage
- Convenient communication with local suppliers
- Avoidance of custom issues
- Industrial clusters and regional economics providing good supply environments

Most of the companies that took part in the study had the intention of extending their local sourcing in China. From the interviews it was clear that implementation of this localisation was challenging, normally due to e.g. concerns about quality and technical level of local products. Only one company showed a clear strategy to maximize the extent of localisation of supply in their Chinese factory (see Table 8).

Table 8 Companies’ attitude towards supply base localisation in China

<table>
<thead>
<tr>
<th>Attitude towards supply localisation</th>
<th>Foreign manufacturers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very eager (intension is maximizing the extent of local sourcing)</td>
<td>√</td>
</tr>
<tr>
<td>Moderately positive (proceeding with cautiousness)</td>
<td>√ √ √ √ √</td>
</tr>
<tr>
<td>Suspicious (holding a cautious attitude based on longer observation)</td>
<td>√</td>
</tr>
<tr>
<td>Negative (local sourcing not considered due to potential risks)</td>
<td>√</td>
</tr>
</tbody>
</table>

According to the respondents, some resources were not easy to purchase in China for the time being. These resources normally require

- Some certain technology
- Very extensive testing.
- And/or high confidentiality (related to the core components).

Time for building a well-organised local supply base in China

To have a general picture of the processes and complexity of supply base building in China, these experienced respondents were asked to comment on the length of time for guiding a well-organised local supply base in China. The responses have been summarised in Table 9.
Table 9 Time for building a well-organised local supply base in China

<table>
<thead>
<tr>
<th>Time</th>
<th>Foreign manufacturers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 year</td>
<td>√ B</td>
</tr>
<tr>
<td>1-2 years</td>
<td>√ C √ D</td>
</tr>
<tr>
<td>3-5 years</td>
<td>√ E √ F</td>
</tr>
<tr>
<td>Over 5 years</td>
<td>√ G</td>
</tr>
</tbody>
</table>

From the interviews, most companies stated that it would/did take 1-2 years or 3-5 years to build up a well-organised local supply base in China. One company have optimistic opinion that it requires one year by an aggressive exploration. And one company which has been operating for 7 years in China stated that five years was not enough because they were still struggling with the supply base development.

Make-or-buy discussions

Make-or-buy discussions were often raised in the Chinese factories for the following reasons, as stated by some of the respondents:

- Internal innovation requires components/materials with high confidentiality
- Required technologies or desired quality is not available on current local market
- The cost of in-house production is cheaper than purchasing components
- Required quantity for relevant components increases considerably

Interesting to note from the study was that some of the components as well as production equipment and machinery that were made in the studied companies’ Chinese factories had never been produced in the company’s countries of origin.

Early stage of the supply base development

The early stage of the supply base development, after the decision of the design of the factory was made, seemed to be quite similar among the studied foreign manufacturers. A generalised description of the process was the following: The sourcing activities largely depended on the project team coming from the parent company to China with the task of working in the early development phase, i.e. the initial period of the factory setup. The team often consisted of employees from different functional departments of the parent company including production, sourcing and logistics. Employees/experts from the purchasing department were also sent to China to handle all the purchasing questions including many more issues than the traditional ones of finding suppliers for the direct material. In the beginning, the task was also to find indirect suppliers for building the actual factory and for all the equipment needed for production. The facility site was often located in a financial trading zone and rented without lighting or interior facilities included. The sourcing work started with the indirect materials like interior design, electrical insulation, equipment of the office and the relevant purchasing of equipment for production like transfer lines, machines etc. For the direct (production) materials, shipment by sea was often arranged for supplying of material coming from the overseas parent company. Meanwhile, suppliers for the direct materials were investigated. The sourcing engineers first reviewed possible suppliers from the existing data base of the parent company. Those suppliers had been through a number of questions, required certificates and visits. Then a short
list was made in which a number of suppliers in the database were remaining (e.g. in one example, 30% remained on the list). Local staff with experiences from the industry provided information and in some cases, a 3rd-party sourcing council was consulted.

**Support needed from overseas offices**

According to the respondents, procurement tasks were normally carried out by multifunctional departments. Departments directly involved were often sourcing, purchasing, production, quality control and R&D. Many respondents explained that the complexity of the involvement was related to how critical the function was, how extensive the value of the components was, and how much support that was needed. The foreign parent companies normally provided support on technical aspects as well. As stated by the respondents, support needed from the manufacturing company’s overseas office was for example:

- Overall exploratory investigation and development of local suppliers (at the early stage of the factory setup)
- Technical consultation, typically testing and quality control
- Information collection and audit (of required documents, production process, on-spot investigation)
- Pricing negotiation and contract management

All respondents stated that any new supplier needed the approval of at least one foreign manager to enter their company’s supply base. If approval was given it was typically from a purchasing manager or a plant manager. However, if the purchase-value was high or the technical requirement was too complicated, the decision from higher management normally located at the overseas office was often needed.

**Local approach to suppliers**

The respondents mentioned several ways to approach suppliers in China including search on internet, supplier database from its parent company, commercials, exhibition, introduce from industrial partners, contacts initiated by local suppliers, consultant companies, and resources from hiring experienced staff. The results have been summarised in Table 10.

Table 10 Approaches to finding suppliers in China

<table>
<thead>
<tr>
<th>Time</th>
<th>Foreign manufacturers</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search on internet</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Supplier database from its parent company</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercials</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exhibition</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introduce from industrial partners</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contacts initiated by local suppliers</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consultant firms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resources from hiring experienced staffs</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
Factors affecting supplier selections

To find the significance of sourcing parameters affecting supplier selections in China, respondents of eight companies were asked to give a judgement for the significance of the listed factors. These factors were summarised from previous research in sourcing parameters. The significance was measured using a five-point scale: 5 - Exceptional significance, 4 - Considerable significance, 3 - Some significance 2 - very low significance and 1 - no significance. The result has been summarised in Table 11. The analysis of the results will be elaborated in Chapter 5.

Table 11 Relative importance of sourcing parameters affecting the supplier selection

<table>
<thead>
<tr>
<th>Sourcing parameters</th>
<th>Significance scales ranging from 1 to 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Companies</td>
<td>A</td>
</tr>
<tr>
<td>Cost</td>
<td>4</td>
</tr>
<tr>
<td>Delivery Commitment</td>
<td>5</td>
</tr>
<tr>
<td>Quality</td>
<td>5</td>
</tr>
<tr>
<td>Technical Capacity</td>
<td>4</td>
</tr>
<tr>
<td>Financial Stability</td>
<td>3</td>
</tr>
<tr>
<td>Environmental Aspects</td>
<td>4</td>
</tr>
<tr>
<td>Corporate Culture</td>
<td>3</td>
</tr>
<tr>
<td>Industrial Network Relationships</td>
<td>3</td>
</tr>
<tr>
<td>Reputation</td>
<td>4</td>
</tr>
<tr>
<td>Foreign Background</td>
<td>2</td>
</tr>
<tr>
<td>Relevant Certificates</td>
<td>3</td>
</tr>
</tbody>
</table>

Suppliers from the countries of origin vs. Chinese local suppliers

Here a comparison between overseas supply and Chinese local suppliers was asked to make during the interviews. To find the significance of concerning factors affecting supplier selections in China, respondents of eight companies were asked to give a judgement for the significance of the listed factors. These factors were summarised from previous research in sourcing parameters. The significance was measured using a 0-1-2 scale: Scale range 0 - not good, 1 - average, 2 - good. The results are summarised in Table 12.

Table 12 Comparison between overseas sourcing versus local sourcing in China

<table>
<thead>
<tr>
<th>Factors of Performance and Capability</th>
<th>Comparison of the performance and capability factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overas Sourcing</td>
<td>Local sourcing in China</td>
</tr>
<tr>
<td>Scale range 0-not good, 1-average, 2-good</td>
<td>A</td>
</tr>
<tr>
<td>Lower overall cost</td>
<td>0</td>
</tr>
<tr>
<td>Quality, reliability of the product</td>
<td>2</td>
</tr>
<tr>
<td>Consistent Delivery</td>
<td>2</td>
</tr>
<tr>
<td>After sales support</td>
<td>1</td>
</tr>
<tr>
<td>Technical support</td>
<td>2</td>
</tr>
<tr>
<td>Positive response to complaints</td>
<td>2</td>
</tr>
<tr>
<td>Information share and Ability to enter the supply network</td>
<td>2</td>
</tr>
</tbody>
</table>

It is necessary to explain a few of the factors in Table 12. Consistent delivery is to
investigate how good a supplier fulfils its commitment in advance. Technical
support includes supplier’s presence on providing necessary usage introduction,
degree of adaptability of product’s technical modifications. Positive response to
complaints inspects two aspects which are the speed of response and the
implementation of improvement. A further discussion will be elaborated in
Chapter 5.

4.1.3 Obstacles in supply base localisation in China

The empirical study further indicated some obstacles when localising the supply
base in China. Most of the respondents stated that Chinese suppliers have higher
demand requirement. Manufactures who have limited production volume
(normally new comers) always found it difficult to find suppliers of adequate
performance. Most of the respondents mentioned that although their companies
worked hard to seek for lower costs, they were not looking for the cheapest
suppliers. They were looking for suppliers who could deliver good quality
products on time. These companies existed in China according to the respondents,
however, they normally only cooperated with customers with a considerable
volume of demand.

Another obstacle had to do with employee turnover at the Chinese suppliers. This
problem was indicated from two different perspectives. One was that competent
sourcing staff leaving the company would result in an interruption of relationships
with existing suppliers and disturb other network contacts. The other perspective
was that unstable employment of personnel in the production systems of the
supplier companies influenced the delivery performance.

A third obstacle was the manufacturing company’s fear of being copied by the
suppliers. A respondent expressed his concern in the following way: “Chinese
suppliers are faster to deliver samples – this is also a risk because it can mean
that they are very fast at making copies.” Many respondents stressed that they
were very careful in the relationship with local suppliers. They also suggested the
importance of long-term cooperation with the suppliers.

Other obstacles that were mentioned by the respondents in the study were; poor
quality, low education level of operative employees (blue collars) in China, good
attitude towards complaints but slow action, cultural differences, poor
management, the dilemma of decision authorisation in local purchasing staffs, fear
of corrupt behaviour (return commission) and suppliers’ loyalty and stability.

4.1.4 Supplier perspective

The respondents at the supplier companies stated that they preferred customers
that have:

- Influence in the corresponding industry (market share, volume)
- Good reputation (quality, service, business fairness)
- The same technical standards (many industries have different technical
  standards worldwide)
- Professional staffs that can communicate well in the both aspects of technology
  and business culture.
According to the supplier respondents, foreign manufactures often have a good reputation in quality, service and business fairness, particularly those from US and most countries of Europe. The respondents further mentioned outstanding management and well-trained staff as describing factors of the foreign manufacturing companies. However, three of the supplier respondents still expressed that the production volume and contract value was the most attractive factor for a potential supplier. According to the interviews the production scale of foreign manufactures were considered rather small compared to the many state-owned manufactures and local private manufactures in China, i.e. their volume demands were higher which was advantageous when selecting suppliers. Another drawback for foreign manufactures is in communication and technique standards, as mentioned by the respondents.

The customer’s ability to accept the supplier’s technical proposals and professional capabilities was mentioned as important by one of the respondents. The reason was that their products applied to the technical standards in Europe. However, many of their products were not applicable to the Chinese customers because of their different industrial standards (normally relevant modifications were needed). So on one hand, such suppliers wanted to cooperate with customers who could support them with the requirements of EU standards, on the other hand, they hoped that these customers were capable of understanding what technical support that was needed from the suppliers and to find good ways of cooperation between supplier and customer. To summarize, the supplier respondents were asked what improvement suggestions they would like to give to the foreign manufacturers (potential customers) who were establishing their local supply bases in China. Here, localizing the R&D function was suggested.

4.2 Case Company A – at the early stage of production localisation in China

Company A is the leading manufacturer and provider of related service in machine engineering industry. The production footprints cover the world's major material handling markets - Europe, Asia and America. The sales and service facilities spread all over about 90 countries/regions worldwide. In the year of 2011, the company made a decision to set up a new production facility in south China.

The China factory produces two models of products. These products are existing products where had been produced in their European factories. The scale of production in the new factory is much smaller than which in the European factories. The production of the new factory only serves for Chinese customers so far.

4.2.1 Motivation for the production localisation in China

To seize the market share was the driving factor of Company A to set up a new factory in China. China has shown great potential in the demand of the products that Company A produces. The demand of the products keeps a two-digit growth in the past few years. All the major competitors of Company A had been producing in China for many years. Localised production has absolute advantage in delivery time. Company A was facing a risk of losing customers. Therefore,
although the initial investment was very high, a decision of production localisation in China had been made by the management of Company A.

The establishment of the new factory also accorded with the strategic plan made by a higher management. Company A belongs to a large business group. This group had a strategic plan on the manufacturing along the pacific coast, east of China. After setting up a factory in the middle of the east coast ten year ago, the group decided to increase the manufacturing base by establishing two more factories – one is in the north China, the other is in the south. Company A is the one in the south China.

**Expected changes after the production localisation**

The most expected changes concerned by the company is those on cost saving and delivery time reduction. The data has been summarised in Table 13.

**Table 13 Expected changes after the production localisation**

<table>
<thead>
<tr>
<th>Factors</th>
<th>Difference (in percentage of increase or decrease)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost in</td>
<td></td>
</tr>
<tr>
<td>Direct materials</td>
<td>-20 %</td>
</tr>
<tr>
<td>Indirect materials</td>
<td>- 50 % (equipment and machine)</td>
</tr>
<tr>
<td>Labour</td>
<td>- 80 %</td>
</tr>
<tr>
<td>Transportation</td>
<td>-25~50 %</td>
</tr>
<tr>
<td>Operation (rent, tax…)</td>
<td>- 50 % (compared with set up new factory in Europe)</td>
</tr>
<tr>
<td>Delivery time</td>
<td>- 8 weeks</td>
</tr>
</tbody>
</table>

The delivery time can be reduced 8 weeks - from the previous 13 weeks to the current 5 weeks. Since the cycle time of production in the China factory was the same that in the European factory, the time was mainly saved from the transit time of ocean transportation from Europe to China. It can be seen that a great reduces are expected on the cost in labour and operation. The cost saving in sourcing (both direct and indirect materials) had not shown a great reduce, because most of the direct materials were planned to be supplied by shipping from the European factory at the beginning. The respondent told that the cost of direct materials can be the most potential part to bring much more cost saving in the future because the company had the intention to sourcing as much as possible locally in China.

**Impact of local supply base development on the decision-making of production localisation**

The respondents from Company A stated that the consideration of the possibility of developing a local supply base had quite low relevance in the decision making for the China plant, particularly, it had quite low relevance if the supply base localisation was related to cost saving, because they decided to carry over the supply of most direct materials from Europe at the beginning up to running, which had resulted in very high freight costs.

The company didn't take the factor of local supply base as a prior consideration when making the decision of localising production in China for a few reasons. First, the driven motivation was the market share. The company decided to rely on the supply from parent company in Europe. The supply carry-over from origin area ensured the same quality level of the components and the same technology level of the equipment, which largely reduce many potential risks at the beginning.
of production localisation. Second, from the previous experience of their sister companies in China, Company A knew that most of the required materials existed in the Chinese supply market, which meant that it would be possible for them to find some local suppliers to replace some of the suppliers from the country of origin. Therefore, they considered the supply base localisation as an on-going process which would move forward slowly.

4.2.2 Consideration of the location

Company A rented a factory in a mid-scaled city in south China under following three considerations: strategic plan, close to the market and abundant labour resource.

The group had successively sent two specialists to China and made a two-year investigation based on which the group decided the locations of the two factories: one is to be located in north China and the other is to be located in the south, which focus on two respective brands of products. Therefore, the location decision of the new factory in this case is consistent with the decision of a higher management.

The factory was chosen to be located in a relatively developed area in China. This area lies in the southeast coast where transportation is convenient. The market of this area is highly developed since it is one of the areas carried out the open and reform policy. The development of manufacturing is particularly prominent. This area is in a very dense populated area where there are a lot of industries activities, which means there will be a lot of existing and potential customers nearby the factory.

The location chosen by the company has rich labour resources with dense industrial workers. The regional industry is technology-intensive and talent-intensive. Also, as a relatively developed area in China, this area has good educational system characterised by optimal structure and completes facilities such as prestigious colleges and research organisations, continuously providing high quality talents for the social and economic development.

4.2.3 Sourcing in China

Responsible people

The China project included six specialists from different functional departments from the parent company including production, sourcing and logistics. One of the specialists was from the sourcing department. Since the factory they rented was only a building without any interior facilities, Company A started the local sourcing with the indirect materials like interior design, electrical insulation, equipment of the office and the relevant purchasing of tools and equipment for production like transfer lines, machines and so on.

Approach to local sourcing

The sourcing work at the beginning was intensive and mainly focused on indirect materials. Meanwhile, the suppliers for the direct materials were investigated.
In this stage, a sister company which had developed production in China for many years provided a list of supplier companies from the existing data base. The sourcing specialist from the parent company first reviewed possible suppliers from the list and made a shorter list with 20% remained on the list. The companies on the list have priority to be chosen. Also, Company A hired a few Chinese local staff with experiences from the relevant industry. They brought supplier information from their own relationship network.

Company A also got contacts with an external consulting sourcing company for some important materials. This consulting company has many years of experience in providing sourcing and relevant supportive services, for example, trading and quality control, to their European customers specialised in the industry of machine engineering.

Another approach was to use a network of industrial partners. The respondent told a story when they were looking for a kind of machine which is very high value. First they got contact the origin equipment manufacturer of this machine. But considering the cost the company decided not to outsource the process instead of purchasing a real machine. When the respondent just attempted to ask if it is possible to get some information of their customers nearby (because this was not what they usually do in Europe), the machine manufacturer quickly gave a positive answer. According to this, Company A successfully found a suitable supplier in order to outsource this production process.

Factors affecting the supplier selection

The factors had been considered important to the company when looking for suppliers are quality (safety) and delivery performance. Quality (safety) was considered as important as a first priority because the company has reputation in first-class quality which makes the company’s brand a stable No. 1 place worldwide. The delivery performance was very crucial since the company implement lean production. The factor of cost was also important but Company A stated that the price was nothing if the quality and delivery performance could not be ensured. They would never sacrifice the quality or productivity for lower prices.

The foreign-invested background was not a preference for Company A to choose suppliers in China. Company A preferred the local Chinese companies that are possible to provide right criteria on quality and delivery time. But they were also looking for foreign companies that had established in China in many areas. That was only because the specificity of some parts that was needed according to the product design.

Company A has a sister company in the middle of east China as mentioned above. The sister company had been developing production in China for many years. Company A cooperated with the colleagues in the sister company when establishing the local supply base. The experience from the Chinese supplier market was helpful, especially many current suppliers of the sister company had good performance after years of cooperation. At the very beginning, the recommendation of the sister company facilitated the establishment of the supply base of the new factory. However, the sister factory is located around 1800 kilometres away from the new factory of Company A. Most of the suppliers
cooperated with the sister company are located in that area. In addition to the long distance, different types of parts and volume scenarios on the parts needed make it limited assistance from the sister company. Company A focused firstly the suppliers that are close to the new factory.

As for the attitude towards high-tech or high-quality components sourcing, Company A kept looking for the possibilities of local sourcing, but they would rather hold a cautious attitude for the parts with special requirements on quality or technology. It is not a priority for the time being. The supplier candidates providing such components or equipment normally need the technical evaluation from Company A. It normally took very long time in an internal organisation in design lab department.

**Current status of the local supply base**

- **Purchasing items**
  Take one model of the products as an example, there are 250 items (components and raw materials) need to be purchased. At the time being, around 25 out of those (10%) can be sourced locally. The rest were sent from the parent company in Europe. Company A was not satisfied with the current proportion of local purchasing. The management had the plan to increase the local share step by step.

- **Stability of cooperation**
  The relationship with the current local suppliers that Company A was cooperating with was not stable. The company had not seen a long-term impact from current suppliers.

- **Cost saving**
  The price of direct materials and components was lower than those in the country of origin, but the price of tooling and equipment didn’t show a great advantage in China. Although the company had an aggressive expectation on the cost saving of 20% on direct materials and 25-50% on indirect materials respectively, the present situation had not seen a great gain in cost saving. The main reason is that as a new immigrant manufacturer, most materials were transported from the overseas factory which resulted in a great deal of transportation cost.

**Performance of the Chinese suppliers**

- **Quality and reliability**
  The reject rate of incoming materials from Chinese suppliers was higher than those of Europe. European suppliers had better record on quality and reliability.

- **Consistent delivery**
  At present, Company A cannot rely on the lead time or demanded quantity of the local suppliers in China. Many Chinese suppliers had to be pushed more to perform well comparing with the established suppliers of the country of origin. But the respondents explained that the main reason behind this was that the cooperation period was too short with the Chinese suppliers.

- **Technical support and after-sales support**
So far, Company A had limited good technical support from Chinese suppliers and also the after sales support was not available in many local suppliers.

- Positive attitude about complaints but slow action
The respondents stated that in many cases the local suppliers had been responsive. They listened to the foreign company’s demands, they wanted to learn. From that point of view, these Chinese suppliers had positive attitude about complaints. However, it normally took long time and many contacts to see the improvements. The Chinese suppliers usually needed more than one complaint and discussion before the right result came out (after one complaint/discussion improvement may still be needed). European suppliers, by comparison, had more effective contacts and normally more tight and rapid, although there was a big spread between different types of suppliers.

- Information share and ability to be integrated into the supply network
Some business styles were a little old fashioned in China comparing with that in Europe, for example, exchanging information/orders and the usage of invoices. But the respondents didn’t think it was technical reasons. It was more likely because of the lack of knowledge. It was less efficient when it came to administrative activities. A lot of paper work and manual handling of things that were automated in Europe, for example many suppliers in Europe send/receive the order through EDI or e-mail, but in China they needed the original document on the correct-signed and stamped.

**Obstacles in developing a local supply base in China**

When Company A searched for suppliers, they were not looking of the cheapest or the second cheapest or even the third cheapest. Company A was looking for suppliers who can deliver good quality on time. Many of those good suppliers in China were looking for much higher volumes than Company A can promise at the time being because Company A was at the beginning stage of the production localisation. Volume is very important for good suppliers, as the respondents stated.

Faced at the difficulty in cooperation with the first-class suppliers because of the volume or price, Company A had to lower their sight to approach the second level suppliers. Then it started to experience a quality issue.

Although Company A had deployed production in China for less than one year, they already started to face a problem of short-term supplier relationships. Company A were looking for long relationships. Many of their suppliers in Europe have been supplying them for 15-20 years. The respondent stated that one thing has to be taken into consideration was that when approaching a supplier in China, manufacturers have to also think about soft values, even if the technical capacity and the cost are good. It has to be understood that there may be something in seal. The supplier who can build a stable partnership with you means they can provide support when required.
5. Analysis and discussion

5.1 Supply base localisation at different stages

Many of the studied foreign manufacturing companies experienced a similar process of localisation to that of the five-stage model presented in (Lang et al., 2008). The foreign manufacturers in the study could all be placed at the stages between being explorers and settlers, characterised as a local production facility with independent operation to a certain extent. The changes in the cooperation with Chinese local suppliers at the different stages have been summarised in Figure 7.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Home players</th>
<th>Exporters</th>
<th>Explorers</th>
<th>Settlers</th>
<th>Global players</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serve the BRIC markets only through low-volume exports</td>
<td>Minor presence in the Chinese markets; key functions under tight control of HQ</td>
<td>Some independent presence; headquarters still exert strong impact on development</td>
<td>Fully independent from HQ: all key functions managed by local organisation</td>
<td>Fully independent from HQ, with global responsibility for some or all functions</td>
<td></td>
</tr>
<tr>
<td>Cooperation with Chinese local suppliers</td>
<td>Few presences in tier 1 suppliers</td>
<td>Few presences in tier 1 suppliers</td>
<td>Local suppliers are gradually presented to meet simple requirements; cautious exploration with potential suppliers</td>
<td>Extended cooperation with local suppliers; a proper extent of local supply base has established.</td>
<td>Several tiers of local suppliers presented; large dependence on local supply base.</td>
</tr>
</tbody>
</table>

Figure 7 Stages of the production localisation (based on the model from Lang et al., 2008)

It can be seen that firms start to have virtual approach to Chinese local suppliers since the explorers stage. But from the research, it didn't see a correlation between the scale of a local supply base and the length of operation time.

The studied companies had been operating in China from 1 to 17 years. Their activities were, therefore, of different kind depending on where in the production localisation process each company operated in, see Figure 8.

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Figure 8 Different stages of supply base localisation in China

From the interviews, the complexity of local supply base management is increasing with the length of presence time in China. At the very beginning (entry with under 1 year), the main activities of a manufacturer are installing related. Local sourcing are mainly indirect materials such as standard equipment and tools, interior designs, which largely support this period. The next group of foreign manufacturers are those at the period of operation time between 2 and 5 years. In this stage, the supply for production mainly depends on previous resources, most of which are transported from the area close to the country of origin or the parent company. For the firms have production localisation in China for 6-10 years, the interaction with local suppliers are increasing. On-site representatives from suppliers were introduced in many cases. Supply base localisation normally gets a
rapid development in this stage, which may be embodied in a growth of the number of suppliers from local and/or a further component localisation. Many companies start to invest in supplier improvements, typically, relevant training in logistics, quality, and production processes. This is supported by Burt et al. (2010) who also mentioned training in project management, teamwork, and supply management. A higher requirement on local supply base development is emerging in the firms that have over 10-year presence in China. Firms’ production relatively depends on its local supply base. Supply base rationalisation may present in this stage. The discussion of the process of supply base localisation can facilitate a foreign manufacture with the considerations of strategic plans at its stage of development.

5.2 Factors affecting local supply base development in China

5.2.1 Conduct extensive and thorough early analyses

Compared to many other operations in production localisation, supply base localisation is often considered in a later phase, after the manufacturing has been established, according to the respondents. This is also supported by Morgenstern (2006). The empirical findings indicate that an important reason behind this is that at the early stage, the supply for production (equipment, components) largely depended on carry-over from previous resources, often imported from the country of origin (or areas close to the country of origin). This is also a reason as to why the coastal region of east China was chosen by the interviewed companies. However, with increased maturity of the manufacturing companies in localising production in China, the probability is high that supply base development becomes more and more important. Leveraging varied factors such as cost, technology, policy, competition from external environment etc., working with supply base localisation is an on-going task to include in the manufacturing strategy.

A comprehensive analysis at the early stage of production localisation is very important. First, firms should be very aware of your position in the corresponding industry and market in China by a comprehensive analysis on industry rivals, customers, suppliers, potential entrants, and substitute products (refer to Porter, 2008). Second, proximity to supply market should be taken into account when selecting the location. Considering relevant mature industrial investment environment in China, various industrial clusters provide many convenient conditions, especially an abundant supplier base. The advantage of utilizing the benefit of being close to industrial clusters and regional economics was suggested by Porter (1998) in earlier work. Third, firms should keep a sharp insight to detective possible internal and external sources which can facilitate local supply base development.

5.2.2 Undertake practical supply base localisation activities

The beginning seems always difficult. Sourcing work at the early stage is heavy and complicated according to the respondents. Companies have to experience a tensed period of establishment of production facility. In this period, the sourcing work mainly focuses on the purchasing of indirect materials, from equipment to relevant plant installation service. A cross-functional project team is normally setup and sent to China.
**Parent company’s role in supply base development**

From the interviews, it can be seen that the local decision power is lessened with the increases of complexity of various factors related to commercial consideration and characteristics of required item, see Figure 9.

![Diagram showing the roles of different entities in the decision-making process of purchasing](image)

**Figure 9 Overseas parent company’s role in decision-making of purchasing**

According to the interviews, China factories of foreign manufacturers have limited power in sourcing decisions due to three reasons: lack of knowledge for the local staff in China (both engineering and commercial); different culture and styles in doing business between the home country and China; lack of trust in the local staff. Parent companies play an important role in the sourcing work in China.

**Effective Approach to local Chinese suppliers**

Figure 10 indicates how many companies consider it is effective for each method of finding local Chinese suppliers.
Figure 10 Summary of approaches to finding suppliers in China

According to the respondents, the best way to approach the task of selecting Chinese suppliers is by recommendations of external business partners, resources from hiring local staff, as well as, utilizing data from the manufacturing (parent) company’s own existing supplier database.

One of the companies mentioned that the assistance from 3rd-party sourcing councils is very helpful although it had not been used in most of the companies.

The results are consistent with those stated by e.g. Handfield and McCormack (2005) who suggested that the best approach is to always get references from anyone who has done similar work in the same country.

**Important sourcing parameters in China**

Table 14 summarises the respondents’ feedbacks on the relevant importance of the selected sourcing parameters, based on which Figure 11 visualises the ranges of the importance of these sourcing parameters. From the interviews deployed among eight foreign manufacturers, the most concerned factors affecting supplier selections in China are quality and deliver commitment. There is a big challenge for the firms produce outside the country of origin is to maintain the same high levels of quality which is supported by Avella and Fernández (2010).

Cost is not listed in the group high importance among other sourcing parameters. The reason is that the companies are considering the cost in an overall perspective. Most respondents stated that the additional cost aroused by poor quality or bad delivery performance would be much higher than the cost saving from a low purchasing price. This result of the sourcing parameter analysis can be a reference for the method of weighted-factor analysis for supplier selection.
Table 14 Relative importance of sourcing parameters concerning supplier selections in China – a summary of 8 interviews

<table>
<thead>
<tr>
<th>Sourcing Parameters</th>
<th>Numbers of Companies</th>
<th>Mean</th>
<th>Exceptional significance (Scale 5)</th>
<th>Considerable significance (Scale: 4)</th>
<th>Some significance (Scales 2)</th>
<th>Very low significance (Scale 1)</th>
<th>No significance (Scales 0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality</td>
<td></td>
<td>5.00</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Delivery Commitment</td>
<td></td>
<td>4.88</td>
<td>7</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cost</td>
<td></td>
<td>4.25</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Technical Capability</td>
<td></td>
<td>4.25</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Environmental Aspects</td>
<td></td>
<td>3.75</td>
<td>0</td>
<td>6</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Relevant Certificates</td>
<td></td>
<td>3.50</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Reputation</td>
<td></td>
<td>3.50</td>
<td>0</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Corporate Culture</td>
<td></td>
<td>2.88</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Financial Stability</td>
<td></td>
<td>2.75</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Industrial Network Relationships</td>
<td></td>
<td>2.13</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Foreign Background</td>
<td></td>
<td>1.88</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Figure 11 Mean values of the relative importance of the sourcing parameters concerning supplier selections in China

**Implications on the performance comparison between overseas sourcing versus local sourcing in China**

It can be seen from that local sourcing in China has obvious advantage in lower overall cost. Overseas sourcing has shown a moderate advantage in consistent delivery, positive response to complaints and information share and ability to enter the supply network. However, local sourcing in China has shown a certain extent of concern on the quality, reliability of the products, technical support and after sales support.
Figure 12 Comparison between overseas sourcing versus local sourcing – a summary

According the respondents, they described the characteristics of local Chinese direct suppliers (in which PCEs are a major constituent), as below:

- **Small, fast and superiorly flexible**
  
  A relatively small organisation scale makes the operation cost at a low level. A simple internal administrative control saves a lot of time and energy for internal communication which makes the business go fast. Flexibility could be the most significant advantage of local Chinese suppliers. All the respondents stated that some Chinese suppliers can offer much beyond their expectations, for example, changes with short notice in volume, delivery, financial and so on.

- **Outstanding diligence**
  
  Chinese suppliers are diligence. They are willing to learn and eager to obtain businesses. More than one respondent told such experiences that the engineers from their Chinese supplier companies can have their mobile phones on for 24/7 in order to answer the calls from their customers for technical support.

- **Fast presence but short lifecycle**
  
  Local Chinese manufacturing firm can present very fast, especially for some emerging industries which is encouraged by the government. The industry of new energy (e.g. wind energy and solar energy) is a typical example in the recent two decades. From 1996, Chinese government started to stimulate the development of wind energy industry. A lot of favourable policies and big projects were launched intensively. A great number of Turbine manufacturers and relevant suppliers including domestic and foreign invested firms emerged in a relatively short period. The increasingly fierce competition largely resulted in very low margins and an overcapacity situation faced by all the enterprises in the industrial chain since 2004. According to some industry insiders, 80% of the followers will quit the market in the near future (according to World Bank). This situation exists in many...
emerging industries. The short lifecycles of enterprises lead to many other problems: lack of independent innovation, limited improvement in quality, cut-throat competitions and so on. The limitation of resources supporting individual entrepreneurs is also an important reason behind the phenomenon.

Another important reflection from the interviews is that most of the respondents mentioned that if the requirement is sufficiently important the buying firm will select out the suppliers that have the most potential and develop them to be capable of meeting its strategic plans. In many cases, it has been proved to be a worthy investment.

The extent of local sourcing

The interviewed companies’ attitude towards supply base localisation in China has shown a dilemma – these foreign manufacturers are expecting an increasing proportion of local sourcing, however, in reality, there are various difficulties which hold back the progress of a higher level of local sourcing. Steinle and Schiele (2008) found that a high global sourcing quota does not necessarily improve a firm’s competitiveness.

From the interviews it was noted that the extent of supply localisation (measured by the percentage of the value of total materials sourcing, see Table 2) did not have a clear correlation with the manufacturing company’s time of operations in China. It rather correlated with technology and quality requirements, government policies and the willingness of the parent company. Government influence is considerably extensive in many industries in China. The company that had the largest extent of supply localisation in the empirical study belonged to a sunrise industry' which was supported by the Chinese government. The support was mainly embodied in government’s encouragement in technology innovation and local enterprises’ development so that various entities on the industrial chain got a rapid growth. A large range of components and equipment were available at the local market with high quality, competitive price and a considerable scale of production. The company was facing increasingly fierce competition and a large extent of components localisation in China was considered the best way to reduce the cost in order to keep the dominance on the market. It can be noted in the make-or-buy discussions that the local supply market environment provides foreign manufacturers with good possibilities in China; hence a good reallocation of existing resources could be a way towards increased competition.

5.2.3 Obstacles in local supply base development in China

The obstacles reflected by the respondents in our interview study were partly consistent with the survey report of US-China Business Council (2011) which listed top ten issues concerned by US companies with production operations in China. In addition to the obstacles mentioned in our study, the report also mentioned other issues related to the supply base localisation including administrative licensing, gaining business licenses and product approvals, competition with Chinese companies (state-owned or private), standards and conformity assessment, restrictions on foreign investment in China, including ownership limits, transparency, non-discrimination/national treatment (equal treatment with Chinese enterprises), market access in services, including finance, legal, information, and telecom. As China continues to experience rising wages
and production costs, the relative competitiveness of ASEAN countries in manufacturing is increasing UNCTAD (2012). The obstacles mentioned in the interviews indicate that there are current limitations when localising a supply base in China, and is due to for example status quo of industry development and industrial policy in China. Researchers have also expressed a concern that the rapid growth of China’s industry may create problems such as low quality standard and unstable supplier relationship (Zhong and Cheng, 2003).

The respondents from supplier companies that took part in this interview study claimed that a considerable work had to do with the first element, i.e. that of choosing customers. Small and medium foreign manufactures found difficulty in securing the cooperation with first-class suppliers. Although this seems difficult to compromise from both sides, experienced sourcing people suggested a few “techniques” like to pick up from the suppliers (usually suppliers are responsible for the transportation to customers in China), to ask for samples if the demand is extremely small. The suppliers also suggested that approaching distributors of the big suppliers could be an option for the small manufacturers, although the idea mainly would apply to some standard components or materials. Another suggestion mentioned by both sides (customer/supplier) was to give the second-class suppliers a chance, since these suppliers could be trained to perform well by the help of their customers, i.e. the foreign manufacturers could help the suppliers with advanced technology and effective management.

Localising R&D in China was suggested by the suppliers in the interview study as a way to further develop their relationship. The reason mentioned was that foreign manufacturers could have different technical standards with Chinese products. When the local products cannot match the standards of foreign manufacturers, it used to take a very long time to deal with, either the local supplier or the foreign manufacturers was going to make necessary change. Considering the limitation of local suppliers’ technical competence, it used to be the foreign manufactures that made changes in order to adapt to the local technical standards. However, the distance and time difference influenced the effectiveness. The importance of a localised R&D function could show a great advantage in efficiency, see for example Sun et al. (2007) and Chen (2008) who have analysed R&D localisation in China.

5.2.4 Summary of factors related to supply base localisation in China

Based on the analysis from the results of the interviews and relevant previous research, the factors related to supply base localisation in China is summarised in Figure 13. The main factors leading to success in supply base localisation in China are suggested including five major aspects and fifteen sub-activities/processes.
Figure 13 Summary of the factors related to supply base localisation in China

**Factors leading to success**

Conduct extensive and thorough early analyses

- Find the right position in the new environment by comprehensive analysis (refer to Porter's five force analysis)
- Consider the availability of local supply when making location selection
- Keep sharp insights on internal and external resources facilitating local supply base development

Proceed with a cautious attitude when undertaking practical supply base localisation at the early stage

- Beware of the complexity of sourcing at the early stage.
- Deploy an on-going make-or-buy analysis
- Choose the right sourcing strategies
- Make sure to implement effective supplier selections at the beginning (sourcing parameters)

Seize the opportunities of the Chinese supply market

- Chinese local suppliers are diligent and great flexible.
- Abound resources promise great potential interest by reallocations of resources.

Be aware of the obstacles and risks existing in local sourcing in China

- Quality is the biggest concern.
- Loyalty seems not easy to establish.
- IPR violation is a risk.
- Chinese local suppliers have higher requirement on purchasing volume.

Tend to on-going supply base localisation processes

- Suppliers development plan ensure a long-term relationship with Chinese suppliers.
- A further R&D localisation is suggested to facilitate the supply base localisation

**Activities/processes**
Well begun is half done. Extensive and thorough early analyses are crucial in production localisation decisions. This is supported by many previous researches, e.g. Fryxell et al. (2004) Firms should choose proper analysing tools in order to realise a comprehensive and thorough consideration. The possibility of having an effective local supply base should be considered at the very early stage which is argued with the fact that a local supply base establishment is used to be taken into account later after a production facility has been set up (Morgenstern, 2006). It is also important to be aware of the internal and external resources that facilitating local supply base development from the early stage. Once an aggressive extension of production footprint is settled down, firms are suggested to proceed with a cautious attitude when undertaking practical supply base establishment at the early stage. Although there are great opportunities in the Chinese supply market, foreign manufactures have to be aware of the obstacles and risks existing in local sourcing in China. Finally, local supply base development, as an important part of production localisation, requires continuous efforts based on long-term vision. Firms that are seeking for a common progress with its supply chain partners have the better presence in the competition in the Chinese market.
6. Conclusions

To summarize, the thesis was conceived in order to identify the factors related to local supply base development affecting production localisation in China. Identification of, as well as data collection related to these factors was accomplished by conducting interviews, a case study and literature studies. Nineteen managers and sourcing engineers from twelve different Chinese supply chain entities were interviewed, including eight foreign manufacturers and four local suppliers. The collected data was quantified or otherwise structured into forms to facilitate analysis which would result in findings. By applying knowledge from the literature study to these forms as well as creating charts based on them, the findings could be made to answer the research questions. The findings can serve as strategic guidelines for foreign manufactures which are exploring or establishing production localisation in China, particularly to those who are in the early stages. The findings and the collected data can also support other research related to production localisation in China. These findings demonstrate a number of interesting aspects to investigate further since this is an area of high interest to all global manufacturing companies already operating in China, or planning to do so in the near future. Increased understanding and new knowledge is advantageous for making relevant production localisation and supply decisions. The research results responding to the research questions are summarised as below.

RQ1: What processes are foreign manufacturers going through during production localisation in China, particularly related to the activities on local supply base development?

This thesis work presents the development processes of supply base localisation in China and emphasizes similarities of foreign manufacturers’ experiences from different stages. Models of developing processes in production localisation have been created to answer this research question; see Figure 7 and Figure 8. The result and analysis can help a foreign manufacturer to define its position in order to find corresponding strategies when developing local supply bases in China.

RQ2: What relevance does the local supply environment have in the decision-making of production localisation establishment in China?

Many respondents expressed that the local supply environment did not have a high influence in this decision making. However, based upon analysis of the risks that the respondents describe, this thesis argues that the local supply environment should be an early priority of investigation to avoid risks that could complicate production localisation establishment, see section 5.2.1.

RQ3: What factors are to be considered both internally and externally when developing a supply base in China?

In the literature framework, factors for and against the supply base localisation in China have been summarised in Table 6. An identification and analysis of factors for foreign manufactures to consider when developing the supply base for their China production facilities is presented in Figure 13 based on the empirical findings of this thesis work.
Overall, the empirical findings show that the Chinese supply market is undergoing change which faces foreign manufacturers with new challenges accompanied by emerging opportunities. This thesis demonstrates the factors related to supply base development at the different stages of production localisation in China. Supply base localisation is one of various activities included in production localisation. Other important activities include localisations of R&D, human resource, market, information technology, etc. How other activities impact the supply base localisation processes is suggested as a future study direction. Some of the results can be also applied in many emerging economies which are experiencing industrial development similar to the current development of China.
References


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Appendices

Appendix 1 Interview protocol for foreign manufactures

Background

1. What was your role in the China project? Who were in the localisation team?
2. Can you introduce your company and the background of the factory in China?
   - To which industry does your company belong and what product does it sell?
   - Since when has your company supplied products to China and since when has your company had production facilities in China? Is it the same products as what you sell in your origin country? Is it existing products or new production made for Chinese customers?
   - What were the motivations for local production in China?
   - Is your Chinese organisation 100% foreign invested or joint-ventured?
   - How many employees do you have in China?
   - Where in China is your organisation present? How did you make the decision for the location?
3. What do you produce in origin country? What do you produce in China? Does the new factory serve the manufacturing of new products or old products?

About the decision making when establishing a new production facility in China

4. How would you describe the decision making process when establishing the manufacturing facility in China? Can you mention some key factors were considered when making the decision?
5. What relevance did the local supply market have in the decision making for the China plant?

About the setup of supply base in China

6. How do you arrange the supply of the new factory in the early stage (for both of indirect materials and direct materials)?
7. When did you start to look for local suppliers in China? At present, how much proportion of total purchase value is purchased from local suppliers?
8. Do you think a local supply base can completely satisfy the demands of manufacturing for the factory in China? How long do you think it will take to establish a well-organised supply base in China?
9. Do you have specialized people for looking for suppliers in China? How much support is needed from origin country? By who? How do you look for suppliers in China?
   - Commercials
10. What are the factors you concern when looking for local suppliers in China?

- cost
- delivery commitment
- quality
- technical capability
- financial stability
- environmental aspects
- corporate culture
- industrial network relationships
- reputation
- foreign background
- relevant certificates
- other

11. What obstacles do you feel when looking for local suppliers in China (cost, delivery time, flexibility, quality, communications and cultural difference, technical barriers…)?

12. Do you consider finding local suppliers for high-tech or high-quality components or would you rather hold a cautious attitude based on a long time observation?

13. How many suppliers are you cooperating in China? How long is the relationship in average? Do you think the relationship is stable compared with the supplier relationship in the origin country?

14. Does import duty and tax have affection on your decision making of purchasing locally in China? Do you have problems on customs procedures and policies when purchasing from overseas?

15. How does governments' policy affect the purchasing work of your company? Does the local government provide support on the local supply base development?

16. This question is about the relationships between the parent company and the subsidiary company and the impacts on localisation ability. To what extend can the subsidiary company decide the supply and demand in the near future?

17. How do you keep your core competence when developing production in China? Do you think there is any potential risk for your company with the development of supply base localisation?

About China Supply Market

18. Are there any characteristics make the Chinese supply market differ from supply markets in other countries?

19. Can you comment on the suppliers’ performance in China compared with the suppliers you cooperated with in origin country?

- Performance and Capability factors of Suppliers
- Price
- Quality, reliability of the product
- Consistent Delivery
- After sales support
- Technical support
- Positive attitudes towards complaints
- Information share and Ability to be integrated into the supply network

Appendix 2 Interview protocol for supplier companies

1. What is your profession title and what is your role?
2. Can you introduce your company and the background of the organisation in China?
   - To which industry does your company belong and what product does it sell?
   - Since when has your company supplied products to China and since when has your company had production facilities in China? Is it the same products as what you sell in your origin country? Is it existing products or new production made for Chinese customers?
   - Where in China is your organisation present? Why? Are you following your customers’ footprints or strategic plan for the potential market?
   - What is the type of ownership of your company, Chinese private company, 100% foreign invested or joint-ventured?
3. What are qualifications must your customers live up to?
4. Which investment background/s do your customers belong to (foreign invested companies, local private companies,)? Which functional department/person do you contact within your customers’ companies? How do they find you or how do you find them?
5. Which customers are more attractive to your company; those with foreign background, local private companies or state-owned companies in China? Why?
6. Who are your major competitors? Are they from local or overseas market?
7. What is the core competency of your company?
8. Among the sourcing parameters and relevant factors listed below, what are the strengths of your company when cooperating with the customers who are also foreign manufactures in China? And what are relatively less competitive than other local suppliers?
<table>
<thead>
<tr>
<th>Cost</th>
<th>After sales support and maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality</td>
<td>Environment certificates</td>
</tr>
<tr>
<td>Consistent delivery</td>
<td>Financial capacity</td>
</tr>
<tr>
<td>Reputation</td>
<td>Flexibility</td>
</tr>
<tr>
<td>Geographical nearness</td>
<td>IT capability in supply chain</td>
</tr>
<tr>
<td>Innovation and technology</td>
<td>Interpersonal connections (guanxi)</td>
</tr>
<tr>
<td>Global background</td>
<td>Others_____________________________</td>
</tr>
</tbody>
</table>

9. As a supplier in China, what obstacles do you face when you do business with foreign manufactures in China?

From internal:
- Parent company authority for sales activities
- Uncompetitive prices caused by high cost
- Staff issues
- Delivery performance
- Unfamiliar with the market environment
- Other__________________________

From customers and external environment:
- Fierce competition from keen local suppliers
- Government policy
- Lack of certificates or qualification
- Threaten by IPR violations
- Culture difference and communication
- Other__________________________

10. Do you have any suggestions/recommendations for foreign manufacturers which are considering establishing a supply base in China?