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Abstract

The current intellectual property (IP) environment is still immature in China. As a result, there are several problems from legal, political, economic, social-cultural, competitive and labor environment which have hindered IP legal enforcement. In such circumstances, IP misappropriation is a major concern especially for foreign small and medium enterprises (SMEs) doing business in China with their IP assets. Also such circumstances require foreign companies, no matter multinational corporations (MNCs) or SMEs, to take strong IP actions. This study aims to help foreign SMEs IP holders understand that *how IP protection in China differs in case of outsourcing and in case of own manufacturing from business perspective*, so that the foreign SMEs can decide by which way (outsourcing or own manufacturing) to manufacture their products in China is better. Consequently, the sub-research questions are:

- 1) How to protect IP in the preparation stage?
- 2) How to protect IP in the operation stage?

Ahead of the main theoretical part, a conceptual framework discusses the features of IP as well as explains why at the moment China's IP environment is a challenge to foreign SMEs. For making comparisons, the main theoretical part provides IP protection steps from the preparation stage to the operation stage for outsourcing and own manufacturing. In the end, the results of the comparisons are summarized in the overall IP protection model.

In the empirical part, two cases are studied: one is outsourcing case and the other is own manufacturing case. The whole research design is grounded in the theoretical framework. The findings propose that attention should be given to certain key issues in the model: integrating IP strategy into the company's business strategy, protecting the most critical knowledge, regarding IP steps as a whole in the protection mechanism and making IP strategy as proactive as possible. Moreover, the findings of the study support the overall IP protection model in the theoretical part. The distinctive difference between outsourcing and own manufacturing in IP protection is in the operation stage. Besides, the findings also provide managerial advice on IP protection, e.g. foreign managers should be prepare for IP risks in China, establish an own IP protection mechanism which matches the company's situation and consider IP protection to be an on-going process.

Key words	Intellectual property, IP protection, SMEs, outsourcing, own manufacturing, China
Further information	



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**INTELLECTUAL PROPERTY PROTECTION
FOR FOREIGN SMES' MANUFACTURING IN
CHINA**

**Comparison between outsourcing and own
manufacturing**

Master's Thesis
in International Business

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ABBREVIATIONS

CETA	Cross-environmental technology audit
CPO	The Patent Office of China
EU	European Union
FDI	Foreign direct investment
FTZ	Free trade zones
IC	Intellectual capital
IM	Information manager
IP	Intellectual property
IPR	Intellectual property rights
JV	Joint venture
MNC	Multinational corporation
NCA	Noncompete agreement
NDA	Nondisclosure agreement
QBPC	Quality Brands Protection Committee
R&D	Research and development
S&T	Science and technology
SIPO	State Intellectual Property Office
SME	Small and medium enterprise
SOE	State-owned enterprise
TRIPS	Trade-Related Aspects of Intellectual Property Rights
URV	Uudenkaupungin Rautavalimo Oy
USTR	United States Trade Representative
WFOE	Wholly foreign-owned enterprise
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

1 INTRODUCTION

Intellectual property (IP) protection is normally in accordance with closed innovation principle. Closed innovation postulates that IP should be controlled to prevent competitors profiting from it. In contrast to closed innovation, the central idea behind open innovation is through wide distributing and sharing knowledge with others to develop or polish the new ideas. The internal inventions can be taken outside the company to others for a better exploitation. (Chesbrough 2003) For example, Linux source code is an idea of open source innovation (Shen 2005, 192). Hence, open innovation is regarded as an exception for IP protection.

Why and how should IP protection be done in China? Chapter 1.1 will provide brief answers for it by covering the following questions. What does IP environment in China look like? Which protection measures are more effective, proactive IP measures or legal protection measures? Chapter 1.2 presents the research purpose and gives the reasons for the importance of the study.

1.1 Why and how to protect intellectual property in China

In the middle of 1980s, China started to attract foreign investment by advertising itself as a cheap manufacturing country for the export markets. Soon after, a great amount of foreign direct investment (FDI) flowed in China yearly. (cf. Stevenson-Yang & DeWoskin 2005, 12) This strategy was so successful that China's inward FDI has been the largest among developing countries since 1993 (Hitt & He 2008, 364). Recently in a single year, China's inward FDI reached over USD 70 billion (Collins & Block 2007, 10). In the mid 1990s, China became "the factory for the world" (Redefining intellectual property value ... 2005, 41). The outsourced manufacturing in China supplies as much as 50 to 80% of world production in many product categories (Redefining intellectual property value ... 2005, 1). Companies worldwide have been affected a lot by the impact of ultra-low-cost manufacturing in China on the world's trade pricing particular in Europe and North America (Collins & Block 2007, 10; Lieberthal & Lieberthal 2003, 71; Redefining intellectual property value ... 2005, 1, 41). Due to the severe global competition, many MNCs have to invest heavily to manufacture in China to gain the improved margins (Collins & Block 2007, 10; Redefining intellectual property value ... 2005, 1). Under this circumstance, those foreign SMEs also want to go after the pioneers to benefit from taking China as a cheap manufacture base (Collins & Block 2007, 10).

Simultaneously, in order to attract FDI and technology into China, the government has made consistent efforts to improve intellectual property (IP) environment since

1980 when China started to establish IP system. Especially, in recent twenty year, Chinese government has published IP laws successively. (Wang 2004, 255-256) The various institutions carry out actions against IP infringement, for example burning the pirated products and cracking down the underground factories (Swike, Thompson, Vasquez 2008, 493; Wang 2004, 255). Also, China has become an active member in international conventions related to IP. China is both a member of World Trade Organization (WTO) and a signatory of Trade-Related Aspects of Intellectual Property Rights (TRIPS). (Yang & Clarke 2005, 549, 553) TRIPS agreement, which was set by WTO, aims to harmonize IP protection across the world (Shen 2005, 188). Unfortunately, although IP laws in China generally meet international standards (Lieberthal & Lieberthal 2003, 76; Shen 2005, 194; Wang 2004, 256), the prevailing problem of IP abuse has frustrated foreign investors (cf. Wang 2004, 259).

According to Japan External Trade Organization's annual report, during 2005, 75% of Japanese companies in China claimed some kind of brand name infringement and 65.5% claimed design infringement. Further, 16.3% of the companies claimed more than USD 10 million cost of IP infringement. (Kumar & Ellingson 2007, 148)¹ It is estimated that 10 to 20% of all consumer goods manufactured in the country are from counterfeiting operations. The Quality Brands Protection Committee (QBPC), an anti-piracy body under the auspices of the China Association of Enterprises with Foreign Investment, claims that government statistics show that the proportion between counterfeit products and genuine products in the Chinese market is 2 to 1. (Trott & Hoecht 2007, 127) The "2008 Special 301" Report, an annual review of the global state of IP protection and enforcement, conducted by the Office of the United States Trade Representative (USTR) shows that the IP problem of high piracy rates in China and years of ineffectual actions of the Chinese government has not yet changed. China will remain on USTR's Priority Watch List. Counterfeit and pirated products also pose a serious challenge in China-EU businesses. China is by far the largest source of counterfeits, around 60% of which is seized at the EU borders. (Customs: EU and China ... 2009)

No doubt, counterfeiting is a major concern to foreign companies, owing to the fact that there are counterfeit products available and sold at an unbelievable cheap price on the streets (Swike et al. 2008, 493). Nevertheless, the Chinese IP legal system is still in its fledging stage (Wang 2004, 256; Yang, Sonmez & Bosworth 2004, 471). The futile legal enforcement is a result from inadequate IP environment, which is formed by legal,

¹. Original source: Japan External Trade Organization (2005) 2004 Annual Report on IPR Issues in China, available at: www.jetro-pkip.org/teji/bg9902/200302.htm (in Japanese)

economic, political, social-cultural, competitive, technological and labor environments (cf. Swike et al. 2008, 493-495; cf. Stevenson-Yang & DeWoskin 2005; cf. Trott & Hoecht 2007, 127). For legal enforcement, it is not only the legal system which should be blamed, but also the whole IP environment. IP environment as a foundation requires a much more fundamental shift than complete IP law and policy. (Shen 2005, 191; Stevenson-Yang & DeWoskin 2005, 9; Swike et al 2008, 494-495) Because China is now continuing on its path of institutional transition and development which requires a series reforms including strengthening IP protection (Hitt 2006, 350-352; World Economic Forum 2007), there is a long way for China to go to establish healthy IPR regimes (Stevenson-Yang & DeWoskin 2005, 18). Thus, the law enforcement is the biggest challenge that foreign companies should face now (Kumar & Ellingson 2007, 143). It is not realistic for foreign managers to expect that the current IP enforcement will change overnight (Yang et al. 2004, 471), but the whole IP environment will be improved little by little. One good sign of Chinese authorities' commitment to IP enforcement was shown during the 2008 Beijing Olympics when Chinese government seriously took actions to pursue IP infringement cases (Ordish & Adcock 2008, 275-286; Swike et al 2008, 495; Yang & Clarke 2005, 554). Thus "*there was far less infringement of Olympics IP in the market than one might expect.*" (Ordish & Adcock 2008, 278)

Additionally, it is not recommended to resort to the legal procedure when IP violations are found, based on the facts that the costs always do not outweigh the benefits (Greguras 2007, 450; Shultz & Saporito 1996, 22; Swike et al. 2008, 499; Yang et al. 2004, 471). Usually, the litigation cost is high for SMEs to afford, as they are characterized by scarce resources. Moreover, the lawsuit is dealing with one case at a time (Shultz & Saporito 1996, 26; Yang et al. 2004, 471). As a result, when the company wins all the lawsuits, the products have already been drawn away from the market, due to the long course of the lawsuit and short product life cycles (Han & Bader 2007, 2; Shultz & Saporito 1996, 22). Unless there is nothing that foreign companies can do after IP infringement, litigation should not be taken as the first option (Shultz & Saporito 1996, 26; Yang et al. 2004, 471).

At least, foreign companies should not overly count on legal protection measures. Researchers from McKinsey & Company have found many MNCs who rely too heavily on legal tactics are facing a failure of IP protection battle (Dietz, Lin & Yang 2005). Except for legal proceeding, there are certainly corporate IP protection measures available. The foreign companies should rather develop their own corporate IP protection measures for surviving in the protracted struggle (Stevenson-Yang & DeWoskin 2005, 18; Yang et al. 2004, 471). Surely, ahead of any problem, when some of risks are manageable, to take proactive measures is more effective than to litigate (Toloken 2008). Proactive measures refer to using a series of strategic and operational

actions to tighten IP controls and procedures before IP is stolen (cf. Dietz et al. 2005; Toloken 2008). The measures includes consulting professionals about IP protection in China, developing IP protection strategies, stipulating IP protection in contracts, keeping core competence in house, conducting a thorough due diligence, registering all relevant rights in Chinese, monitoring the business frequently etc (Australian Business Limited Incorporating the State Chamber of Commerce 2007, 9). Also, researchers from McKinsey & Company noted, after they studied ten MNCs in several IP-sensitive industries including consumer electronics, medical equipment, pharmaceuticals, semiconductors and software, that proactive IP protection measures were the key for the most successful companies in China, thus the litigation costs were lowered and odds were improved (Dietz et al. 2005). The finding of case study by Shen (2005, 195) argues that foreign MNCs would be better off to take proactive IP protection than suspend investment decisions until a strong IP regime is formed.

Therefore, if MNCs, which have no resource constraints to afford litigations, should attach importance to proactive IP protection measures, then for foreign SMEs these measures are extremely crucial. With proactive IP protection measures, foreign SMEs companies can not only catch the good time to enter Chinese market, but also exert the value of IP freely. On the other hand, their success can reinforce the IP enforcement in China.

1.2 Purpose of the study

In this study IP protection is the focus. The target group of this study is the foreign SMEs which own certain IP and have interests in moving the production line to China. There are two ways to do that: either through outsourcing or own manufacturing in China. Outsourcing and own manufacturing are two different manufacturing models. The basic difference of them is: the first one has neither real presence nor management control in the factory of China, but the latter one has the both.

Out of control is often the problem for manufacturing in the Far East, even for MNCs. The original manufacturers can hardly know if the authorized manufacturing has already been abused. Many MNCs were in such kind of trouble. For example, New Balance² found that a Pacific Rim manufacturer was making and shipping counterfeit footwear with New Balance's trade mark. (No trade in fakes ... 2006, 11) That is why

² New Balance is one of the well-known and respected manufacturers of performance footwear and athletic apparel in the world. The headquartered of it is in Boston. (www.newbalance.com)

foreign SMEs often worry more about IP protection in China. They would like to know, from IP protection perspective, by which way to manufacture in China is better: outsourcing or own manufacturing. Therefore, the purpose of this study is to give foreign SMEs advice on *how IP protection in China differs in case of outsourcing and in case of own manufacturing*. As it was mentioned before that taking legal action is the last straw to grab due to the weakness of IP legal system in litigation and enforcement in China, this study is not going to pay attention to the details of how to do IP legal protection. Attention is going to be paid to proactive IP protection measures from business perspective.

The focus of how to do IP protection will be drawn only from planning process to manufacturing process. And the selling process is excluded in this thesis, because based on the characters of outsourcing and own manufacturing there is hardly any difference between the two cases. For the convenience of the comparison, the process of outsourcing and own manufacturing is divided into two stages: preparation stage and operation stage. The preparation stage is a planning stage to deploy the strategies³ and prevent the possible IP risks beforehand. The operation stage is a stage that the foreign companies start manufacturing in China. It is an executive stage to implement the strategies by taking actions to minimize the IP infringement.

Consequently, the two sub-research questions are:

- 1) How to protect IP in the preparation stage?
- 2) How to protect IP in the operation stage?

In fact, the two stages are not isolated from one another. The strategies joint the two stages into one coherent IP protection system. The preparation stage paves the way for the operation stage. The operation stage takes all the concerns in the preparation stage into account. Therefore, the two stages are considered as a whole in the IP protection system.

Currently, existing studies on the corporate measures of IP protection particularly for doing international business in China are very few, and the topics on IP protection measures for purely manufacturing in China are even less. The majority of studies tell about the overall IP environment in China covering legal (e.g. Liu 2005; Wang 2004; Yang & Clarke 2005), economic (e.g. Stevenson-Yang & DeWoskin 2005) and social-cultural perspective (e.g. Berrell & Wrathall 2007; Shultz & Nill 2002). Other studies generally discuss what IP protection strategies are for international companies to

³ According to Mintzberg (1994), strategy as a plan refers to some sort of consciously intended course of action or a guideline (or set of guidelines) to deal with a situation; and a strategy can be a ploy in term of a specific manoeuvre intended to outwit an opponent or competitor. In this study, strategy is defined as both a plan and a ploy stage.

respond IP abuses, no matter what kind of operation model the companies have and what the companies' target country is. As Chaudhry, Zimmerman, Peters and Cordell (2009, 62-63) have summarized, the strategies suggested in existing literature are ranging from differentiating products by packaging and authentication technology to educating channel members about counterfeits; from developing relations with distribution channel to offering reduced price; from acquiring counterfeiters to cooperating with the local authorities (e.g. Berman 2008; Keupp, Beckenbauer & Gassmann 2009; Shultz & Saporito 1996; Yang, Fryxell & Sie 2008; Yang, Sonmez & Bosworth 2004). Mostly, these strategies are rather suitable for the foreign MNCs which have physical presence and distribution channels of the consumer market in China (e.g. Shultz & Saporito 1996; Yang, Fryxell & Sie 2008; Yang, Sonmez & Bosworth 2004). Some articles give suggestions on IP protection measures aiming at a certain issue (e.g. Fentress 2008; Greguras 2007; Haley 2000).

Although at the moment there is a shortage of studies targeting IP protection in China for foreign SMEs merely from planning to manufacturing process, foreign MNCs as pioneers in Chinese market have formed their strategies to conquer difficulties in IP environment. These strategies are also feasible to SMEs from many aspects. MNCs' experiences which provide a perspective of the potential IP risks in China are valuable to SMEs. Therefore in order to fill a gap of existing studies, this study has utilized the MNCs' strategic solutions to the IP problems in China as a source of reference to build up the new theory. Due to the normative nature of the study, the emphasis in this study lies in theoretical background. For this reason, the empirical part plays a minor role in the study.

The theoretical part of the study is made up of two chapters: Chapter two and Chapter three. Chapter two is a background chapter, which provides an understanding of IP and IP environment in China. The chapter starts with the main statutory regime of IP, thereafter discusses the value of IP, and in the end presents why the insufficient IP environment in China has been causing IP infringement. The aim of the chapter is to establish all the key concepts regarding IP for the following chapters of this study. In turn, the chapter indirectly reveals why establishing facilities to minimize the IP risks in China is necessary.

Chapter three is the main theoretical chapter, searching for the answers from theory for the research question. In order to be in line with the two sub-research questions, the chapter is divided into two sub-chapters accordingly. Sub-chapters 3.1 and 3.2 are composed of a few sub-sections which are arranged in a sequential order based on the IP steps that foreign companies need to take in the preparation stage and in the operation stage. (See Figure 1)

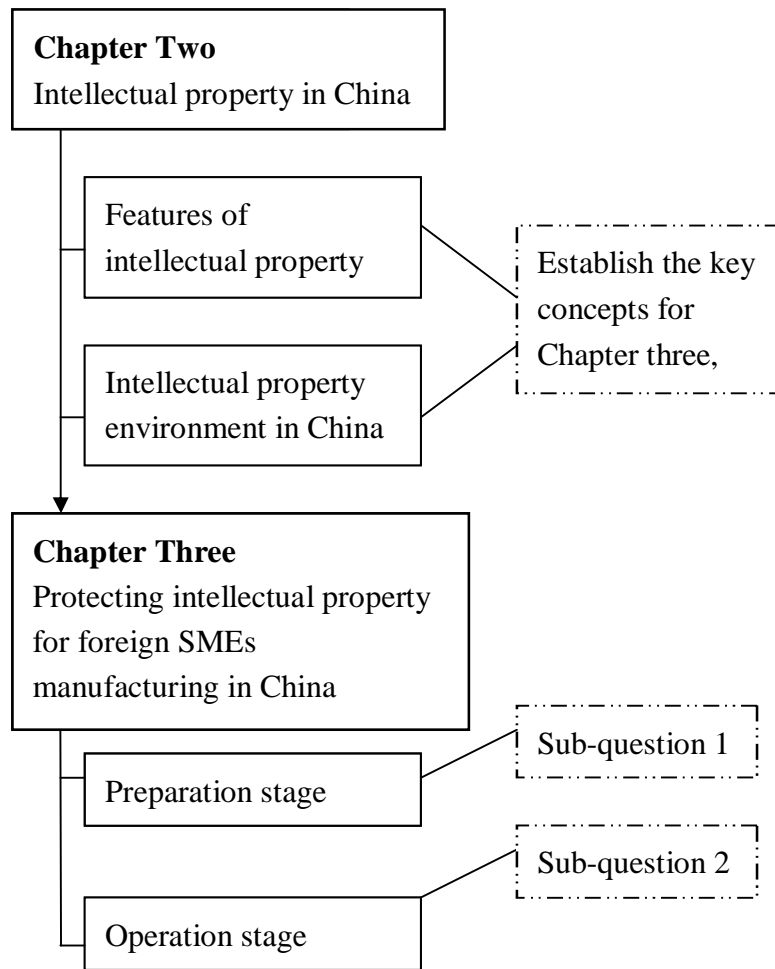


Figure 1 Outline of theoretical framework

Chapter four is a methodology chapter, explaining the research process. It clarifies the research approach, case company selection criteria, and data collection and analysis methods. Chapter five analyzes the data and presents the results of the data. The order of analyzing goes along with the sub-questions of this study. During the analysis, a comparison of protecting IP in China between outsourcing and own manufacturing from an empirical viewpoint is made. Chapter six is a conclusion chapter, discussing comprehensively the most important findings of this study followed by suggestions. In the end of the chapter, limitation of this study and recommendations for the further study are given. Chapter seven summarizes all the essential points of this study.

2 INTELLECTUAL PROPERTY IN CHINA

This chapter has two sections. The first section (Chapter 2.1) emphasizes the classification, definitions and common features of different forms of intellectual property (IP). Then it discusses about how IP performs in business practices. Some managers may know what IP is, but they may be at a loss how they should exploit the value from IP assets they owned in China. For this reason, the second section (Chapter 2.2) will examine IP environment in China within the business environment. The immature IP environment in China has been strongly affected by legal, economic, political, social-cultural, competitive, technological and labor environments. Only when the managers have an insight into the matters of China's IP environment, can they design appropriate IP protection measures. There are a few key concepts such as IP, IPRs, IP infringement and IP protection needed to be introduced in advance under the first section (Chapter 2.1). These key concepts will help the readers to obtain the background knowledge related to this study.

2.1 Features of intellectual property

Intellectual property (IP) covers creations from human intellect, such as musical, literary, scientific and artistic works; inventions; and symbols, names, images, and designs used in commerce (What is intellectual property? 2008). In brief, IP refers to “*the legal rights which result from intellectual activity in the industrial, scientific, literary and artistic field.*” (WIPO 2004, 3) It is “*an intangible subject matter emanating from the human intellect in respect of which a legal right of exclusivity may be granted.*” (Christie 2006, 26)

IP as an intangible property is problematic for owners to have control of uncertainties; for example, the ownership rights in a market for an intangible property (cf. Hunter 2006, 71). However, the birth of IP law made it possible that intangible assets can be legally secured against the unauthorized access (Christie 2006, 27-29). Under IP national and international law, after the *IP legal rights (IPRs)* are granted, the IP holder, who produced the creations of his/her mind, will have an exclusive right over the use of his/her creation for a certain period of time (Blackburn 2003, 6; TRIPS: What are IPRs ... 2008). IP can be protected accordingly when *IP infringement* occurs i.e. IP is misused by others. The most common terms used for the cases of IP infringement are “counterfeiting” and “piracy” (Are there internationally accepted definitions... 2008). “Counterfeiting” typically relates to trademark and patent infringement and “piracy” is usually associates with infringement of copyright or related rights, e.g. counterfeit watches and pirated CDs (Are there internationally accepted definitions... 2008; Trott

& Hoecht 2007, 130). The purpose of *IP protection* addressed in IP law is to give the recognition of the creators, to ensure fair competition and to protect consumers as well as to give incentives for producing the creations. Without protection there are no incentives for producing creative work. (TRIPS: What are IPRs...? 2008)

Different forms of IP contain copyright and rights related to copyright, trademarks, patents, industrial designs and trade secrets (WIPO 2004, 3). Basically, the different forms of IP can be divided into two main areas: one is copyright and rights related to copyright; the other is industrial property. The industrial property contains two main areas. One is the protection of distinctive signs (trademarks). The other area is the protection in relation to innovations (patents, industrial designs and trade secrets) (TRIPS: What are IPRs....? 2008). Normally IP will receive the legal protection only after it is registered. Exceptionally, registration is not needed for copyright and rights related to copyright as well as trade secrets. (See Figure 2)

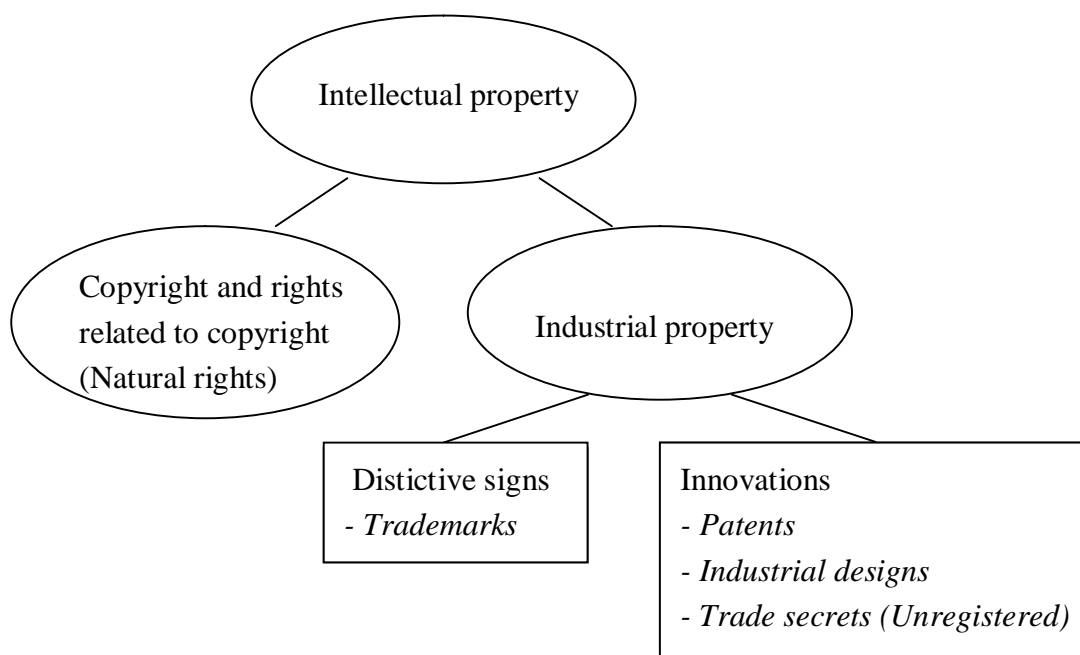


Figure 2 The structure of IP

However, the different forms of IP share the common feature of intangibility, exclusivity, legality and territoriality in term of their legal rights and value (Yang 2003, 47-51). The consequent sub-chapters will go into details of IP both from legal and business perspectives – main statutory regimes of IP and value of IP.

2.1.1 Main statutory regimes

Main statutory regimes of IP include copyright and rights related to copyright, trademarks, patents, industrial designs and trade secrets (What is intellectual property? 2008). They are defined from four aspects 1) the subject matter protected; 2) the criteria for protection; 3) the duration of the rights; 4) the territory of protection. (cf. Christie 2006, 29) (See Table 1) The main statutory regimes show the scope of legal rights that IP owners have and under what circumstances, the third party's behavior can be regarded as IP violation. A clear picture of the main statutory regimes paves the way for readers to understand the further chapters of the study.

Table 1 Main statutory regimes of IP

<i>MAIN STATUTORY REGIMES</i>	<i>CRITERIA / SUBJECT MATTERS</i>	<i>DURATION OF PROTECTION</i>	<i>PROTECTION TERRITORY</i>
Copyright	Literary and artistic work, e.g. writings, music, photographs, drawings, software, web pages and buildings	<ul style="list-style-type: none"> • Natural right comes with the creation of the work • Life time of the author plus 50 years 	Globally without registration
Rights related to copyright	Performances, sound recordings and broadcasts	From 20 years up to 50 years	Globally without registration
Trademarks	<ul style="list-style-type: none"> • Distinguish the goods and services • Indicate geographical origin of the goods 	<ul style="list-style-type: none"> • Initial registration: 10 years with a further ten-year renewal period • Renewable indefinitely 	<ul style="list-style-type: none"> • National trademark registration valid nationwide • International trademark registration valid in the Member States of WIPO
Patents	Three requirements for patentability of innovation: <ul style="list-style-type: none"> - novelty - inventive step - industrial applicability 	20 years	In countries where the patent is registered
Industrial designs	New / Original design	More than 10 years	In countries where the industrial design is registered
Trade secrets	Information of commercial value, e.g. technical know-how and data of commercial value.	Indefinitely, as long as the secrets are not disclosed by the owner or infringed by the third party	Globally without registration

Copyright relates to literary and artistic works including books and other writings, musical works, dramatic works, choreographic works, photographs, paintings, industrial artwork etc. More recently, copyright has extended to utilitarian works such as

computer programs, electronic databases and buildings. *Rights related to copyright* called “neighboring rights” are the rights of performers, sound recordings and broadcasting organizations. They are also protected under the IP law, so as to encourage and reward the creators. Reproduction is not allowed without the authorization. Copyright and neighboring rights protect expressions, but do not protect ideas, procedures and methods of operation or mathematical concepts as such. Copyright and neighboring rights include the rights to copy, to perform, and to make derivative works. Copyright and neighboring rights are natural rights which come with the creation of the work. The duration of protection for copyright is life time of the author plus some time (usually at least fifty years) after the death of the author, which is counted from the moment when the work has been created. For neighboring rights, the duration is from 20 years up to 50 years. For example, protection duration for the rights of producers and performers of phonograms is 20 years and for the rights of broadcasting organization is 50 years. The owner of a copyright or neighboring right can prevent others from copying, reproducing, selling or distributing the work without his/her permission. The exception is for fair use, for which the work can be temporary reproduced. One of the important characteristics of fair dealing provisions or statutory exceptions is that they are limited to non-commercial uses, e.g. copied for private, research or teaching purposes. (Christie 2006, 31; Shultz & Nill 2002, 670; UNCTAD-ICTSD 2005, 135-151; 199-213; 187-197; WIPO 2004, 40-56)

Trademarks are signs that distinguish the goods or services of one company from those of another and indicate the geographical origin of the goods. Such signs include personal names, letters, numerals, figurative elements and combination of colors. The owner of a registered trademark shall have the exclusive right to prevent all third parties without the owner’s consent from using identical or similar signs for goods or services in the trade, where such use has a likelihood of confusion to the registered trademark. A registered trademark protects both the company’s rights and the customers’ rights. A third part can use the company’s registered trademark only under the permission of the owner. The owner has the rights to sell or authorize the user, e.g. by licensing. The owner can also prevent importation of trademark infringing foreign goods. A competitor will break the trademark law, if it wants to take the advantage of the famous trademark by using the similar ones to cause the confusion from customers. (Blackburn 2003, 7; Christie 2006, 34-35; Shultz & Nill 2002, 669; UNCTAD-ICTSD 2005, 214-245; WIPO 2004 67-97) For example, if a protected trademark is used by someone (X) rather than its owner (Y) or if X uses a sign very similar to Y, in the beginning when the competitor’s product just enters market, the consumer will think the X’s sign on the product is taken from the idea of the well-know Y’s trademark. Then later when the X’s sign frequently appears in the market, the consumers will be reminded of Y’s trademark on seeing X’s product, i.e. X’s sign will dilute the value of Y’s trademark. (Lury 2008,

211) However, a registered trademark can diminish the unfair competition as well as make the customers easily associate the trademarks with the products. In most countries, the first to file an application is generally entitled to a trademark, if there is no similar mark being granted. Initial registration term of a trademark is 10 years and with a further ten-year renewal period. The registration shall be renewable indefinitely as long as it does not belong to the public domain. (Blackburn 2003, 7; WIPO 2004, 297, 299)

The national trademark registration protects the owner's rights nationwide. The registered trademark under the regional trademark system prevents the infringement of the trademark inside the region, while international trademark system provides the registered trademark exclusive rights in the Member States. (UNCTAD-ICTSD 2005, 214-245; WIPO 2004, 67-98) Currently, there are 184 Member States from all over the world belonging to the World Intellectual Property Organization (WIPO), for example, Algeria, Australia, China, Chile, Egypt, Estonia, Fiji, Finland, Germany, Iran, Israel and United States (Member States 2008).

Patents should be available without discrimination for any invention that has novelty, inventive step and industrial applicability. Novelty means that the invention should be the newest and the latest one. Inventive step requires that the invention represents a development over prior art. Industrial applicability means that the invention must be capable of being used in any industry rather than in a specific industrial field. The duration of protection usually is 20 years. During the protection period, the owner of a patent has the rights to exclude others from making, using or selling the patent subject matter in a specific country where the patent is registered. (Christie 2006, 33; UNCTAD-ICTSD 2005, 351-367; WIPO 2004, 17-40) For example, if Company "A" has obtained the patent for a novel approach, competitors are not allowed to take the similar approach. They must come up with something else which should be distinct. If not, they would interfere with patent infringement. (Williams & Bukowitz 2001, 100) The protection in turn brings the incentive for financing the research and development activities. (UNCTAD-ICTSD 2005, 351-367; WIPO 2004, 17-40)

Industrial designs refer to products' visual appearance including shape configuration and pattern. Somehow similar to inventions, industrial designs are required to be new or original. Designs which cannot be regarded new or original are those that do not significantly differ from known designs or combinations of known design features. The industrial designs can be protected in most countries by solely registering them in those countries. The owner of a protected industrial design shall have the right to prevent third parties from making, selling or importing articles without the owner's permission. The duration of protection shall be more than 10 years. (Christie 2006, 31; Shultz & Nill 2002, 669; UNCTAD-ICTSD 2005, 322-350; WIPO 2004, 98-118)

Trade secrets (undisclosed information) should be the issues which are not allowed to disclose. These issues cover any information of commercial value, including technical know-how such as design, process, source of code, formula and other technological knowledge; data of commercial value such as market information, composition of materials, mailing lists, supplier information and employment records. (Shultz & Nill 2002, 669; UNCTAD-ICTSD 2005, 520-538) The difference between trade secrets and confidential information is that trade secrets must contain commercial value while confidential information may or may not have commercial value (Soetendorp 2007, 84). For example, chemical formulas used by world famous brands, such as McDonald's, Kentucky Fried Chicken and Coca-Cola, are trade secrets (cf. Staying ahead of 2005, 19). Trade secrets belong to a non-registrable IP in the IP family (UNCTAD-ICTSD 2005, 520-538). The risks of trade secrets will be out of control if the trade secrets are easy to duplicate and incapable of being protected (Barrett, Price & Hunt 2008, 209). That is why the legal recognition for trade secrets requires the owner take reasonable steps to keep the trade secret confidential. But like copyright, trade secret rights are not bounded by the territory. The rights in one country extend globally. (Gollin 2008, 267, 280)

The owner of a trade secret can prevent others from using the IP without the owner's consent lawfully. Trade secret can be an alternative for patenting in certain circumstances. For example, if the company wants to develop an existing invention further, they can keep the invention as a trade secret rather than patent it until the invention becomes an advanced one. (UNCTAD-ICTSD 2005, 520-538) Compared with patent protection, trade secret protection is inexpensive, not territorial and potentially forever (Barrett et al. 2008, 210). But unlike patents, the owner of the trade secret can claim the rights only when someone acquired the information through dishonest commercial practices. That is to say, the trade secret was not infringed if someone happened to have the same information on his/her own. (UNCTAD-ICTSD 2005, 520-538)

The common features in IP mentioned above can be concluded as follows. 1) The owner of protected IP has exclusive right that protects IP during the protection period from being misused by the third party without the owner's consent. 2) By being granted IPRs, the owner may commence legal proceedings for IP infringement to prevent unauthorized use of protected IP. 3) The IPRs are transferable through licensing and assigning. (Christie 2006, 27-29) These features reflect the special legal rights which IP law has granted. Nevertheless, when IP value is considered, IP becomes more meaningful in practice than its statutory definition; it becomes a competitive advantage, money generator and strategy device. In the following section, the practical value of IP (e.g. trademarks and patents) will be introduced from these three aspects.

2.1.2 Value of intellectual property

IP as an intangible subject matter is part of intellectual capital (IC). IC, a non-financial and none-physical resource, can be generally classified into four categories: human assets, organization capital, customer assets and IP. IC is a valuable resource in the organization, with which the company is able to generate a great amount of revenue. (Skyrme 2002, 70)

IP, one of the elements of IC in the innovation value chain, is seen to be crucial to a company's core business activity, because IP provides the company a unique competitive advantage in the market place (Hunter 2006, 77; Verloop 2004, 112-113), new solutions for money generating (cf. Verloop 2004, 112-113), and new strategies of maintaining its core competence (Gollin 2008, 163-183). The significant contribution of trademarks and patents to corporate value creation has long been recognized (Hunter 2006, 66).

A trademark can reduce the searching cost for the customers, because it distinguishes the product from other products (Griffiths 2008, 248; Spence 2008, 295). Similar to the brand, the trademark represents quality and reputation of producer. It can be used for advertising purpose. (Davis 2008, 80) It gives the incentive to the owner for maintaining or improving the image. In the marketing, some trademarks can draw the customer attention, if they are familiar to the customers. Often, the customers will associate these trademarks with high quality, good after-sale services, pleasant buying experience (Griffiths 2008, 251), and other values, e.g. way of life and self expression that go beyond the purely functional qualities of the product (Scott, Oliver & Ley-Pineda 2008, 292). The positive association arising from the trademark has a 'persuasive' function (Scott et al. 2008, 292). That might be the only reason for the customers to remember the marks and repurchase the products without thinking of other alternatives, despite that they should pay premium for those products (Griffiths 2008, 251; Scott et al. 2008, 292, 295). A good reputation can encourage the customer to purchase a series of products having the same trademark. This kind of reputation is something that can help the company to launch a new product in new markets where the entry costs and barriers are high. The company can use a familiar trademark, which contains the similarity or use of the common component of the owned trademark, for the unknown product. Naturally, the customers will realize the commercial link of the product to an established reputation that reassures them. It is not exaggerated to say that a company which owns a prominent trademark can beat the competitors harshly, even though there are disadvantages in the market. (Griffiths 2008, 248) Hence, the monopoly rights over a trademark can secure the company's unique position in the competition.

Like trademarks, patented inventions, as a source of competitive advantage, also yield monopoly profits for the company in certain duration (Hunter 2006, 75).

Additionally, IP brings more options for the company to generate money through either using IP in own markets or in third-party markets (Verloop 2004, 112-113). The options matrix for monetizing IP is presented in Figure 3.

3rd parties	<p>asset trading</p> <p>swapping patents in strategic alliances</p>	<p>licensing</p> <p>royalty income from differentiated technologies</p>
own markets	<p>defensive</p> <p>restrict freedom of action for competition</p>	<p>exclusivity</p> <p>protect high margins from unique technologies</p>
	Strategic positioning	Revenue generation

Figure 3 The option matrix for monetizing IP (Verloop 2004, 113)

Companies can stick to the pure defensive or exclusive option to reap from their innovations, given that they have deep pockets to afford the financial burdens of defending competitors which copy the company's innovation (Williams & Bukowitz 2001, 103). Sometimes, especially the small companies may not be capable of developing the patented invention further. Or for one reason or another, only a small fraction of the total market is reachable. In these cases, the companies can still benefit from IP transfer, e.g. trading or licensing the technology to third parties. (cf. Hunter 2006, 76; Verloop 2004, 114) Licensing a patent to others can obtain an attractive proposition for a company. Through licensing, competitors are excluded from practicing the innovation and the company which owns the patent can reap from collecting monopoly rents. (Williams & Bukowitz 2001, 101) For example, Qualcomm paid USD 1.25 billion for buying SnapTrak (Gollin 2008, 222). Patent can also be used as bargaining chips for cross-licensing agreement (Williams & Bukowitz 2001, 105), meaning that, with patent, the company can reap more from royalties paid by others. For example, Dow chemical, through licensing the patent, generated additional revenue over USD 125 million (Skyrme 2002, 69-70). On the other hand, IP assets can generate high monetary value if the companies use them for their own. That is why counterfeiting has caused MNCs to have a huge loss. For example, the loss of Procter & Gamble accounts

for 20% of revenue, which amounts to USD 150 million per year (Swike et al. 2008, 498).

Due to the high potential value of a patent, some companies would rather keep proprietary technological innovation as a trade secret than patent, because they are afraid that once the patent information is disclosed to the public in the form of a patent document, the competitors can easily replicate or work around the innovation. But the competitors would never have possibility to do so if the innovation was kept as a trade secret (Williams & Bukowitz 2001, 105). Some companies also prefer to use trade secret to protect their technological innovation considering that filing a patent is expensive and complicated (Gollin 2008, 179). Other companies, which think that the current invention is still immature and want to continue doing in-house research and development (R&D), will also choose trade secret as an IP strategy (Hunter 2006, 75; Soetendorp 2008, 86). After the further development, the companies will patent the new inventions. The updated patented inventions will probably have a first-mover advantage in the market (cf. Barrett et al. 2006, 148). That is why accidental disclosure of confidential information may incur a huge loss to the company (Verloop 2004, 114), but it is not impossible to maintain the trade secret over time, e.g. Coca-Cola's secret recipe (Soetendorp 2008, 86). Thus, it is important to recognize that choosing between patent and trade secret is a strategy which varies from company to company.

Consequently, in business practices, value of an IP asset has a significant meaning. Even so, no one can secure his/her IP asset not to be violated by a third party. In some countries like China, where legal, economic, political, social-cultural, competitive, technological and labor environments bring an unfavorable impact to IP environment, the international standard IP law becomes a mere scrap of paper because the massive counterfeits cannot be stopped from the source. In the next section, China's IP environment will be overviewed and the negative influences will be analyzed.

2.2 Intellectual property environment in China

The previous sub-chapters about IP law and IP value have revealed the irreplaceable importance of an IP asset. But this does not mean the IP asset can be safeguarded by the law and IP value can be exerted as long as the company has such capacity. IP legal protection and IP value exertion largely depend on a country's IP environment. Without a harmonious IP environment, neither legal protection nor IP value exertion can have space. Hereby, this sub-chapter will explore China's IP environment within the business environment for IP and find out the factors in business environment which impact and obstruct IP enforcement. Business environment refers to legal, economic, political, social-cultural, competitive, technological and labor environments, where a business

functions (Haley 2000, 275). In business environment, all kinds of factors which can influence IP enforcement have formed IP environment. These factors interact on one another to reinforce a negative chain reaction to IP environment in China. The relation between IP environment and business environment is illustrated in Figure 4.

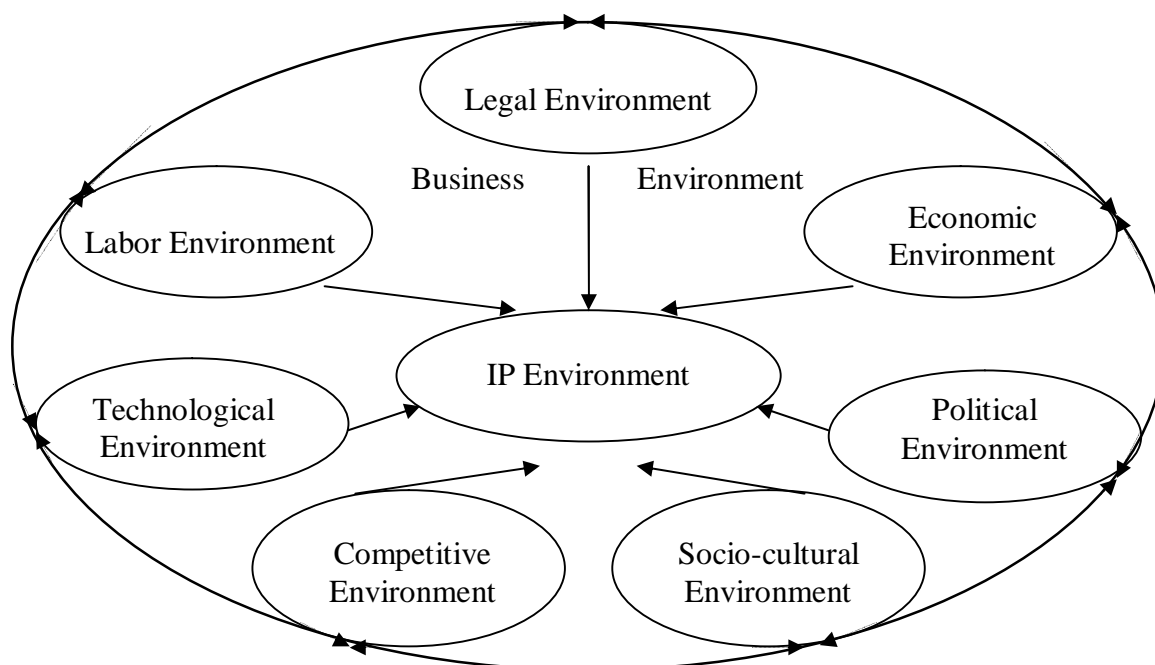


Figure 4 IP environment and business environment (Adapted from Haley 2000, 276)

Generally speaking, China has a relatively high level of IP infringement. The U.S. government said in 2008 Special 301, an annual report on worldwide IPRs protection:

“Rampant counterfeiting and piracy problems have continued to plague China. Enforcement efforts, particularly at the local level, are hampered by poor coordination among Chinese government ministries and agencies, local protectionism and corruption, high thresholds for initiating investigations and prosecuting criminal cases, lack of training, and inadequate and nontransparent processes.” (Office of the United States Trade Representative 2008, 2, 21)

IP infringement is a very complicated problem. Many major factors which directly or indirectly tolerate IP infringement can be categorized into China’s business environment. For example, these factors includes local protectionism, low public IPR awareness and shortage of indigenous technology as well as those shortcomings in court system, administrative offices, and the attitudes of the responsible people in legal enforcement mechanism (Shen 2005, 191). In this sub-chapter, the IP environment in

China will be analyzed from these aspects. The competitive environment, technological environment and labor environment will be briefly discussed in the subchapters about legal, economic, political, and socio-cultural environment.

2.2.1 *Legal environment*

Above all, IP infringement is tightly related to incomplete legal frameworks (Shultz & Nill 2002, 671). The evolution of China's IP system has gone through approximately three decades (cf. Yang et al. 2004, 471). Table 2 elaborates the milestones in the progress of China's IP system from China's accession to the World Intellectual Property Organization (WIPO) in 1980 up to China became a member of the World Trade Organization (WTO) in 2001, showing that China endeavored to comply its IP laws with the Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement.

Table 2 Milestones in the progress of China's IP system (Greguras 2007, 449; IPR toolkit 2005; Kumar & Ellingson 2007, 143; Liu 2005; Wang 2004, 256)

TIME	MILESTONES
1980	The Patent Office of China (CPO) was established.
	China acceded to the WIPO.
1982	The Trademark Law was enacted.
1984	The Patent Law was adopted.
1985	China joined the Paris Convention for the protection of Industrial Property.
1989	China joined Madrid Agreement on International Registration of Trademarks.
1990	The Copyright Law was promulgated.
1992	The Patent Law was amended to extend the scope of protection.
	China entered the Berne Convention for the Protection of Literary and Artistic Works and the Universal Copyright Convention.
1993	The Trademark Law was revised.
1998	The State Intellectual Property Office (SIPO) was established. The predecessor of SIPO is CPO.
2000	The Patent Law was amended for the second time.
2001	The Copyright Law was amended.
	The Trademark Law was revised again and went into effect.
	China was accepted to the WTO and signed TRIPS.

Before becoming a member of the WTO, China amended IP laws to meet the requirements of the WTO entry (Yang & Clarke 2005) and actively entered international conventions to enhance the IP protection level. In the year 2001, China also signed all of WTO's sub-treaties, for example TRIPS agreement, which is the most important agreement in the WTO system. (Kumar & Ellingson 2007, 143; Liu 2005; Yang & Clarke 2005) TRIPS set the basic rules for IP (Kumar & Ellingson 2007, 143).

China's IP system is much younger than that of developed countries, such as the UK and USA (the pioneers in IP advancement), therefore it is less secure (Yang et al. 2004, 471), reflecting in problematic enforcement of both statutory and contractual protection. The injunctive relief for a contractual breach referring to statutory protection for IP infringement is not clearly available. The injunctive relief requires the plaintiffs to give a strong proof of irreparable harm, which is difficult to obtain in practice. (Greguras 2007, 450) The IP dispute process is long-lasting (Han & Bader 2007, 2). It takes about 4–7 years for a lawsuit to be in the legal procedure and the probable monetary recovery for the damages is small. An IP owner should not expect any significant monetary recovery in a court case in China. (Greguras 2007, 450) For example, Article 25 of China's Unfair Competition Law stipulates USD 25,000 for trade secrets misappropriated (Fentress 2008, 16). The maximum statutory compensation for the infringed party is USD 60,000 (Han & Bader 2007, 2).

The disadvantage to the plaintiff is that after the case is over, the technology has already been out of the date (Han & Bader 2007, 2). Thus, "*monetary remedies do not provide a meaningful deterrent because of the time to recover and the relatively low amounts of recovery.*" (Greguras 2007, 450) Moreover, the result of the case can often be unpredictable anyway. For example, the Japanese company Toyota claimed that the Chinese company Geely copied its logo and deceived customer by advertising that its Merrie cars used Toyota engines. Toyota also had enough evidence to support the claim. The Geely's logo looked quite similar to Toyota's. (Kumar & Ellingson 2007, 145-146) The Beijing Court however perceived the trademark infringement differently. The result was that Toyota lost the case. (Carnabuci & Li 2005, 49)

The complexity and confusion of the current Chinese IP law is another pitfall of the legal framework. Foreign business is treated differently from local business. (Wang 2004, 259) Due to the size of the country, different local government bureaucracies have involved in IP law implementation (cf. Yang et al. 2004, 461). They have control over different industries where IPRs are treated by a separate legal regime (Wang 2004, 259). Lacking of coordination between the national and provincial and local

governments, the two-tier legislative system⁴ in China inevitably causes the disconnection and contradiction of the rules and regulations at the different tiers or even at the same tier (Liu 2005, 346). The ambiguities in law have led to the different interpretations in judicial judgments and actions (Yang et al. 2008, 327). The inconsistency of China's regulatory regime brings problems to implementation of laws, rules, standards and regulation:

“There are no constitutional rules that define the division of authority between different levels of the political system. That division is based on policy rather than law, and policies change constantly.” (Lieberthal & Lieberthal 2003, 76)

So who will have the final word to determine? For example, a factory produces counterfeit products in one province and sells finished products in another province. In which province does the agency have the legal jurisdiction to pursue the case? (cf. Kumar & Ellingson 2007, 144) Also, a strong desire of moving China from poverty to wealth led to mixed motives of Chinese courts and law enforcement entities. As a result, for the whole nation's benefits, the justification somehow tolerates illegal use of IP. (Redefining intellectual property value ... 2005, 4-5) Therefore, the Chinese legal system has diluted the effectiveness of IP protection.

Furthermore, in IP law field, there is a large gap between the capable persons in position and in need. China has a significant demand for qualified judges, lawyers and professionals specializing in IP protection which is a relative new and unfamiliar issue to Chinese legal system. (cf. Wang 2004, 259) It takes time for the lawyers and judges in IP law field to accumulate their experience (Yang, et al. 2008, 325). The inadequate workforce in this field weakens the administrative and judicial authorities to implement IP laws.

2.2.2 Economic and political environment

From the economic and political point of view, first, the low awareness of IPRs has something to do with China's economic system. IPRs are a kind of property rights. However, there is the absence of the property rights in China (Li & Matlay 2006), as a result of the short history of the private sector and the private-owned small and medium

⁴The first tier is the legislative power from the National People's Congress (NPC). The second tier legislature is made up of local people's congress and the committees in provinces, autonomous regions, municipalities, and ministries. (Yang & Clarke 2005, 545)

sized enterprises (SMEs). In 1978, door to China, which had been closed to international trade for about thirty years, opened again to the world. Chinese economy reforms began with the Open Door Policy. From 1949 when the independent People's Republic of China was founded until Deng Xiao Ping's reform in 1982, private economy did not exist at all. (Dana 1999, 76-77; Hall 2007, 30) In 1992 China started its formal procedure to establish a socialist market economy (Dana 1999, 77). From 1992 to 2002 due to the deficiency of the management dynamics in state-owned SMEs, the government adopted a various measures regarding to reconstructing, merger and acquisition, joint partnership, leasing, contracting and sell-off to reduce the state's ownership in SMEs step by step (Chen 2006, 140). The reforms of state-owned SMEs, including reducing the number and size of state owned enterprises (SOEs), also encouraged the rapid development of private-owned SMEs (cf. Chen 2006, 142). China has completed the tremendous changes from a centrally planned economy to a more market-oriented economy, which alongside with other policies accelerated the market-oriented economy (Hall 2007, 29). Even so, the concept of private property rights, especially in term of intangible property, was undermined after a long-period of government's ownership and control over the economy (Stevenson-Yang & DeWoskin 2005, 10). It is natural that in a place, where there is little attention paid to the private sector's rights of ownership; there is also a need for great efforts to protect IP (cf. Haley 2000, 277).

Additionally, the economic and political environment does not encourage innovation. The State-bank capital is highly policy-oriented, most of which is allocated to government-owned and politically well-connected companies. The companies obtaining venture capital are not because they have potential to achieve high returns, but because they are big SOEs in an important sector or they have close "guanxi"⁵ with officers who are the decision maker for the capital. Those companies' performances do not actually meet the requirements of being invested. Hence, in fact the venture capital is often the synonym of bad loan. Besides, the ownership of the venture capital between the government and the SOEs is often very vague in China where property rights are ill-defined. Moreover, in the regulatory changeable business environment, the customers highly suspect the new market entrants which have no governmental support. (cf. Stevenson-Yang & DeWoskin 2005, 14)

Moreover, chasing high and rapid economic returns is the root of IP infringement. Globally, pirates are encouraged by the high profit margins achieved without any investment in R&D and advertising. And under the help of the available modern

⁵ "Guanxi" means interpersonal relationship. See detailed explanations in Chapter 2.2.3.

technologies, piracy production can quickly reach the goal of cost effectiveness. (Shultz & Nill 2002, 672) In China, competition is severe. Because overcapacity has been bringing a negative impact on pricing and value (Redefining intellectual property value ... 2005, 22), the price war becomes a normal form of the competition in the market. Many small manufacturers have been under market pressure for a long time (Redefining intellectual property value ... 2005, 22). They want to survive, so they have to do something to lower the costs or to enhance their competitive advantages. They take piracy and reverse engineering as the options (Redefining intellectual property value ... 2005, 35). For example, there exist many small and medium-sized underground software firms dealing with piracy business. The basic motives of the business activities are driven by the simple technology, low risks and high returns. (Berrell & Wrathall 2007, 58; Wang 2004, 258) Of course, the Chinese consumers who have low purchasing power are in favor of the much cheaper prices of the pirated products than the original ones (Trott & Hoecht 2007, 127; Wang 2004, 258). For example, a new movie is sold only for 7-10 yuan ⁶(Stevenson-Yang & DeWoskin 2005, 10). Later, the counterfeit product market obtains popular acceptance (Trott & Hoecht 2007, 127; Wang 2004, 258).

Similarly, the local protectionists are eager for quick success and instant benefit economically. The fastest way for a local officer to get promotion is to show the economic achievements by supporting the counterfeiting activities of local SMEs. Some local governments even use their power to protect their own counterfeiting operations, so as to have more sources of local revenue. (Berrell & Wrathall 2007, 58; Lieberthal & Lieberthal 2003, 76; Wang 2004, 258) Potential infringers who misappropriate IP from others and do product development on top of that to become a winner in the market are perhaps well-funded (Redefining intellectual property value ... 2005, 43). In this circumstance, IP misappropriation tends to be rampant. Consequently, although IP law has stipulated clearly on the legal enforcement, the local protectionists can often override the law by turning a blind eye to IP infringement (Berrell & Wrathall 2007, 58; Lieberthal & Lieberthal 2003, 76; Wang 2004, 258).

2.2.3 Socio-cultural environment

The social environment fosters the IP infringement. With the development and opening, China has been manufacturing the products for all over the world. It brings more

⁶ 7-10 yuan is equal to around 1 Euro.

chances for IP thieves to cultivate a maturing piracy market when the current IP legal system is relatively loose (Swike et al. 2008, 493; cf. Wang 2004, 258).

Another social factor is the current transition stage from labor-intensive industry to technology-intensive industry (cf. Liu 2005, 341-342; Xinhua perspective: ... 2006). Although China's national innovation system (NIS) is short of incentives to technology development at the moment (cf. Liu 2005, 341-342; Liu & Lundin 2006, 11; Xinhua perspective: ... 2006), China will be built into be an innovation-oriented country by 2020 according to the "National Plan 2006-2020 for the Development of Science and Technology in the medium and long term" made in the 17th National People's Congress, (Liu & Lundin 2006, 11). In recent 5 years, the number of Chinese patents filled by domestic companies has increased dramatically (Barrett et al. 2008, 31; Intellectual property in China: ... 2009, 66; Wise, Wang & Zhu 2006, 494-495) For example, in 2005, the number of domestic patent applications received by State Intellectual Property Office (SIPO) was close to 400,000, which increased by 37.4% over 2004 (Wise et al. 2006, 494-495). In 2008, the number reached 800,000, most of which "petty" patents containing middling technology (Intellectual property in China: ... 2009, 66). Even so, the biggest challenges for China to become an innovation-oriented country are: the insufficient R&D expenditure, over-reliance on foreign technology, indigenous products difficult to survive in the market, and a lack of high qualified human resources. First, because of low self-sufficiency in key technologies and the limited R&D investment, most of China's exports are labor-intensive products, and China has to rely on the imported technologies. (Liu 2005, 342; Xinhua perspective: ... 2006) China's dependence on foreign technology is as high as 50%, while this rate in United States and Japan is only about 5%. Many fields such as the national defense in particular are dependent on foreign technology, which has been bringing a serious challenge to national security. (Xinhua perspective: ... 2006) Second, without the corresponding supportive or intensive policy, the Chinese domestic companies are not motivated to develop state-of-art innovation for the fear of IP violation (Stevenson-Yang & DeWoskin 2005, 10; Swike et al. 2008, 4). Also, it is hard for the indigenous innovations to win the fierce competition against the foreign products in the domestic market, as consumers used to have loyalty to foreign products. Third, although China has the highest number of science and engineering degrees in the world, it has the shortage of skilled workers in science and technology area. The rank of the scientific papers is low in the worldwide well-known publications. (Xinhua perspective: ... 2006)

It has been suggested in the literature that there would be a strong likelihood of IP infringement in countries where the concept of privately held IP did not exist (Haley 2000, 275). Normally, those countries are technologically backward but appreciate technology and its benefits. Whereas, in countries, where innovations are their strength, the government will use IP protection as a mechanism to promote creative works. (cf.

Haley 2000, 275) The nature of local business and markets, and the government's capacity to enforce IP policy has predetermined that the supportive environment for innovation is much weaker in developing countries than in developed countries. As for the supports to national IP systems, the local scientific and technological capacity, education and financial resources are insufficient to promote innovation in developing countries. (Gollin 2008, 55)

On the other hand, it is believed that the traditional Chinese culture values also impede the society to form the concept of IPR (Berrell & Wrathall 2007), which in turn influences the IP legal enforcement. First of all, one of the essential characters from Confucianism in Chinese culture is "guanxi". In Confucianism, the importance of proper human relations (guanxi) is good for ruling the society (Hofstede & Hofstede 2005). Guanxi in society is an extended relationship from the family. Consequently, the whole Chinese society is built on "guanxi"—relationships and networks of friends and family. Guanxi is connected with every aspect of social life in China, including the business practice. (Luo 1997, 44-47) Guanxi is established on trust. It can provide secure feelings more than the law or agreement (cf. Berrell & Wrathall 2007, 66). Based on "guanxi" and business corruption, the local protectionists can have the dominant power to interfere with the prosecution of piracy offenders (Yang et al. 2008, 327). Hence, compare to Chinese "guanxi" culture, the legal mechanism is rather weak in contrast with complex Western-style IPR legal enforcement (cf. Berrell & Wrathall 2007, 66).

The second essential character in Chinese culture is long-term orientation. In the short-term oriented society like most of the western countries, there is absolute truth existing. For example, if A is the truth, then B, the opposite, is definitely false in any circumstance. The thinking orientation of the people from short-term oriented societies is more based on rules or application of abstract principles such as regulations or laws. By contrast, in the long-term oriented society like China, there is only relative truth existing. For example, if A is the truth, B, the opposite, could also be true in some circumstance. What is true or false, right or wrong should be judged within the circumstances. People from long-term oriented societies take context and the specific situation into account when interpreting the rule. (Hofstede & Hofstede 2005) However, for Chinese, guanxi is prior to the law, so guanxi, in most cases, can interfere with the legal enforcement (Luo 1997, 45-48; cf. Staying ahead of... 2005, 18). As a result, Chinese perceive broader principles of IPRs relatively unimportant when the conflict comes between guanxi and contracts (Berrell & Wrathall 2007, 66).

The third issue is collectivism. In China, a person is not primarily an individual, rather he or she is a member of a family or a group. In China, individuals are encouraged to care about the group's benefits instead of one's own benefits. Individuals are expected to stand up for their group to promote the group value, which means that

personal accomplishments play a minor role. The group's responsibility should be emphasized for each individual. Relationship prevails over tasks. Individuals tending to be interdependent with others and tending to build a network of deep-rooted relationships will be appreciated in the work place and society. (cf. Hofstede & Hofstede 2005) In China, personal property rights have been not emphasized (Redefining intellectual property value ... 2005, 5). This might be strongly connected with the collectivist cultures in China. Triandis (1994, 220) states that collectivist cultures are deeply concerned with the maintenance of harmony in interpersonal relationships. No doubt, it is ashamed to proclaim the personal property rights (cf. Berrell & Wrathall 2007, 66). That is why personal property rights is not respected in China (Kumar & Ellingson 2007, 142; McGaughey, Liesch & Poulson 2000, 2), let alone IPRs, intangible property rights (Berrell & Wrathall 2007).

China is in the absence of the concept of IPRs. Above all, most Chinese often take it for granted that property rights is almost equivalent to IPRs, meaning once they own the products, they can do whatever they like (cf. Gollin 2008, 268). For example, if they buy a book, they own the right to copy it; if they buy the drug, they at the same time own the secret method after the method is discovered by themselves; if they buy a patented electronic device, they produce the same one with their trademarks after the reverse engineering; if they buy the Budweiser beer products at cheap price, they can sell them to gain a profitable margin (cf. Gollin 2008, 268). Peculiarly, it is extremely hard for Chinese to accept copyright. Traditionally, according to the social norm, copying is not regarded as an improper behavior, rather, as a method of showing respect for the past (Kumar & Ellingson 2007, 141). Also, Berrell and Wrathall (2007, 66) argue:

“The Chinese rationale for copying famous art works, for example, ‘affirms the pervasiveness of the philosophical notion of social sharing’ and serves to highlight the aspirations of society.”

Thus, IP infringement cannot be merely ascribed to IP legal enforcement. In China, IP infringement should not be simply treated as a legal issue. Many executives believe that IP theft cannot be stopped by law (Swike et al. 494-495). Rather, it is a social issue. Nevertheless, when the society has established popular support for IP protection, the problematic IP legal enforcement will change completely (cf. Shen 2005, 191). Also, Dominique Guellec of the Organization for Economic Cooperation and Development (OECD) comments that the creation of an innovative nation will eventually enforce IP (Intellectual property in China 2009).

2.3 Intellectual property law and intellectual property value in the context of China's business environment

So far this chapter has explained IP from legal and business perspectives. Also the chapter has presented that the factors from business environment influence China's IP environment. When these topics are carefully studied, the linkage illustrated in Figure 5 among IP law, IP value, IP environment and business environment can be found. All the arrows indicate influences. The big grey ellipse indicates business environment. The white central ellipse indicates IP environment.

The direct linkage between IP law and IP value showed in the white central ellipse is that IP law provides the legislative mechanism foundation for IP value to be well realized in business practices. Even so, IP law is not a sufficient condition for realizing IP value unless healthy IP environment is fulfilled. The reason for that is IP environment has its irreplaceable position among IP law, IP value and business environment. On one hand, IP environment is the solid ground for IP law and legislative mechanism; on the other hand IP environment deeply roots in business environment, from which IP environment unavoidably receives good and bad influences. In this sense, the unsecured IP environment will have direct or indirect influence to depreciate IP value. The direct influence is from the public attitudes toward IP value. Suppose in a country nobody respects the value of others' IP, can IP get properly protection? No, IP can not be protected only by IP law and legislative mechanism. The indirect influence comes when IP environment absorbs too many bad influences. The original purpose of IP law and legislative mechanism will be strongly impaired in regard to IP legal protection. The weakened law and legislative mechanism will in turn affect IP environment and business environment.

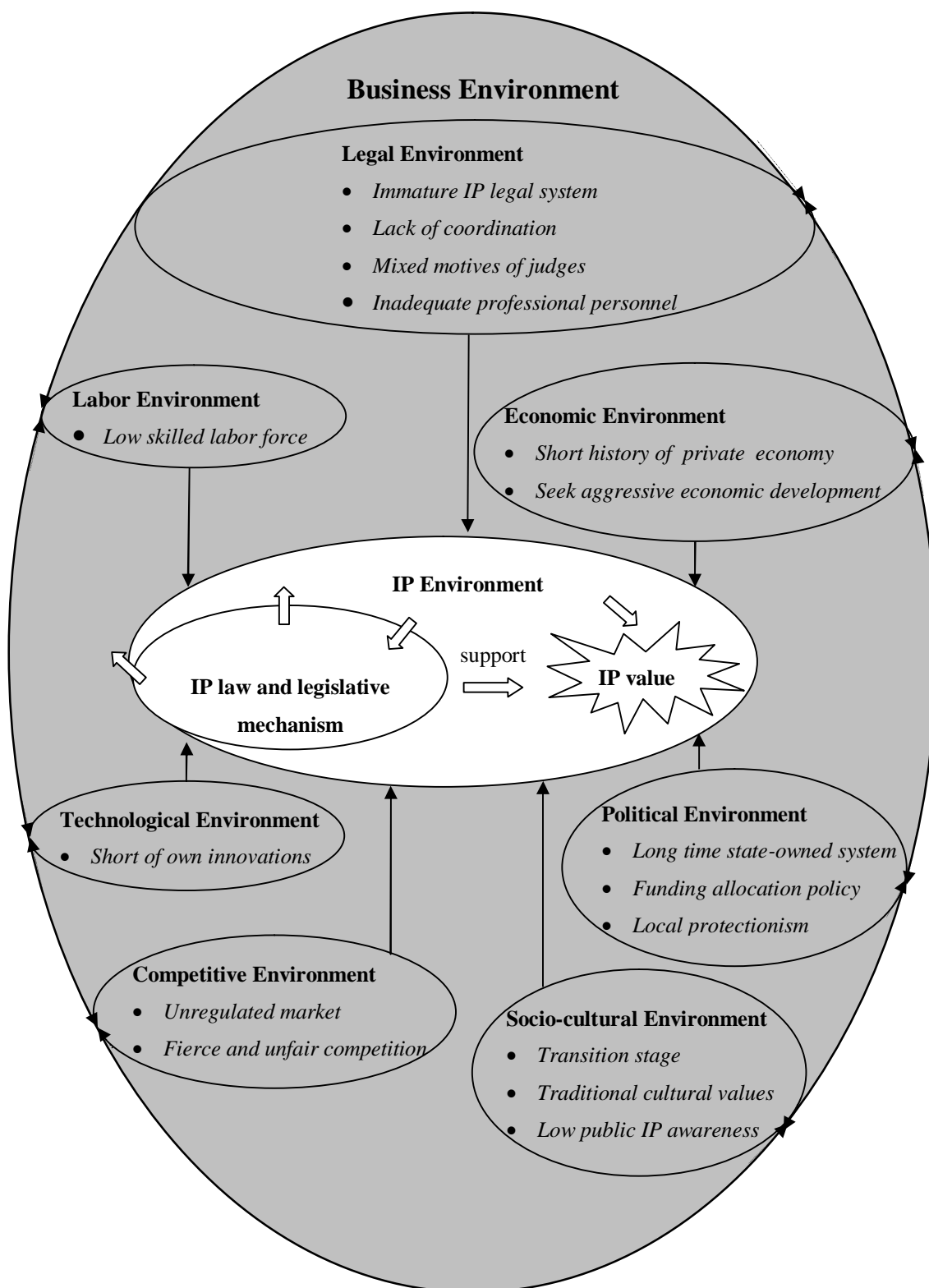


Figure 5 IP law and IP value in the context of China's business environment

The linkage between IP law and IP value in the context of China's business environment can answer why in China IP legal enforcement is weak, why IP

environment is incomplete and why IP value is vulnerable to loss. Figure 5 summarizes the negative factors discussed in the previous sub-chapter. Those factors from business environment have not only formed but also influenced China's IP environment. For example, the negative factors, such as short history of private economy and intentions for aggressive economic development in economic environment cause IPRs to be neglected. Traditional cultural values and low public IP awareness in socio-cultural environment foster IP infringement. The long time state-owned system, funding allocation policy and local protectionism in political environment obstruct the healthy development of China's IP system. Obviously, the legal environment is the most problematic. There are quite a few issues needed to be improved, such as lack of coordination among enforcement bureaus at different levels and inadequate training for enforcement personnel. Besides, in business environment, the negative factors interact with one another. For example, unregulated market in competitive environment is a cause of the intentions for aggressive economic development in economic environment. The local protectionism is a result from the intentions for aggressive economic development in economic environment, long time state-owned system in political environment, and fierce and unfair competition in competitive environment. Similarly, intentions for aggressive economic development put judges in a dilemma. The judges with mixed motives can hardly have an objective stand on IP infringement issues. In such kind of IP environment, the function of IP law and legislative mechanism are diluted, thus IP value is vulnerable to loss.

Although IP environment in China will not change overnight, it does not mean that foreign SMEs have no choice but to wait and see the complete improvement of IP environment. If they want to start successful businesses rather than miss the great opportunities ahead in China, foreign SMEs should take proactive actions to build their IP protection measures. The next chapter will present IP protection measures for companies which want to do outsourcing or having own manufacturing in China.

3 PROTECTING INTELLECTUAL PROPERTY FOR FOREIGN SMES MANUFACTURING IN CHINA

China's IP environment is full of challenges. Deterring the IP infringement from its source is a tough task. Nevertheless the foreign companies should adopt strategies to influence those negative factors in IP environment. Clark and Kennedy (2005, 71) point out that when doing business in China, foreign companies should take certain proactive measures to make sure that IPRs are well protected. Also Firth (2006) suggests that foreign companies should first establish internal controls to identify IP and IP protection, scrutinize the potential partners, use contractual mechanism, register IP, conduct surveillance to uncover infringement and make efforts with suppliers, government officials and the company's own employees. In this chapter, a close look will be taken at these IP protection measures for foreign SMEs manufacturing in China. Meanwhile comparison will be made in the matter of outsourcing and own manufacturing.

In order to in line with the research questions, these measures are purposely categorized into two stages: one is preparation stage (Chapter 3.1); the other is operation stage (Chapter 3.2). In each stage, the measures for outsourcing and own manufacturing will be presented including the common measures and distinctive measures. Each sub-chapter of this chapter begins with the common issues of IP protection for outsourcing and manufacturing.

3.1 Preparation stage

Preparation stage, an irreplaceable stage before entering any business relation in China, involves an analysis technique composed of a series of articulated steps such as evaluating, planning and examining in the decision making process. Each of the step is carried out as specified in sequence but integrated together to produce synthesis (Mintzberg 1994). In the first place, foreign managers need to be aware of the existing uncertainties (Han & Bader 2007, 5). However, it seems that some foreign IP owners do not care about the reality of IP environment in China. For example, when they start to do business with Chinese partners, some foreign rights owners think mistakenly that their partners will use IP lawfully and so they do little for IP protection (Ordish & Adcock 2008, 15). Due to this reason, a thorough understanding of China's IP environment and potential Chinese business partners is critical (Han & Bader 2007, 5). For a thorough understanding, examining the internal and external IP environment to identify the potential risks of IP loss and investigating potential business partners through various channels are useful approaches. Besides, the foreign managers should

ponder the risks involved in various forms of contract manufacturing relationships and put appropriate contractual protections in place (Australian Business Limited Incorporating the State Chamber of Commerce 2007, 9; cf. Redefining intellectual property value ... 2005, 45). The tasks related to both outsourcing and own manufacturing may be divided into the four steps: evaluating internal and external IP environment, choosing a manufacturing model, due diligence and negotiating agreements (See Figure 6).

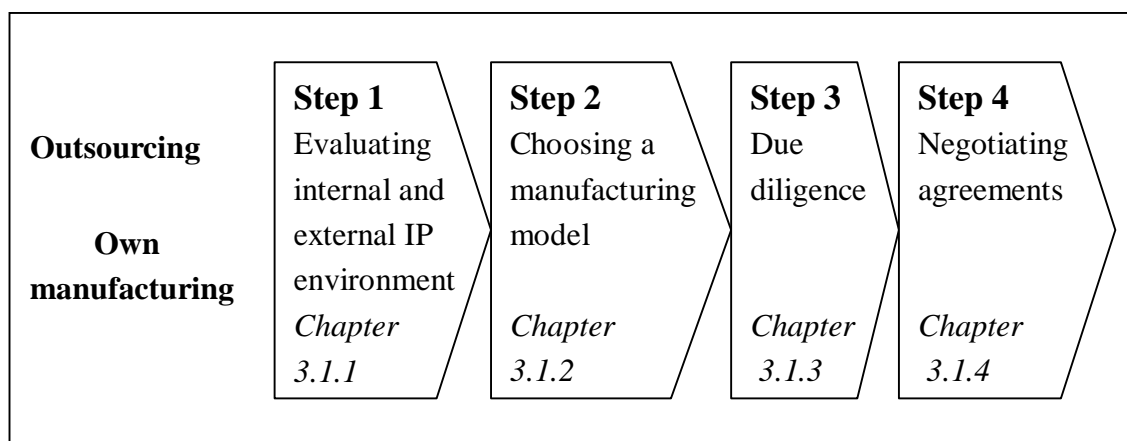


Figure 6 Four steps in the preparation stage

In the step of evaluating internal and external IP environment, there seems to be no difference in IP protection between outsourcing and own manufacturing. However in other steps, there are differences: such as supply model versus entity model in the step of choosing a manufacturing model, scanning candidates versus scanning specific regions and candidates in the due diligence process, and negotiating with partners versus negotiating with partners and government in the negotiation step. From the contractual point of view, in outsourcing the IP provision clauses indicate the supervising and being supervised relationship between the client and the service provider while in own manufacturing (joint venture⁷ model) the IP provision clauses indicate the cooperative relationship between the foreign company and the Chinese

⁷ Joint venture is one of the two models that a foreign company can have a legal entity in China (Lieberthal & Lieberthal 2003, 79). Under the joint venture model, an enterprise is composed of at least two parties. Normally, a foreign company can establish an enterprise with a local Chinese company. A foreign company as one of the joint venture partners must share the joint investment, risk and control over the operation with the other joint venture partners. (Long 2004, 316)

company. From Chapter 3.1.1 to Chapter 3.1.4, a close look will be taken at the four steps to show how to protect IP in the preparation stage for outsourcing and for own manufacturing. The emphasis will be placed on the differences in protecting IP between the outsourcing and own manufacturing.

3.1.1 Evaluating internal and external intellectual property environment

Evaluating internal and external IP environment, the first step in the preparation stage, assists the company to form a relevant IP strategy for China. In this step, there is no difference in IP protection measures between outsourcing and own manufacturing. The evaluation is composed of internal analysis and external analysis. *Internal analysis* gives the information on company's IP strategy so that the company will be able to adjust their IP strategy⁸ to fit the situation of current IP, while the *external analysis* gives the information on IP environment in China, so that the company will have an overall view on potential IP risks (cf. Technology transfer to China ... 2008, 2). As firms' strategies have a close relation with a country's business environment such as culture, value, institutions, history, economic structure and legal framework (Hawawini, Subramanian & Verdin 2004, 124-125), the external analysis should look China's IP environment within its business environment.

After internal analysis and external analysis, the target is to answer the two central questions. One is: "Can our existing IP strategy match the IP uncertainties in China?" If the answer is "yes", then the second question is: "What is our IP strategy in China?" If the answer for the first question is "no", it means that the current IP environment where the company is operating is not similar to that in China. The company is likely to have more risks in an unfamiliar IP environment. In such case, the company needs to either abort the plan of manufacturing in China or think twice and adjust the strategy to the Chinese market (Cohen 2009, 25). To answer the second question, the company should do further internal analysis.

The purpose of *further internal analysis* is to gather the updated information of existing IP portfolio for strategic planning of IP in China. Two essential issues in strategic planning of IP are: what to protect and how to protect (cf. Technology transfer to China ... 2008, 2). Foreign managers must ponder the useful way of protecting IP and preventing competitors from gaining market access (Matthews, Pickering & Kirkland 2003, 37). At least, after the further internal analysis, the company should

⁸ IP strategy is a plan and a ploy for managing IP (cf. Gollin 2008, 227).

have an overall idea of what kind of IP-related products to manufacture in China. Also, the company must have a budget for implementing the strategy (Berman 2008, 195 & 197; Chaudhry et al. 2009, 64). (See Figure 7) Next, internal analysis, external analysis and further external analysis will be discussed in detail.

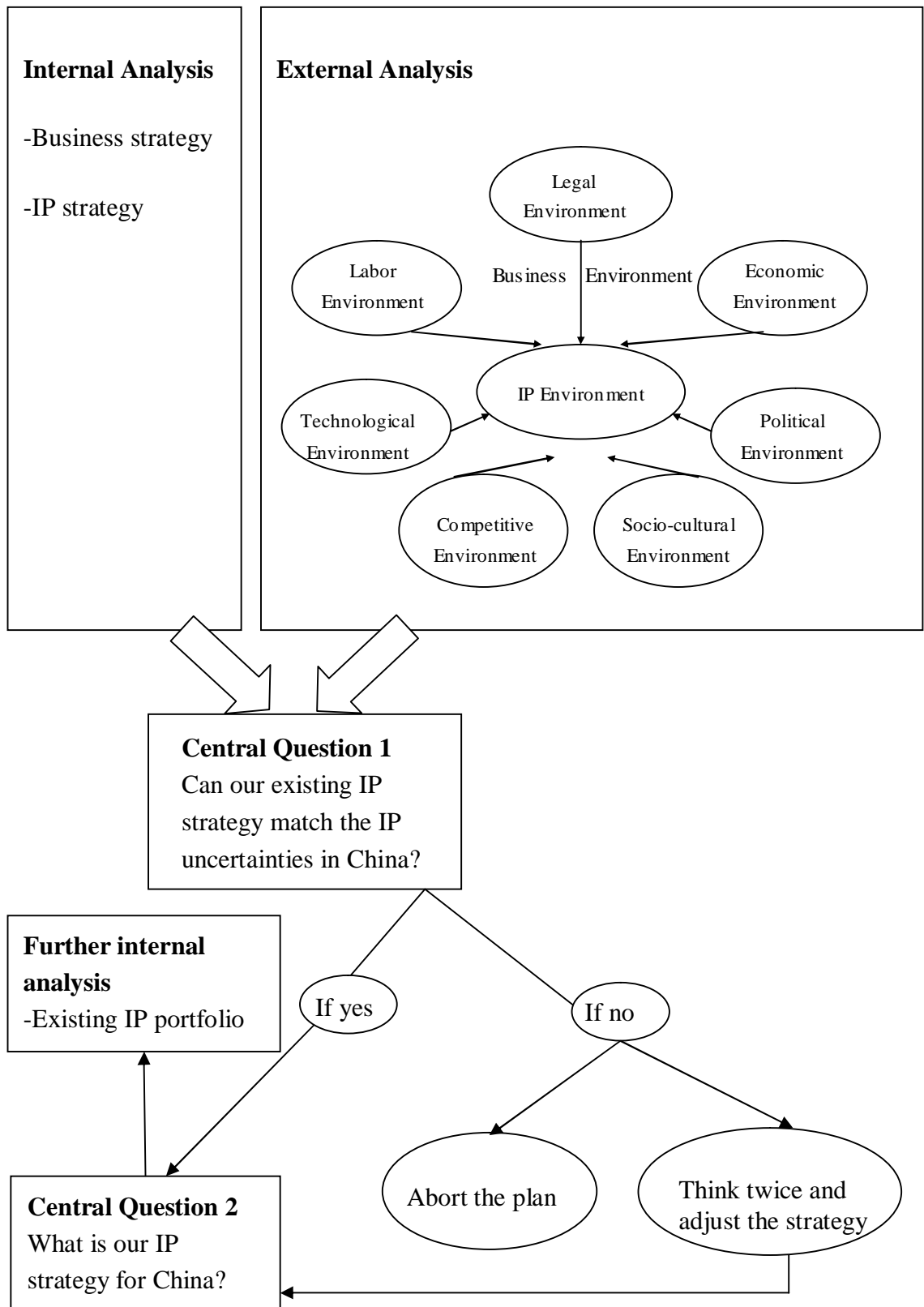


Figure 7 Evaluating internal and external IP environment (Adapted from Barrett et al. 2008, 49; Haley 2000, 276)

Internal analysis is to analyze the company's business strategy together with IP strategy. Foreign managers who are doing business or considering doing business in China should have an explicit IP strategy in the business strategy to manage IP risks (Wise et al. 2006, 514). In other words, IP protection measures must be consistent with the company's business goal. An effective IP strategy enables all company departments including production, human resources, sales and distribution, finance, and legal to have intensive interdepartmental coordination required for company-wide IPRs (Firth 2006 19). For an innovative company, the IP strategy, in a long run, is one of the most important components of the business strategy (Barrett et al. 2008, 49-50). When the company demonstrates why IP is relevant to the business strategy and managers take effective measure to develop an appropriate position, the future investment will be attracted as well as the value of the company will be enhanced (Finnie 2007, 321). An adequate IP strategy maintains the competitive advantages of the company in the market. In such a company, the business strategy should consider how to achieve the business goals of the company alongside with IP portfolio management and IP protection. (Barrett et al. 2008, 49-50) Vice versa, IP strategy should consider in the context of these goals, including the exit strategy (Finnie 2007, 321). For example, a startup company whose business strategy is to cash out by selling the company in three to five years may only like to invest the necessary amount of the cradle-to-grave costs⁹ into IP protection (Barrett et al. 2008, 125). In this sense, the company may focus on short-period high return of IP and medium-leveled IP protection (Barrett et al. 2008, 49-50). In the internal analysis, the company can consider the following issues, for example (Barrett et al. 2008; Haley 2000. 276; Technology transfer to China ... 2008, 2):

- 1) What are the company's core competitive advantages?
- 2) What is the revenue proportion the company want to stem from IP?
- 3) What can be licensed to third parties without losing competitiveness?
- 4) What are IP protection measures used to defend the company's competitiveness?
- 5) What is the IP protection level that the company can afford?

⁹ Cradle-to-grave costs include the cost to obtain the IP and maintain IP during the whole life span of IP (cf. Barrett et al. 2008, 103 & 124)

- 6) When the company chooses the target region between IP infringement level and market potential, which IP protection strategy is the most suitable strategy: protection-focused¹⁰, market-focused¹¹ or balanced strategy¹²?
- 7) To what extent can the company afford the loss of IP?
- 8) Does the company have in the progress more updated IP which can take the place of the one that is in risk in the oversea market?
- 9) Does the company have monetary and human resources to implement the IP strategy?
- 10) Does the company want to use its new patent as first-mover advantage?

External analysis is to analyze pros and cons of China's IP environment within the business environment. Although the IP environment was discussed in Chapter 2.2, it does not mean China's IP environment will be stagnant, but rather dynamic. On the contrary, the development of China is often far beyond expectations, since China is still in the transition period. For example, in 2008 Chinese companies received 1,225 patents in USA, compared with 90 patents they won in 1999 (Intellectual property in China ... 2009, 66). In other words, uncertainties from business environment are inevitable in this period. Foreign managers should not only have awareness of the existing uncertainties, but also keep tracking the on-going development in China (Han & Bader 2007, 5). Additionally, to measure China's IP progress, one has to examine the extent of China's IP environment under all the legal, economic, political, social-cultural, competitive, technological and labor conditions kept constant, because China's rapid development and there is no easy way to account for all the different variables (Yu 2006, 975). Therefore it is always advisable to do the external analysis on China's IP environment from the scratch, no matter how much the companies think that they have already known. The following paragraphs will describe how to do external analysis.

The perception about the level of IP development in a country telling about whether the IP environment of a particular country is favorable or unfavorable to the company has a direct linkage to IP strategic and managerial decisions including anti-IP infringement activities (Yang et al. 2008, 327). However, the IP environment can never be viewed separately from the business environment (Haley 2000, 276). As IP protection system largely depends on the economic, scientific, technological capability

¹⁰ Protection-focused strategy is a strategy to avoid IP risks at all costs. (Barrett et al. 2008, 128-130)

¹¹ Market-focused strategy is a strategy to do nothing in IP protection other than to maximize the market size and share value. (Barrett et al. 2008, 128-130)

¹² Balanced strategy focuses IP protection alongside with the profitability in that market. (Barrett et al. 2008, 128-130)

(Liu 2005, 342)¹³ and openness of market (Ginarte & Park 1997), the IP environment should be understood in the business environment (Yang et al. 2008, 327).

A well-know, general framework for analyzing business environment called PESTLE¹⁴ analysis examines the political, economic, socio-cultural, technological, legal and environmental conditions in particular country markets (Rugman, Collinson & Hodgetts 2006, 373-375). Based on PESTLE, Haley (2000) proposes cross-environmental technology audit (CETA). The CETA pays attention to the effects of a country's business environment on the IP environment. In other words, a country's business environment independently and dependently affects the IP environment. The CETA is very useful for a company to consider a foreign country's IP environment by scanning the foreign country's or region's legal, economic, political, social-cultural, competitive, technological and labor environments before taking a further step of strategic planning, so as to minimize the risk. (cf. Haley 2000, 274-276) Here are examples of how to analyze a country's IP environment by connecting it with the business environment.

The economic/labor environment can have a tremendous effect on the host country's IP environment (Haley 2000, 277). Earlier research indicates the positive correlation between development stage of a country and level of IP protection. A country in a post development stage has much higher IP protection level than that in a primary development stage. (Ginarte & Park 1997, 291-293) If the host country is advanced technologically based economy, the government will probably commit itself to IP protection for encouraging the IP production. Hence, the IP environment is more secure than labor-intensive economies where the government views IP protection as an expense. By contrast, if little value is placed on the private sectors' rights of technology ownership, IP theft probably prevails and the company will need to take cautious actions to protect its technology. (cf. Haley 2000, 277)

The governmental intervention through policies and regulations has either a positive or negative influence on the rules of the innovation game, and thus can alter the current IP protection framework (cf. Shen 2005, 195). In some countries, the government may have enacted laws or have an unstated policy that requires the sharing of technology (Haley 2000, 278). For example, China's foreign direct investment (FDI) regulation has formulated that the technology transfer is a compulsory condition for FDI flowing into China (Long 2004, 334). In practice, the technology sharing or transfer from foreign

¹³ Original source: Frame, J.D. (1987) National Commitment to Intellectual Property Protection. *Journal of Law and Technology*, Vol. 2, No. 2, 209-227.

¹⁴ The original idea of PESTLE appeared in Aguilar, Francis J. (1967) *Scanning the business environment*. MacMillan: USA.

investors is also required privately in some JVs (Long 2004, 321). Also, the state of democracy in nations will affect the attitude from the society towards IPRs. In highly democratic societies people tend to have strong respect for tangible and intangible property rights (Liu 2005, 342). By contrast, in low undemocratic societies, the weak political and legal institutions or corruption render problems to IP environment. Accordingly, in order to obtain enough information, the company can track the history of previous investors that have moved proprietary technology into the host country. It is good for the company to know whether the previous investors suffered IP theft, what the host country government's response was and whether the previous investors were successful in enforcing IP protection. (Haley 2000, 278)

The socio-cultural environment establishes the acceptable attitudes, perspectives, norms and values in the society. It influences the host country's perceptions of IP. In the countries of Confucian dominated culture, the private parties' property rights are not recognized. (Haley 2000, 278-279) Additionally, the level of indigenous technological capabilities in a country can have direct impact on the viewpoint of IP protection. Countries lacking indigenous technological capabilities view IP protection as an impediment to knowledge acquisition and country's technology development; whereas countries having technological capabilities view IP protection as a stimulus for technology advance and economic growth. (cf. Shen 2005, 188-189) Consequently, countries that invest in significant innovative research are more likely to put their interests into IP protection (cf. Ginarte & Park 1997, 299). Thus, the company should also investigate the aspects of the socio-cultural environment of the host country that whether the host country's society has built the institutional infrastructure to develop its own technology, whether the host country is a signatory of international patent conventions, whether there are inimical regulatory practices regarding IP, how long has the society practiced IP protection and how successful it has been. (Haley 2000, 278-279)

Further internal analysis is to renew the IP information through identifying the strengths and risks of each IP asset within the product and mapping core competence in IP against the company's entire product range (cf. Staying ahead of ... 2005, 20). Usually, the strengths that an IP contains can at the same time be the risks. For example, an IP which belongs to the company's core competence and can generate high profit for the company could be more vulnerable to IP risk than any other IP (Staying ahead of ... 2005, 20). There are four steps in the further internal analysis. First is identifying the IP assets (Gollin 2008, 142; Matthews et al. 2003, 37). Second is categorizing the IP portfolio into high, medium or low value according to e.g. each IP asset's cost and market value (Gollin 2008, 142, 207-225; Matthews et al. 2003, 37). Valuation can help the company to understand priority of IP assets' order and plan different IP strategies. The third step is evaluating the life cycle of IP-related products accordingly. The

assessment of the IP portfolio's lifetime is to ensure that the portfolio can be used effectively in the right application and how much maintaining the portfolio costs (Matthews et al. 2003, 37). An IP with a long life span is more valuable than that with a short life span. For an IP with a short life span left, the company should wisely only assign the resources to keep the IP in force until it is out of dated (cf. Barrett et al. 2008, 125). Fourth step is assessing each IP from the following four aspects (Gollin 2008, 142; cf. Staying ahead of ... 2005, 20).

To begin with, the company should carefully examine the legal scope of the IP assets. For example, what is the subject matter of the IP, i.e. is it copyright, patent, trademark or trade secret? What is the scope of exclusive rights? What are activities and products under the umbrella of the rights? How easily can they be enforced? What does exclusivity mean? Next, the company should check the duration of the IP assets, i.e. how long the rights will last and when will be the expired date? Afterwards, the company should fully understand the geographical range that IP rights are covered, i.e. in which countries the rights are valid. (Gollin 2008, 142) Last, the company should explore the entire product line to see whether an IP included serves as the core competence of the company or not (Staying ahead of ... 2005, 20).

Evaluating internal and external IP environment is only the first step of protecting IP in China. Still, there is much to do. Nevertheless, as what an old wisdom says "a good beginning is half done", a concrete evaluation will be indispensable to guide the consequent steps. If the foreign managers have already formed some IP strategy for doing business in China, then the next step, choosing a manufacturing model, will not be a hard decision for them.

3.1.2 Choosing a manufacturing model

After evaluating internal and external IP environment, the company should evaluate the benefits and risks in the existing supplier models or legal entity models. For outsourcing, the company must make the decision about choosing a supplier model: the single-supplier model or multiple-supplier model. For own manufacturing, the choice is between a joint venture (JV) and wholly foreign-owned enterprise (WFOE). (See Figure 8)

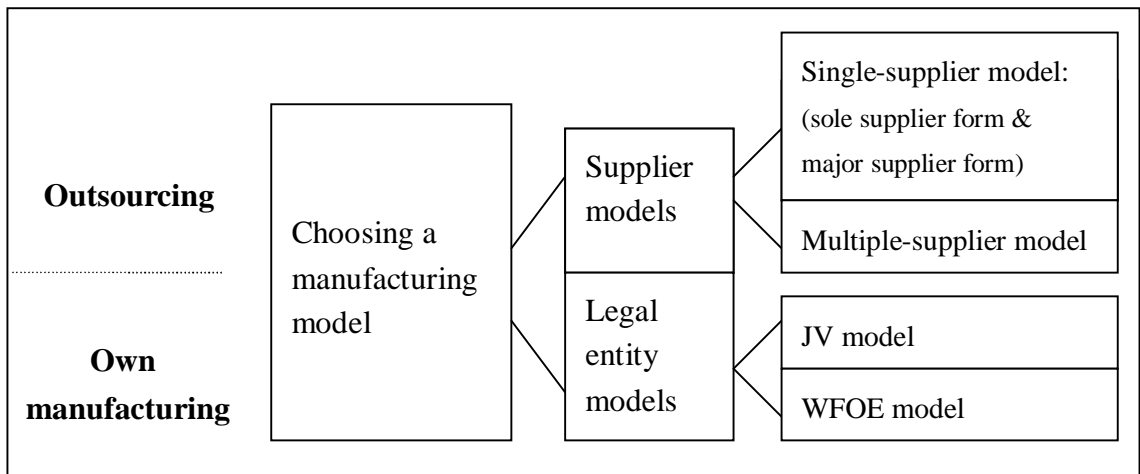


Figure 8 Outsourcing vs. own manufacturing in choosing a manufacturing model

Supplier model has two options: one is called single-supplier model and the other is called multiple-supplier model. In the single-supplier model, the project is contracted by a sole supplier or a major supplier (prime contractor). Thus, there are two forms of single-supplier model. One is called sole supplier form. In this form, only one supplier is involved in the whole process of the manufacturing (See Figure 9). (cf. Bravard & Morgan 2006, 40-43)

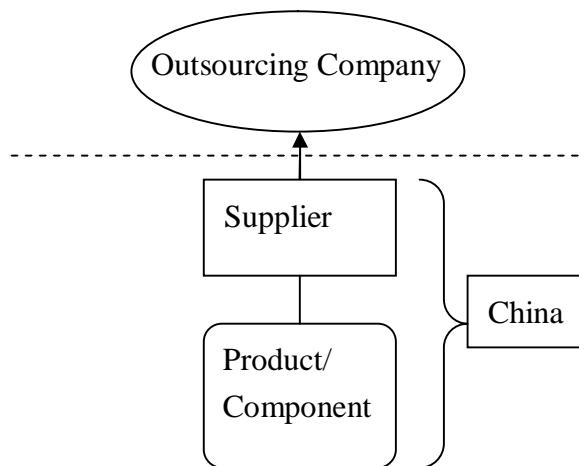


Figure 9 Single-supplier model: sole supplier form

The other form is major supplier form. In this form, the major supplier (prime contractor) can have certain flexibility to decide whether or when subcontractors are needed to do part of the project or components of the product (See Figure 10). The

major supplier can be an outsourcing service agent which is in charge of providing qualified suppliers for the customers. (cf. Bravard & Morgan 2006, 40-43)

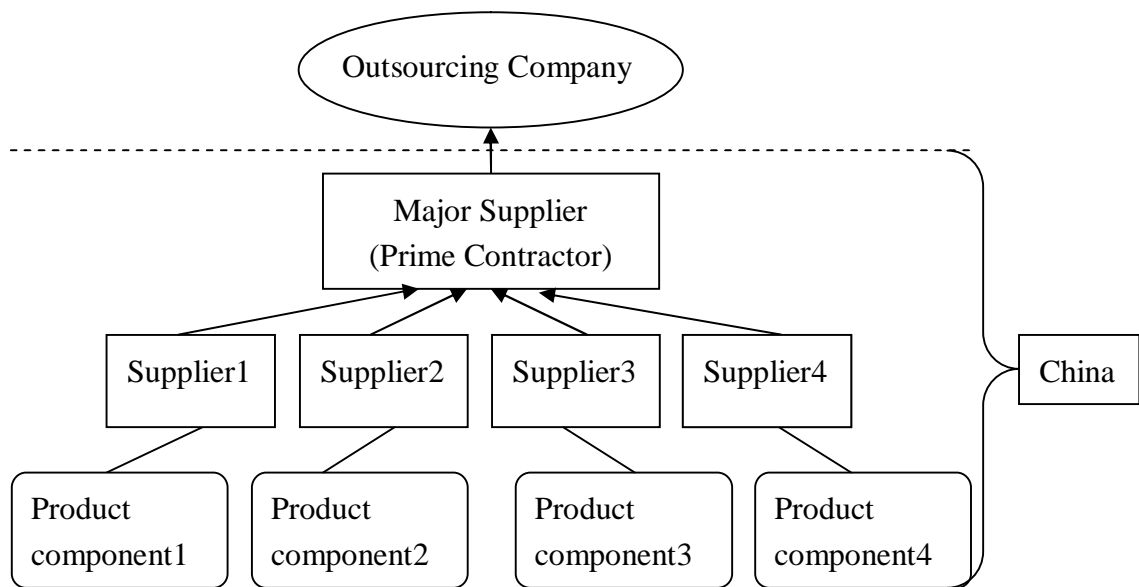


Figure 10 Single-supplier model: major supplier form

Multiple-supplier model is the model where the project is contracted by more than one supplier. Each supplier does one part of the project or one component of the product decided by the customer. (See Figure 11) Compared with the major supplier form in single-supplier model, the difference is that in multiple-supplier model clients are directly sourcing from several suppliers. (cf. Bravard & Morgan 2006, 40-43)

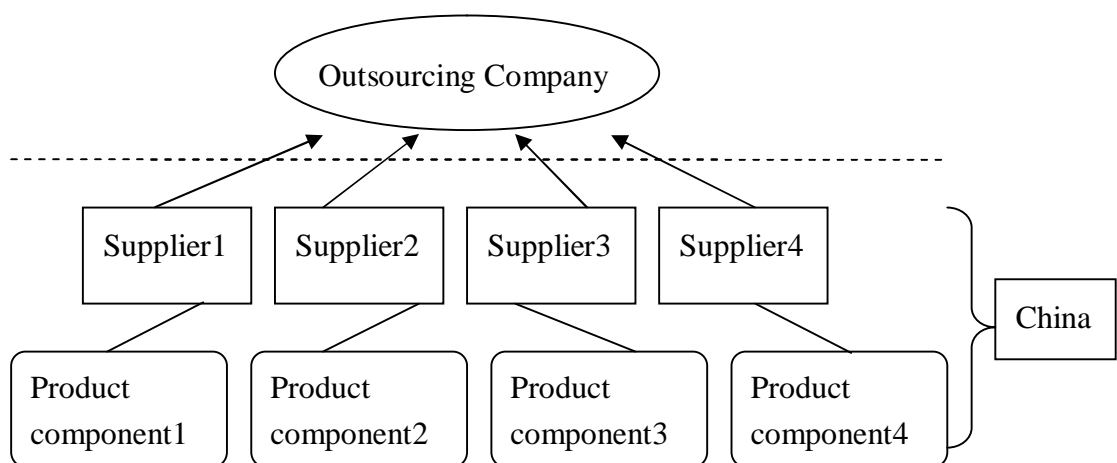


Figure 11 Multiple-supplier model

However, there is no perfect option in the world. Every option has its advantages and disadvantages. Obviously, the single-supplier model is less costly and less time-consuming than the multiple-supplier model. Besides, it enables the company to build tight relationship with the supplier. Nevertheless, it is quite risky in case the company finds a wrong supplier which infringes the company's IP. In this situation, the company will be under the time and money pressure to switch to another one. (Ordish & Adcock 2008, 78) From the IP protection aspect, the single-supplier model is not good. As the supplier must be in charge of the whole production process, it is not possible for customers to keep the critical production process confidential. In addition, when the subcontract decision is only taken by the supplier without the confirmation from the client, it is hard for clients to know the qualification of the subcontractors involved (Bravard & Morgan 2006, 42). Consequently, one of the risks of single-supplier outsourcing is that the subcontractors as third parties may leak confidential information.

In contrast, multiple-supplier model, though expensive to manage, introduces the competitive mechanism between suppliers (Bravard & Morgan 2006, 41-42; Ordish & Adcock 2008, 78). It allows the company to arrange the whole production process by sourcing each component of a product from a single supplier which has expertise in some area. The whole production process is made up of two or more single suppliers. (Bravard & Morgan 2006, 41-42) In this way, the critical IP can be protected, because none of the single suppliers is able to have access to the whole production process (Barrett et al. 2008, 210; Firth 2006, 21; Rugman et al. 2006, 288; Staying ahead of ... 2005, 19; Technology transfer to China ... 2008, 4). However, the multiple-supplier model requires the company to invest more time in each separate relationship and in monitoring all the suppliers (Ordish & Adcock 2008, 78). (See Table 3)

Table 3 Strengths of single-supplier model vs. multiple-supplier model

<u><i>Single-supplier model</i></u>	<u><i>Multiple-supplier model</i></u>
Low cost	Competitive mechanism
Time-saving	IP protection
Relationship-building	Production process management

To put simply, the strengths of single-supplier model are the weaknesses of multiple-supplier model and vice versa. Only based on the characters of the models, it is rather hard to suggest which supplier model is better for a foreign SME outsourcing in China. More information is needed such as the company's business strategy, financial situation and Chinese partners. Also, Ordish and Adcock (2008, 78) comment that "*the best option will depend on your products and industry*". Nevertheless, compared with

choosing a supplier model, choosing a legal entity model is even tougher, as in own manufacturing more aspects should be taken into consideration.

Legal entity model also has two options: a JV and a WFOE. For SMEs, JV is not a bad choice to get a quick start if a local partner already has a good reputation in the business circles and it can give the guidance on how to adapt to the new business environment (Luo 1997, 48; Ordish & Adcock 2008, 32). The local partner can also provide existing factory, human resources and knowledge of the local government (Lieberthal & Lieberthal 2003, 80). And the foreign companies can provide Western management practice. Thus, the operational synergy effect can be achieved. (cf. Luo 1997, 48) From IP protection aspect, the foreign companies can utilize JV as a political strategy to share the burden of combating piracy with their local partners (Shen 2005, 193). For example, Microsoft established JVs with local computer companies in China. This strategy helped Microsoft to have better understanding of the local business practice and identify the feasible measures in overcoming IP piracy. (Shen 2005, 195)

However, finding a reliable partner takes a lot of efforts. Even so, sometimes the result is not satisfactory. Under JV model, since both parties have no full control at least over the scope of operation, number of workers, percentage of exports and ownership of the business (Kennedy & Clark 2006, 251), problems can occur in the cooperation. First, the hard issue is the disparate mind-set, especially on condition that there are a shortage of first-class top managers and divergent goals between foreign and Chinese managers (Lieberthal & Lieberthal 2003, 80). The two parties may have totally different motives: the foreign company seeks high efficiency, while the Chinese partner might be sensitive to the governmental goals and tries to maintain or expand its current labor force. If each party only wants to pursue its own goal, then this kind of marriage will definitely end up with divorce. (Lieberthal & Lieberthal 2003, 80) Second, communication and consensus are always time-consuming (Ordish & Adcock 2008, 33). Under JV model, neither of the parties should do on its own will without the consensus of the other. Each party must be patient to listen to the counterpart and make sure it understands very well from the counterpart's point of view. (Ordish & Adcock 2008, 33) Third, the greatest risk in establishing a JV is the leakage of technology transferred and developed by the JV to the Chinese partner and its parent company, especially if the Chinese JV partner is a state-owned enterprise (SOE) which may be required by part of the government to share technology that has been transferred as part of a joint venture (Kennedy & Clark 2006, 251). In many cases, the nature of equity JVs that foreign companies engage in eventually lead to a substantial transfer of technology and know-how to the Chinese companies (Redefining intellectual property value ... 2005, 9). Therefore, in JV model, the foreign company should always check if the local partner has fulfilled its responsibility required in the JV agreement. For example, the

Chinese partner should not use the company's IP for other purposes, supposing there is some separate production within the JV (Ordish & Adcock 2008, 33).

Under WFOE model, above all, foreign investors can have full control over their day-to-day operations (Kennedy & Clark 2006, 251; Lieberthal & Lieberthal 2003, 80; Ordish & Adcock 2008, 32), so they do not need to worry if the Chinese partner is not the right one (Ordish & Adcock 2008, 32). Besides, better IP protection can be achieved (Lieberthal & Lieberthal 2003, 80). The greatest IP risk in these circumstances can be reduced to the leakage of IP to competitors or the misappropriation of trade secrets by employees. Therefore, recently, most foreign investors have chosen WFOEs in preference to JVs. (Kennedy & Clark 2006, 251) Likewise, Berrell and Wrathall (2007, 59, 70) state that ownership structure of WFOE can enhance IP protection by restricting access to sensitive information to outsiders. Foreign investors who are going to transfer advanced technology to China should take WFOE into consideration (Ordish & Adcock 2008, 32). Additionally, many companies found that they can implement their national corporate strategy under WFOE model (Lieberthal & Lieberthal 2003, 80).

Nevertheless, WFOE model is much more expensive than JV model. Setting up a manufacturing WFOE is even more time-consuming than setting up a manufacturing JV. Also in some industries or for commercial reasons, it is sometimes necessary to establish a JV, for example R&D with a Chinese party for developing new products for the Chinese market (Kennedy & Clark 2006, 251). In recent years, the valuation of IP as a non-cash equity contribution to a Sino-foreign JV has been successfully used in several business cases (Kumar & Ellingson 2007, 154). Table 4 summarizes the advantages and disadvantages of JV model versus WFOE model.

Table 4 Advantages and disadvantages of JV model vs. WFOE model

	<u>ADVANTAGES</u>	<u>DISADVANTAGES</u>
<i>JV model</i>	A quick start	No full control over the operation
	Low cost	Uncertainties in IP protection
	Operational synergy	Disparate mind-set
	Risk-sharing	Complexity of communication and consensus
<i>WFOE model</i>	Full control over the operation	A slow start
	IP protection enhanced	High cost

It is also not easy to answer which legal entity model is more suitable for a foreign SME manufacturing in China without knowing a number of factors: such as the location of the business in China; whether this industry is strictly regulated in China; whether the

company already have business contacts in China; the type of IP the company owns; who (partners or third parties) infringed the company's IP; and the company's size, business experience and business model etc (cf. Ordish & Adcock 2008, 32). Maybe after due diligence, foreign managers can know about all the information and the factors above and make a definite choice of a supplier model or a legal entity model. Also, foreign managers should conduct due diligence before selecting partners (Firth 2006, 21). In the next sub-chapter, how to do due diligence will be introduced.

3.1.3 Due diligence

Due diligence is an investigation of a business or a person for obtaining appropriate partners who fit well with the company's expectation on IP protection (Ordish & Adcock 2008, 72-73). Before entering into any agreement, foreign SMEs should conduct a comprehensive due diligence to assess the weak points through which counterfeiting problems could happen (cf. Firth 2006, 21). It is a process of setting the controls in advance to secure the company's rights (Before sourcing in China ... 2009). The most important issue in the due diligence is assessing the reliability of the potential business partners. Besides, since it is crucial to ensure that Chinese business partners have strong awareness of IPRs (Clark & Kennedy 2005, 71), investigating the IP protection level of the potential partners should also be included in due diligence.

Since outsourcing is a business activity which depends a lot on suppliers, the outsourcing companies should investigate whether the candidates are eligible to be the partners (e.g. major suppliers or manufacturing companies) (Bravard & Morgan 2006, 35). In comparison with outsourcing, setting up an own manufacture abroad is a long term oriented decision, requiring a large amount of investment – both money and time. Even more investment is needed to move the manufacture to another place, in case that the company gets considerable IP loss in one place. On the other hand, the regional differences are enormous in term of the business environment in China, so what works well in one place does not mean it will work well elsewhere (Lieberthal & Lieberthal 2003, 79). From this point, a right location is fundamentally important for own manufacturing in term of achieving the company's goal and protecting IP (Ordish & Adcock 2008, 28). To be precautious, prior to investigating candidates, the foreign companies which want to start their own manufacturing should scan business environment on those potential regions to avoid IP risks. Only after the region is selected, can the company choose the potential partners. In other words, the choice of potential partners should be confined to the selected region. Figure 12 illustrates how to conduct due diligence process differently in selecting partners between outsourcing and own manufacturing. The common part between outsourcing and own manufacturing in

due diligence process is investigation of candidates, where the following paragraphs are going to start with. After that, how to scan business environment will be discussed.

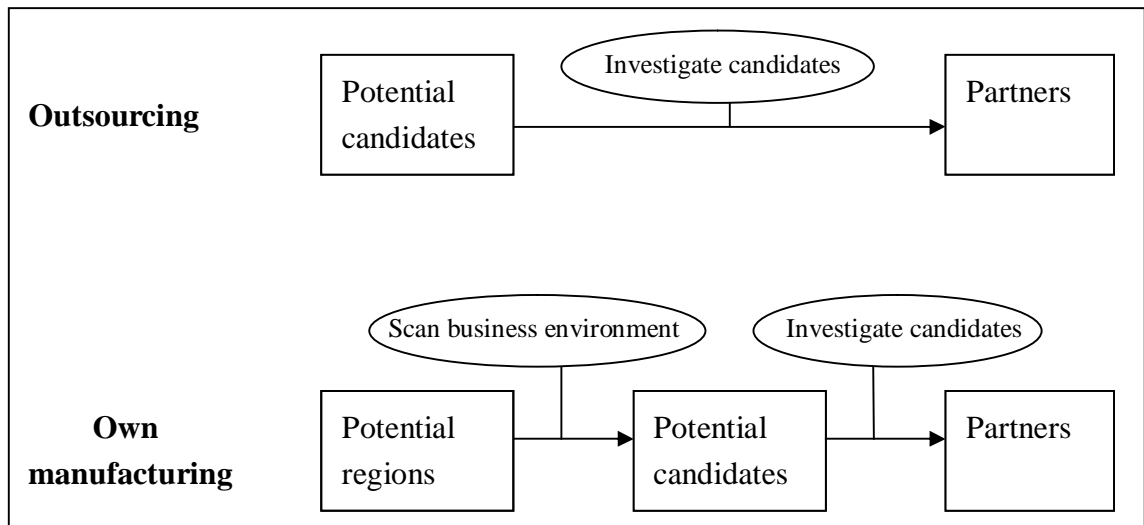


Figure 12 Outsourcing vs. own manufacturing in due diligence process

In the due diligence process, several issues on candidates should be carefully checked: 1) do they really exist; 2) are they located in counterfeiting hot spots; 3) do they have qualifications mentioned on their homepages; 4) which are their business partners, e.g. subcontractors; and 5) do they have IP protection measures in place (cf. Ordish & Adcock 2008, 75). Besides, the managers should track the record to screen the potential candidates of prospective business partners on the basis of the IP protection and contract performance (Greguras 2007, 450).

Normally, since the Chinese *guanxi* network can strengthen the long-time commitment to a foreign partner company (Luo 1997, 47-48), the company had better first consider about using *guanxi* network to obtain the candidates. Otherwise, internet is usually used as a help of searching the candidates. It is a way to get the quick results, whereas the reliability of the internet pages is more or less questionable, as in the virtual world information can be made up to be looked like the real (see, for example, Ordish & Adcock 2008, 91). Counterfeiters can have fine websites which show that they belong to a formal and large corporation by making stories of trademarks of legitimate manufacturers, distributors and where the goods are purchased (Berman 2008, 193). In China, there are illegal companies called “Pi Bao Gong Si”. These are companies with no funding, no operating site, no business operation and no regular workers, but with a company’s stamp and few contracts they engage in fictitious transaction to deceive money. They change their contact information often, so that they will not be easily caught. In the virtual world, they also use internet as a modern tool to hunt the quarry.

(New words 2008) In addition, the companies in China having a very limited business scope may exaggerate their business activities on the internet to attract projects. For example, in an interview on how to find the proper Chinese partner, a Finnish managing director told me that eventually after paying a personal visit, he found that instead of a factory advertised on the website, what that Chinese company really owned was a warehouse.

Therefore, investigating candidates cannot be too cautious. It is well advised for foreign companies to obtain as much information as possible from different sources: 1) reviewing documentation; 2) asking questions; and 3) visiting candidates (Luo 1998, 162). According to law, every legal entity must have authorized the business license and business registration certificate by local government. These documents will uncover the Chinese company's legal capacity such as registered capital, business scope and legal representative. The company can ask for financial information and the original certificates from the candidates. Also foreign companies should check with the local business registry office (the Administration for Industry and Commerce AIC) to make sure that the documentation they reviewed is authentic. (Luo 1998, 162; cf. Ordish & Adcock 2008, 75-76)

Some regions of China, i.e. so called counterfeiting hot spots gain notoriety by producing fakes (Ordish & Adcock 2008, 76). One day the counterfeiting factories are closed down by the Chinese authorities in one place, but a few weeks later, the fakes and counterfeiting factories appear in another place (Leung 2004; cf. Redefining intellectual property value ... 2005, 23). Businesses in such regions are more difficult for the government to regulate than in any other region. For example, hot spots such as Shenzhen, Guangzhou, and Dongguan in Guangdong province are identified as relatively difficult places to prosecute counterfeiters (Office of the United States Trade Representative 2008, 28). Thus, the approach used by Japanese companies, identifying IPR friendly regions and cities, where importance has attached to IP enforcement, has been recommended in the research (Kumar & Ellingson 2007, 154-155). For example, a company can take the reference from State Intellectual Property Office (SIPO), where the name of national IP pilot and model cities in China can be found. The establishment of IP pilot and model cities project was launched and supervised by SIPO in order to promote the IP system (Establishment of national... 2006). In 2008 SIPO listed Jiaying, located in Zhejiang province, as a new IP pilot city (Zhejiang: Jiaying listed... 2008).

The references such as the company's brochure can provide a list of companies that the candidates have been worked with. Just as the old Chinese proverb says "birds of a feather flock together", the reputations of the candidates are probably in line with their business partners. (cf. Ordish & Adcock 2008, 76) Companies should select partners by brand images and reputations (Firth 2006, 21), and at the same time review the partners' core business competencies, credibility, dependability and sustainability (Pai & Basu

2007, 43). Another way to check the candidates' reputations is that foreign managers should ask both the candidates and their partners as many questions as possible on relevant issues to see if there are similar answers from the both sides. Asking the most crucial issues which are related to the operations is often useful for doing risk assessment (Pai & Basu 2007, 43). When on the phone, the candidates are very likely unprepared for the questions, so they are not able to make stories immediately. Their intonation, tone, and pause may give away the hidden facts.

Foreign managers should better not take the current or potential competitors as the perspective partners (Collins & Block 2007, 328). However, this is contradictory to cooptation strategy¹⁵ which has been emphasized in today's business environment. But such strategy is full of hazard to small companies which only count on their IP to survive in the market. As it is known, competitors are one of the threats to the company. They compete with the company to file the IPRs (cf. Kellberg & Nordisk, 2007, 35). In a way, competitors are potential infringers too. For example, one Chinese company who seemed to be a perfect supplier for a foreign company put the foreign client's frame design to its own product catalog and became a competitor in a short time (Collins & Block 2007, 327). Reverse engineering is another method used by competitors (Trott & Hoecht 2007, 135). From foreign companies' experiences, the Chinese counterparts which were powerful domestic competitors in a JV caused a substantial transfer of technology, processes, and expertise to the domestic companies (Redefining intellectual property value ... 2005, 9). Therefore, foreign managers should also identify the candidates' competitive advantages. Also, it is recommended to identify the partner's other customers as well and consider whether they would be potential competitors. (cf. The 'outsourcing offshore' conundrum: ... 2004, 16)

Sending questionnaire to assess the IP awareness of candidates can, to some extent, reduce the IP infringement rate in the collaboration. The purpose of the questionnaire is to check what the candidates' attitudes are and whether they have appropriate IP protection in place. Usually, a trustworthy partner should have a detailed policy on IP protection with which it takes the corresponding actions (Greguras 2007, 450). The questionnaire should at least contains the essential points, such as 1) do they know what IP is; 2) do they have an IP; 2) do they recognize the value of IP; 3) do they have coherent IP management system; and 4) do they concern about protect their business partners' IP. (cf. Gollin 2008, 197 & 365) Foreign managers can understand the candidates' IP protection level by categorizing their IP protection attitudes and

¹⁵ Cooptation is a combination of competition and cooperation. Cooptation strategy forms a kind of strategic interdependence between the competing firms for value creation. (Dagnino & Padula 2002)

managers should filter those which do not have positive attitudes. IP protection level refers to the scope of security controls for protecting IP and confidential information. After the investigation, the candidates' attitudes will be more or less uncovered. In general, the attitudes towards IP protection can be classified into five categories: 1) proactive; 2) active; 3) reactive; 4) inactive or risk-taking (cf. Gollin 2008, 131-136). The criteria for five categories are related to 1) the existence of an active IP strategy; 2) the discussion of IP issues at top management's meetings; 3) the existence of an centralized IP department; 4) the use of an analysis process for the competitors' business activities; 5) the systematic assessment of the risk of IP infringement; and 6) the regular scrutiny of competitors IP applications (cf. Peeters & Potterie 2006, 229).

Proactive attitude refers to companies that are action-oriented. They always take actions to cause changes. In IP protection, the companies act first to prevent IP infringement. (cf. Pérez-Luño, Valle-Cabrera & Wiklund 2007, 3) The IP department in the organization has well defined IP strategy which has been integrated into company's business strategy. They put IP registration in the first place. They concerned a lot about their own IPRs, as well as respect others' IPRs. They frequently adjust their strategies to the new situation. Companies having an active attitude are busy with or ready to perform a particular activity for IP protection. They also try their best to take care of IP. But companies with active attitudes are less aware of IP protection than the ones with proactive attitudes. Reactive attitude means that companies will take actions to IP protection only when they have to do so (cf. Pérez-Luño et al. 2007, 3). They may or may not have IP strategy. Even if they have, the strategy is basically not functioning in their day-to-day business.

The so called inactive or risk-taking attitude toward IP protection refers to no IP strategy or IP policy as a component of the company's business strategy. Organizations particularly many smaller and non-profit organizations do not care about the environmental uncertainties, so they do not mind if their IP will be infringed by others or their behaviors will infringe others' IP. Their inactive or risk-taking attitudes will lead to destructive consequences of their own IP as well as leakage or infringement of other's IPRs when a default policy cannot manage to control over all the IP-related business activities. The reasons for non-strategy are complex. One of them is ignorance. Top managers might not yet recognize the significant value of IP. Second is inertia, meaning that no one wants to take the initiative if IP is traditionally put aside. Third, managers are not able or unwilling to invest in costly IP protection. Fourth, they have a shortage of skilled personnel. (Gollin 2008, 132)

Besides the ways of investing candidates mentioned above, the most practical way to get an overall picture of the candidates is a site visit (Luo 1998, 162; Ordish & Adcock 2008, 74), though on the other hand it is the most expensive way. The old Chinese saying "words are wind, but seeing is believing" means that we should not only rely on

what we heard, but use eyes to examine, because rumors may come or our ears may make mistakes. A site visit enables foreign companies to get a sense of candidates' reliability (Ordish & Adcock 2008, 74). More accurate information could be available such as the factory's size, capabilities, facilities and surroundings. Moreover, small details on site can always indicate those covered matters in the backyard. During the site visit, foreign managers can observe the things happening around and ask questions about the operation, employees, finance, technologies, cash flow and other relevant matters. (Luo 1998, 162)

For own manufacturing, scanning business environment in specific regions is the first thing that should be done in due diligence. Scanning business environment in specific regions can help foreign companies to decide where they can set out. The importance of location has been recognized by many foreign companies which want to localize their operation in China (Rugman et al. 2006, 291). In China's case, location scanning is rather dispensable, due to the fact that China is rather like a continent. Localities differ in legal, economic, political, social-cultural, competitive, technological and labor environments etc. (Lieberthal & Lieberthal 2003, 79). Although China's average gross domestic product (GDP) increase rate is around an impressive 9%, economic development and policy treatment are extremely uneven across the massive country, particularly between the eastern coastal provinces and the central and western inland areas (Hitt 2006, 351; Luo 1997). The strongest economic activity is in four regions along China's Gold Coast: The Pearl River Delta, the Yangtze River Delta, Qingdao, and Dalian. (Hitt 2006, 351) Many foreign companies have found that in some regions there are low cost labor force, skilled personnel, international-standard infrastructure, tax and other incentives to foreign direct investment (FDI) (Rugman et al. 2006, 291), e.g. in development zones and free trade zones. In high-tech development zones and in free trade zones (FTZ), e.g. Waigaoqiao FTZ in Shanghai, preferential policies allow the foreign companies to enjoy tax and financial intensives (Preferential policies of Waigaoqiao FTZ, 2009). Most foreign companies would like to situate in the coastal area where the business environment is more regulated than other areas because the international norms and standards are relatively complete (Güvenli & Sanyal 2003, 165). In other words, infringements are more likely to happen in the less-developed area (Collins & Block 2007, 328). Therefore, the foreign company should figure out in which specific area the business environment is the most optimal to the company.

Similar to external analysis which was introduced in Chapter 3.1.1, cross-environmental technology audit (CETA) approach can also apply to scanning business environment in specific regions. But compared with external analysis, scanning business environment is to conduct a narrow research on the potential geographic

regions of manufacturing site. Therefore, aside from the CETA approach, the company should identify all the potential risks in that region.

Probably, the risks are from the supply chain. Therefore, it is recommended to do some thorough research on the supply chain from design stage to manufacture process and from manufacture process to distribution channel. (cf. *Staying ahead of ...* 2005, 18) Additionally, in every country IP enforcement is more effective in some industries than others (Bale 1998), for example, pharmaceuticals are always considered at “high risk” for counterfeiting activity (Berman 2008; Chaudhry et al 2008, 59). So the emphasis should be put on the whole industry in which the company is specializing. Lou Ederer from New York intellectual property department of Torys¹⁶ says that actually companies would benefit, if they realize how important it is to begin at home with a comprehensive analysis of supply chain vulnerability, because by “mapping” their supply chain processes to identify linkage and counterfeits, companies can predict where the IP infringement could most likely to occur (*No trade in fakes ...* 2006, 16). This behavior can not only reduce wrong decision where the own manufacture should be located, but also provide the reliable references for decision-making.

Due diligence process is a measure to diminish IP risks. Simon Cheetham, China IPR SME Helpdesk team leader from Erinyes International, a firm with expertise in performing background checks, emphasizes that conducting due diligence can save SMEs a great deal of trouble and expenditure prior to negotiations with a potential partner and in this way, companies can know who they are dealing with when entering into a contract (*Before sourcing in China ...* 2009). Even so, foreign managers should still not relax vigilance during the step of negotiating agreements.

3.1.4 Negotiating agreements

In China, face-to-face meetings are very common in negotiations for building up the initial relationship (Ordish & Adcock 2008, 79). Before the negotiation, an agenda should be approved by the both parties. In the end of every negotiation, a memo should be made and confirmed by both party with signature. (Carrell & Heavrin 2008) The foreign managers need to think in advance how to deal with infringements or threats to their IP when at the same time taking the financial matter into consideration (Sandford

¹⁶ Torys LLP is an international business law firm with 300 New York and Toronto lawyers who have helped numerous companies protect themselves from product piracy and counterfeiting by minimizing vulnerabilities in clients’ supply chains. (*No trade in fakes... 2006, 15*)

2007 138). During the negotiation, foreign managers should be aware of what to or not to reveal. In principle, the information revealed should be on a “need to know” basis. (Collins & Block 2007, 105-106; Soetendorp 2006, 84; Technology transfer to China ... 2008, 4) For outsourcing, foreign managers should negotiate with the Chinese business partners. Whereas, for own manufacturing, foreign managers should negotiate with the Chinese government as well.

A well-specified agreement or contract between a foreign company and its Chinese partners at the outset can increase the likelihood of IP protection. An agreement or a contract is a legal documentation which is enforced by law in resolving disputes between partners. A tight contract should explicitly define the rights and responsibilities of each party as well as the consequence of any party’s violating the contract to eliminate the misunderstandings. (Yang et al. 2004, 465) For example, it is very likely that a licensee believes that the right to make a particular product is granted by the licensor, but instead, the licensor is granting the licensee a limited monopoly right within a certain scope and time duration under the licensor’s IP (Sandford 2007 137). To avoid such kind of misunderstanding the foreign managers should check each item with the contractual partners to make sure that the counterparts understand well enough (cf. Firth 2006, 21).

In China, English and/or Chinese are usually acceptable languages for contracts. If a foreign company prefers to have the contract in both languages, then the equal effectiveness of the both languages must be guaranteed, which means both language versions should have the same meaning. (Kennedy & Clerk 2006, 251) Some contracts required to be approved by the Chinese authorities are only in Chinese (Clark & Kennedy 2005, 70). In this instance, the foreign company can ask the Chinese version to be translated into English.

Besides, as China is a long-term oriented society, people do not strictly comply with rules but rather take context and the specific situation into account in rule interpretation (Hofstede & Hofstede 2005). What a foreign company should note, in particular, is that a contract must safeguard the company’s core technologies and capabilities (Berrell & Wrathall 2007, 70). Since the social norm of *guanxi* maintains a long term relationship, mutual commitment, loyalty and obligation, for Chinese business people the business relation should be relied on the trust not the contract (Luo 1997). For Chinese, a contract is only a general guideline for cooperation rather than a legally binding document (Before sourcing in China ... 2009; Yang et al. 2004, 465), so the function of contract is more like a relationship manual (Before sourcing in China ... 2009).

Conformity to an agreement or a contract has become an important tool in deterring commercial immorality, forcing relevant parties to fulfill their promises under the contractual conditions and particularly effective in preventing licensees from misusing the licensing permission. Accordingly, to some extent, western managers should allow

flexibility to modify the contract based on the circumstances, so that the Chinese may have the chance to conform to the contract. Nevertheless, owing to the different cultural views between Western and Chinese people on contracts, negotiating often takes a long time. Still, it is better to face all these problems early enough than later to deal with the piracy problem. (Yang et al. 2004, 465)

The combination of the general contract and the specific contract is recommendable. The general contract is a contract with general terms in a built-in structure. The specific contract contains specific terms used for non-regular-based obligations or for contingencies. It can be signed when needed. (Clark & Kennedy 2005, 68-69) The specific contract can actually be used as a complement to the general contract. In all contracts and agreements IP protection clauses should be included (Firth 2006, 21). One important issue in IP protection clauses is to define ownership of IP and obligations in an unambiguous manner (Collins & Block 2007, 327; Fentress 2008, 15). The contract should state that IP is owned by the foreign company which has rights of IP transfer and transactions. Except the foreign IP owner, anyone else is prohibited from doing any IP related transfer and transaction. (Fentress 2008 16) One thing that should not be overlooked is the ownership of improved or new created IP during the relationship with business partners (Pai & Basu 2007, 40, Technology transfer to China ... 2008, 2). In addition, the ownership of other assets regarding to a company's product development should also be stated clearly in the contract. These assets include any know-how, discovery, invention, design, drawing, computer program, photograph, plan or record. (Manufacturing 2008) The second issue is the specific level of performance. For example, as suppliers are not allowed to sell the overruns without the permission (Technology transfer to China ... 2008, 5), the special performance clause can require the supplier to provide an inventory report of extra production of IP ownership before a new order is placed (cf. Fentress 2008 16). The third is confidentiality. To keep special information, which includes the other party's technology/IP, trade secret matters and business information, confidentiality is compulsory. (Greguras 2007, 451; Ordish & Adcock 2008, 37, 82; Soetendorp 2006, 84; Technology transfer to China ... 2008, 2) The fourth is non-competition clauses. The company should also add non-competition clause in case the partners will knowingly divert or sell the products containing technology to others. (Collins & Block 2007, 327; Ordish & Adcock 2008, 85; Technology transfer to China ... 2008, 2) Both confidentiality and non-competiton clause can minimize the risk of crucial information being disclosed (Manufacturing 2008). Termination is the next issue in the agreement. In the contract, the conditions for ending the relationship should be listed. (Ordish & Adcock 2008, 37, 99, 100) As to the dispute resolution, parties could include arbitration clause in the contract (Clark & Kennedy 2005, 70, Greguras 2007, 451). For the reason of face saving and harmonious relation with other people (Luo 1997, 43-47), Chinese tend to prefer mediation (Yang &

Clarke 2005, 546). The arbitration clause should specify the applicable arbitration rules and arbitral authority. The parties can designate either a Chinese organization or a foreign organization to be the arbitral body. (Fentress 2008, 17) The major reputable arbitration institution in China is the China International Economic and Trade Arbitration Commission (CIETAC) (Fentress 2008, 17; Yang & Clarke 2005, 546).

However, owing to the differences in business models between outsourcing and own manufacturing, the key IP provisions in the outsourcing agreement distinct from those in the joint venture agreement (for own manufacturing) when the company negotiates with the Chinese business partners. These points listed in Table 5 indicate that the key IP provisions in the manufacturing agreement mainly take care of unauthorized use of the IP, whereas the joint venture agreement pays attention to obtain proper management powers for the control of IP.

Table 5 Key issues of IP provisions in manufacturing agreement vs. joint venture agreement

Manufacturing agreement for outsourcing	Joint venture agreement for own manufacturing
Use of customer's brands or names	Establishment
Subcontracting	Investment and registered capital
Ownership of tooling	Technological services
Handling extra products	Selling and exporting products
Insurance	The board
Audit rights	Purchase of equipment and materials
Indemnification	Labor management
Product recalls	

According to the classification by Berman (2008, 191-192) as well as by Trott and Hoecht (2007, 129), the five types of counterfeits are counterfeit brands, pirated brands, knockoffs, overruns and custom-made copies. Counterfeit brands come from unauthorized production of goods. Pirated brands refer to the brand widely used on the products, the appearances of which differ considerably from genuine products. Knockoffs are the fakes, which the customers are aware of, because the products lack the traditional packaging and use an unusual distribution channel, though they look alike to the genuine ones. Overruns are also called "grey products" which are the extra production sold by contracted manufacturer without paying royalty or products do not meet the quality standards produced by outsourced suppliers. Custom-made copies are from reverse engineering. After a "tear down" analysis of the genuine product, similar products to genuine ones are made. They are sold as genuine ones.

In order to stop all types of counterfeits from outsourced suppliers, the manufacturing agreement for outsourcing should define eight key issues. First is use of customer's brands or names by suppliers for promotion purpose. Chinese suppliers would like to use the company's name in their brochures, homepages, sample rooms and stands at trade fairs as a marketing tool for themselves. In most cases, such kind of use should be prohibited. Second is subcontracting. Subcontracting should not be allowed without the customer's permission. (Ordish & Adcock 2008, 82-86) Third is ownership of tooling. The ownership of tools which are specially designed for the customer's order and with the customer's brand or logo should be included in the agreement. The nonperforming parts must be destroyed. (Ordish & Adcock 2008, 83-84; Toloken 2008) Fourth is handling overruns. The waste products or poor-quality products should be destroyed. (Ordish & Adcock 2008, 82-86) The suppliers should inquire to the customer about how to deal with the additional quantity. Fifth is insurance. The suppliers should be required to buy the product liability insurance (Ordish & Adcock 2008, 85). Sixth are audit rights. It is important for the company to retain a right to inspect the physical and electronic work environment of the factory and the production process to make certain that everything is on the right track. Audit rights can be an important means of reinforcing the provisions from time to time. Through audit rights, evaluation on contract performance can be made. (Clark & Kennedy 2005, 71; Greguras 2007, 451; Ordish & Adcock 2008, 85) Seventh is indemnification. The IP warranty and indemnification contractual provisions can reduce the risk of IP infringement and trade secret misappropriation. If there are actual damages to the company, the suppliers have the obligation to compensate. (Greguras 2007, 451, Ordish & Adcock 2008, 85-86) Eighth is product recalls. The outsourcing company should have the rights to reject the products in case the products cannot meet the company's standard. (Gollin 2008, 153; Ordish & Adcock 2008, 86)

In contrast, the joint venture agreement for own manufacturing should define seven key issues. First is establishment of the joint venture (JV) company. The company should state that technology/IP is an indispensable part for the success of the JV. (Ordish & Adcock 2008, 34-36) Second is total amount of investment and registered capital. The company should also mention the fair value of the technology/IP contribution, the contribution time frame, verifications, any overpayments, and also how to deal with the possibility of transferring interest in JV. (Ordish & Adcock 2008, 34-36; Technology transfer to China ... 2008, 2) Third are technological services. Services like training and upkeep visits, which have something to do with know-how or confidential information, should be identified in the JV agreement. Fourth is selling and exporting products. The IP provider should be granted the right to decide the scope of exporting area to diminish the possibility of IP violation. Fifth is the board. When it exerts the right to appoint the majority of the board members, the company should

appoint someone that the company knows and trusts. By obtaining the control of the board and legal representative, the company will gain the great chance for IP protection. Sixth is purchase of equipment and materials. The third party component material may bring a certain risk of IP infringement. For this problem, the company can stress in the agreement that how to control the third party material parts. Seventh is labor management. The company should have enough influence on staff control to safeguard the technology/IP and confidential information. (cf. Ordish & Adcock 2008, 34-36)

Besides in own manufacturing case, negotiations should also take place with Chinese government. The most difficult issue in negotiations with the government is information sharing under power asymmetry (Ordish & Adcock 2008, 151). The government has the power to approve a JV and a wholly foreign-owned enterprise (WFOE). Before getting approvals, companies are requested by government authorities to give as much information as possible. According to the vague rules and regulations in China, many companies are puzzled about disclosure of their IP and confidential information to a government authority (Ordish & Adcock 2008, 151). When negotiating with Chinese government, the principle is that foreign managers should not provide any detailed proposals. For example, government may ask about how the company is structured and the types of products the company makes. Foreign managers should give simple answers to the questions and should not go into details of what makes up the product to reveal the secret formula. (cf. Collins & Block 2007, 106) Even so, there are still risks if government authorities use the confidential information or disclose it to third parties. To be more secure, foreign managers should, in advance of the negotiation, require the government authorities to sign an agreement which includes non-disclosure and confidentiality terms. (Ordish & Adcock 2008, 31)

On the whole, in order to maximize the protection of its IPRs, a foreign company should familiarize itself with all the issues above including, for example, the applicable limitations under China technology licensing regime before the contracting procedure (cf. Kennedy & Clark 2006, 251) Before signing the contract, foreign managers should carefully review the clauses to ensure that the contract complies with the Chinese law (Fentress 2008 16). After the four steps are well-done in the preparation stage, the company can enter into the operation stage.

3.2 Operation stage

Operation stage is a stage to implement all the planed measures in practice and enforce the contract. Probably, the foreign companies will think that everything can be well settled after the contract is signed. But the reality is just like what was mentioned in the previous section that contract is only the guideline of the business, i.e. in some cases

contract is only viewed by Chinese company as establishment of initial relationship with the foreign company. (cf. IP risks while... 2009) Rules and obligations in the paper-form contract cannot restrict the IP infringement from every facet of the daily operation.

Counterfeit products come from many sources in China (Berman 2008, 192). Normally, counterfeiting is a result from IP leakage which can basically be classified into internal leakage and external leakage (Han & Bader 2007, 4). The internal leakage is caused by employees who may unknowingly or willfully leak out the trade secrets of the company (Han & Bader 2007, 4; cf. No trade in fakes ... 2006). The external one is in the supply chain caused by business partners such as suppliers, sub-contractors, JV partners, customers and third parties (Han & Bader 2007, 4). In some cases, the current or former outsourced suppliers or the JV partners may violate the original manufacturer's IPRs. They may sell to black market the waste products, sub-quality products or overruns to gain extra income. Former outsourced suppliers may continue producing the original manufacturer's products after the contract is terminated. (Berman 2008, 192) In other cases the manufacturers may accept unauthentic raw materials and parts to cut down the costs or they are fooled about the true quality in the case that the suppliers may deliberately commingle the authentic raw material and parts with unauthentic ones (Trott & Hoecht 2007, 128). The third party that has business relation with the company may have chance to approach the production line in the factory, so that reverse engineering could happen. Thus, a hands-on approach should be implemented to avoid the potential IP risks in the operation stage (cf. IP risks while... 2009).

In the operation stage, the IP protection should go through the four steps: registering IP, managing supply chains, managing human resources and building relationship with main actors. Although Step 1 registering IP has the linear relation with Step 2 managing supply chains, the relations among the four steps are not linear. Step 3 managing human resources is only meant for own manufacturing, due to the fact that the foreign companies have total management control over the own manufacturing. Moreover, Step 4 building relationship is not a separate step from Step 2 managing supply chains and Step 3 managing human resources. Rather it should be integrated into Step 2 and Step 3. (See Figure 13)

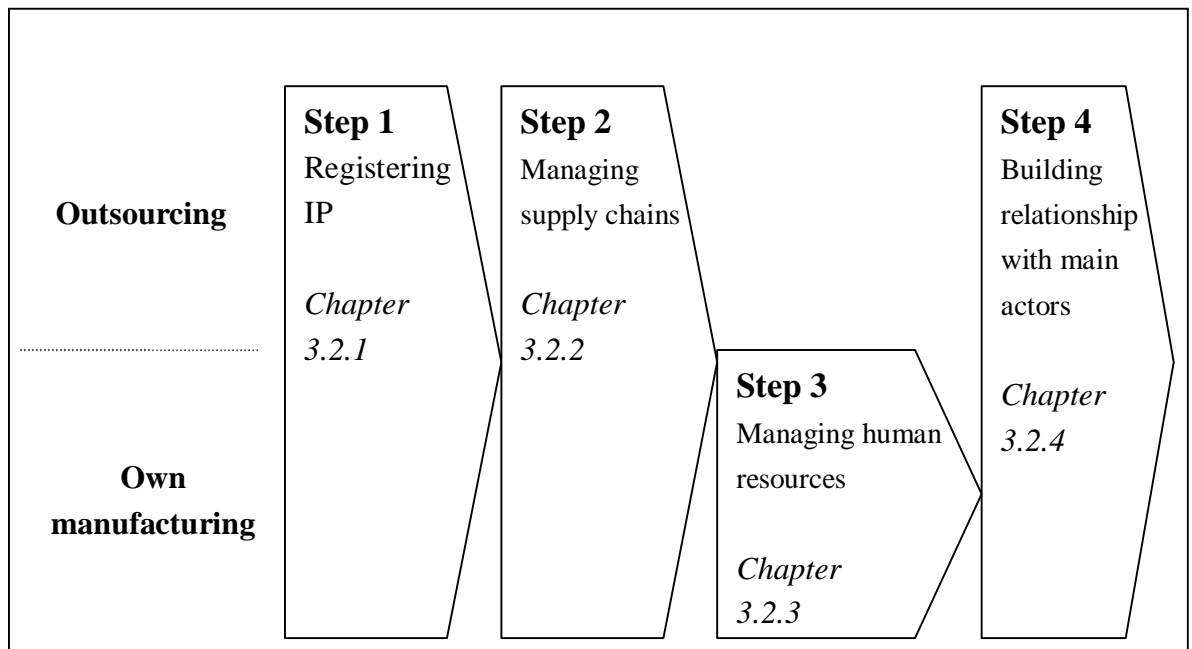


Figure 13 Four steps in the operation stage

In the operation stage, the steps of registering IP and building relationship with main actors for outsourcing and own manufacturing are exactly the same. The difference between outsourcing and own manufacturing in IP protection reflects in the step of managing supply chain and the step of managing human resources. After the same starting point in managing supply chains, the essential measure for outsourcing is to conduct regular audit while for own manufacturing is to establish a quality control system. Managing human resources has nothing to do with outsourcing, but it is one of the determinant steps for own manufacturing in IP protection. Chapters 3.2.1 to 3.2.4 will respectively explore these four steps. For both outsourcing and own manufacturing, in the first place what the foreign SMEs should bear in mind is that they should never ignore IP registration which is a prerequisite for claiming IP rights once infringement has to be encountered.

3.2.1 Registering intellectual property

A trademark and a patent should be registered before it is put to use (DeSouza & Cheong 2008; Redefining intellectual property value ... 2005, 51). The registered IP grants the IP owner legal protection rights to defend against unauthorized use by a third party (Hunter 2006, 67). Foreign companies which have a legal entity in China can directly file a trademark application to China Trade Mark Office. Other foreign

companies must select a trademark agent for filing the application. In reality, the registration of a trademark in roman letters cannot be well protected against the sound-alike marks in Chinese trademarks. Foreign companies should also find a sound-alike Chinese name for their trademarks registration either by translation or transliteration. Registered trademarks are protected for renewable 10 years. (Ordish & Adcock 2008, 116-123; Patent and trademark protection in China ... 2008)

As to patent registrations, three types of patents are available in China: invention patents, utility model patents and design patents. An applicant can file a patent application to the Patent office of State Intellectual Property Office (SIPO). Foreign companies have no habitual residence or registered office in China must file the application through a patent agent by the Patent Administration Department under the State Council. The application must be in Chinese language. The duration of registration procedure for invention patents is three to five years. The procedure for utility patents and design patents takes about one year from filing. Inventions are protected for 20 years. Utility models and designs are protected for 10 years. (Ordish & Adcock 2008, 109-112; Patent and trademark protection in China ... 2008; Road map for intellectual property protection in China... 2009, 8-10) More detailed registration procedures are illustrated in Appendix 1.

Foreign companies are able to enforce their legal rights, only after IP registrations (Redefining intellectual property value ... 2005, 51). In China the courts and the administrative authorities form a dual system for IP enforcement. The disputes can be either submitted to court or administrative authorities. (Ordish & Adcock 2008, 175-181; Wise et al. 2006, 490) Administrative actions include halting production lines and seizing large quantities of product, imposing fines and destroying infringing goods (Firth 2006, 22). Typically, administrative actions are faster and less costly than court actions. Due to the faster and simpler nature of administrative actions, many foreign companies have preferred to resort to administrative authorities in recent years. Administrative authorities are in charge of all kinds of issues relevant to IP infringement. Patent disputes are resolved by IP offices. Trademark disputes are resolved by the industrial and commercial bureaus. Copyright disputes are resolved by copyright bureaus. Customs is responsible for investigating and seizing infringing goods at China's borders. (Ordish & Adcock 2008, 175-181; Wise et al. 2006, 490) Appendix 2 summarizes the main government agencies for administrative actions and their responsibilities. .

Instead of first-to-use system in some countries like United States, China's national IP law is in accordance with TRIPs first-to-file system (Cohen 2009, 22-23; DeSouza & Cheong 2008; Firth 2006, 19; Redefining intellectual property value ... 2005, 51). Sometimes, foreign companies going to register their IP are surprised to find that someone else in China has already filed patents/trademarks on key elements of their

products or technologies, because they do not know that a patent/trademark is only granted to the one first to file (Reid & MacKinnon 2008). As they do not have the legal rights of the mark, they have to pay the pirate who registered that mark in China to get their rights back, even though they have been using the trademark for decades. One might argue that the foreign patent/trademark owners can sue the company for trade secret infringement. Nevertheless, in reality, to enforce trade secret is difficult, because it requires the plaintiff to give adequate proof and the claim is often not stronger than a patent/trademark owner (Firth 2006, 20; Yu 2006, 950). For these reasons, foreign companies must register their IP in China as early as possible and use IP registration as a basic measure for getting legal protection in China (Berman 2008, 195; Cohen 2009, 24-25; DeSouza & Cheong 2008; Firth 2006, 19; Reid & MacKinnon 2008; Swike et al. 2008, 499). In the first place, IP registration should be filled in geographic regions or destinations not only where companies are going to sell and use their technology, but also where companies currently or potentially would enter manufacturing relationship with partners (Bielski 2009, 1).

In an immature IP environment, IP registration is very crucial; otherwise the owner will be vulnerable to patent/trademark loss. Below is a case presented by China IP helpdesk expert Karin Beukel, an IPR specialist from the IPR Company specializing in doing IPR checks in China.

“...a company started sourcing a product in China from a sub-contractor without having registered their trademark in China. The sub-contractor registered the SME’s trademark behind their back. After a while the SME decided to move the production to another Chinese company as the sub-contractor could not deliver the expected quality. However, as the sub-contractor was the legal owner of the SMEs trademark they had to pay Euro 1Million to get the ownership of the trademark back (before they could move the production). Knowing that the trademark could have been obtained for less than €1000 if registered by the SME in the first place it seems like an unnecessary risk for an SME to take.” (Before sourcing in China ... 2009)

This kind of trick seems very common in sourcing from China, because another similar example is found in Ordish & Adcock (2008, 70):

“..., a European company sourced branded lighting from China, but hadn’t registered its trademark there. A Chinese company registered the trademark and threatened to take action against the European company for trademark infringement, which could have prevented the European

company from sourcing its product in China. A solution was negotiated, but it cost the European company a substantial amount of money and time.”

The real examples above indicate that not to file the application in time can cause the company to lose the control of its own trademark in China. Infringers try to take advantages of the first-to-file system. Often the foreign companies are pushed into a passive situation. They will definitely lose the law case if they want to sue the infringers. So they have to seek the possibility to negotiate with the infringers. If the infringers have no mercy on them, they have to pay large amount of money to buy for their own IP from infringers. But the worst case can be by no means the foreign companies are able to get their IP back and are accused of IP infringement. Hence, Lucy Nichols, Global Director from IPR Brand Protection of Nokia interviewed by PricewaterhouseCoopers on January 2005 gave the following conclusion:

“When companies have not registered their rights in China, it is legal for a counterfeiter to recognize that omission and seize the opportunity by filing for protection themselves, which could keep the legitimate brand owner out of China. If the brand owner later decides to enter the China market, then the counterfeiter could conceivably sue the brand owner for infringement based upon its earlier registered rights.” (Redefining intellectual property value ... 2005, 51)

Likewise, the licensor may bear a heavy risk of IP loss if the manufacturing is in a licensing form. When the licensing agreement is terminated, the licensee has rights to exclude licensor from using its own trademark, once the licensee learns how to make the innovative product and register the trademark in that country ahead of the licensor. Then the licensor has to buy the trademark from the licensee. (cf. Gollin 2008, 278)

Moreover, what foreign companies should bear in mind for trademark registration are Chinese culture and mindset, which differ a lot from western culture (Chan 2008, 82). Most products given a Chinese name sell better in China. Some Chinese companies which register trademarks with a suitable translation of the names of foreign products gain competitive edge against the foreign companies which are the originators of the products. (Reid & MacKinnon 2008)

Usually Chinese people will create a Chinese nickname for easily referring to some product coming from abroad with no Chinese mark (DeSouza & Cheong 2008; Ordish & Adcock 2008, 122; Patent and trademark protection in China... 2008, 3). The Chinese nickname is like a word-of-mouth advertisement for the product. When the product is widely accepted by mass consumers, the nickname has the same function as a brand. The Chinese competitors of the similar products will benefit from registering that

nickname for trademark, while the western company which is the originator of the mark is often reluctant to do registration (Chan 2008, 82). Consequently, the new Chinese consumers will take it for granted that some domestic product with this trademark is exact the one which deserves the Chinese nickname. The following case telling about Pfizer's failure in trademark registration is a suitable example.

In 1998 Pfizer began to sell Viagra drug in China. The drug was already notable all over the world in China. The nickname of the drug "Wei Ge" which in Chinese means "great brother" was referred popularly by Chinese consumers and media, but Pfizer used "Wan Ai Ke" as Viagra's Chinese brand name in mainland China. Less than three months after Viagra was approved by the FDA (Food and Drug Administration) when Pfizer filed a trademark application to register Wei Ge, Pfizer found that Guangzhou Welman had already applied to register the Wei Ge mark for the same function as Viagra. Pfizer then sued Guangzhou Welman for trademark infringement and unfair competition, but the law case was ended up with Pfizer's failure, according to China's first-to-file system. (Chan 2008, 82; DeSouza & Cheong 2008)

All cases above have implied one of the most unpleasant experiences for foreign companies manufacturing in China where the business competition is so cruel that the new comers would feel breathless. Today, with the frequent close collaboration domestically and internationally, the likelihood of IP exposure to a third party increases. Such likelihood can also be in outsourcing case or in own manufacturing case:

"Many companies don't know where their products are actually manufactured, as a result of the use of sourcing agents, licensees, and distributors with manufacturing rights." (Ordish & Adcock 2008, 69)

In a hyper-competition environment, actors would like to be the first one to fill the IP application by any means (Kellberg & Nordisk, 2007, 35). The best defensive strategy against such kind of IP loss is to register the rights before the IP thieves (Kellberg & Nordisk, 2007, 35), for example, applying for registering the trademark in China right after they sign the contract with their Chinese partners (Ordish & Adcock 2008, 79). Nevertheless, registering IP does not mean everything for IP protection in the operation stage. Foreign managers should still take the practical precautions in their day-to-day operations to guard against infringement. One of the practical precautions is managing supply chains.

3.2.2 Managing supply chains

There are several measures to manage the supply chain. The starting point for both outsourcing and own manufacturing is to decide what and how should be manufactured

in China as well as what kind of provision measures should be attached to the product. Supply chain management includes controllable issues which are absolutely up to the company and uncontrollable issues which need to be collaborated with the Chinese partners. For outsourcing there are mainly uncontrollable issues to deal with, while for own manufacturing there are controllable issues since own manufacturing has physical presence in China. In this sense, for outsourcing, foreign managers should conduct regular audit, which emphasizes contractual obligations, to tighten the contractual relationship with suppliers (No trades in fakes ... 2006, 8; Ordish & Adcock 2008, 87; Technology transfer to China ... 2008, 4); for own manufacturing, foreign managers should establish a quality control system (Collins & Block 2007, 249). Figure 14 illustrates the differences of IP protection measures for outsourcing and own manufacturing in managing supply chains.

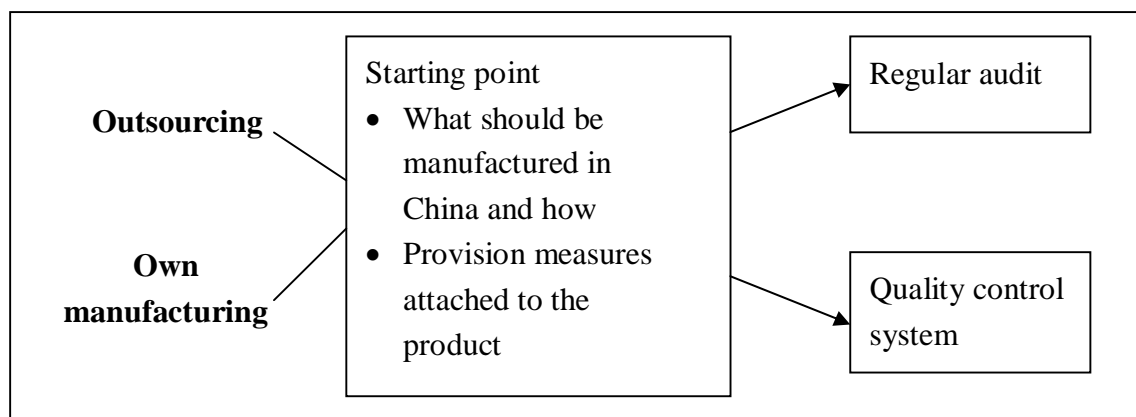


Figure 14 Outsourcing versus own manufacturing in managing supply chains

When thinking about what should be manufactured in China, first of all, foreign companies should draw a dividing line between what should be kept in house and what can be shared with their Chinese partners to ensure that the company's core competencies will not be lost. It is very risky for companies to manufacture in China components which require a lot of confidential information (cf. Ordish & Adcock 2008, 89). The lesson from some foreign companies dealing with contract manufacturing and joint venture production was that the Chinese companies without their foreign companies' consent delivered foreign companies' part of the agreed manufacturing output after they got the initial know-how to start with the production (Trott & Hoecht 2007, 128). That is why Swike et.al (2008, 497) state more than once that many companies are reluctant to provide China with the latest technologically advanced products. Thus, the companies should keep key technologies, procedures and vital designs or latest-generation technologies in their home countries, especially in the

situation that the abroad market has a big potential of IP violation (Firth 2006, 21; Lieberthal & Lieberthal 2003, 80).

However, one exceptional case is that a foreign company which is 100% sure that it owns a sustainable competitive advantage with its IP does not need to concern too much about what should not be produced in China. The resource that supports a sustainable competitive advantage must contain four attributes: 1) valuable; 2) rare; 3) difficult to imitate; and 4) not substitutable (Barney 1991). For example, an innovative Australian design and construction firm of large and high-speed catamaran ferries (INCAT) entered into a JV with Hong Kong-based High Performance Ships Ltd. (AFAI). Although the formal IP protection was absent, INCAT managed risks associated with the potential dissipation of its IP and know-how related to its joint venture and shipbuilding activities in China. INCAT's IP includes firm-specific resources and capabilities that enhanced its ability to continuously innovate and market the product. The proprietary technology and know-how embedded and renewed generate capabilities to sustain IP. Ultimately, the competitive advantage, reflecting combinative competency of the firm, becomes an unconventional approach to IP protection. Such a strategy would seem to be especially valuable in a company where the importance is not yet attached to IP protection mechanisms. (McGaughey et al. 2000) The secrecy that surrounds formulas used by iconic brands such as McDonald's, Kentucky Fried Chicken and Coca-Cola is another example of using sustainable competitive advantage to keep the infringers out of the game.

If the company really has a great need in manufacturing products with key procedures and technology in China, one approach recommended in the literature to avoid leakage of core competencies and critical IP is modular manufacturing. Modular manufacturing, favored by foreign companies in automobile and power equipment industries (Staying ahead of ... 2005, 19), allows the company to compartmentalize the production process on a modular base and to allocate the separate modules to different suppliers in different locations for manufacturing, so that no single supplier can produce a complete product, because the suppliers of modules only engage in some of the assembly (Barrett et al. 2008, 210; Collins & Block 2007, 328; Firth 2006, 21; Rugman et al. 2006, 288; Staying ahead of ... 2005, 19; Technology transfer to China ... 2008, 4). And then all the finished modules are shipped to the company's offshore operations for final processing, i.e. assembling and testing (Staying ahead of ... 2005, 19). This approach, originally from militaries, called compartmentalization is used for protecting classified information. In this way, the most sensitive information can be highly restricted. (cf. Barrett et al. 2008, 210) Key functions and key components should be always developed and manufactured in-house. Likewise, integration and testing of modules in the overall system should be carried out in house. (Ordish & Adcock 2008, 89; Technology transfer to China ... 2008, 4) For example, there was a manufacturer of

state-of-the-art electronics products from United States. The company was eager to take advantage of low manufacturing cost in China, but at the same time feared that its patented technology would be stolen. Ultimately, the company manufactured the high-technology components and the low-technology components separately in United States and in China to solve the dilemma. (Yu 2006, 965) Also, when the foreign company communicates with Chinese partners about know-how, documents, customer relations, designs, strategies, update plans, the information should be restricted to “need-to-know” level. That is to say, the information provided to the factory should be the minimum amount which the required task is needed (Barrett et al. 2008, 210). Chinese partners should not be told if it is not necessary (Technology transfer to China ... 2008, 4).

Besides, some provision measures can be attached to the product, such as products upgrading and technical solutions. Products upgrading might be the most flexible strategy to fight both the pirates and the competitors, like what the old Chinese wisdom said “killing two birds with one stone” (Yu 2006, 951). Frequently upgrading the products and technologies is to create a moving target that the pirates feel difficult to counterfeit the products. That means the company should every now and then upgrade the products by many ways from redesigning packaging and labeling to enhance value and performance which can make the genuine products stand out from the fakes. (Shultz & Saporito 1996, 25) Improvement makes pirated products to be imperfect substitutes and convinces customers to pay higher price for the value-added genuine products. For example, software companies offer after-sale service, guarantees, free upgrades, and contests or give ways. (Yu 2006, 951) Only the customers who have purchased the genuine software products can download the updates, because the company developed the tool for verifying authorized use to prevent unauthorized downloading of software (Shultz & Saporito 1996, 25).

Technical solutions for anti-piracy are widely used. Technical solutions on a demand side have yielded an increasing number of devices allowing consumers, distributors, retailers and owners to distinguish the authentic products from the fake ones (Berman 2008, 195; Shultz & Saporito 1996, 25; Yang, et al. 2004, 464). As differentiation can be achieved through the packaging design and appearance (Griffiths 2008, 251), adding special features to the products, such as effective labeling and featured packaging is most commonly adopted as an anti-piracy strategy with some success (Yang, et al. 2004, 464-465). Raised lettering on packaging, foil label, special inks, numbered security labels and holograms etc. have been introduced to the products. The digitalized labels can trace the production date and manufacturer and differentiate the fakes from the genuine. (Shultz & Saporito 1996, 25; Yang et al. 2004, 464) For example, New Balance supplies its factory with labels with an embedded code (No trade in fakes ... 2006, 12). Nokia, the world information technology (IT) giant, used four layers of holograms on its battery (Ordish & Adcock 2008, 90). Other high-tech measures taken

by some chemical processing companies are using covert markers, monoclonal antibodies and hydrogen isotopes or ultraviolet and electronic signatures to unveil the ownership of the technology (Shultz & Saporito 1996, 25). In information technology area, the current technologies are now gradually making progress of preventing hackers attack information transmission over the Internet (Shultz & Saporito 1996, 25). Although thieves will imitate the very technologies to their counterfeits no sooner than the authentication of a product comes in the market place (Shultz & Saporito 1996, 25), the research findings have proved that the strategy of using technical solutions is particularly effective in China, Thailand and Turkey (Yang et al. 2004, 465). On a supply side, the technical solutions can discourage imitation. For example, radio frequency identification (RFID), one of the “track and trace” technologies enables the companies to find any customer buying counterfeit products. (Berman 2008, 195; Staying ahead of ... 2005, 19)

After the starting point, for outsourcing, the foreign company should activate their audit rights. The purpose of conduct audit control is to supervise and monitor the suppliers' ongoing performance (Bravard & Morgan 2006, 35; Dietz et al. 2005). Normally those factories which are subject to checks will do according to controls, procedures and standards; whereas those factories which are not subject to checks will go the opposite direction from procedures and standards (IP risks while... 2009). The infringements in the supply chain can be that the Chinese supplier sells the sub-quality products or overruns to the grey market and put the foreign company's product or frame design into its own product catalog (Collins & Block 2007, 327; Dietz et al. 2005; Ordish & Adcock 2008, 91). The scope of audit covers all that IP provisions defined in the contract (Technology transfer to China ... 2008, 4), but the main focuses are the overruns and the producing procedures. There are different ways to do audit, depending on the company's capacity.

It is good practice to pay unannounced visits to the service provider on a regular base to know what is actually going on. The company can also establish a policy to handle the products, fact sheets, know-how and overruns properly. Often the infringement is caused when the overruns are misappropriated. A reporting system for production overruns is very necessary for foreign managers to know where the overruns have gone. The system requires suppliers to do bookkeeping about the quantities manufactured, confirmation of destruction of overruns and so on. (IP risks while... 2009; Ordish & Adcock 2008, 87, 91) Besides, the company should access to the reports, agreements and records of outsourcing providers relating to specific activities, e.g. subcontracting (Bravard & Morgan 2006, 35).

Low quality of products is one of the problems that foreign companies are faced in China (Collins & Block 2007, 224; cf. Ordish & Adcock 2008, 91; Trott & Hoecht 2007, 136). As mentioned in Chapter 3.1.4, the low quality product is one of the types of

counterfeit products. Thus, quality checking is one of the tasks in audit control (Ordish & Adcock 2008, 91). Foreign companies that do not have offices in China can send personnel to China to do quality checking when the suppliers start to run the production (Collins & Block 2007, 225; Ordish & Adcock 2008, 91-92). Quality inspection should be made before shipment to the customers (Collins & Block 2007, 224).

For own manufacturing, one of the big issues which foreign manufacturers face is quality control because of the skill gap of many factory workers in China (Collins & Block 2007, 249). Different from quality checking, quality control (QC) is a systematic, comprehensive and thorough control through the production from the raw materials to end products.

It is unrealistic to expect each factory worker who does not have mechanical aptitude to do his/her own QC. In this case, most factories hire QC workers. But the limitations of the QC workers are that they only understand one type of test rather than the whole picture. Therefore it would be better if the QC task can be made as simple as possible for each worker. A QC system should be established which includes the data on the QC inspections on raw materials, QC inspection points throughout the production process and quality records of the finished products. Also QC can follow the requirements from the standards for quality management systems, e.g. ISO9000 and ISO9001. (Collins & Block 2007, 249)

Managing supply chains is one of the practical precautions for both outsourcing and own manufacturing in IP protection. Next, another practical precaution, managing human resources, a step which can significantly contribute to IP protection for own manufacturing will be discussed.

3.2.3 *Managing human resources*

For own manufacturing, apart from those issues in registering IP and managing supply chains mentioned above, managing human resources is the key of IP internal management to prevent the IP leakage. Foreign managers should put the security measures into human resource management to restrict the access to the valuable information. Also, they should control the knowledge and subsequent activities of recruiting or transferring employees. (cf. Wise et al. 2006, 514).

Human resource management is central to IP management, because employees are the biggest source of IP flowing out of the organizations (Gollin 2008, 150; Reid & MacKinnon 2008). In this chapter, the focus is on how to manage human resources for IP protection. Since own manufacturing has control over internal management, integrating IP protection measures into human resource management is crucial for own manufacturing in contrast with outsourcing.

In countries where IP protection has not been traditionally strong, managers and employees rarely have training or experience concerning IP protection. Managers often lack critical skill to recognize the potential value of IP and develop strategies for protecting IP. (Barrett et al. 2008, 35) It is fair to understand that in China sometimes employees may unknowingly leak the sensitive information to business partners, because they are not clear about what belongs to sensitive information and what does not. For example, in some situations, trade secrets are not willfully disclosed in marketing materials and sales discussions (Gollin 2008, 196). Sometimes, after work employees may discuss the business with friends outside the company (Reid & MacKinnon 2008). To avoid this kind of information leakage, companies should add IP protection mechanisms into their human resource management. (See Table 6)

Table 6 IP protection mechanisms in human resource management (Adapted from Norman 2001, 52)

	IP protection Mechanisms
Human Resource Management	<ol style="list-style-type: none"> 1) Appoint an information manager 2) Sign nondisclosure agreement (NDAs) and noncompete agreement (NCA). 3) Educate personnel about propriety data 4) Establish reward/evaluation program for IP protection 5) Physical access control

First of all it is very necessary to appoint an information manager from the foreign company side to control the information flow. The role of the information manager (IM) as states is to monitor and surveillance, compliance and consulting/advising. The IM should ensure that employees are well informed and educated about knowledge issues. Also IM should be certain that employees seriously comply with the guidelines and procedures in the knowledge protection system. Whenever the employees are in a circumstance that they feel vague about the knowledge protection, the IM may act as consultant to give advice. (Norman 2001, 52-53)

Second, contractual mechanism should always be in place as a legal form to tighten security (Reid & MacKinnon 2008). When the company starts running recruiting process, human resource department should conduct background checks on key hires (Firth 2006, 21). Nondisclosure agreements (NDAs) and noncompete agreements (NCA), together with the employment contract containing personnel practices with good IP management, should be signed on the first working day of the new employees, because IP leaks commonly occur after an employee leaves a company and it is

unpredictable when he/she will resign the job (Collins & Block 2007, 327; Firth 2006, 21; Gollin 2008, 150; Reid & MacKinnon 2008).

Once such agreements are in place, foreign companies should educate their employees about these terms defined in the contract and make them understand the firm's confidentiality requirements to maintain the contract enforceable. (Firth 2006, 21) Education is extremely critical in the context of China's IP environment in which IP remains a young concept and the cultural customs are different (Reid & MacKinnon 2008; Yu 2006, 956). Professor Pat K. Chew from University of Pittsburgh School of Law analyzed a true story about New Balance. In the analysis, she discussed how cultural factors can weaken the effectiveness of IP protection for Western companies. As she explains:

“The contract may prohibit employees of the Chinese joint-venture partner from disclosing the American partner's proprietary information to ‘third parties.’ The Chinese, however, may define a ‘third party’ differently than American business practices. In China's collectivist, socialist, relationship-oriented society, the notion of outsider status may be quite narrow. For instance, cultural traditions would likely indicate that family members, ‘extended family’ members, close friends, party members, and state-affiliated companies and their representatives are not outsiders, and hence, would not be considered as ‘third parties’.”¹⁷
(Yu 2006, 956-957)

Chaw's analysis implies that the company could have educated the employees and local partner about the terms “third parties” and “extended family” to minimize the potential misunderstanding between two parties. Later, to reduce the confusion, the company had to abandon its new business strategy. (Yu 2006, 957-958) Establishing the awareness of such information is paramount. Education and training program should aim specially at educating employees about what information is sensitive and proprietary. (Norman 2000, 53) Too often, employees only get trained in IP protection during the orientation days when they become new comers of the company. Instead, the training should be concentrated on daily base. It is dangerous if the employees are in unclear circumstances of whether or not they are allowed to tell something about the company's business to friends during free time. (Reid & MacKinnon 2008) It would be

¹⁷ Originally from Chew, supra note 19, 58-59. The story with the additional facts was inspired by and improvised from the New Balance story described in Chew, supra note 19, 56-59 (See Yu 2006, note 262 & 263, 956-257).

helpful if the foreign managers regularly reinforce the message and redefine IP within the company's knowledge protection, since Chinese employees often fail to have the basic concept of IP (Reid & MacKinnon 2008), not because they do not want to protect IP, but because they do not understand why they need to protect such assets (Yu 2006, 958). Further, Norman (2000, 53) suggests that rewards and incentives can be implemented for protecting critical knowledge. Likewise, it would not be a bad idea for companies to use the same way for encouraging protecting IP, e.g. launch IP protection campaigns. It is more likely that IP awareness of the employees will be enhanced by participating campaigns and being rewarded.

Physical access control means that all the employees should have access only to the information relevant to their work. In most cases, to achieve this, the company should control the physical access to databases or printed documents, starting from taking steps on the operational side. For example, it should be impossible for anyone to walk into the production line to get the essential data such as line speed, production procedure and techniques. (Reid & MacKinnon 2008)

Examples related to physical access control are using security card and fingerprint to restrict irrelevant persons to access the company's building. There should be a system, which acts as a security guard, embedded in the company's building. The system can supervise every individual who is going to enter the gate by checking access. It can also monitor and record irregular behavior on the spot. (cf. Clark & Kennedy 2005, 69) Purdue Pharma is a pharmaceutical company with more than one hundred years history, whose IP protection strategy has been collected as a good example in U.S. Chamber of Commerce's toolkit for ant-counterfeiting and piracy. The company's IP protection philosophy is to combine as many viable security-maximization approaches as possible. This "multilayered approach to a multilayered problem" involves technology and human resource solutions for the production plant. According to Purdue Pharma's policy, to enter the plant, employees must (1) be in the company's database (2) show an ID card and (3) present a fingerprint that matches what the company has kept in archive to enter the most secure areas within the facility. Outside the plant, Purdue has armored vehicles equipped with global positioning systems (GPSs) and cellular technology to track movement, so that a hijacking will have no time to occur. (No trade in fakes ... 2006, 13)

In a word, establishing the whole system to integrate IP protection into human resource management is not a simple task, as it will not be effective if the company only has one or two mechanisms in the system (cf. Yu 2006, 958). However, the investment in putting up such system is realistic to foreign SMEs, because probably the system is much cheaper in China. Although in a short run, putting up such system will add costs to the company; in a long run it will bear fruit (cf. Yu 2006, 958). Thus, instead of being short-sighted, foreign SMEs should be positive, patient and persistent to the slow

progress. Working hard for securing trade secrets and IP related confidential information can reduce the internal risks of IP loss. Besides, the measure of building relationship with main actors should be integrated into managing supply chains and managing human resources.

3.2.4 Building relationship with main actors

Building relationship with the main actors in the business, organizations and authorities is parallel to managing supply chains and human resources. It can pave the way for IP protection. As mentioned before that *guanxi* (relationship) has a predominant position in Chinese culture, the high impact of *guanxi* in the business world has been over time, even today in China's new and fast-moving business environment. The essential part of *guanxi* is personal connection and loyalty which can be far above legal standards (Luo 1997, 45, 46, 48; *Staying ahead of...* 2005, 18). Although most foreign managers coming from the western countries may have trouble getting used to this concept, it seems unlikely that foreign companies will make a successful business if they pay no attention to construction and maintenance of good *guanxi* (*Staying ahead of...* 2005, 18). A good *guanxi* with local partners in the joint venture model can offer foreign companies the knowledge of doing business in China and help the companies to expand their markets (Luo 1997, 48-49).

According to China's culture, when two parties are bound by *guanxi*, they are more willing to have long-commitment to the *guanxi* than to lawful written agreement (Luo 1997, 47-48). As stated before that *guanxi* is based on trust, Hoecht and Trott (2006, 675) stress the important role of trust in the management of outsourcing relationship. They propose that trust-enabling approach and relationship management should be incorporated into management control approach. A good example can be taken from Ford Motor Company. Joe Wiegand, Ford's global brand protection manager points out that the key for their success is that Ford's relationship established with suppliers is usually more vital than anything, so the threat of losing Ford's business is enough for suppliers to reconsider their action when inappropriate activity is found (*No trade in fakes ...* 2006, 7). Also, considering Chinese cultural context, more trust is required to make business relationship work. On the other hand, once such kind of trustful relationship is established, the local Chinese companies will openly share with their foreign partners the knowledge and experiences about in what circumstances a company would lose its intangible resource like IP. The local partners' existing *guanxi* network with the government, suppliers, customers and competitors can supply indispensable support to foreign companies' IP protection when in the beginning foreign companies may have not yet built relationship (cf. Luo 1997, 48-49).

The coordination with governments, multilateral agencies, companies and different interest groups will increase the effectiveness of the strategy (Shultz & Saporito 1996, 23; Yang et al. 2004, 470). Networking with the government has vital importance in IP enforcement. It is the government who takes the leading role in conveying the message of IPRs and IP enforcement. (Shultz & Saporito 1996, 23; Swike et al. 2008, 499) To a certain degree, a healthy relationship with authorities can be a compensation measure to the inefficiency in IP protection framework (Han & Bader 2007, 5). Lobbying and cooperating are two ways to network with government. Those interactions enable foreign companies to have dialogues with authorities about their concerns and problems (Han & Bader 2007, 5). The weakness in the court system leads companies to lobby more frequently with government at all levels to implement IP law enforcement (Lieberthal & Lieberthal 2003, 79). Cooperating with government is to seek governmental supports and to exert a tightening legal enforcement influence on government. In order to increase governmental knowledge awareness of IPRs, Microsoft has established training institutes and supplied training to Chinese government officials. (Yang et al. 2004, 470) This strategy requires the company to establish a long-term relation with the government (Han & Bader 2007, 5; Yang et al. 2004, 470). Consequently, by providing detailed evidence, the company can persuade and assist the government to take essential action against the vast geographical spread of counterfeit products (Yang et al. 2004, 470; Wise et al. 2006, 515).

Networking with other companies or organizations operating in China, which have similar IPR interests, can share experience and take collective actions to exert pressure jointly both on pirates and on relevant organizations (Shultz & Saporito 1996, 26; Yang et al. 2004, 469). This strategy enables companies or organizations to learn from one another and undertake joint activities, such as educating consumer, retailers and government, monitoring and investigating suspected regions (Shultz & Saporito 1996, 26; Yang et al. 2004, 469). After many foreign companies started to recognize that legal approaches in China are not effective, they joined an IPR lobby group to send the right signals to business partners and customers (Staying ahead of... 2005, 18). For example, MU Plc. has established communications with a network of 'brand name' companies, such as Puma and Levis. They meet regularly to discuss the piracy problem and look for suitable measures together. (Yang et al. 2004, 469) The alliance with enforcement agencies allows the companies, organizations and other stakeholders as a united voice to share the best practice in reducing IP piracy with the Chinese government (Berrell & Wrathall 2007, 70). Companies which have been in China for several years understand the importance of developing relationship with four main enforcement agencies in charge of IP infringement: the Administration for Industry and Commerce (AIC); the Administration for Quality Supervision, Inspection and Quarantine; the General Administration of Customs; and the Public Security Bureau (police) (Staying ahead

of... 2005, 18). Other enforcement agencies, for example, Quality Brands Protection Committee (www.qbpc.org.cn) has more than 140 companies concerned with the counterfeiting problems (Berrell & Wrathall 2007, 70). Such international alliance is often forceful and effective. Collective actions generate the firms' persuasive powers with governments. Collective sharing not only save the cost but also reinforce the measures to fight with counterfeiting. (Yang et al. 2004, 469) Therefore building relationship with all the actors that are concerned can be regarded as one of IP protection measures in China.

3.3 Comparison between outsourcing and own manufacturing

The problems in China's IP environment are so comprehensive that there is no simple solution to overcome the challenges in IP protection. From foreign SMEs' side, what they can do is to establish an appropriate corporate IP measures to minimize the IP risks, so that they will not easily become victims of the IP enforcement in China.

This chapter as a central chapter of theoretical part is pertinent to the research question "*how IP protection in China differs in case of outsourcing and in case of own manufacturing*". The chapter divides the IP protection process into the two stages – preparation stage and operation stage for making comparison theoretically. The commonalities and differences between outsourcing and own manufacturing in IP protection is described in Figure 15. The overlapping parts of the circles show the commonality and the rest parts of the circles show the differences.

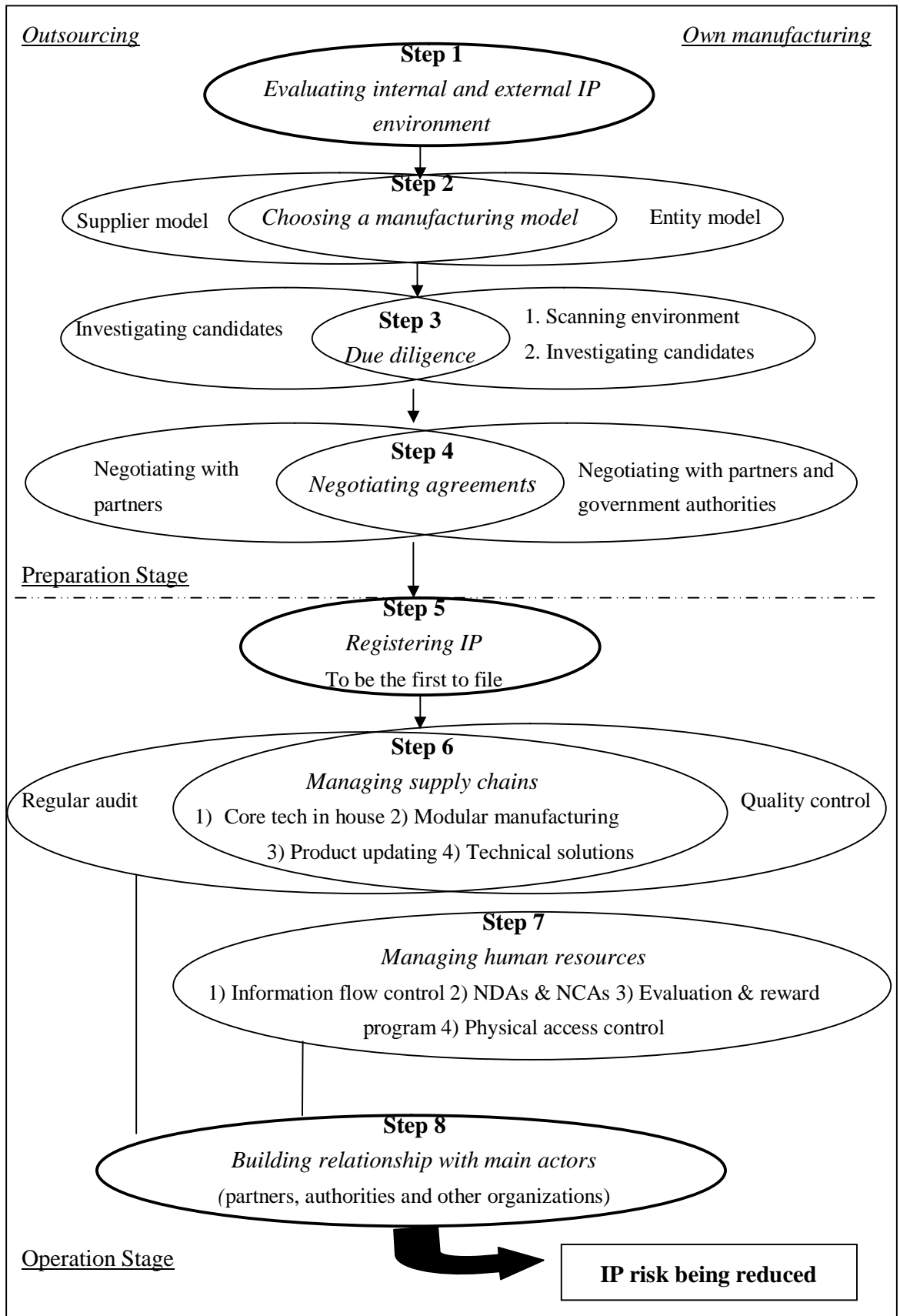


Figure 15 Outsourcing versus own manufacturing in IP protection

The common IP protection steps with common protection measures in outsourcing and own manufacturing are: Step 1 evaluating internal and external IP environment, Step 5 registering IP and Step 8 building relationship with main actors. In the preparation stage (Step 1), a systematic analysis model (See Figure 7) can provide a concrete picture for a company to know its readiness based on the company's situation for the IP uncertainties in China. Hence, certain threats can be prevented beforehand. In the operation stage, Step 5 is a prerequisite for claim the company's legal rights once infringements have to be encountered. And as China adopted first-to-file system, registering IP as soon as possible seems to be even more crucial. In Step 8, paying attention to the relationship with main actors in the business, such as partners, organizations and authorities, can pave the way for IP protection.

However, there are also differences between outsourcing and own manufacturing in IP protection. These differences in the steps (Step 2, Step 3, Step 4, Step 6, and Step 7) are the results from the characters of outsourcing and own manufacturing. Generally speaking, as own manufacturing is a long-time strategy and outsourcing is a short-time strategy, more consideration should be given to IP protection in own manufacturing than in outsourcing. The most obvious ones determined by legal and tax presence are choosing a supply model versus choosing an entity model in Step 2, and negotiating with Chinese partners versus negotiating with Chinese partners plus Chinese government authorities in Step 4. Furthermore, short-time strategy, no investment, no legal and tax presence and no operational control power give outsourcing the maximum flexibility, so the foreign managers do not have to conduct due diligence (Step 3) as critically as in own manufacturing. In contrast, as own manufacturing needs substantial investment, from both business perspective and IP protection perspective, foreign managers should conduct due diligence (Step 3) more carefully starting from investigating the potential location. Besides, without management power, in outsourcing case foreign managers cannot totally control IP in China. All what they can do is conducting audit in the supply chain (Step 6). Whereas in own manufacturing case, legal and tax presence together with operational control power make it possible for own manufacturing to have stronger management power to control IP risks in the day-to-day business, such as conducting total quality control (Step 6) and managing human resources (Step 7). Managing human resources, which can only apply to own manufacturing, is the most distinctive difference between outsourcing and own manufacturing. Managing human resources is one of the keys to ensure that IP and know-how will not leak. Foreign managers should put the security measures into human resource management not only to restrict irrelevant employees to the valuable information, but also to control the knowledge flow especially in subsequent activities of recruiting or transferring employees. (See Figure 16)

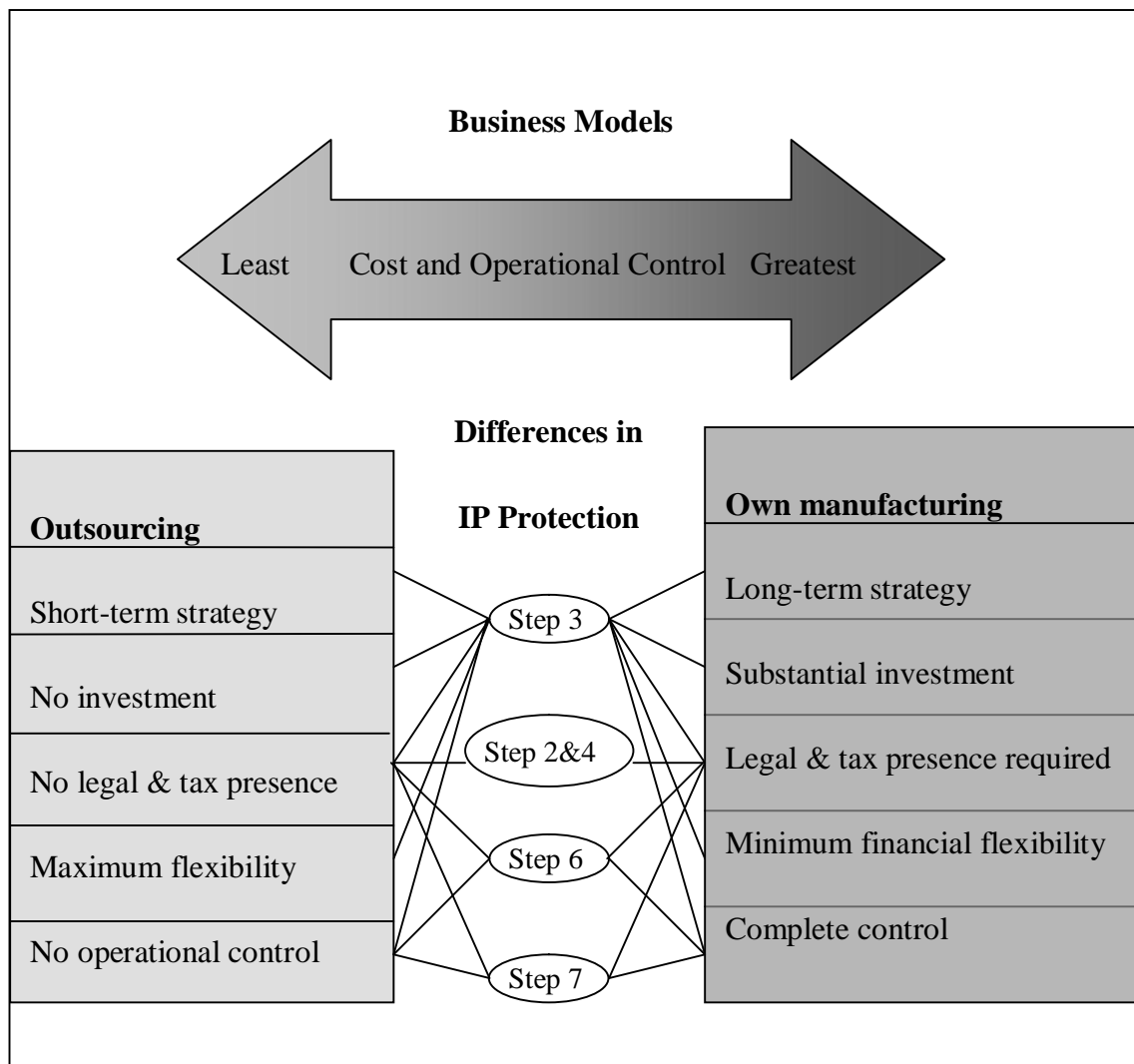


Figure 16 Differences in IP protection based on characters of outsourcing versus own manufacturing (Adapted from Manufacturing challenges: options for manufacturing, 2008)

So far the differences in IP protection between outsourcing and own manufacturing have been discussed from theoretical point of view. Next, in the empirical part, the theoretical model (See Figure 15) will be testified. The research of the case companies will reveal whether the theoretical model can apply to the reality. The aim is to have the new findings to develop the theoretical model. Prior to the empirical part, Chapter four, the research methodology chapter will tell how the research is conducted, how the case companies are selected and how the data are collected and analyzed.

4 RESEARCH METHODOLOGY

This chapter presents the research design of the study. The chapter is organized in the following order. The first part discusses about why using case studies as the research approach in this study. The second part describes the process of selecting the case companies. The third part explains the data collection method which concerns with how the interview question forms are designed, how the interviews are arranged and how the data are transcribed. The fourth part reviews the data analysis approach. The approaches and methods are justified. In the end, the trustworthiness of the study is evaluated by the four criteria: credibility, transferability, dependability and confirmability

4.1 Research approach

The main objective of the study is to compare *how IP protection in China differs in case of outsourcing and in case of own manufacturing*. In order to achieve the objective, two sub-research questions are framed:

- 1) How to protect IP in preparation stage?
- 2) How to protect IP in operation stage?

Qualitative research is of specific relevance to the study of social relations (Flick 2006, 11). In qualitative research, the information provides profound and provocative insights into thoughts, attitudes, intentions, and behaviors (Flick 2006). This study compares the differences between outsourcing and own manufacturing in IP protection in China. Thoughts, attitudes, intentions and behaviors of IP protection measures should also be the issues attached in this study. Moreover in contrast with quantitative research, the goal of qualitative research stated by Flick (2006, 15) is less to test the existing theory, but to have new discoveries and developments in building the new empirically grounded theories. So far, as there seems to be no existing theory of how to protect IP in China in case of outsourcing and in case of own manufacturing, it might be quite difficult and subjective to use quantitative research to point the answers to the questions only by the hypotheses from the researcher's own viewpoints. The aim of the empirical part is to understand the topic in the real life situation and then to build a new theory on top of it. Thus, qualitative research method was chosen. The advantage of using qualitative research for this study are that it takes all viewpoints and practices from participants into account, no possible answers are given in advance, people can feel free to give their own opinions, and there might be some unexpected findings.

The use of case studies is likely to fit better to the “how” and “why” questions, because the research can provide an insight of a real-life phenomenon (Yin 2008, 9-10). Rather than a methodological choice, the choice of case study approach is a choice of object to be studied. Instead of generalization, the function of a case study is to expand the understanding of a particular situation or problem (Ghauri 2004, 109; Yin 2008, 15). Especially in business studies, case study approach is used when the researcher need to dig deep into an issue, a management situation or new theory, and when the area of research is relatively less known and the researcher needs to build the theory (Ghauri 2004, 109; 111).

In this study, the research question and sub-questions are “how” questions. Since the research topic of this study has not yet formed a certain concrete theory in business literature, the research aims at building new theory. Based on the above reasons, case study is approach used in this research. In the case study approach, whether using a single-case design or a multiple case design is a choice that the research should make. In a single-case design, the analysis is within the case, while in a multiple-case design cross-case analysis is made to find the similarities and differences across cases (Eriksson & Kovalainen 2008, 130). How many cases should be studied is again strongly influenced by the research problem and research objectives. Often only one case is enough. (Ghauri & Gronhaug 2002, 177) The objective of this study is to compare the ways of IP protection in China in case of outsourcing and in case of own manufacturing rather than only to concentrate on either the case of outsourcing or the case of own manufacturing. Therefore, cross-case study was made for comparing these two kinds of phenomena.

4.2 Case company selection

For case company selection in this study, convenience and availability of the case companies are the basic principles. There should be two cases available for the research: one is outsourcing and the other is own manufacturing. In the beginning, criteria for case company selection were simply targeted the SMEs which own certain kinds of IP and either doing outsourcing or own manufacturing in China.

In the beginning of May 2009, my university, Turku School of Economics provided one outsourcing case Company A for me. The face-to-face interview was carried out in Company A in May. Managing director A was interviewed. The first impression of the interview left in my mind was that this case seemed to be a wrong one for this study, but I was not totally sure for that. After listening to the interview record again and again, I realized that the main problem of this case was that IP protection was not a major

concern for Company A according to the Company's business model, contract manufacturing.

Ghauri and Gronhaug (2002, 176) claim that in the case study interviewing the right individual from the viewpoint of research question and study variables is the most important issue. Also Flick (2006, 41) argues that the issue for doing qualitative research is the quality of cases but not the number of cases. He continues that the relevant questions are "which cases?" and "what do the cases represent or what were they selected for?" Moreover, Yin (2008, 47) proposes that one rationale for a single case is the case should be representative enough for testing a well-formulated theory, and thus can confirm, challenge or extend the theory's clear proposition or give more relevant alternative explanations. Therefore, for a case to be representative, I had to abort this case and reset the case selection criteria. In the new criteria, two additional requirements were added. One was that a contract manufacturer should not be taken as a case company. The other was the company should have relative high concern about IP protection, so that the case will have certain quality to meet the purpose of this study.

I told these criteria to my supervisor, thinking perhaps she would help me to find such companies. When I was waiting for the response from the school, at the same time, I was searching for the case companies myself. As a foreign student, I have limited information resource to look for the possible case companies. I wrote to Managing Director A, who I interviewed in May, hoping he could provide some company for me to interview. He gave me the contact information of Company A's partner company. I wrote to that person. He said he should forward my email to the person who was responsible for IP issue, but unfortunately I did not get further informed. Also, I tried to google the IP office in Finland. I found there was an IP Agency B which owned IP subsidiaries in Tampere and Turku. I told Managing Director B who was specializing in patent on the phone about my research purpose. She received my face-to-face interview in June. I expected that Managing Director B would also provide me some advice on how to protect IP in China from business perspective. But after the interview I realized that IP Agency B was actually more like an attorney agent than a business consulting agent. From the interview I got all the advice for legal issues. Although I could not utilize the interview data from Company A and IP Agency B in the empirical part of this study, but my efforts were not in vain. I got many ideas and thoughts from these two interviews.

After a couple of weeks, my supervisor told me that one Finnish company called Uudenkaupungin Rautavalimo Oy (URV) located near Turku area was a good one for my research. Again, with the help of my university, I got the access to interview Pekka Kemppainen, Managing Director of both URV and Meehanite Worldwide Corporation. He has many years experience in outsourcing to China. The other company was recommended by my supervisor. She found that company through Elinkeinoelämän

Keskusliitto's homepage. The company's homepage and several online media reports which I read showed that the company had own manufacturing and had been doing very well in China. It was very likely that the company was the right one for my research. I wrote to Managing Director Eero Pekkola, telling about my research purpose. Later after one month I called Mr. Pekkola and he immediately accepted my interview.

4.3 Data collection

According to Kvale (1996, 124), the purpose of a qualitative research interview is to obtain qualitative descriptions of the real world. The advantage of the qualitative interview approach is that researchers can view the research topic directly and also obtain unexpected insights of inferences and explanations through interviews (Yin 2008, 102). In addition, many qualitative interviews within business research study "what" and "how" questions (Eriksson & Kovalainen 2008, 82). Therefore, in the case study of this research personal interview was chosen as the method to collect the primary data. Two interviews were conducted for the case study: one interview for outsourcing and the other for own manufacturing.

Two interview question forms were separately made for outsourcing case and for own manufacturing case. As the empirical research was planned to be grounded on the theoretical part, the content of interview questions was designed based on the themes of the theoretical part. Under every theme, several questions were formed. The theoretical part made the proposition that managing human resources which can only apply to own manufacturing case was the most distinctive difference between outsourcing and own manufacturing in IP protection. As a result, the only difference between the two question forms was that the question form about own manufacturing case has detailed questions for managing human resource in theme 3.3, while for outsourcing case, there was only one question which asking the role of managing human resource from IP perspective. As the purpose of the case study is to expand the understanding of how to protect IP in China, the most common questions ask the interviewees to comment what went well and what could have been done better in each IP protection measure they implemented. The types of questions varied from very open ended to very close ones; from simple to complex ones; from direct to indirect ones; and from primary to secondary ones. Eriksson and Kovalainen (2008, 83-84) suggest that different types of questions play different roles: open questions can encourage the interviewee to provide more information; simple questions are easier to understand and answer; indirect questions are suitable for the questions which may cause embarrassment; secondary questions can move the talk further. Eriksson and Kovalainen (2008, 84) point out that researchers had better use several simple questions to replace one complex question, as

complex question is difficult for participant to answer. Therefore, when designing the interview questions, I tried to avoid using terminologies. Also, I tried to split the complex questions into several simple ones. Usually, the first question under each theme functioned as a leading question of the theme, so that the interviewees would understand what was going to be discussed about. Besides, attitudes toward some IP protection issues from the interviewees should be uncovered in the interviews. A few questions (e.g. Questions 8, 29, and 33 in both question forms) were made especially for serving this purpose. Additionally, knowing the interviewees' attitudes can make the researcher totally sure whether the case company is the right one for my research. For example, if the interviewee can tell the importance of managing supply chains (Question 33), it means that the company may have already implemented IP measures in the supply chain or at least the company has paid attention to IP issues. (See Appendix 3)

Before the interviews, the purpose of the research was clarified to interviewees by email a few weeks before the interviews. The interviewees would have time to get to know the research questions and the expectation of the researcher. The first face-to-face interview with Managing Director A was conducted in Company A on May 15 2009. It took about one and a half hours. The second face-to-face interview with Managing Director B was a 45-minute interview carried out in IP Agency B's Turku subsidiary on June 8, 2009. Although the data of the two interviews were not used in the study, the two interviews enlightened the researcher in understanding the IP problems in SMEs, and thus guided the researcher the way of conducting the case company interviews with Managing Director of URV and Managing Director of Oilon. The face-to-face interview with Pekka Kemppainen, Managing Director of URV was taken place in Turku School of Economics on July 7, 2009. The interview took around 2 hours and 15 minutes. The advantages of face-to-face interview are: it establishes a close relationship between the researchers and participants, it allows the researcher to observe the participants attitudes, feelings and reactions, and it takes the researcher as a participant to stimulate the dialogues in the interview (Flick 2006). The interview with Pekka Kemppainen was an informative one, because the research topic of common interest draws the relationship between the researcher and interviewee close. The weakness of the method is the quality of the data on a large scale depends on the researcher's skill to lead the discussion under the circumstance and to interpret the data (Flick 2006). Mr. Kemppainen's cooperative and positive attitude made the researcher felt free to specify the interview questions according to the company's situation.

Due to the fact that Eero Pekkola, Managing Director of Oilon, lives in Lahti and the economic restriction for the researcher to traveling away from Turku, the face-to-face interview could not be made. Also, Eero Pekkola would not like to use internet chatting software such as Skype, MSN or Yahoo. A cheap telephone interview through internet

was not possible. Again, owing to the economic restriction for the researcher, making a one-hour interview on the mobile phone was not possible. So the interview with Eero Pekkola was a combination of questionnaire interview and telephone interview. I sent the interview questions by email to Eero Pekkola on August 7, 2008. After about a week, I received his answers to the most of the questions. Then I read and marked those about which I was not clear. I sent the revised interview questions back to him and asked if we could make a 30-minute telephone interview to check a few of the interview questions and answers. The telephone interview was made on September 8, 2009. The language of two interviews was in English. In order to receive precise data, both face-to-face interview and telephone interview were tape-recorded. Meanwhile some field notes were made to enhance the quality of the data transcription.

The semi-structured interview is one of the forms of interviewing. In the semi-structured interview, the research may always have chances to change sequence and forms of questions and to follow up the answer or probe the questions deeper. (Kvale 1996, 124) The semi-structured interview was chosen as a tool for the research to uncover and analyze the participants' perceptions in this study. Compared to a structured interview, a semi-structured interview has more latitude. The way of conducting a semi-structured interview is more flexible than a structured interview. The semi-structured personal interviews enabled the researcher to gather descriptive data about how to protect IP from managing directors. Flick (2006, 168) mentions that according to the interview situation, researcher can make his/her decision to choose to ask the ready-made topics and at the same time to give the interviewees freedom to answer other topics relevant for them. In the interviews, the ready-made themes and tailored questions set the border of what to and not to ask. And meanwhile the semi-structured interview brought the researcher the possibilities to follow up the answers by asking some additional questions. The additional questions explored the company's current role in IP protection in China further.

In the end of the interviews, interviewees were asked to give comments about the two models: one was the model of evaluating internal and external IP environment (See Figure 7); the other was outsourcing versus own manufacturing in IP protection (See Figure 15). The interviewee's viewpoints were valuable for testifying the feasibility of the models in business practices.

4.4 Data analysis

The purpose of data analysis is to interpret the data and find out the linkages among all the elements in the data (Silverman 2005, 178). Before data analysis, the interview transcriptions were made. In order to guarantee the accuracy of the transcription, the

tape records were listened again and again and the relevant information on the internet about the case companies was checked. Coding is the most common technique for data analysis. The coding technique categorizes the data into concepts and themes (Ghauri 2004, 118). In this way, large amounts of data can be processed. According to the research purpose, theoretical themes and the cases of the study, coding was chosen as the technique for the case analysis. In case study, the preplanned thematic coding, where codes are derived from the theory, is most often used when the research is grounded in the existing theory and the purpose of the research is to improve or test the theory (Eriksson & Kovalainen 2008, 128). In this research, codes were based on the theoretical themes which were also embodied in the interview question forms. Data reduction is a process of selecting, simplifying, refining, abstracting and rephrasing the “raw” data (Miles & Huberman 1984, 21). During the coding stage, the interview data was reduced twice. In the first reduction, the content texts, in which the statements contain the same meaning or the statements were non-relevant, were skipped, and long statements were compressed into briefer statements. In the second reduction, the statements were generalized and the meaning was coded into categories. However, the one of the disadvantages of coding themes pointed out by Silverman (2005, 182) is that the categorized data draw researchers’ attention away from uncategorized data. Also Flick (2006, 356) claims that working mainly in relation to categories cannot make a thorough case analysis. To complement to the disadvantage of the coding technique, the data which did not fit for the defined category were put into a new category called “unexpected findings”. This technique was borrowed from Daniels and Cannice (2004, 200). They state that the row reserved in our coding for “new insights” or “unexpected findings” can make a strong methodology for theory building. However, Silverman (2005, 178) suggests that coding is the first stage of the data analysis.

After coding, data were displayed. Data display is an organized assembly of information which displays in different forms like texts, matrices, graphs, networks and charts (Miles & Huberman 1984, 21). Then conclusions were drawn and verified. According to Miles and Huberman (1984, 22), conclusion drawing is to decide the meanings, patterns, explanations, possible configurations, causal flow and propositions from data. They point out that verification refers to testing the plausibility of the conclusions.

The case analysis combined within-case analysis and cross-cases analysis, as the purpose of the research is to compare the differences between outsourcing case and own manufacturing case in IP protection in China. Case analysis began with the analysis of each individual case of the two cases. The overall idea of within-case analysis involving writing case descriptions is to insight each case as a stand-alone entity (Eisenhardt 1989, 540). The simple pure descriptions for each case were central to the generation of insight. The analysis was grounded on the theoretical framework. The case was

compared with the theory. The purpose was to find out the similarity and the difference between the case and the model.

Coupled with within-case analysis is cross-case analysis. Cross-case analysis targets for similarities and differences across cases and in contrast to theory (Eriksson & Kovalainen 2008, 130). One tactic of cross-case analysis is to list the similarities and differences between each selected pair (Eisenhardt 1989, 540). In this research, the outsourcing case and the own manufacturing case were considered as a pair. The first round of comparison was between the two cases. Then the preliminary results were made. Thereafter, a second round of comparison was conducted. The theoretical framework was again taken as a reference. The comparison was between the empirical results and theory. The cross-case analysis concentrated on the aspects which were dissimilar to the theory in this study.

The model, outsourcing versus own manufacturing in IP protection (See Figure 15), was very useful for making the comparisons in within-case analysis and cross-case analysis. From such comparisons, researchers can know how well a theory fits with the case data (Eisenhardt 1989, 541). The similarities in the comparisons are the evidence to verify the theory, while the differences provide opportunities to refine and extend the theory.

4.5 Trustworthiness of the study

The concepts of validity and reliability are commonly used in evaluating quantitative research (Riege 2003, 81). Correspondingly, the four criteria credibility, transferability, dependability and confirmability are used for assessing trustworthiness of qualitative research (Lincoln & Guba 1985, 300). These four criteria are also design tests of construct validity, internal validity, external validity and reliability to improve the quality of case study design (Riege 2003, 81). Based on credibility, transferability, dependability and confirmability, the trustworthiness of the study is discussed in the following.

Credibility is the construct alongside with internal validity (Riege 2003, 81). The twofold task to implement the credibility criterion is enhancing the probability that the findings are found to be credible and approving the findings by the constructors of multiple realities that the subjects of the inquiry have (Lincoln & Guba 1985, 296). Several ways to establish credibility have been applied in this study. First of all, in the research design stage, the researcher should already establish theoretical framework in which the research can be embedded (Lincoln & Guba 1985, 302). In this research, the interview question design (See Interview Themes in Appendix 3) is grounded on the theoretical framework. Also, as the research topic is related to China, the credibility in

this study can be increased by the native Chinese researcher, who may have an insight into IP phenomenon in China. Second, building trust is also a factor to establish credibility (Lincoln & Guba 1985, 303). Before the interviews were conducted, several contacts by email and by phone between the research and the interviewees provided opportunities to build trust. In the emails and on the phone, the research purpose was clarified specifically. More importantly, gratitude was expressed. Also, Turku School of Economics acted as a bridge between the researcher and the interviewees, because it has not only long-time relationship with some companies for the projects, but also high prestige in education circle and business circle in Finland. Third, triangulation including multiple methods of data collection, multiple sources and multiple approaches of data analysis is a technique to enhance credibility (Lincoln & Guba 1985, 305-307). In order to save the research expense but not at the cost of the quality of the data, the multiple data collection methods such as questionnaire interview and telephone interview were conducted in own manufacturing case. Thus, adequate information was obtained. Different sources of the same information were checked to verify the interview transcription. At the same time the secondary data such as company's presentation, homepage, brochures and articles on the internet regarding to companies' background and business activities in China provided a broad view to explore the cause and effect of the phenomenon in the cases being studied. The data analysis combined within-case analysis and cross-case analysis. Fourth, referential adequacy is a means to capture the data on real life event that could be examined and analyzed later (Lincoln & Guba 1985, 313). In this study, the interviews were recorded and at the same time field notes on some important issues (e.g. Meehanite's three different levels of information and URV supply chain management system in China) were made, in case the sound quality of tape records was low. The recorded materials and the field notes provided evidence where the findings were approved. Fifth, member checking can reduce the errors that occur in the research (Lincoln & Guba 1985, 314). During the interviews, the researcher summarized what the interviewees told and asked the questions which could follow up the discussion to make sure that there was no misunderstanding between the researcher and the interviewee. Besides, comments from the interviewees were asked on the overall IP protection model (See Figure 15). In this way, insights from the practitioners could be gained. After the interviews, the research made a few inquires by emails concerning some unclear issues.

Transferability is correspondent to the function of external validity. Different from quantitative research, case studies aim at analytical generalization rather than statistical generalization. (Riege 2003, 81) Transferability of the findings is an empirical matter. Transferability inferences can be made by a researcher who needs to know about both sending and receiving contexts. The transferability is ensured when the result can be transferred to other empirical and theoretical contexts. (Lincoln & Guba 1985, 297) The

well established theoretical model is the base of the transferability of this study. According to the theoretical model, the interview themes were tailored. When doing within-case analysis, the researcher compared the theoretical model with the evidence from each case to see whether they were fitting with each other or not. Also the same reference was used in cross-case analysis. The findings can be strengthened if empirical evidence about contextual similarity is found; otherwise the profound unexpected findings can remedy the deficiency of the theory. In addition, the thick description enables the transferability judgments to be made (Lincoln & Guba 1985, 316). In the study, the precise case descriptions tried to provide a database for readers to make transferability judgments.

Dependability is a similar term to reliability in quantitative research. Dependability can show the stability and consistency of the research (Riege 2003, 81). In other words, dependability is to what extent that the findings depend on the inquiry and empirical circumstances. First, in this study, the research problem was clearly defined and the research design embraced the research problem. Case study approach which can deeply probe the research problem was regarded as an appropriate approach according to the nature of the research problem. In order to guarantee that the cases would be representative, the case companies were carefully selected. Only the cases which meet the several pre-determined criteria were taken into account. Second, in the interviews, the interviewees openly talked what they were thinking about because they themselves wanted to know more about how to protect IP in China for their businesses. For example, they objectively commented the current IP environment in China, even not being asked. This point indicates that the Chinese researcher was an accepted member in the interviews. Third, the findings were concluded from the empirical evidence. The recorded data either in electronic form or written form mechanically developed case study database.

Confirmability has a close connection to construct validity (Riege 2003, 81). Confirmability refers to the same kind of findings could be corroborated by other researchers (Lincoln & Guba 1985, 319). The audit is to ensure that the data and interpretations of the study are not based on the researcher's personal constructions but on the events (Lincoln & Guba 1985, 324). In this study, self confirmability audit was conducted. Raw data, findings, interpretations and recommendations were examined. In particular, the logic between inferences and the data was checked.

Nevertheless, the biggest weakness in this study is that the research was conducted in English which is the second language of the Chinese researcher and Finnish interviewees. It might be not easy for interviewees to give answers in their second language concerning the interview themes. The accuracy of the understanding could be enhanced if the both parts were communicating in the same native language. In other

worlds, if the research had been carried out by a native Finnish speaker, more accurate and informative data would have been collected in a sense.

5 PROTECTING INTELLECTUAL PROPERTY IN CHINA: OUTSOURCING VERSUS OWN MANUFACTURING IN CASE COMPANIES

This chapter includes three parts. The first two parts are the case descriptions of two case companies: one is outsourcing case and the other is own manufacturing case. The third part is the comparison between the outsourcing case and own manufacturing case in IP protection in China. The information about the case companies is from the interview data. The secondary data from the company's presentations, homepage, brochures, and articles published on the internet are used to verify the primary data.

5.1 Outsourcing case company

Uudenkaupungin Rautavalimo Oy (URV) was founded in 1949. It owns a group of foundries offering all kind of iron and steel castings for machine building industry from own foundries in Finland, Estonia and Sweden as well as from supplier foundries mainly in China. The turnover from URV business was 33 million Euros and together with the subsidiary of URV in Sweden the turnover was 63 million Euros. In 1995, URV got a technology license from Meehanite. As a Meehanite licensee, URV is allowed to install Meehanite processes into the production, obtain technology supports from Meehanite and use Meehanite trademark for marketing. Normally Meehanite makes five-year contracts with its licensees, which are renewable year after year. The obligation of licensees is to protect the knowledge they are getting from Meehanite into the foundries. The ownership of the knowledge belongs to Meehanite. Like all other licensees of Meehanite, URV is not allowed to give other companies any knowledge which is owned and supported by Meehanite.

Meehanite was started in 1925 in USA. Meehanite has been specializing in worldwide known foundry technology transfer and distribution. Meehanite owns a group of companies which have know-how about casting manufacture and dedicate to improve foundry performance. Meehanite Worldwide Corporation is the owner of trademark, patents and all the know-how. Under Meehanite Worldwide Corporation, franchisers are Meehanite Metal Corporation in USA, Canada and Mexico, International Meehanite in EU, Australia, China and Korea, Meehanite Metal Company in Taiwan, Meehanite Metal Company in Japan, and New Meehanite & Meehanite Material in South Africa. These franchisers are getting all the knowledge from Meehanite Worldwide and licensing to foundries. Meehanite has its own internationally registered trademark also in China as a label of quality. Meehanite trademark is for an engineering process to make many types of cast iron. Meehanite business is directly selling castings

as well as licensing Meehanite trademark to about 120 foundries all over the world including those supply foundries in China.

Currently, URV is cooperating with more than ten supplier foundries in China. These foundries have not yet been owned by URV. Normally the contract is a three-year frame agreement. The cooperation was started in 2003. At the moment, the foundries have not yet reached the acceptable level that can be permitted to utilize Meehanite trademark. So far for these foundries who are suppliers of URV, URV is paying Meehanite license fee and taking it into account when purchasing the castings from the Chinese suppliers. Other foundries who want to get Meehanite licenses without being the important suppliers of URV have to pay license fee directly to Meehanite. This is how it works in all countries. URV also has URV China as a representative office run by Ms. Ma in China.

5.1.1 Intellectual property protection in preparation stage

Managing Director of URV and Meehanite Worldwide Corporation, Pekka Kemppainen, is an experienced one in foundry industry and in trademark business. Since 1993 when he was working in Meehanite, he has been to China for business trips for more than 100 times. He knows quite well about Chinese business environment and IP environment. As the customers in Europe, Japan and USA wanted castings from low-cost countries, URV started to do analysis on sourcing casting from low-cost countries. The analysis showed that castings from China were low cost, but at the same time they were also low technology and low quality level. The low technology and low quality would have a negative impact on IP. After some kind of risk analysis on how to manufacture castings in China, the conclusion was URV could not buy castings from China, because there was no guarantee of the quality. But URV could manufacture them in China according to Meehanite instructions.

“That’s why Meehanite knowledge is extremely important in China. And in future Meehanite trademark would also be more important as a marketing tool.” (Managing Director of URV)

Then the plan of outsourcing the manufacturing to China was made. In the step of choosing a manufacturing model, URV chose multiple-supplier model (See Figure 11) as its supplier model to source different components from different suppliers. URV has several suppliers which have different capacities and technologies. Usually, customers are demanding for different products. Each product is made up of a few components. There are products which contain the same components. When all the same components

are put together to be made in one foundry, a big volume can reach. Castings contain several manufacturing processes from melting scraps and pig irons to iron or steel castings. One of the strengths of multiple-supplier model (See Table 3) in production management process gives URV a full independence to organize the production process. With this model, URV can put all customers' similar products to the same process. The choice in URV's case indicates that there are factors other than IP protection such as industry, product, and management of production process determine the suitable supply model for the company.

As to the due diligence process, URV has been benefited from the network of Meehanite in China. Meehanite has its own office in Beijing. The Chinese lady, Ms. Ma was in charge of the Meehanite China office. During the due diligence process, Ms. Ma was together with URV's managers all the time going around the foundries, visiting the exhibitions and contacting the suppliers. They checked the economic background and other things of the potential companies. Finally URV found the reliable foundries which had a right type of technology, good background and the right people running the company. Therefore, Meehanite's supportive role between URV and Chinese foundries counts for much:

“Meehanite provides sourcing service to casting users. This is very important work between URV supply system and the Chinese foundries and also foundries in Europe.” (Managing Director of URV)

Later, URV trained the Chinese engineers who work in URV China to find the suitable foundries according to the product types URV has and the needs from URV's customers. After they found the candidates, Managing Director went personally with somebody else from URV or Meehanite to visit the site and check issues such as whether it was the exact foundry that URV was looking for, whether it had enough personnel, and what its existing technology was. When all these issues were ascertained, URV could make a contract with the foundry. The contract was confidentiality contract and intention letter to create the cooperation. Then they started to discuss the cooperation in details: for instance, price, products and delivery terms and so on. Thereafter, a comprehensive three-year or five-year contract was signed. In URV's agreements with partners, IP issues were taken into account. In the negotiation, URV resorted to Ms. Ma. She used to be a director of an exporting and importing company in Bei Ren Printing Machinery. She was making a lot of importing and exporting contracts. If URV later needs legal advice, URV has both Chinese expert and foreign lawyers who have worked several years case by case in China. Up to now, URV has had long lasting cooperation with the same Chinese casting suppliers since the cooperation started.

5.1.2 *Intellectual property protection in operation stage*

The trademark registration in China was done rather early in 1980s. The main trademark is “M” symbol and the word Meehanite has been registered. The trademark has also been registered in Chinese called “Mi Han Na”. Meehanite has an American company which is doing the renewal of the registration. Now Meehanite are registering a modern version of Meehanite trademark. Until now there has been no problem in registration.

According to Managing Director of URV, trademark registration has both the advantage and the disadvantage. The advantage is that it is much easier to tell the customers that these castings are made by Meehanite. The customers just need to check whether there is Meehanite trademark “M”. Then they can know that the products are followed with Meehanite standards. And after they understand what Meehanite is, then they will stick to Meehanite products. As a symbol of the quality, the trademark is helping the sales of the castings. The registered trademark is protected by law. The trademark owner can take the infringers to the court. The disadvantage is that once the trademark is registered, then somebody is always trying to copy Meehanite model because Meehanite trademark has become powerful and known. But Meehanite has been in the same situation everywhere in the world and Meehanite has been able to win in the legal processes. And since Meehanite is an old trademark also in China, nobody can say it is not Meehanite technology. However Meehanite trademark has no such troubles in China:

“We have not seen any problems. I think the biggest problem in China concerning IP could be if something really happens that somebody is starting to sell the products with Meehanite trademark to Europe and to USA, claiming that he is making and using Meehanite technology, and then we will take him into the court. That is interesting, but we have not such case in China. Not yet, hopefully never.” (Managing Director of URV)

During the cooperation, URV has no possibility to give away Meehanite’s technology secrets inadvertently to supplier foundries in China, because Meehanite has built up a system to keep the secret in house. The technology has been split into small parts. Except the Managing Director and the Vice General Manager, all the other people do not know everything. They only know one piece of information relevant to what they are specializing. The other thing is that Meehanite only needs to explain to the employees and foundries how to use the processes, but does not need to describe them in detail due to Meehanite’s three different levels of information. The first level

information is the one so called R&D data. The information of R&D data is for developing the process and so on. The R&D data are built to be the second level information – engineer’s handbook, so that new engineers of Meehanite can install the technology into a foundry. The part of the information in the engineer’s handbook is developed to be the third level information – installation documents, which are given to the licensees. Together with installation documents, there are quality assurance and statistical control formulas. In this way, all the processes in the foundry can follow with the process control. There is no need to tell about all the contents of the technology: why it works like this and what the key points are. So it is impossible for Meehanite to leak away the essential information to licensees and foundries. (See Figure 17)

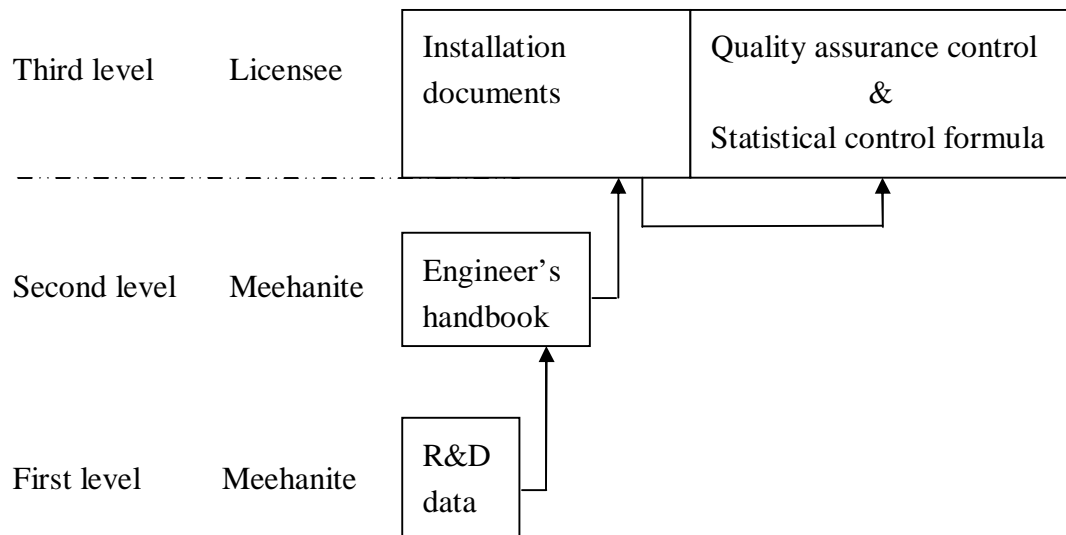


Figure 17 Meehanite’s three different levels of information

URV has also developed a system to control the supply chain. URV team in the foundry gives instructions to the supplier foundry in China on how to develop the process such as molding melting and finishing. Finishing includes heat treatment, surface painting and so on. The foundry builds the process, and then the Meehanite engineers from Europe come to install the Meehanite process. All processes are running by this way. URV engineers put the patterns and tooling into the process. URV has Chinese engineers from URV China to do quality control of the products. They will check the products at the end of the process. Chinese engineers will monitor the products and the castings, but at the moment not the processes. The processes will be monitored by Meehanite European engineers. Meehanite engineers make surveillance visits to ensure that everything is running according to Meehanite practices

There are Meehanite engineers, URV engineers and URV China engineers working together to get productions running. They have different roles. Chinese engineers do not know too much about the process, but Chinese engineers need to know enough about products and patterns. URV engineers will train the Chinese engineers how to control the quality of products. And Meehanite engineers go four times a year to the foundries in China to install the new process or do troubleshooting. The Chinese engineers are full-time there. URV engineers should go there every time when a new product is started or some problems occur. Meehanite engineers, URV engineers and URV China engineers have to work together at any time. It is a team work. (See Figure 18)

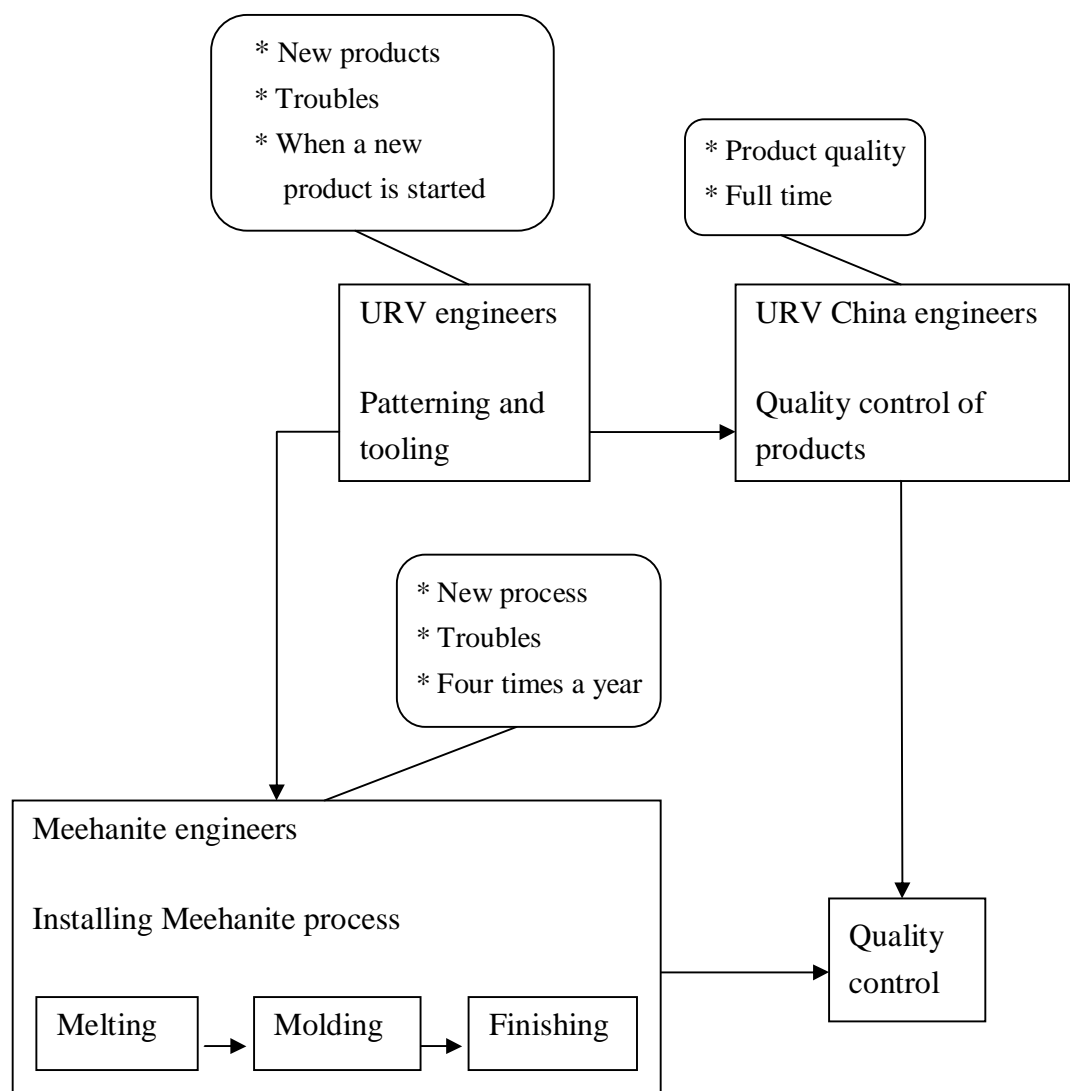


Figure 18 URV supply chain management system in China

Under such supply chain management system, URV does not need to tell the workers of foundries all the secrets. By knowing the given information, the workers of foundries are able to run the production, but they can not change anything. If the workers change something, for instance, if they change some raw materials, of course something will go wrong that they cannot understand. Then the workers have to contact URV engineers and ask. After the engineer asks the workers to change the raw materials back, everything will go well again. Usually, because of the lack of skilled workers in local Chinese factories to produce and develop products for the international markets, the dilemma faced by foreign companies is that either to sacrifice their production tools, know-how and blue prints to the Chinese suppliers or accept low quality products and long delays (Trott & Hoecht 2007, 136). In URV's case, such dilemma is smoothly solved by URV's supply chain management system. In order to give the customers worldwide the same guarantee, URV takes high responsibility for the quality of the castings in China. URV has been using Meehanite engineers in those foundries in China. Also Chinese technicians, URV engineers and specialists in China check everything, develop the whole process and help the Chinese employees to find out solutions.

From URV's business practices, building relationship is very important in China. It is one of strategies that URV has used in due diligence step for finding reliable partners. After the relationship is built, the reliable partners URV found when the business started will get other similar kind of partners for URV. For example, Mr. Miao was the first contact person who was trained in Meehanite Worldwide. That time he was a young engineer in some foundry in Shanghai. Finally he worked as a general secretary for China Foundry Association. He introduced and brought some other friends to Meehanite and URV. Another example is how URV found Ms Ma, who was recruited to work in Meehanite China Office since 1996. She understands international trading quite well and now also works in URV China office. She has good networks for URV to get other partners. Previously, Ms Ma was a director of Bei Ren Printing Machinery. Bei Ren has been a partner of Meehanite and URV. Also, Ms. Ma's family has been long time in the industrial business and has been the friend of Chairman Chen in Bei Ren Printing Machinery. Based on such background, URV was able to acquire Ms. Ma in a short time. Therefore, Managing Director of URV concluded:

“The old saying in China is ‘first to become friends and then to make business’. I really agree on that because how can you make business when you don't know so much (information or people) that you can trust. That's why I think the most important thing in starting a business in

China is to find reliable people first, because the reliable people will lead you to find other reliable ones.”

The important actors in China that URV targets in its business are owners, chairman of the board and top managers of the supplier foundries in China. The foundries which have been cooperating with URV do not belong to the old most important government-owned companies. They are medium-sized private companies, meaning that they are not fully government owned. The owners of the companies are private owners and other institutions. They have their own business plans. The reason why the medium-sized private companies want to cooperate with URV is that they are interested in getting more business, new type of products and advanced foundry technology. Now URV has good contacts through all these relations. Moreover URV used to work with Chinese government. They have regular meetings with the customers and suppliers. URV also tries to get involved in the governmental projects, though it is difficult to negotiate with those big companies which are government-owned. For instance, URV worked a lot with Shen Yang Machine Tool Company. It was a big government project to improve the whole foundry group.

The future plan for URV is to first increase the sales and then establish its own manufacturing in China for exporting and also for Chinese market; because Chinese machine industry market is growing very fast. If URV has its own manufacturing in China, URV will have stricter management in the factory to protect its know-how.

5.2 Own manufacturing case company

Family-owned Oilon Group was founded in 1961. It is an environmental and energy technology company specializing in manufacturing and marketing heat pumps, burners and solar heat collectors for heating of houses. Oilon has many years experience in the combustion of biogases and bio oils. It is also one of the world's biggest suppliers of combustion solutions for process gases and hazardous waste disposal plants. The annual turnover is over 44 million Euros generated by approximately 300 employees.

Oilon Group is composed of Oilon International Oy, Oilon Oy, Oilon Energy Oy, Oilon Home Oy, Ecopower Technology Oy and subsidiaries abroad. Oilon International Oy in Finland is the administrative parent company. Oilon has sales companies in Germany, Poland, Russia, Hong Kong China and Mainland China. Currently, China is one of the biggest marketing territories. Oilon has fastest-growing sales in China. The sales volume increases 30 per cent annually. It accounts for 15 per cent of the total turnover from Oilon. In 2007 Oilon was already one of the three largest burner suppliers. In addition to the own sales offices, Oilon has nearly 40 representatives all

over the world. Oilon Group's own manufacturing facilities are located both in Finland and in China. The Chinese manufacturing company, Oilon Burners (Wuxi) Co. Ltd, delivers industrial burners mostly in China and in other Asian countries.

Oilon's R&D goals aim at extremely low emissions, high efficiency, ease of maintenance and elegant design. As a result, Oilon obtained excellent achievements in emission reduction. Oilon owns both invention patents and design patents for specific burners.

5.2.1 Intellectual property right protection in preparation stage

Oilon started marketing its burners in China in 1993. In 2000, Oilon's sales started to be boosted by the strong desire from Chinese authorities to clean up Beijing's air before the 2008 Olympic Games. After two years of tremendous sales increase, Oilon decided to launch a burner production plant in China in order to respond to the fierce competition in Chinese market, because the goal of Oilon's sales in China was to become the market leader in its field.

The three main benefits of establishing own manufacturing in China that Oilon was considering were shortened delivery time, reduced production cost, and better service to the customers by being close to them. The lead time taking about five weeks by sea from Finland to China was so long that every company should potentially pay the extra cost. Moreover, the production cost was much lower in China than in Finland. If Oilon wanted to sell high volumes of small-scale classes of burner, the sales prices had to be lowered by reducing production costs. However, the decision took a long process, including several feasibility studies and investigations, though Managing Director of Oilon had some early experience from China. The top managers arranged several meetings to discuss this project from every aspect. They also thought about everything such as how to protect IP, what could be produced in China, the legal entity model of the factory, and where the factory could be located and so on.

The factory assembles low emission oil burners and gas burners ranging from 1-8 MW. They are small-scale classes of burners mainly used by industry and power plants. The factory is a joint venture (JV), in which Oilon has a majority holding alongside Finnfund and Hong Kong-based Charter Technical Services Ltd. Both Finnfund and Hong Kong-based Charter Technical Services Ltd. are Oilon's partners from Finland and China. Finnfund is a Finnish development finance company. Hong Kong-based Charter Technical Services Ltd. is Oilon's long-term business associate in the Far East. In the JV, Finnfund is an important shareholder and a Hong Kong person owns a very small share. Therefore the JV is mainly between Oilon and Finnfund. Oilon has known his JV partner Finnfund quite well. Finnfund has been offering its services to

Oilon for many times, so Oilon has long-time relationship with Finnfund. Also, Finnfund is a state-owned enterprise (SOE), so according to Managing Director everything of Finnfund has been crystal clear to Oilon. It was easy for Oilon to make the decision to establish JV partnership with Finnfund. The advantages in JV model are: a quick start, low cost, operational synergy and risk-sharing. Oilon's initial idea of choosing the JV model were for sharing the risk and burden of the investment with a partner as well as for getting a quick start in Chinese plant. However, in fact Oilon has also achieved operational synergy effect in the JV. So far Oilon has been very happy with the JV model:

“Finnfund’s investment help was important because we started several other new operations at the same time as our Chinese plant. Finnfund has been a good partner. It has clear goals and it knows how to groom companies to reach their own goals.” (Managing Director of Oilon)

In May 2002, Oilon's assembly plant was launched in Wuxi National High-tech Industrial Development Zone which is an area hosting many European, American and Japanese industrial companies. One of the reasons for the location was that the development zone offered convenient locations, modern developed infrastructure, rich human resources and efficient management and services. Another reason was Oilon had Chinese partners in Wuxi.

The negotiation process was not complicated in Oilon's case. Local Chinese people from Wuxi National High-tech Industrial Development Zone organized all the negotiations with the Chinese officials. Oilon made the agreements in which IP provision clauses were included with the Chinese officials as well as all the partners that Oilon deals with. Up to now everything is fine.

5.2.2 Intellectual property right protection in operation stage

Oilon's patent was registered in China before Oilon entered China. From Managing Director of Oilon's eyes, IP registration is very important since Oilon has made a lot of efforts to develop its products. The advantage of IP registration is that it protects those contributions which Oilon has made. Managing Director made no comments about what kind of disadvantages that IP registering brought to the company. He said that Oilon did not have any difficulties in registering IP in China.

As to the supply chain management, the company made a clear plan of what could and what could not be manufactured in China. For IP protection reason, Oilon's Wu Xi factory was designated only as an assembly plant. Oilon manufactures key components

in-house and ships to China. Oilon's own purchasing organization is responsible for purchasing the spare parts from the different suppliers. In this way, the production process can be divided into many small parts. Thus, it is more difficult for violators to copy the whole product. The approach that Oilon used in the supply chain is modular manufacturing (See Chapter 3.2.2). Modular manufacturing enables the company to secure the core technology in the supply chain. Besides modular manufacturing, Oilon's controlling over the supply chain is based on the agreements with all the suppliers. In order to check the suppliers' commitments and guarantee the quality, each spare part is carefully examined before suppliers delivering.

Oilon's philosophy of human resource management from IP perspective is to let the employees be motivated enough, so that they would like to work in the company. The employees who are well motivated, they would like to work hard for the company. Otherwise, if they are not happy, the employees can do such things which bring more troubles to the company in a long run as well as to the company's IP. Therefore Oilon tries to treat the personnel in China as well as it does in Finland. Furthermore, Oilon works a lot for protecting the company's secrets and core competence. Explicit rules and policy are made. For example, the documents sent to China are limited to very small amount. The key persons are required to sign a confidentiality agreement with the company. The market is followed all the time and all discrepancies are reported. The shared access to database is only to the departments which have the regular use of the data.

Oilon has built personal relationship with the suppliers when suppliers have worked with Oilon for a long-time. Building relationship with partners is meaningful for Oilon to implement the agreements. Good partners respect the IP rights. Through hard work during many years, Oilon built the relationship with the important actors: the clients, energy production companies and boiler makers. Managing Director of Oilon has been 50 times to China. Oilon's sales people have been more times to China. Also Oilon's personnel in Wuxi have traveled a lot.

When Managing Director was asked about "How does the IP strategy match IP uncertainties in China?" he said that everything had been working well until June 2008 when Oilon had a conflict. One company just took some of Oilon's brochures in the exhibition or somewhere and copied Oilon's products. Then the company started to offer the exactly same products to the same clients as Oilon has. Even the brochures were copied as well. Managing Director was angry when talking about the infringement happened to Oilon. He felt that such thing was unavoidable even Oilon had tried hard to protect its IP:

"This kind of things happened all the time in China. I don't know. Actually, we try to protect everything. If somebody wants to copy and

does not care anything about patents, we have no other possibilities to protect our IP except going to the court.” (Managing Director of Oilon)

The company which has infringed Oilon's IP is one of Oilon's competitors. The company is in the same business area and has the same clients as Oilon. Oilon has visited the company three times to ask the company to stop copying. The conflict has not yet been solved.

5.3 Outsourcing versus own manufacturing

The IP protection measures in both cases are almost correspondent with the model which was framed in Chapter three (See Figure 15). In the preparation stage, the two companies evaluated the environment seriously. They understood the opportunities and challenges in China. Their previous work experiences with China contributed to their decision making. Thereafter they chose a supplier model or an entity model. In the due diligence step, investigation was made. In URV's case, the investigation included a real audit on site, technical audit, management audit and financial audit to get to know the partners and sites better. URV also benefited from the Meehanite's China contact. In Oilon's case, the due diligence step is simple, because Oilon had certain relationship with the partner before. In the negotiation, both of the case companies put IP provisions in the agreements. In URV's case, Ms. Ma on site assisted the negotiations. It is advisable that the company should have own team which specializes in know-how protection and Chinese law on site (Technology transfer to China ... 2008, 2).

In the operation stage, both URV and Oilon registered their IP in China before they started producing in China. In the supply chain management, what URV and Oilon have done is to keep the core technology in house and control the quality. In accordance with the model, Oilon uses modular manufacturing. However, the difference from the model is that URV has a team on site to take the responsibility for the supply chain management. The team contains Meehanite engineers, URV engineers and Chinese engineers who act three different roles in the supply chain management. These roles are processes up-dating, ramp up quality in products and continuous improvement. Owing to Meehanite knowledge management system among licensees and foundries, such supply chain management can be realized. The supply chain management has brought at least two advantages of protecting the company's know-how and key competence. First of all, based on this system, URV does not need to tell the content of the technology to the foundries. The foundries can just follow the instructions about the process control. If there are new products from the Meehanite's competitors coming to their process, they will be unable to make them. Thus, they cannot directly work with URV's customers.

And also it is impossible for them to copy and make the similar products to URV's, because they do not have the technology. Second, it is difficult to find qualified foundry engineers in China. However, with the team on site, the quality of the products can be guaranteed to meet the Meehanite's standards. When each new product starts, Meehanite engineers, URV engineers and Chinese engineers cooperate together to support the production in foundries in China. The Chinese engineers are all the time on site, controlling the quality in the foundries. The high standardized quality products can let the customers easily recognize the Meehanite products from the counterfeiting ones in the market.

In URV's case, the outsourcing is not sourcing products from a company. When talking about outsourcing people often mix these two forms of outsourcing. They think that outsourcing is to choose one factory out of all the factories which can make the product. Still, there is a little difference between them. Sourcing refers to simply buying from a chosen company. Subcontracting means that manufacturing the products together with subcontractors. Due to the situation of the foundries in China, URV cannot buy good castings from China, but URV can manufacture with subcontractors. Also, castings are not commodities like boots. Boots are without any technology. Casting is an industry which involves technologies, especially those castings with Meehanite trademark. Meehanite is not only a trademark, but also indicates a prestige because of the unpatented technologies and know-how that Meehanite owned. In casting production, process and tooling should be especially taken into account. Boots can be standardized, but concerning the castings they are always custom-designed special components. That is why URV has to have the team work in China. Of course, in the case of outsourcing, for the quality reason, having the company's own personnel on site to do quality control is the best (Collins & Block 2007, 225). Thus, in the revised IP protection model (See Figure 19), having a team on site is regarded as the additional IP measure indicating the difference between outsourcing case and own manufacturing case in step of managing supply chains.

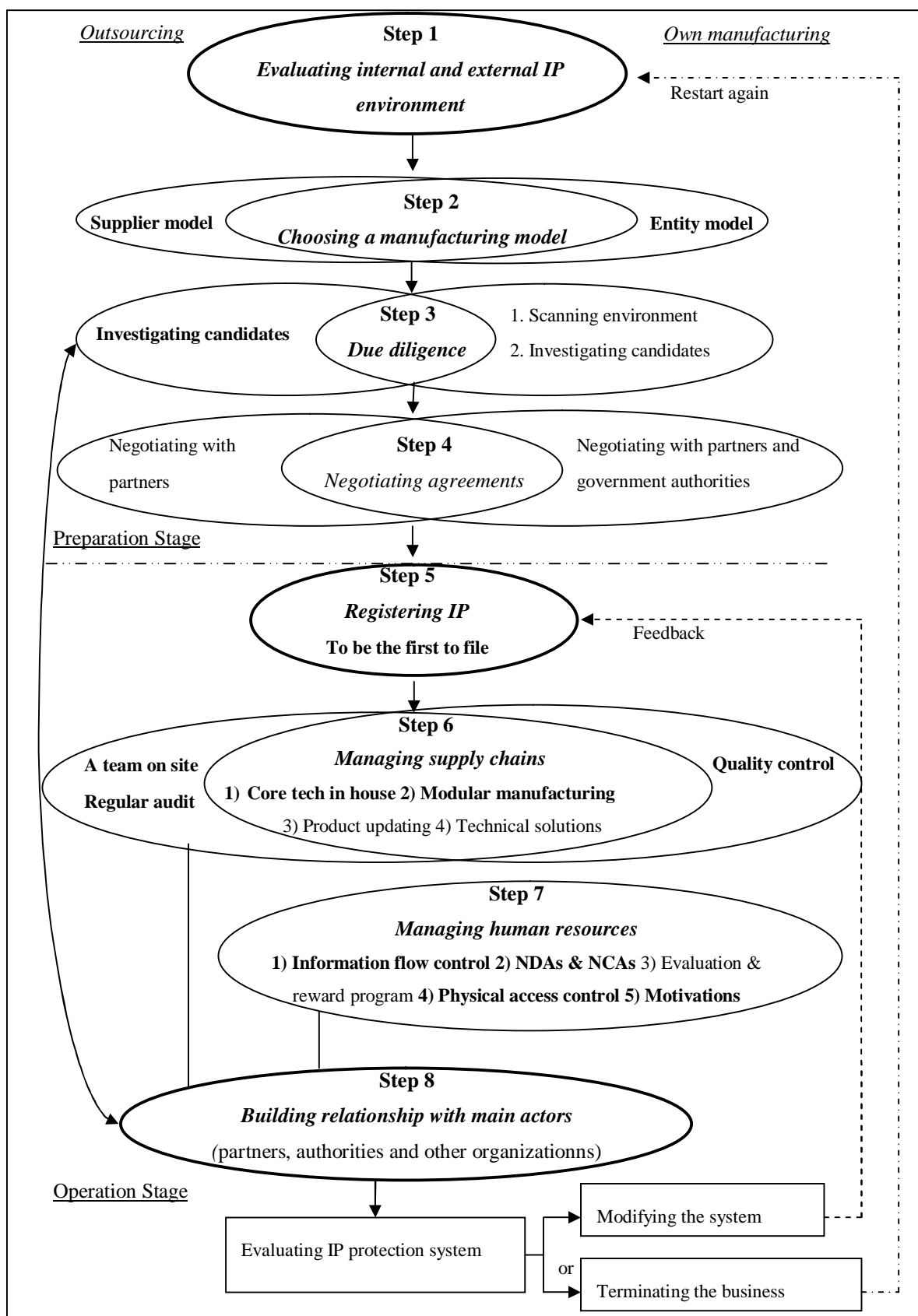


Figure 19 Outsourcing versus own manufacturing in IP protection revised model

Human resource management is the step only relevant to the own manufacturing case. Besides controlling information flow, signing confidentiality agreements with the employees and controlling physical access to database, Oilon motivates the employees to retain their loyalty to the employer, and thus to minimize the possibility of the employees' willfully leaking IP information. As Han and Bader (2003, 5) point out that "loyalty building with employees will be the key to prevent internal leakages", motivating employees can also be a reasonable measure for IP protection, though it was not included in the overall IP protection model (See Figure 15).

So far, human resource management in Oilon's case looks all right. But how could the Oilon's competitor copy Oilon's products? One important finding is that Oilon does not have effective knowledge management inside organization. All the brochures on Oilon's homepage (www.oilon.fi) are categorized by different product models. The homepage has been translated from Finnish into English, Chinese, Polish and Russian. In each brochure, besides the descriptions about the function of the product, the blueprint is presented. Also on Oilon's homepage, R&D column discloses the know-how, key technologies and procedures in the industry that the Oilon owns. From IP perspective, it is not recommended to put blueprints on the brochures and so detailed information about R&D on the homepage. Blueprint and R&D methods are the information needed for infringers to do reengineering. The company's brochures and homepage are commercial materials used only for marketing purpose. When the blueprint and R&D details are included in the commercial materials, then the risk of IP infringement increases. In order to decrease the possibility of such reengineering, Oilon should make more efforts to safeguard the critical information (e.g. company's know-how) against flowing into the marketing channel. Therefore, from human resource management side, the problem is not only from internal knowledge management system of Oilon's own manufacturing Wuxi factory in China, but also from Oilon's headquarter in Finland. And actually, the human resource management in China should have been even stricter.

In contrast, Meehanite has systematic internal knowledge management. Owing to the special relation between Meehanite and URV, URV has been taking advantages of using such relation for IP protection in China. In both outsourcing case and own manufacturing case, a company's internal IP management will also influence the company's IP protection in China. So it helps if the company tightens its internal IP management in the organization before outsourcing or own manufacturing in China.

On the other hand the companies should understand clearly what should be and what should be not protected, instead of trying to protect everything in Oilon's case. The understanding should not only on the surface level. On this point, the valuable advice that Managing Director of URV gave to foreign SMEs in China is:

“You have to build such a system how to control your own important knowledge. But the very important part of the thing is that you have to understand yourself which is the most important thing for your own company and product. However, many companies don’t even understand what the most important thing is. We need to protect only the most important thing. We should know exactly what to protect. If we think everything in our product is so important and we try to protect everything, it will fail. So we have to specify very carefully what it is. I think this is the most crucial and it needs to be a part of the business planning in China.”

Managing Director’s advice indicates that Step 1, evaluating IP internal and external environment, is a determinant step in IP protection. IP is the form of the company’s know-how and core competence. So the companies should know what their know-how and core competence are and make a strategic planning to protect them. Pitifully, many companies do not understand what to protect, because IP is so abstract to them. They think they have protected everything, but in fact they are not able to protect the most crucial thing.

In the step of building relationship with important actors, both URV and Oilon have been making efforts on building network with other companies. Perhaps, they can also think about to network with the government, other organizations and other companies for IP protection purpose. In URV’s case, establishing relationship with the reliable people and using them to find other reliable ones has saved URV big amount of time and work in the due diligence step. URV’s approach is quite same as suggested in the theoretical part that the foreign companies should first utilize their business network to find the candidates in the due diligence step. Additionally, the approach reflects another benefit from building relationship with important actors.

The main difference of IP protection in China between the outsourcing case and own manufacturing case embodies in the operation stage. The company, which has own manufacturing in China, needs to take care of human resource management while the company doing outsourcing does not need.

However, the overview of both URV and Oilon’s cases indicates that many factors influence the company’s IP protection measures, such as the history of the company; the characters of the company’s product; whether the company already has business contacts in China; and the type of IP that the company owns. Therefore every company should establish the IP protection system according to the company’s situation.

The unexpected finding in URV case and Oilon’s case is that the previous model for IP protection in Chapter three (See Figure 15) is incomplete. As in both cases, the biggest problem is that the managing directors did not know how to improve these

measures. That is why in the end of the interview, Managing Director of URV asked whether there were some new ways that could protect the company's IPRs better, and during the interview Managing Director of Oilon said that the IP infringement which the company had been encountering was unavoidable. In order to solve the biggest problem, an evaluation flow has been added into the previous model. The companies should constantly evaluate the whole model. When evaluating the model, they should collect the feedback from the Chinese market. After the evaluation, the companies can modify the IP protection system and send feedback to each protection step in the operation stage. In the worst case, the companies may terminate the business relations with partners. If the companies want to find the new partners, they should restart from the step of evaluating internal and external IP environment in the preparation stage. When they are going to looking for new Chinese business partners, the foreign companies can learn from their previous experience to have better solution for the similar situation in the operation stage. Through the evaluation flow, improvements will be made in IP measures. Therefore the previous model is extended to a revised one in Figure 19. And the IP measures which have been emphasized in the case companies are highlighted in bold letter in the figure.

6 CONCLUSIONS

6.1 Theoretical implications

Nowadays, more and more SMEs want to move their production to China for saving their labor costs. They have started to realize the IP problems in China. The area of this study is on how to protect IP in China. The purpose of the study is *how IP protection in China differs in case of outsourcing and in case of own manufacturing*. Outsourcing in this study means subcontracting manufacturing to a company. The study put an emphasis on manufacturing process. Although the area of the study is not brand new, the prior studies may have not yet touched this specific topic. The prior studies have mostly focused on how to react the counterfeiting in the distribution channels. Besides, contrary to the prior studies that have examined the IP strategy as a separate strategy from the company's business plan, this study has revealed the importance of putting IP strategy in place as a part of business strategy. The study has built up the overall IP protection model (See Figure 15) and compared the differences between outsourcing and own manufacturing in IP protection in China from the preparation stage to the operation stage. The model has integrated the IP strategy into the company's business strategy. The flow of the model has followed the procedure of business entry. It reflects the relation between IP strategy and business strategy.

Especially in the first step, evaluating internal and external IP environment, the proposed model (See Figure 7) provided an overall picture on how to link IP strategy to business strategy before taking any practical actions. The findings of the data indicate that the model is feasible in business practices. Nevertheless, in some SMEs, IP strategy and business strategy are regarded to be irrelevant. Some managers may think that taking IP strategy will add extra financial and management burden to the companies, so their IP strategies do not exist.

Through a series analyses, strategic planning of IP can be made. Apart from how to protect the company's IP, the company should know what to protect rather than protecting everything. If the companies are trying to protect everything, probably some important matters which actually should be protected will be ignored. Although the companies may realize that carefully selecting which products and technologies to be manufactured in China can reduce the chance of IP loss (Dietz et al. 2005), often what the companies will ignore is the protection of their essential knowledge, know-how and core competence. Without essential knowledge, critical know-how or core competence, the companies may not have the capability to create any IP. However, the prior studies have not yet attached importance to what to protect. Also, unlike the prior studies, in

this study IP protection measures are regarded as a whole. In the model, each step as the one component of the IP protection mechanism has been logically joined. Consequently, each step naturally paves the way for the next steps. For example, if foreign SMEs want to retain their audit rights in the step of managing supply chains, then such issue should already be placed on the agenda in the step of negotiating agreements. Later foreign managers can activate the rights in their supply chain management according to the agreement.

Moreover, the IP strategies from the prior studies are reactive strategies, which could merely be used when the IP infringement has occurred. Differently, this study stresses that SMEs should have own proactive IP strategies to avoid IP infringement, rather than all the time react to the damages. Thus, the IP protection model in this study starts with establishing an IP protection mechanism in the preparation stage. The findings also suggest that establishing an IP protection mechanism is of the utmost importance for both outsourcing case and own manufacturing case, because it can determine the direction of the following steps in advance.

Another contribution of the study is being able to answer the research question. From the literature and the findings, the distinctive difference between outsourcing and own manufacturing in IP protection is in the operation stage. For outsourcing, attention has to be paid in the step of managing supply chains. In the offshore outsourcing, far distance makes supply chain management more difficult. If possible, foreign SMEs should send a team to be full-time on site as what the findings have implied. For own manufacturing, both managing supply chains and managing human resources are the concerns. In human resource management, the basic principle is how to properly share the information internally and externally only on “need to know” base. That is the extent to which the information can be shared outside and inside the company. Besides, motivating employees is a way to minimize employees’ willful deeds of giving away the trade secrets of the company, as employees’ loyalty to the company can be increased by motivations. The unexpected findings uncover that well-managed human resources in the companies’ headquarters make sense to their IP protection in China too. In addition, how to improve the IP protection measures that has not yet been mentioned in the prior studies is proposed in the findings of this study. In the revised IP protection model (See Figure 19), the ongoing IP protection flow fills a gap of the prior studies. It is also a contribution to further research. The revised model can support the researchers to find the ways of how to improve the IP protection system of the company.

6.2 Managerial implications

Above all, foreign managers have to understand that in China the risk of the IP infringement is a fact. China is now in the phase to speed up the industrial development. Many other countries such as Japan, Korea as well as Finland went through the same phase after the Second World War. They copied others' products aggressively to push the domestic industry ahead. Foreign managers should not only wish that everything will go well in China, but also proactively establish IP strategy. The IP strategy should be capable of forming an IP protection system for keeping the important knowledge in hand.

The findings suggest that managerial action regarding to IP protection can vary from company to company, depending on the company's history, product, finance and business strategy. For example, the companies in high-tech industry may concern a lot about IP protection. The companies which cannot afford the cost of IP protection may not take IP protection measures. In some companies, IP protection may not be needed, because the products have a very short life cycle on the market. In some companies, foreign managers might be in favor of market-focused strategy than IP protection-focused strategy, as they think IP protection is not profitable for them. The given model (See Figure 19) on *how IP protection in China differs in case of outsourcing and in case of own manufacturing* can only be taken as a reference if foreign managers are thinking about moving their production line to China. Foreign managers should have an own IP protection mechanism according to the company's condition. On the other hand, although foreign managers should take IP protection as a part of their business plans, IP protection should not dominate the business plan.

As to establishing an own IP protection mechanism, evaluating internal and external IP environment by a series of analyses is the determinant step. The most crucial issue for foreign managers is to analyze their own industries, products, business concepts and competitive advantages. What is the key knowledge? What are the business secrets? Which are the most valuable intangible assets for the company? IP looks quite abstract, but the concrete things which form IP are the company's know-how, core competence and competitive advantages. After that the company has actually analyzed what their strengths and weaknesses are. Then they can know what to protect and build up the IP strategies. This is the first step in the preparation stage which has been described in Chapter 3.1.1. In addition, in weak regimes, IP environment is not static. China is an emerging market, where the business environment is changing rapidly. As explained in Chapter 2.2, IP environment is within business environment and influenced by business environment. Today, China is in the transition phase aiming to transform from a manufacturing country to an innovative country. Chinese government has been step by step establishing the healthy IP regimes. The foreign managers should realize that in

this transition phase, IP protection in China is dynamic and ever changing. It is wise for them to often make adjustment of their IP strategies in China. If foreign managers can do well-prepared strategic planning for IP challenges in China, then very likely most mistakes in IP protection will be avoided. In strategic planning of IP, foreign managers can start from tightening the company's internal IP management. The effectiveness of IP protection in China is very much related with the company's internal IP management. A concrete internal IP management should be extended to the safety of the company's essential know-how, knowledge and competence.

Furthermore, IP protection is an on-going process. Foreign managers should establish an evaluation system to find out the problems in the IP protection process in China. Sometimes IP problems might exist even no problem has been seen. The worst thing is that the companies still take for granted that they have high level of IP protection when infringers are attacking them. With an evaluation flow, unexpected problems in IP protection system can be exposed. The results from operation stage give valuable feedback on how to improve the current strategy. In the on-going IP protection process, the foreign managers' attitudes toward the IP environment in China will more or less affect the effectiveness of their IP management. The foreign managers who complain too much about why China does not respect IPRs may not be able to find out the problems in their IP protection system even when infringements occur, because they think that the situation in China should change. Only with the proactive attitudes, the company's on-going IP protection process can be put forward.

6.3 Limitation and further research

The study has a few limitations. First, the study assumes that every product needs to get protection and every SME wants to have strict IP protection, so in this study IP protection has been set as a priority in every decision making. However, in business practices, the companies would consider multiple factors; for example, in deciding whether or not moving the production line to China.

Second, due to the unavailability of the cases, the case companies of outsourcing and own manufacturing are not in the same industry. Besides, URV is the licensee of Meehanite, which gives URV's strong supports in technologies and in IP protection. But Oilon is not the case. IP protection strategies rely on the company's history, business model and products. Of course in the research, it is impossible to find two companies which have the same history. But in this study, the case companies in different industrial areas and business models may also hinder the researcher to narrow down IP protection to a certain industry. If the cases were in the same industry, the empirical data would be more comparable and findings on IP protection in a specific

industry could be acquired. Third, the two case companies in this study do not belong to high-tech companies. IP would be more important to a high-tech company or a research-based company than a pure manufacturing or a supply company.

The current study is a starting-point for researchers in social science field to examine and verify the findings within this study. Ideally, in further research, if researchers can focus on the comparable cases of outsourcing and own manufacturing in a certain industry, more findings straight to the research question can be obtained. Also, in order to find out how to improve the company's IP protection system, researchers can focus on testing the value of the ongoing IP protection flow proposed in this study and completing the existing model of the company.

7 SUMMARY

Since 1993, China has been very successfully attracted foreign direct investment by offering itself as a cheap manufacturing country. In order to get better gain in the fierce global competition, many multinational corporations (MNCs) have to move their manufacturing to China. The foreign SMEs also want to jump on the bandwagon after the pioneers. However what foreign investors concern about is the IP problem in China. IP includes copyright, patents, industrial designs, trademarks and trade secrets. IP violations are still rampant in China, though the government has been making consistent efforts for nearly three decades. Such problem is not only caused by the futile legal enforcement, but also by the whole inadequate IP environment. IP environment is within the business environment. It obtains the influences from legal, economic, political, social-cultural, competitive, technological and labor environments in regard to IP. On the other hand, China has been making progress little by little in improving the IP environment. But it takes time to renew the IP environment completely. Evidence shows that many MNCs which overly resort to IP legal protection are facing failures. In this sense, there is no simple solution to overcome the profound problem. What foreign SMEs can do is to establish appropriate corporate IP measures to minimize the risks in the unfavorable IP environment.

The topic of the study is related to how to protect IP from business perspective when doing international business in China. The target group defined in this study is foreign SMEs which are either going to outsource manufacturing or have own manufacturing in China. The study aims at *how IP protection in China differs in case of outsourcing and in case of own manufacturing*. Attention is paid to the whole manufacturing process. So far the existing studies have focused a lot on the distribution channel. It seems that the existing studies have not yet covered the same topic of this study. For the convenience of comparison and analysis, the research question is divided into two sub-research questions based on the two stages. The preparation stage is a stage to plan strategies, while the operation stage is a stage to implement these strategies. Consequently, the sub-research questions are:

- 1) How to protect IP in the preparation stage?
- 2) How to protect IP in the operation stage?

Ahead of the main theoretical part, a conceptual framework is built up. In the conceptual framework, the features of IP are discussed from both legal and business perspectives. The IP environment is reviewed within the business environment which is composed of legal, economic, political, socio-cultural, competitive, technological and labor environments in China. It explains why at the moment China's IP environment is a challenge to foreign SMEs. The linkage between IP law and IP value in the context of China's business environment reveals why in China legal enforcement is weak, why IP

environment is incomplete and why IP value is vulnerable to loss. In such circumstance, foreign SMEs must establish proactive IP protection measures instead of purely relying on legal protection measures.

The main theoretical part is organized in correspondence with the sub-research questions. It provides IP protection steps from the preparation stage to the operation stage for outsourcing and own manufacturing. In each IP protection step, detailed IP protection measures are suggested. Thereby, comparisons are made. Generally speaking, the overall IP protection process from step to step between outsourcing and own manufacturing is similar, except that managing human resources (Step 7) is an important step only applying to own manufacturing in IP protection. The common steps with the common IP protection measures are in evaluating internal and external IP environment (Step 1), registering IP (Step 5) and building relationship with main actors (Step 8). The differences in the steps of choosing a manufacturing model (Step 2), due diligence (Step 3), negotiating agreements (Step 4) and managing supply chains (Step 6) are determined by the characters of outsourcing versus own manufacturing. If foreign SMEs want to manufacture in China by own manufacturing, more serious measures are required in IP protection.

In the empirical part, two cases critically selected have been studied: one is outsourcing case and the other is own manufacturing case. Interview is the approach for collecting primary data. The interview themes are designed according to the theoretical contexts. The secondary data are from the company's presentations, homepage and brochures as well as articles on the internet which have been used to verify the validity of the primary data. The analysis has combined within-case analysis and cross-case analysis. The data have been compared with overall IP protection model (See Figure 15). The case selection, interview themes and case analysis reflect that the whole research design is grounded in the theoretical framework of the study.

The findings propose that attention should be given to certain key issues in the model. First of all, IP strategy should be integrated into the company's business strategy. Often some SMEs may in the absence of IP strategy or they may plan IP strategy as a separate strategy from the business strategy. More importantly, in strategic planning of IP, the companies should understand what to protect rather than protecting everything. Peculiarly, the essential knowledge, critical know-how and core competence should also be protected. Also, in the planning, IP protection steps are as a whole in the protection mechanism. Each IP protection step should be logically connected together. Second, IP strategy should be as proactive as possible to prevent the predictable IP risks in advance. IP environment in China is complicated. Unexpected IP damages could happen at anytime.

Moreover, the findings of the study support the overall IP protection model (See Figure 15). The distinctive difference between outsourcing and own manufacturing in

IP protection as the findings indicate is in the operation stage. For outsourcing, managing supply chains is the key issue. It would be much better for controlling if SMEs have their own teams full-time on site. For own manufacturing, managing human resources is a key issue aside from managing supply chains. Foreign managers should put the security measures in place to restrict irrelevant employees to have the access to the valuable information. Also, they should control the knowledge and subsequent activities of recruiting or transferring employees. The questions are all about what to share, how to share, and with whom to share. Besides, motivating employees can minimize the chances of employees' willful deeds causing the company's trade secrets to leak out. The unexpected findings indicate that well-managed human resources in the companies' headquarters add value to their IP protection in China.

Besides, the findings also provide some managerial advice on IP protection. First, foreign managers should be prepared for IP risks in China. Second, the model proposed on *how IP protection in China differs in case of outsourcing and in case of own manufacturing* can only be a reference for foreign SMEs. IP protection measures can differ from company to company. In some companies which involve high-tech industry, more strict IP protection measures are required. In addition, the company's history, product, finance and business strategy are also the influential factors to IP protection measures. Accordingly, foreign managers should establish an own IP protection mechanism which matches the company's situation. On the other hand, although IP protection should not be omitted in the business plan, IP protection should not dominate the business plan. Third, as for establishing an own IP protection mechanism, foreign managers should analyze their own industry, products, business concept and competitive advantages thoroughly to do strategic planning of IP in the step of evaluating internal and external IP environment. Through analyses SMEs can adjust their IP strategies to the changing environment in China. Fourth, in strategic planning of IP, foreign managers should start from tightening the company's internal IP management. Fifth, foreign managers should consider IP protection to be an on-going process. An evaluation flow should be attached in IP protection system to monitor and correct the mistakes or oversights in the system. In addition, opposite to complaining attitudes, the proactive attitudes are the driver to put the company's on-going IP protection process forward.

The study has a few limitations. First, the study assumes that strict IP protection should be implemented in every SME no matter what the companies are doing. However, such assumption is infeasible in business practices. Second, the case companies of outsourcing and own manufacturing are not in the same industry, otherwise the cases would be more comparable and there would be findings specifically in a certain industry. Third, the case companies do not belong to high-tech or the

research based companies, though the topic seems to be more importantly related to those companies.

Ideally, in further research, if researchers can focus on comparable cases of outsourcing and own manufacturing in a certain industry, more findings straight to the research question can be obtained. Also, the researcher can find out the way to improve the IP protection system by testing the ongoing IP protection flow proposed in this study and then complete the existing system of the company.

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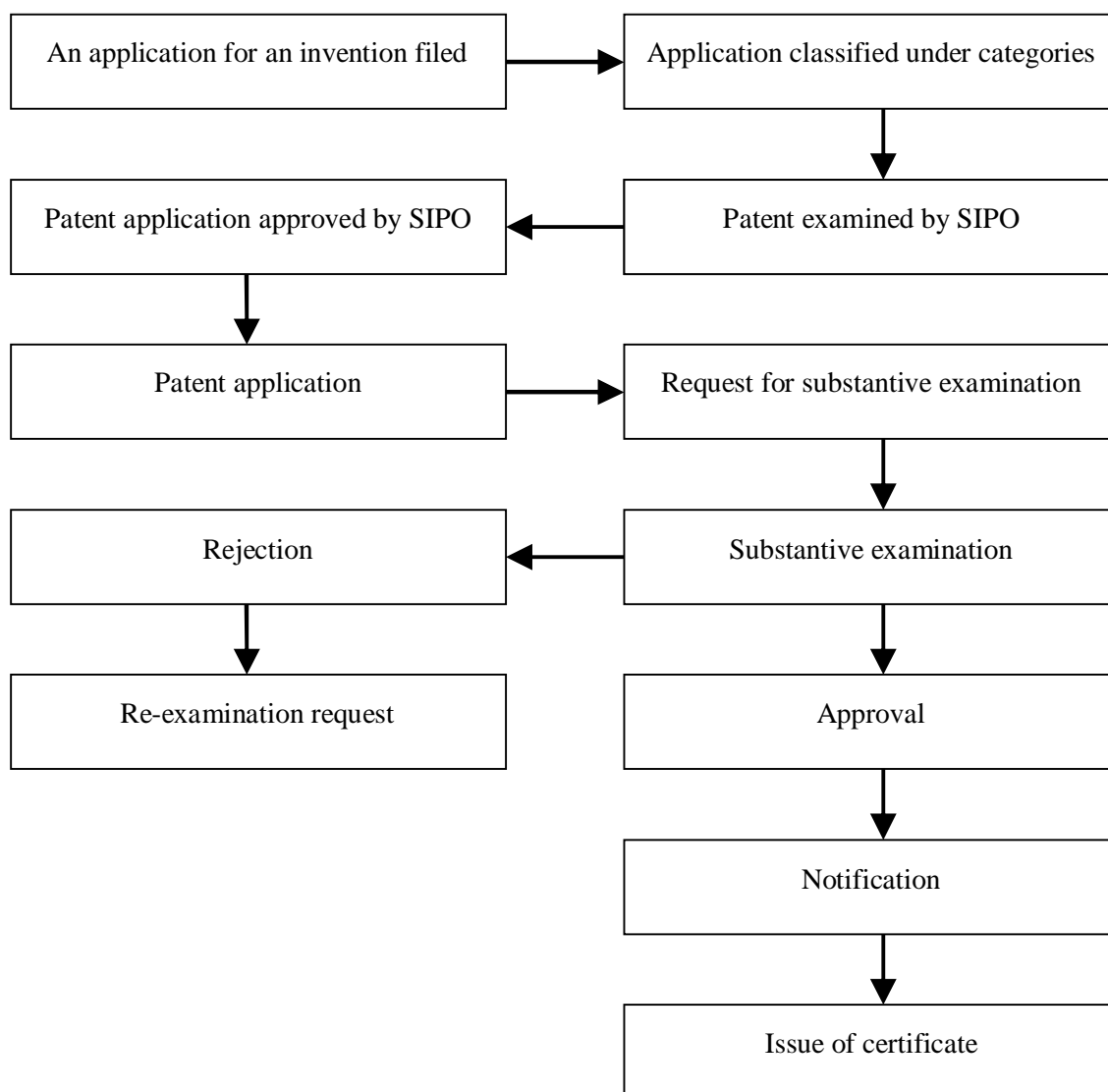
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APPENDICES

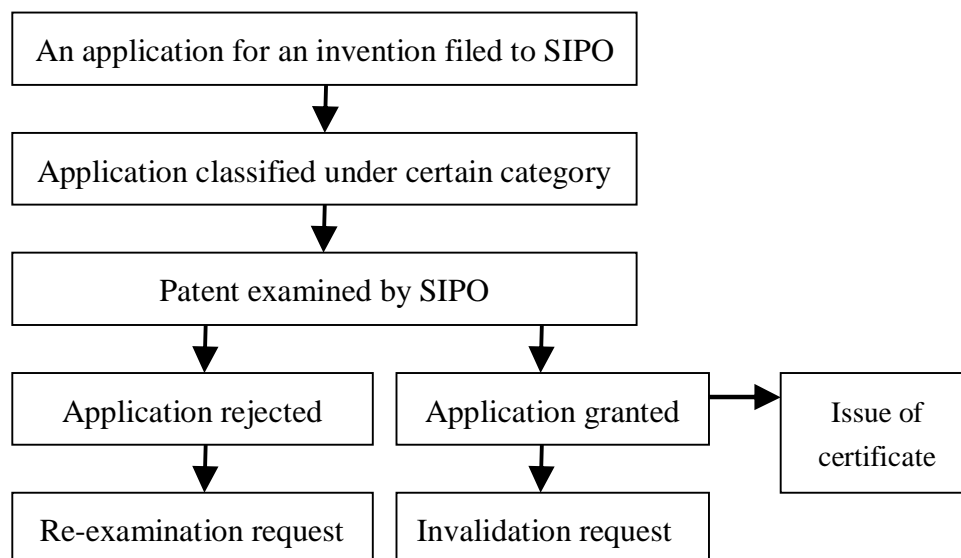
APPENDIX 1 PROCEDURES FOR IP APPLICATIONS IN CHINA

Invention Patent



Source: Australian Business Limited Incorporating the State Chamber of Commerce (2007, 4) and Road map for intellectual property protection in China: patent protection in China (2009, 8)

Utility Patent & Design Patent

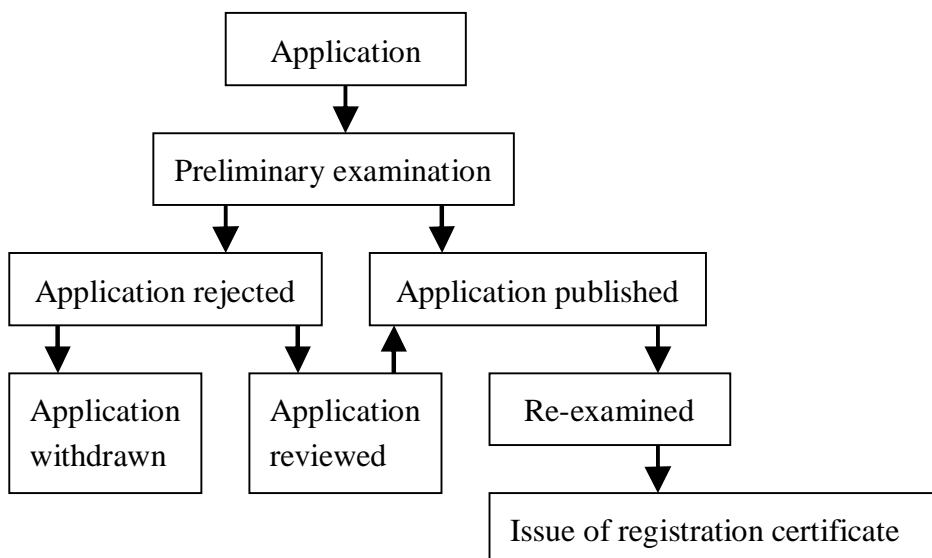


Notes:

1. The first inventor to file a patent registration application will own the patent if it is granted by the Chinese patent office (the State Intellectual Property Office, SIPO).
2. Applications filed first in another Patent Cooperation Treaty (PCT) member country can be used as a basis for claiming priority in China, a member of the PCT. Consequently, a Chinese version must be submitted at the same time as priority is being claimed.
3. Foreign applicants are required to submit patent applications in China through a registered patent agent.
4. Invention patent application should go through a two-step examination procedure: preliminary examination and substantive examination.
5. Substantive examination request must be filed within three years of the filing date or the priority date, otherwise the application will be deemed to be withdrawn.
6. For utility model and design patent application, there is only preliminary examination procedure.
8. The applicant can file a re-examination request with Patent Re-examination Board (PRB) within 3 months from the date when the rejection of patent application is received.
9. A petitioner can file an invalidation requests with the PRB of SIPO to declare the patent invalid on the grounds for invalidation

Source: Australian Business Limited Incorporating the State Chamber of Commerce (2007, 5) and Road map for intellectual property protection in China: patent protection in China (2009, 8, 10)

Trademark application /opposition/examination procedure



Notes

1. A Trademark application can be filed in China:
 - 1) Directly with the China Trade Mark Office (CTMO);
 - 2) By extending an existing application or by registration to China under the Madrid Protocol.
2. A patent application must be filed through a registered Chinese trademark agent.
3. In addition, the applicant must provide a name and address in Chinese.
4. Once an application is filed and then approved, it will be publicized.
5. Any party may file an opposition within three months.
6. A registration certificate will be issued if no opposition is filed within this three-month period.

Source: Australian Business Limited Incorporating the State Chamber of Commerce (2007, 7) and Patent and trademark protection in China (2008)

**APPENDIX 2 MAIN GOVERNMENT AGENCIES
RESPONSIBLE FOR IP ENFORCEMENT**

Government Agencies	Responsibilities
Provincial and Municipal Patent Bureaux	Responsible for administrative enforcement of patents. Operates under the supervision of the State Intellectual Property Office: www.sipo.gov.cn
Provincial and Municipal Copyright Bureaux	Responsible for administrative enforcement of copyright. Operates under the supervision of the National Copyright Administration (NCA) www.ncac.gov.cn
Provincial and Municipal Administrations for Industry and Commerce (AICs)	Responsible for administrative enforcement of trademarks as well as unfair competition disputes. Operates under the supervision of the Trademark Office of the State Administration for Industry and Commerce www.saic.gov.cn
Provincial and Municipal Technology Supervision Bureaux (TSBs)	Responsible for administrative enforcement against counterfeits and other product quality violations (including labeling compliance). Operates under the supervision of the State General Administration for Quality Supervision, Inspection and Quarantine(AQSIQ) www.aqsiq.gov.cn
General Administration of Customs (GACs)	Responsible for administrative enforcement of IP rights at China's borders www.customs.gov.cn
Public Security Bureaux (PSBs)	IP enforcement at borders www.mps.gov.cn
Ministry of Agricultural and Ministry of Forestry Joint	Joint responsibility for plant breeder's rights www.forestry.gov.cn ; www.agri.gov.cn
China International Economic and Trade Arbitration Commission (CIETAC)	Arbitration of domain names, Internet keywords, etc. etc. www.cietac.org

Source: Australian government IP Australia (2006, 1)

APPENDIX 3 INTERVIEW THEMES FOR CASE COMPANIES

Interview Themes for a Case Company Doing Outsourcing in China

Theme 1: Company Background

1. Could you please tell me about your background?
2. How long has the company been outsourcing in China?
3. Has the company had any business experience in China before it started to outsource in China
4. Could you please describe what the product the company has been outsourcing in China is, e.g. the product's features and functions?
5. Does the company have IP? If yes, what kind of IP?
6. Does the product outsourced in China contain IP? If yes, what kind of IP?
7. Has the company been outsourcing in other countries? If yes, where

Theme 2: Preparation Stage

2.1 Evaluating environment

8. How important is the IP from the viewpoint of the company's business strategy?
9. How did the company make the decision to outsource in China?
10. What is the role of IP in the decision making?
11. Did the company need to adjust its existing IP protection strategy correspondently before outsourcing in China?
12. How does the IP strategy match IP uncertainties in China?
13. What went well?
14. What could have been done better?
15. What do you think about this model (See Figure 7)?

2.2 Choosing a manufacturing model

16. What kind of supplier model did the company choose, single-supplier model concerning a sole supplier or concerning a major supplier, or multiple-supplier model (See Figure 9, 10 and 11)? Why?
17. In this decision, what went well?
18. What could have been done better?

2.3 Due diligence

19. How did the company choose the partner(s)?
20. Has the company ever changed the partner(s)? Why or why not?
21. What is the role of the due diligence in partner selection?
22. What went well in partner selection?
23. What could have been done better?

2.4 Negotiating agreements

24. How did the negotiation process go?
25. What were those important issues that the company was or was not able to take care of? Why or why not?
26. What is the role of contracts in the negotiation?
27. What went well in the negotiation?
28. What could have done better?

Theme 3: Operation Stage

3.1 Registering IP

29. What is the company's attitude towards registering a trademark, a patent or an industrial design? Why or why not?
30. What kind of advantages that IP registration brings to the company?
31. And what kind of disadvantages?
32. Did the company have any difficulties in registering IP?

3.2 Managing supply chains

33. How important it is to manage supply chains in IP protection?
34. From IP perspective, did the company put a clear dividing line of what should be and what should not be outsourced in China? What is the dividing line?
35. Does the company attach any provision measures to the product, e.g. technical solutions for anti-piracy or upgrade products?
36. How does the company control and monitor supply chain?
37. What are the strengths in the company's supply chain control? Why?
38. And what are the weaknesses? Why?
39. What kind of improvement is the company planning to make?

3.3 Managing human resources

40. From IP perspective, how important is managing human resources?

3.4 Building relationship

41. From IP perspective, what is the role of building relationship with partners?
42. Who are the actors concerned in the business in China?
43. What are the important ones?
44. How did the company build the relationship with the important ones?

3.5 Overall IP protection strategy

45. Is there anything that we have not covered yet?
46. Is there something missing in the IP protection model (See Figure 15)?
47. According to what the company has experienced, could you please conclude what went well?
48. What could be improved?
49. What are the most crucial issues on IP protection in China?
50. What kind of advice would you like to give for helping other foreign SMEs in China?

Interview Themes for a Case Company Having Own Manufacturing in China

Theme 1: Company Background

1. Could you please tell me about your background?
2. How long has the company been having own manufacturing in China?
3. Has the company had any business experience in China before it started to have own manufacturing in China
4. Could you please describe what the product the company has been manufacturing in China is, e.g. the product's features and functions?
5. Does the company have IP? If yes, what kind of IP?
6. Does the product manufactured in China contain IP? If yes, what kind of IP?
7. Has the company had own manufacturing in other countries? If yes, where?

Theme 2: Preparation Stage

2.1 Evaluating environment

8. How important is the IP from the viewpoint of the company's business strategy?
9. How did the company make the decision to have own manufacture in China?
10. What is the role of IP in the decision making?
11. Did the company need to adjust its existing IP protection strategy correspondently before having own manufacturing in China?
12. How does the IP strategy match IP uncertainties in China?
13. What went well?
14. What could have been done better?
15. What do you think about this model (See Figure 7)?

2.2 Choosing a manufacturing model

16. What kind of entity model did the company choose joint venture or wholly foreign owned enterprise? Why?
17. In this decision, what went well?
18. What could have been done better?

2.3 Due diligence

19. How did the company choose the partner(s)?
20. Has the company ever changed the partner(s)? Why or why not?

21. What is the role of the due diligence in partner selection?
22. What went well in partner selection?
23. What could have been done better?

2.4 Negotiating agreements

24. How did the negotiation process go?
25. What were those important issues that the company was or was not able to take care of? Why or why not?
26. What is the role of contracts in the negotiation?
27. What went well in the negotiation?
28. What could have done better?

Theme 3: Operation Stage

3.1 Registering IP

29. What is the company's attitude towards registering a trademark, a patent or an industrial design? Why?
30. What kind of advantage that IP registration brings to the company?
31. And what kind of disadvantages?
32. Did the company have any difficulties in registering IP?

3.2 Managing supply chains

33. How important it is to manage supply chains in IP protection?
34. From IP perspective, did the company put a clear dividing line of what should and what should not be manufactured in China? What is the dividing line?
35. Does the company attach any provision measures to the product, e.g. technical solutions for anti-piracy or upgrade products?
36. How does the company control and monitor the supply chain?
37. What are the strengths in the company's supply chain control? Why?
38. And what are the weaknesses? Why?
39. What kind of improvement is the company planning to make?

3.3 Managing human resources

40. What is the role of managing human resources in IP protection?
41. How does the company integrate IP protection into information flow control?
42. How does the company integrate IP protection into recruiting new employees?

43. How does the company integrate IP protection into training program?
44. How does the company integrate IP protection into reward/evaluation program?
45. How does the company integrate IP protection into physical access control?
46. What are the most important IP protection mechanisms in human resource management?
47. Do you think have such efforts been paid back? If yes, from which aspects?
48. What are those issues in human resource management that could be emphasized more?

3.4 Building relationship

49. From IP perspective, what is the role of building relationship with partners?
50. Who are the parties concerned in the business in China?
51. What are the important ones?
52. How did the company build the relationship with the important ones?

3.5 Overall IP protection strategy

53. Is there anything that we have not covered yet?
54. Is there something missing in the IP protection model (See Figure 15)?
55. According to what the company has experienced, could you please conclude what went well?
56. What could be improved?
57. What are the most crucial issues on IP protection in China?
58. What kind of advice would you like to give for helping other foreign SMEs in China?