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**Internationalization of Chinese MNEs and Dunning's Eclectic (OLI) Paradigm:
A Case study of Huawei Technologies Corporation's Internationalization Strategy**

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Abstract

Today the newly emerging Chinese MNEs have increasingly been involved in the internationalization activities, but they have not attracted adequate attention in terms of internationalization studies. This paper will be based on Dunning's Eclectic (OLI) Paradigm as theoretical foundation and deploy the method of case study to analyze the internationalization strategy of the Chinese high-technology MNE - Huawei Technology Corporation. This study intends to answer 3 questions: 1) What are the key components of Huawei's internationalization strategy? 2) How much will Dunning's eclectic paradigm of international production be applied to explain Chinese MNE - Huawei's internationalization? 3) What are the special characteristics of the Huawei's internationalization process, which might be the supplements to the existing Dunning's eclectic paradigm? The evidences of case study show that the existing OLI paradigm still needs to be modified so as to apply to the MNEs from developing countries, and improved in order to explain all MNEs to a greater extent. The key findings are as follows: 1) Possessing comparative advantages may not be the prerequisite of MNEs' engagement in FDI. MNEs from developing countries adopt catch-up strategy in their internationalization process. Therefore, enhancing their ownership advantages becomes a dynamic learning process. 2) In terms of location choice, MNEs from developing countries lay emphasis on achieving strategic goals and international layout. Therefore, they pay more attention to potential opportunities rather than worrying about economical and political instability, natural disaster and physic distance. 3) During the internalization process, MNEs from developing countries are more interested in the opportunities of enhancing transaction value rather than reducing transaction cost. The case of Huawei also suggests that the Dunning's eclectic paradigm should take account of the potential exogenous institutional factors of home country and endogenous incentives of enterprise, especially the role of government and entrepreneurship in the context of transition economy.

Keywords: Case study, Chinese MNE, Huawei, Dunning Eclectic Paradigm, OLI, Internationalization, FDI.

ABBREVIATIONS

BT:	British Telecom
CAGR:	Compound Annual Growth Rate
CDB:	China Development Bank
CEO:	Chief Executive Officer
CFIUS:	Committee on Foreign Investment in the United States
CMM:	Capability Maturity Model
China Eximbank:	The Export-Import Bank of China
DWDM:	Dense Wavelength Division Multiplexing
ETS:	European Telecommunications Standards Institute
FDI:	Foreign Direct Investment
FhG:	Fraunhofer-Gesellschaft
HSDPA:	High-Speed Downlink Packet Access
H3C:	Huawei-3COM
IPD:	Integrated Product Development
ISC:	Integrated Supply Chain
ITU:	International Telecommunication Union
LDCOM:	Louis Dreyfus Group Communications
M&A:	Mergers and Acquisitions
MDA:	Mutual Distribution Agreement
MII:	Ministry of Information Industry
MNE:	Multinational Enterprise
MOFCOM:	Ministry of Commerce
MSAN:	Multi-Service Access Node
NGN:	Next Generation Network
Oa:	Ownership asset (advantages)
Ot:	Ownership transaction (advantages)
OLI:	Ownership, Location and Internalization
OMA:	Open Mobile Architecture
PwC:	PricewaterhouseCoopers
R&D:	Research and Development
SDH:	Synchronous Digital Hierarchy
SOE:	State Owned Enterprise
TD-SCDMA:	Time Division-Synchronous Code Division Multiple Access
UNCTAD:	United Nation Conference on Trade and Development
UMTS:	Universal Mobile Telecommunications System
U.S.A.:	The United States of America
WAN:	Wide Area Network
WCDMA:	Wideband Code Division Multiple Access
21CN:	The 21st Century Network
3G:	The 3rd Generation
3GPP:	The 3rd Generation Partnership Project

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1. Introduction

Multinational enterprises (MNEs) are the enterprises which engage in foreign direct investment (FDI) and own or control value-adding activities in more than one country (Dunning, 1993).¹ Today, MNEs have become the most active and important force in international economic activities, which are shaping the development of global economy. MNEs' FDI and internationalization activities are the key potential source of promoting world economic growth after the World War II. Therefore, the study of MNEs' FDI and internationalization activities has been a hot topic of the modern international economic studies. Internationalization of MNEs in developed countries has attracted much more attention in these studies. However, few studies are on the newly emerging Chinese MNEs. Especially for Chinese high-technology enterprises, the study on their internationalization activities is even minimal. Chinese high-technology MNEs have increasingly been involved in the internationalization activities and demonstrated various ownership, location and internalization (OLI) advantages over their international competitors. This paper will be based on Dunning's Eclectic (OLI) Paradigm as theoretical foundation, and is a case study of the internationalization strategy of the Chinese high-technology MNE - Huawei Technology Corporation.

1.1. Background

According to the statistics from the United Nation Conference on Trade and Development (UNCTAD), Global FDI inflows grew in 2007 to an estimated US\$1, 500 billion, reaching a new record and surpassing the previous record set in the year 2000 (UNCTAD, 2008).² In 2006, global FDI inflows and outflows amounted to US\$1, 309 billion and US\$1, 209 billion, respectively.³ Developed countries remain the leading sources of such outflows. However, there were significant increases in outward investment by developing economies with US\$193 billion or 16% of world FDI outflows. Indeed, the role of developing countries and

¹ Dunning, John H. (1993): "*Multinational Enterprises and the Global Economy*", Addison-Wesley, pp. 3.

² UNCTAD (United Nation Conference on Trade and Development, 2008-01-08): *Foreign Direct Investment Reached New Record in 2007*, www.unctad.org/Templates/Webflyer.asp?docID=9439&intItemID=1634&lang=1.

³ UNCTAD: different amount from that estimated for FDI inflows and outflows due to differences in data reporting and collecting methods of countries.

transition economies as sources of FDI is increasing (UNCTAD, 2007 &2008).⁴

China's outward FDI began in 1949. Initially, these overseas investments were concentrated on the third-world countries, and most of them were mainly foreign economic and technical assistance with no obvious profit purpose. These helped to accumulate some experiences and establish international cooperation networks for future overseas investment. After the reform and opening up in 1978, China's inward and outward FDI both underwent rapid development. Especially in recent years, as the world's largest emerging economy, China has become one of the countries attracting the most foreign investments. In 2002, China overtook the United States to become the largest recipient of FDI for the first time. In 2006, China's FDI inflows reached US\$ 69.4 billion. While successfully attracting inward FDI, the Chinese Government also achieved initial success in implementing "Go Global" policy to encourage the Chinese enterprises to invest in the overseas market (Hong and Sun, 2006).⁵ According to the statistics from the Ministry of Commerce of the People's Republic of China (MOFCOM), more than 10,000 Chinese enterprises have set up businesses in about 160 countries and regions in 2006 (MOFCOM, 2007).⁶ The outward FDI in 2006 reached US\$16.1 billion, growing 32% over 2005. China has positioned itself as the country with the largest outward FDI in the emerging economies (UNCTAD, 2007).⁷ All these evidences show that Chinese enterprises are accelerating overseas investment and internationalization process, and have already had a far-reaching and wide-ranging impact on the world economy.

Among many Chinese MNEs, Huawei Technologies Corporation (Huawei) is a successful case in internationalization operation. Huawei, the Chinese telecommunication equipment manufacturer, was set up in the Shenzhen special economic zone at the early Chinese economic transition stage. It has grown quickly in last 20 years from a small private firm into a multinational enterprise with tens of product lines, as well as global operation of 8 regional

⁴ UNCTAD (2007-10-16): *World Investment Report*, pp. 16.

⁵ Hong, Eunsuk and Sun, Laixiang (2006): "Dynamics of Internationalization and Outward Investment: Chinese Corporations' Strategies", *China Quarterly*, Vol. 187, pp. 610-634.

⁶ MOFCOM Press News (2007-09-10): *Chinese enterprises arise as popular investors on global market*, <http://english.mofcom.gov.cn/article/counselorsreport/westernasiaandafricareport/200709/20070905079287.html>

⁷ UNCTAD (2007-10-16): *World Investment Report*, pp. 253.

headquarters, more than 100 branch offices, 12 Research and Development (R&D) centers and 28 regional training centers. It persists in continuous innovations, with 10% of total revenue invested in R&D annually and 48% of employees involved in R&D. As of the end of 2007, 26,880 patents have been applied, of which 4,256 have been approved. Huawei's products and solutions are deployed in over 100 countries and serve over one billion users worldwide. Total contract sales of Huawei reached US\$ 16 billion in 2007, a 45% increase from 2006. 72% of the total contract sales came from the international market, which has become the major driver of sales growth (Huawei, 2008).⁸

How did Huawei quickly transform from a small private firm selling imported telephone call switches to China's biggest telecommunications equipment manufacturer, and then to a potentially competitive global giant? Can those existing FDI and internationalization theories explain Huawei's internationalization process? First of all, let's have a brief review of the theories of FDI and internationalization.

1.2. Brief Review of General Theories of FDI and Internationalization

In 1960s, MNEs achieved rapid development along with the breakthrough and progress of technologies. FDI gradually played a significant role in international capital flow, which therefore attracted attentions from the economists as well as government research institutes to gradually start related theoretical studies. The traditional FDI theories mainly explained motives, determinants and activities of MNEs' FDI from the perspective of the developed countries. For example, Hymer's (1960) monopolistic advantage theory, Vernon's (1966) product life cycle theory, Buckley & Casson's (1976) internalization theory, Dunning's (1976) eclectic paradigm of international production, Kojima's (1978) marginal industrial expansion theory and so on.⁹ Among these theories, Dunning's eclectic paradigm was widely recognized. It integrated the predecessors' theory of monopolistic advantage and theory of internalization, and supplemented and extended location advantage factors based on these theories, which more comprehensively interpreted the motives and conditions of MNEs'

⁸ Gan, Ross (April, 2008): "2008 Corporate Update", Huawei Global Industry Analyst Summit, Huawei Technologies.

⁹ This paper will analyze the above theories in the Chapter 2.

international production. His theory was then regarded as “*paradigm*” to explain the MNEs’ FDI and internationalization activities. However, as the MNEs from the developing countries and transition economies increasingly and actively involve in overseas investment and international competition, they have demonstrated some unique characteristics during their internationalization processes. Will those traditional theories based on developed countries like Dunning’s eclectic paradigm still apply to the studies on MNEs from developing countries? Will the case study of MNEs from developing countries be able to improve and supplement the existing theories? As the largest emerging economy and developing country in the world, China has demonstrated potential strength in outward FDI. Chinese MNEs also showed some special characteristics and comparative advantages over MNEs from developed countries in their internationalization processes. Thus, it is a practical significance to study on Chinese MNEs’ internationalization strategy.

1.3. Questions and Purposes

This paper will answer the following three questions:

Q1: According to Dunning’s eclectic paradigm of international production, what are the key components of Huawei’s FDI and internationalization strategy?

Q2: How much can Dunning’s eclectic paradigm of international production be applied to explain Chinese MNE-Huawei’s internationalization?

Q3: What are the special characteristics of the Huawei’s internationalization process, which might be the supplements to the existing Dunning’s eclectic paradigm?

The purpose of this paper is to use the classic FDI and internationalization theories represented by Dunning’s eclectic (OLI) paradigm of international production to analyze Huawei’s internationalization strategy, subsequently to discover the unique characteristics of the Chinese high-tech enterprises—particularly Huawei’s internationalization process—and ascertain how its process might supplement the existing paradigm.

1.4. Methodology of Case Study

This paper will deploy the method of case study. Yin (1984) defines the methodology of case study as “*an empirical inquiry that investigates a contemporary phenomenon within its*

real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used" (Woodside and Wilson, 2004)¹⁰. Some scholars have provided a few examples of case studies on Chinese MNEs (Li, 2003, 2007; Erdener and Shapiro, 2005)¹¹, which could be the good references. In this case study, I will adopt Dunning's eclectic paradigm to analyze Huawei's internationalization from a *dynamic* prospective. To complete this thesis writing, both primary and secondary resources will be utilized for comprehensive information collection. Primary resources include interview with the branding manager of Huawei Technology in Germany by phone. Secondary resources include Huawei annual report, Huawei's official released material, Huawei official website source, academic research literatures related to Huawei, as well as official data from UNCTAD, World Bank, MOFCOM and etc.

1.5. Limitations

Huawei, as the forerunner of Chinese high-technology enterprises internationalization, has become the apotheosis for some similar Chinese enterprises to follow in their internationalization process. To certain extent, Huawei is regarded as an outstanding representative of Chinese telecom enterprises in internationalization, but Huawei also has its own unique characteristics, which cannot be copied. Therefore, using Huawei as a single case study has some limitations and the research findings may not be generalized. However, the findings of case study could provide implications and empirical evidences for future studies on Chinese enterprises' internationalization theories.

During field research and information collection, since Huawei by far is not a publicly listed company, the officially released information is not as detailed and comprehensive as those listed companies. For example, there is limited releasable information about Huawei's capital

¹⁰ Yin, R. K. (1984): "*Case Study Research: Design and Methods*", Newbury Park, CA: Sage, pp. 23. Cited by Woodside, Arch G. and Wilson, Elizabeth J. (2003): "*Case Study Research Methods for Theory Building*," *The Journal of Business & Industrial Marketing*, Vol. 18, No. 6/7, pp. 493-508.

¹¹ Li, Ping P. (2003): "*Toward a Geocentric Theory of Multinational Evolution: the Implications from the Asian MNEs*", *Asian Pacific Journal of Management*, Vol. 20, No. 2, pp. 217-242.

Li, Ping P. (2007): "*Toward an Integrated Theory of Multinational Evolution: The Evidence of Chinese Multinational Enterprises as Latecomers*", *Journal of International Management*, Vol. 13 No. 3 p.p. 296-318.

Erdener, Carolyn and Shapiro, Daniel M. (2005): "*The Internationalization of Chinese Family Enterprises and Dunning's Eclectic MNE Paradigm*", *Management and Organization Review* Vol.1, No.3, pp. 411-436.

structure. Therefore, it's less possible to make very concise analysis on its financial capital advantages in this study. In addition, as a high-technology company, Huawei is very sensitive and cautious in protecting its core competency and the company's core development strategy. Hence, feedbacks from the interviews with regard to some certain strategies and questions tend to be general.

1.6. Disposition

This paper is composed of 6 chapters. Chapter 1 is an introduction. Chapter 2 will analyze the mainstream theories and studies on FDI and internationalization. In this chapter, the focus will be concentrated upon the origin and development of Dunning's Eclectic Paradigm of International Production. Chapter 3 will have detailed introduction of Huawei's internationalization process. Chapter 4 will use Dunning's Eclectic Paradigm of International Production to analyze Huawei case. There will be detailed analysis on how Huawei utilizes the OLI advantages in its internationalization strategy in this chapter. Chapter 5 will focus on the unique characteristics of Huawei's internationalization. And Chapter 6 is the conclusion. To answer the questions raised at the beginning of this paper, draw the conclusions of Huawei case study and suggest the possible extensions of Dunning's eclectic (OLI) paradigm.

2. Mainstream Theories of FDI and Internationalization

After the World War II, MNEs' internationalization has become a hot topic in international economics, as more and more MNEs are becoming involved in international production. Thereafter, some mainstream theories of FDI and Internationalization were gradually formed, which included monopolistic advantage theory, product life cycle theory, internalization theory and eclectic paradigm of international production and etc. Therein, Dunning's Eclectic Paradigm of International Production integrated and expanded many classical theories. It could comprehensively interpret the motives, determinants and activities of modern MNEs' FDI and internationalization. This chapter will focus on the theoretical development of the mainstream FDI and internationalization theories represented by Dunning's Eclectic Paradigm of International Production.

2.1. The Early Development of Classical Internationalization Theories

2.1.1. Hymer (1960): Monopolistic Advantage Theory

In 1960s, economists predominantly used international trade theory or neoclassical financial theory of portfolio flows, represented by Heckscher (1919) & Ohlin's (1933) factor endowment theory, to explain international capital movement. The traditional theorems were based on the assumptions of perfect competition. These theorems reckoned that capital flow was caused by differentials between rates of return on investment (interest rate) between two different countries. "*In this frictionless world of perfect competition, with no transaction costs, capital moves in response to changes in interest rate (or profit) differentials*" (Dunning and Rugman, 1985).¹² Rate of return on investment in "*capital-abundant*"¹³ countries or developed countries was lower than that in developing countries without abundant capital endowment, which led to the investment of developed countries in developing countries. In 1960, Hymer challenged the traditional theorems in his Ph.D. dissertation titled with "*The International Operations of National Firms: A Study of Direct Foreign Investment*". Hymer drew his attention on the MNEs' international operation. He found that traditional international trade theory had difficulty in completely explaining the motives of MNEs' engagement in FDI through an empirical study of the U.S. MNEs. Hymer took *market imperfections* as his theoretical assumption and utilized the "*industrial organization approach*" to analyze MNEs' FDI activities (Parry, 1977).¹⁴ Then, he formed the monopolistic advantage theory. This theory deems that in the assumption of market imperfections, MNEs possess firm-unique advantages or monopolistic advantages not available to other countries' enterprises. This is one of the key reasons of MNEs' engagement in FDI or international operation. MNEs' monopolistic advantages include: 1) Superior knowledge advantages or intangible assets including management and organization skills, marketing skills and patent; 2) Economies of scale; 3) Access to raw materials; 4) Cost and

¹² Dunning, John H. & Rugman, Alan M. (1985): "*The Influence of Hymer's Dissertation on the Theory of Foreign Direct Investment*", *The American Economic Review*, Vol. 75, No. 2, Papers and Proceedings of the Ninety-Seventh Annual Meeting of the American Economic Association, pp. 228-232.

¹³ Ohlin, Bertil (1933): "*Interregional and International Trade*", Harvard University Press.

¹⁴ Parry, Thomas G. (1977): "*Book Review of The International Operations of National Firms: A Study of Direct Foreign Investment by Stephen Herbert Hymer*", *The Journal of Political Economy*, Vol. 85, No. 5, pp. 1096-1098.

financial advantages; 5) Production efficiency and product differentiation. Hence, MNEs must possess unique advantage or monopolistic advantage so as to overcome the additional cost of oversea investment, to counteract the disadvantages they face in competing with indigenous firms in host country, and to ensure the profitability of their oversea investment. However, Hymer's monopolistic advantage theory can't explain why MNEs choose FDI rather than exporting or licensing very well.

2.1.2. Vernon (1966): Product Life Cycle Theory

In 1966, Vernon developed the theory of product life cycle, based on the study of internationalization of U.S. manufacturing firms in the 1950-1960. Vernon considered that the monopolistic advantage theory analysis was relative static, and it could not explain how enterprises would choose between export and FDI. He combined enterprises' monopolistic advantage with product life cycle and location and investigated enterprises' overseas investment from a dynamic perspective. He divided product life cycle into 3 stages: *new product*, *maturing product* and *standardized product*. 1) *New product stage*. The product is manufactured in the home country and introduced into foreign markets through exports in this early stage; 2) *Maturing product stage*. With development of technologies and entrance of foreign competitors, production cost becomes the most important factor which should be concern by firms. In this stage, overseas investments seem to be more beneficial than export. Firms are induced to invest and produce in other advanced countries in order to achieve economies of scale, reduce production cost and enhance product competitiveness; 3) *Standardized product stage*. As the product becomes completely standardized, firms will tend to shift their production to low-cost locations in developing countries (Vernon, 1966).¹⁵ Product Life Cycle theory combined enterprise' monopolistic advantage with location advantage and it was the first dynamic interpretation of the determinants of the international trade and international production (Dunning 1993).¹⁶

¹⁵ Vernon, Raymond (1966): "International Investment and International Trade in the Product Cycle", *The Quarterly Journal of Economics*, Vol. 80, No. 2. pp. 190-207.

¹⁶ Dunning, John H. (1993): "Multinational Enterprises and the Global Economy", Addison-Wesley, pp. 71.

2.1.3. Buckley and Casson (1976): Internalization Theory

Buckley and Casson (1976) represented a long-run theory of the MNEs based on the concept of internalization in their study, *The Future of Multinational Enterprises*.¹⁷ This theory still takes market imperfections as the precondition of theoretical analysis. Internalization theory stresses that enterprises prefer to retain monopolistic advantages within the enterprise because of market imperfection and transaction cost. This is a process of internalization of external imperfect markets. When this process occurs across national boundaries, the enterprises will become MNEs. Imperfection in the intermediate product market is the main reason why enterprises will choose internalization. Intermediate products include various types of knowledge and expertise, such as patent, know-how, trademark and reputation. Due to the imperfection of intermediate product market, enterprises will face difficulty in evaluating the price of intermediate product during the transaction in the external market. This will cause market uncertainty and high transaction cost. Therefore, in the international operation, especially during the allocation and transfer of knowledge product, enterprises prefer the mechanism of administrative fiat rather than transaction in the external market, so as to reduce transaction cost and achieve the maximum profit of intermediate products. Internalization theory stemmed from Coase's (1937) transaction cost theory. "Coase theorem" was widely applied to researches on domestic enterprises' activities, while Buckley and Casson introduced this theory into the studies of MNEs' FDI and internationalization activities. However, the internalization theory failed to explain why MNEs invest and produce overseas and which country or location MNEs select to invest.

2.2. Dunning (1976): Eclectic (OLI) Paradigm of International Production.

Dunning's Eclectic Paradigm of International Production is the integration of many internationalization theories. It covers the mainstream theories like Heckscher (1919) & Ohlin's (1933) factor endowment theory, Hymer's (1960) monopolistic advantage theory, Coase's (1937) transaction cost theory, Buckley and Casson's (1976) internalization theory and Dunning's location advantages ideas. It gives relatively comprehensive explanation of the motives of MNEs' FDI, and various internationalization activities like location selection,

¹⁷ Buckley, Peter J. and Casson, Mark C. (1976): "*The Future of Multinational Enterprises*". MacMillan, London

market entry mode preference and etc. Hence, Dunning's Eclectic Paradigm is regarded as the representative of classic theories to explain MNEs' internationalization activities. As Dunning (1988) explained, "*The choice of the word eclectic was an ambitious yet deliberate one. It was meant to convey the idea that a full explanation of the transnational activities of enterprises needs to draw upon several strands of economic theory*".¹⁸

Dunning first presented the concept of the eclectic paradigm of international production in his study, *Trade, Location of Economic Activity, and the MNE: A Search for an Eclectic Approach*, at Nobel Symposium in Stockholm in 1976.¹⁹ Later on, Dunning consistently supplemented, developed and improved his eclectic paradigm of international production according to some constructive criticisms and development of international economic environment. The core of eclectic paradigm is composed of "three advantages". They are *Ownership specific advantages*, *Location specific advantages* and *Internalization advantages* (OLI). So the eclectic paradigm is also called OLI paradigm. A firm will become a MNE and engage in the international value-adding activities, the following three conditions need to be satisfied. The first condition is that the firm must possess certain comparative advantages, which are specific to the nature of their ownership over the local competitors. It means that the firm, as an international player, must have some ownership advantages to cover the cost of international production or outweigh the disadvantages of doing business abroad. The second condition is that the international firm can make use of internalization advantages to further exploit its competitive advantages over local firms in the foreign market. The third condition is that firm need to use some specific resources in the foreign country in combination with the ownership and internalization advantages. It implies the location advantages can bring profit from production in the foreign country rather than simply production at home and exporting to the foreign market. As long as firms contemporarily possess all the three OLI advantages, they can engage in FDI activities. If the firms have the ownership and internalization advantages, but lack of location advantages they will choose domestic production and

¹⁸ Dunning, John H. (1988): "*The Eclectic Paradigm of International Production: A Restatement and Some Possible Extensions*", *Journal of International Business Studies*, Vol. 19, No. 1, pp. 1-31.

¹⁹ Dunning, John H. (1976): "*Trade, Location of Economic Activity, and the MNE: A Search for an Eclectic Approach*", in Ohlin, B., et al. (Eds), *The International Allocation of Economic Activity*, Macmillan, London, pp.395-418, published in 1977.

exporting overseas. If the firms only possess the ownership advantages, they can't transfer the comparative advantage within their organizations. The firms have to sell this competitive advantage (transfer the intangible asset) in the external market and choose licensing. Comparing with other single thoughts, Dunning's eclectic paradigm can successfully explain why MNEs choose FDI rather than exporting and licensing (See Table 1).

TABLE 1: CHOICES OF FDI, EXPORT AND LICENSE

Choices of FDI, Export and License			
	Ownership advantage	Internalization advantage	Location advantage
FDI	Yes	Yes	Yes
Export	Yes	Yes	No
License	Yes	No	No

Source: Dunning, 1981.²⁰

2.2.1. Ownership Specific Advantages

Dunning developed Hymer's monopolistic advantage theory as his ownership advantages sub-paradigm. Dunning (1988) explained that the ownership specific advantages, also called competitive or monopolistic advantages, "*must be sufficient to compensate for the costs of setting up and operating a foreign value-adding operation in addition to those faced by indigenous producers or potential producers*".²¹ In the early paper of eclectic paradigm, Dunning (1976) identified three kinds of ownership specific advantages. First advantages arise from exclusive privileged possession of or access to particular income generating assets. Second advantages are enjoyed by a branch plant compared with new firm and third ones are the consequence of geographical diversification or multinationality.²² Later, Dunning (1988) distinguished the ownership advantages into ownership asset (Oa) advantages and ownership transaction (Ot) advantages. The ownership asset (Oa) advantages refer to proprietary ownership of specific asset, such as property rights or intangible assets including product innovations, technology, reputation, trademark, management expertise and etc. In the concept

²⁰ Dunning, John H. (1981): "*International Production and Multinational Enterprises*", London George Allen & Unwin, pp. 111.

²¹ Dunning, John H. (1988): "*The Eclectic Paradigm of International Production: A Restatement and Some Possible Extensions*", *Journal of International Business Studies*, Vol. 19, No. 1, pp. 1-31.

²² Dunning, John H. (1976): "*Trade, Location of Economic Activity, and the MNE: A Search for an Eclectic Approach*", in Ohlin, B., et al. (Eds), *The International Allocation of Economic Activity*, Macmillan, London, pp.395-418, published in 1977.

of ownership transaction (Ot) advantages, Dunning stressed the role and function of this type of ownership advantages. Ownership transaction (Ot) advantages derived from ability of firm to capture the transactional benefits or lessen the transactional cost during international production. For example, firm size (the economies of scale), product diversity and learning experiences, access to resources, synergistic economies (purchasing, marketing, finance), and etc (Dunning, 1993).²³ Most of successful MNEs share the same characters of nurturing and exploiting both Oa and Ot advantages (Dunning, 1988).²⁴

Ownership specific advantages or the firm-specific advantages have various possible forms in different type of enterprises. Many evidences show that a great proportion of multinational enterprises' international productions are concentrated on R&D, marketing expenditures, scientific and technical workers, product innovations and differentiation. It implies that the firm-specific advantages on the knowledge asset are more likely to give rise to direct foreign investment than other type assets, such as physical asset. There are two reasons. First, the knowledge asset is easily transferred across space at low cost. Second, knowledge has joint character and it can also be supplied to additional production facilities at very low cost (Markusen, 1995).²⁵ Usually, technology-intensive firms are much more likely to possess their specific advantages in knowledge assets, which include patents or exclusive technical knowledge, know-how, R&D capabilities, human capital, trademark, reputation and etc., than other type of enterprise such as labor intensive firms.

2.2.2. Location Specific Advantages

As a MNE, the firm has to make decision on selecting in which country to undertake FDI or international production. Dunning's (1988) location specific advantages sub-paradigm indicates that a firm will engage in foreign production whenever it perceives it can combine *spatially transferable* intermediate goods from the home country with immobile factor

²³ Dunning, John H. (1993): "Multinational Enterprises and the Global Economy", Addison-Wesley, pp. 81.

²⁴ Dunning, John H. (1988): "The Eclectic Paradigm of International Production: A Restatement and Some Possible Extensions", *Journal of International Business Studies*, Vol. 19, No. 1, pp. 1-31.

²⁵ Markusen, James R. (1995): "The Boundaries of Multinational Enterprises and the Theory of International Trade", *The Journal of Economic Perspectives*, Vol. 9, No. 2, , pp. 169-189

endowments or other intermediate goods in another country.²⁶ Firstly, MNEs must possess the comparative advantages (the ownership specific advantages) over the firms in foreign market. Secondly, MNEs will consider whether the factor endowments (location specific advantages) in host country are attractive enough and worthwhile for them to invest in this country. This is critical point for them to decide to choose exporting or FDI. On one hand, it's possible to be more profitable to export from the home country. For example, the home country has comparative advantages coming from the availability and low cost of the most important resources needed in producing the product. On the other hand, foreign production in an affiliate established by direct investment may be more profitable. For instance, the foreign country has high tariffs on imports of product. Finally, under the pretext of ensuring profitability, MNEs will transfer their firm specific advantages to the host country and combine with the location specific advantages to minimize the disadvantages of international production.

Generally location specific advantages refer to the advantages possessed by host country. MNEs could make use of these advantages, which can be divided into four groups:

1) Natural resources advantages. For example, spatial distribution of natural and created resource endowments (include energy, raw material and geographical location and etc.).

2) Economic environment advantages. Such as, input price, quality and productivity (include cheap or well trained labor, advanced technology, semi finished goods and etc.); international transport and communication cost; economies of centralization of R&D production and marketing (include R & D facilities and experts, size of market and so on.); investment and trade environment (include trade barrier, tariff, quotas)

3) Cultural and social advantages. For instance, psychic distance between the home and host country (include cross-country ideological, language, cultural differences, general attitude towards foreigners and so on); societal and infrastructure provisions (include education, well-established infrastructures and etc.).

4) Political power and legal environment. For example, political stability and sustainable

²⁶ Dunning, John H. (1988): "The Eclectic Paradigm of International Production: A Restatement and Some Possible Extensions", *Journal of International Business Studies*, Vol. 19, No. 1, pp. 1-31

economy, improved legal and institutional environment, FDI preferential policies and regulations and etc. (Dunning, 1993) ²⁷

An attractive location advantage package for MNEs might include low international production costs, a large, growing and high income market, abundant factor endowments which scarce in the home country, a stable political environment and sustainable economy in host country with FDI preferential policy, and which is also culturally and ideologically close to the home country. The factor endowments in host country are the key reasons for MNEs to make decision on location choice of FDI as well as their strategic arrangement of the international production.

2.2.3. Internalization Advantages

Internalization advantage sub-paradigm is based on Buckley and Casson's (1976) internalization theory, which is probably the most abstract concept in this eclectic paradigm. Internalization advantages refer to MNEs' ability to efficiently internalize their ownership specific advantages to reduce the transaction cost during the international production. The MNEs prefer to transfer their privileged firm-specific advantages across national boundaries within their own organizations rather than sell them (Dunning, 1988),²⁸ because the international firms could establish an internal market within their administrative fiat to avoid high and uncertain transaction cost caused by market failure (also called market imperfection). Dunning (1988) summarized three kinds of market failure as follows: 1) *those that arise from risk and uncertainty* of transaction cost. For example, uncertainty of futures markets, risk of broken contracts and etc. 2) *those that stem from the ability of firms to exploit the economies of large-scale production*. It means this kind of market failure due to MNEs' oligopolistic behavior of expanding economies of scale and exploiting markets; and 3) *those that occur where the transaction of a particular good*, like intermediate good (knowledge and service). It is difficult for either the owner or the potential buyer to assess the value of intermediate

²⁷ Dunning, John H. (1993): "*Multinational Enterprises and the Global Economy*", Addison-Wesley, pp. 81.

²⁸ Dunning, John H. (1988): "*The Eclectic Paradigm of International Production: A Restatement and Some Possible Extensions*", *Journal of International Business Studies*, Vol. 19, No. 1, pp. 1-31.

good or intangible asset, such as knowledge. The nature of this particular good will bring the opportunism and uncertainty, which cause price distortion and market failure. Therefore, internalization advantages are much more important for high-technology enterprises, whose comparative advantages mainly concentrate on knowledge-based asset. Dunning and Rugman (1985)²⁹ also classified market imperfection into *structural* and *transactional* market imperfection to explain different types of ownership advantages possessed by the MNEs, which can also be deployed to explain the motives of internalization. *Structural market imperfection* is possibly caused by monopoly power's behavior (such as distorting the price and external markets and establishing trade barriers) and government intervention (include tariffs, taxes, price control etc.) in host country. *Transactional market imperfection* is resulted from informational asymmetry or lack information during the transaction of intangible asset. The greater the perceived costs of transaction market failure, the more MNEs are likely to exploit their competitive advantages through international production rather than trade with foreign firms (Dunning, 1988).³⁰ In fact, the concept transaction cost caused by market failure is essential part of the internalization theory. Internalization advantages also arise from enterprises' capability of reducing transaction cost. For instance, to avoid search and negotiating costs; to avoid costs of moral hazard, information asymmetries and protect the reputation; to avoid cost of broken contracts and ensuing litigation; to control the quality of intermediate or final products; to avoid or exploit government intervention including quotas, tariffs, price controls, tax differences, etc. (Dunning 1993).³¹

2.3. The Complement and Improvement of Dunning's Eclectic (OLI) Paradigm

Dunning's Eclectic Paradigm is a theoretical system with constant development and improvement. Vernon (1985)³² argued that the eclectic paradigm was a static model. It ignored the interaction between the competitors and was unable to explain the dynamics or the process of change of international production. Dunning (1988) introduced the dynamic

²⁹ Dunning, John H. & Rugman, Alan M. (1985): "The Influence of Hymer's Dissertation on the Theory of Foreign Direct Investment", *The American Economic Review*, Vol. 75, No. 2, Papers and Proceedings of the Ninety-Seventh Annual Meeting of the American Economic Association, pp. 228-232.

³⁰ Dunning, John H. (1988): "The Eclectic Paradigm of International Production: A Restatement and Some Possible Extensions", *Journal of International Business Studies*, Vol. 19, No. 1, pp. 1-31.

³¹ Dunning, John H. (1993): "Multinational Enterprises and the Global Economy", Addison-Wesley, pp. 81.

³² Vernon, R. (1985): "Multinationals as Mutual Invaders", London: Croom Helm. Cited by Dunning (1988).

concept into his eclectic paradigm and argued that MNEs' OLI parameters would change in accordance with their own development or competitors' changes. Thereafter, Dunning (1993, 1995) further developed his eclectic paradigm through combining motives of MNEs activities with OLI parameters and taking account of the features of alliance capitalism. Therefore, Dunning's Eclectic Paradigm gradually becomes a relatively dynamic theoretical system which can comprehensively explain MNEs' motives, determinates and activities of internationalization.

2.3.1. The Motives of MNEs Activities and Dunning's Eclectic (OLI) Paradigm

Dunning (1993) developed and extended Behrman's (1972)³³ taxonomy of MNEs internationalization activities and combined it with OLI parameters to improve his eclectic paradigm. According to different motives and purposes, MNEs activities could be classified into four types, which are resource seeking, market seeking, efficiency seeking and strategic assets seeking.

1) Resource seeking investment is to acquire particular and specific resources at a lower cost than could be obtained in home country. The motives of FDI are to minimize the cost of production, secure the supply of nature resources and maintain the sustainable competitiveness. Resources seeking could also be divided into three sub-groups: physical resource seeking (include mineral, energy, raw materials and etc.), labor seeking and knowledge seeking (include technology, management skill, marketing expertise and etc.) In this type of MNEs activities, ownership advantages stem from capital, access to the market, firm size and negotiating strengths. Location advantages possibly arise from abundant natural resources, labor cost, transportation and communication cost, tax and etc. Internalization advantages include ensuring stability of supplies at right price (natural resource).

2) Market seeking investment is to sustain existing market and exploit new markets. MNEs engaged in market oriented FDI with various purposes and reasons. For instance, the

³³ Behrman, J. N. (1972): *"The Role of International Companies in Latin America: Autos and Petrochemicals"*, Lexington, MA: Lexington Books. Cited by Dunning, John H. (1993, 56).

production and transaction cost in host country is lower than supply from a distance; MNEs' internationalization and marketing strategy promote to have a physical presence in the leading markets served by their competitors and etc. The market seeker's ownership advantages could include capital, technology, management and organizational skills, marketing expertise and brand building ability. Location advantages arise from market size and characteristics, material and labor cost, government policy (include tariff, import control and investment incentives). Internalization advantages include reducing the transaction cost or information costs, avoiding buyer ignorance and uncertainty, etc.

3) Efficiency seeking investment is to restructure and rationalize the existing investments in order to achieve an efficient allocation of MNEs international economic activities. Efficiency seeker especially refers to some mature MNEs with comparative advantages in economies of scale and scope and geographical diversification. They are capable of effectively controlling and arranging their international production and investment in the global market based on specific factor endowments in different countries. This helps to explain why these types of MNEs prefer to undertake natural resource intensive investment in the developing countries, while carrying out capital and technology value-added activities in the developed countries. Ownership advantages include capital, economies of scope, geographical diversification and international sourcing of input. Location advantages stem from economies of product specialization and concentration. Internalization advantages include the economies of vertical integration and horizontal diversification.

4) Strategic asset seeking investment is to promote MNEs' long-term strategic goals and enhance their international competitiveness by acquiring the assets of foreign firms. The motives for strategic asset seeking investment are to strengthen their global competitive positions and weaken those of their competitors through acquiring firm's existing portfolio of asset. MNEs' ownership advantages stem from capital, management and organizational expertise, capability of collaboration and cooperation and etc. Location advantages arise from markets, technology and other asset. Internalization advantages include reducing or spreading

risk and avoiding uncertainty (Dunning, 1993).³⁴

2.3.2. The Improvement of Dunning's Eclectic (OLI) Paradigm in Age of Alliance Capitalism

Original Dunning's Eclectic (OLI) Paradigm was developed in the context of hierarchical capitalism. The essential character of hierarchical capitalism is that "*the governance of production and transactions is determined by the relative costs and benefits of using markets and firms as alternative organizational modes*". The core feature of alliance capitalism is that "*it portrays the organization of production and transactions as involving both cooperation and competition between the leading wealth creating agents*" (Dunning 1995).³⁵ The main difference between hierarchical capitalism and alliance capitalism is business organization structure. The former stressed the intra-firm hierarchy, while the latter emphasized inter-firm network. There are two reasons why firms choose to alliance. First, through alliance as a kind of inter-firms network, firms are able to more efficiently organize the recourses, reduce the transaction cost caused by market failure and maximize the profit. Second, the purpose of firms forming alliance is to protect existing ownership advantage or gain new proprietary (Ibid).³⁶ Some firms choose to establish alliance in the form of shared ownership (including the merging firms and the joint ventures). While, more firms prefer to form alliance for specific collaborative scope and purpose rather than mergers and acquisitions (M&A), for example, to gain access to new and complementary technologies, to speed up innovatory or learning processes, to enhance capability of research and development (R&D), to expand potential supplier and consumer market and etc. (Hagedoorn, 1993).³⁷

With advent of alliance capitalism age, hierarchical capitalism's intra-firm hierarchy is gradually being replaced by alliance capitalism's inter-firm alliance or network. OLI advantages in the original eclectic paradigm underwent profound changes during the alliance

³⁴ Dunning, John H. (1993): "*Multinational Enterprises and the Global Economy*", Addison-Wesley, pp.56-61 and pp. 82-83.

³⁵ Dunning, John H. (1995): "*Reappraising the Eclectic Paradigm in an Age of Alliance Capitalism*", *Journal of International Business Studies*, Vol. 26, No. 3, pp. 461-491.

³⁶ Ibid.

³⁷ Hagedoorn, John (1993): "*Understanding the Rationale of Strategic Technology Partnering: Interorganizational Modes of Cooperation and Sectoral Differences*", *Strategic Management Journal*, Vol. 14, No. 5, pp. 371-385. Cited by Dunning, John H. (1995, 467).

capitalism time. 1) Some previous firms' external transaction activities which are not regarded as firms' ownership advantages can be now transformed into ownership advantages within alliance networks or in international productions chain. For example, through alliance firms could gain advantages of access to new technology, resources and market which they did not have. 2) Alliance and constellation can create new location advantages attracting MNEs to engage in international production. 3) Original internalization advantages stem from replacing external market by internal administrative fiat, which is also called "exit" type strategy (Hirschman, 1970).³⁸ While in the context of alliance capitalism, most internalization advantages arise from inter-firm cooperation within the alliance network, which is a "voice" type strategy (Ibid).³⁹ To some extent, it lessens the structural market failure. Therefore, In order to maintain the vitality of the paradigm, amendments to the eclectic paradigm based on alliance capitalism age change are necessary and critical. Dunning (1995) reappraised his eclectic paradigm and readjusted the variables of OLI advantages respectively. 1) Ownership specific advantage. Alliance or collaborative arrangement is an effective way for enterprises to quickly penetrate an unfamiliar market. It reduces the cost and risk of an enterprise to operate alone in another country market. In the network of alliance, inter-firm collaboration and cooperation helps to improve the quality of one another's ownership advantages, such as management experience exchange, access to complementary technologies and innovatory capacity, access to R&D, engineering and training facilities, as well as promoting product standards. 2) Location specific advantages. MNEs could utilize a portfolio of immobile local complementary assets within the alliance network; Alliance and constellation could produce stimulating and productive industrial atmosphere and create the advantages of gathering information, exchanging ideas and learning experiences; Economic zones, industrial or science parks could enhance enterprises' ability to efficiently use host country's competitive technologies and R&D resources. Local governments are willing to offer favorable policies to encourage and support the development of constellation or cluster economy in order to achieve the local prosperity. 3) Internalization advantages. The internalization advantages in

³⁸ Hirschman, Albert, O. (1970): "Exit, voice and loyalty", Cambridge, Mass.: Harvard University Press. "Hirschman (1970) first introduced this concept of exit and voice to explain the responses of firms and states to threats to their economic sovereignty." Cited by Dunning, John H. (1995, 464).

³⁹ Ibid.

alliance capitalism age arise from the enterprise's ability to collaborate with every participant within the alliance to balance the cost and benefit within the alliance or network. Specific location advantages are as follows: alliances and constellation prompt firms to adopt an active "voice" type strategy rather than an "exit" response to market failure; R&D alliances and networking which may help strengthen the overall competitiveness of the participating firms; MNEs enhance their leading role in cross-border value-added activities through integrating and complementing their own mobile ownership advantages and oversea cooperative partners' immobile asset advantages (Dunning, 1995).⁴⁰

In general, Dunning's Eclectic Paradigm of International Production culls the strong points from many theories, and becomes further enhanced as the international economic environment changes. It gives relatively comprehensive and dynamic explanation of the motives, determinants and activities of MNEs' FDI and internationalization.

2.4. Brief Review of Other Researches

In addition to the above-mentioned theories, there are some other researches contributed to the development of internationalization theory. For example, Johanson & Wiedersheim's (1975)⁴¹ and Johanson & Vahlne's (1977)⁴² Uppsala internationalization process model, Kojima's (1978)⁴³ marginal industrial expansion theory and Wells' (1983)⁴⁴ small-scale technology theory etc.

Johanson & Wiedersheim (1975) and Johanson & Vahlne (1977), by the empirical study of the internationalization of four Swedish engineering firms, found that these enterprises underwent

⁴⁰ Dunning, John H. (1995): "Reappraising the Eclectic Paradigm in an Age of Alliance Capitalism", *Journal of International Business Studies*, Vol. 26, No. 3, pp. 461-491.

⁴¹ Johanson, J. and Wiedersheim-Paul, F. (1975): "The internationalization of the firm-Four Swedish Cases", *Journal of Management Studies*, Vol. 12, No. 3, pp. 305-323.

⁴² Johanson, J. and Vahlne, J. E. (1977): "The Internationalization Process of the Firm- A Model of Knowledge Development and Increasing Foreign Market Commitments", *Journal of International Business Studies*, Vol. 8, No. 1, pp. 23-32.

⁴³ Kojima, Kiyoshi (1978): "Direct Foreign Investment: A Japanese Model of Multinational Business Operations", Croom Helm, London.

⁴⁴ Wells, Louis T. (1983): "Third World Multinationals: The Rise of Foreign Investment from Developing Countries", Cambridge, Mass., MIT Press, 206 pp.

similar 4-stage strategic process in their international operation. They began with no regular export, and then exported to foreign market via foreign independent representative (agent), later established sales subsidiary, and finally they engaged in foreign production in the host country. Therefore, the firms' internationalization is a *sequential* and *gradual* process. In addition, they also identified the concept of "*psychic distance*" between the home and host countries in their studies. *Psychic distance* was defined as "*the sum of factors preventing the flow of information from and to the market*" (Johanson and Vahlne, 1977).⁴⁵ Such as, differences in language, education, business practices, culture, and industrial development. When enterprises face a variety of overseas markets, they will first select countries with similar market conditions, and cultural backgrounds to be the host country of their investment.

Kojima (1978) put forward the marginal industrial expansion theory in his work *Foreign Direct Investment*. By comparing and analyzing "*Japanese-type Direct Investment*" and "*American-type Direct Investment*", he discovered that Japanese type direct investments and trades are mutually complementary. For instance, Japanese MNEs from preponderant industries prefer to engage in trade and exportation, while those from incompetent industries prefer to undertake overseas investment. This type of FDI is called "*trade-oriented FDI*"; while, the "*American-type Direct Investment*" is called "*anti-trade-oriented FDI*". Most of the Japanese overseas direct investment enterprises in 1970s are intermediate and small-scale ones, rather than those large enterprises with monopolistic advantages. Therefore, Kojima does not follow Hymer's monopolistic advantage theory. He argued that FDI should start in turn from domestic marginal industries which have already been or soon to be immersed in comparative disadvantage. Kojima's marginal industrial expansion theory has certain limitations, and can only be used to explain Japan's FDI situations in the 1970s. It is not a mature model for explaining all MNEs' FDI activities (Geroski, 1979).⁴⁶

⁴⁵ Johanson, J. and Vahlne, J. E. (1977): "*The Internationalization Process of the Firm- A Model of Knowledge Development and Increasing Foreign Market Commitments*", *Journal of International Business Studies*, Vol. 8, No. 1, pp. 23-32.

⁴⁶ Geroski, P. A. (1979): "*Book Review of Direct Foreign Investment by Kiyoshi Kojima*", *The Economic Journal*, Vol. 89, No. 353, pp. 162-164.

Wells (1983), through his study on MNEs from the developing countries or the third world, summarized three characteristics of outward FDI from developing countries.⁴⁷ Firstly, MNEs from developing countries are much more likely to engage in joint venture than those from developed countries. Secondly, most of investments from developing countries generally take place in another developing country or its neighborhood. Lastly, the level of economic development of the host country is usually lower than that of the home country. The advantages of MNEs in the home country (developing country) stem from small-scale and labor-intensive technology, which is suitable for the need of market in host country. While large-scale technology from MNEs of the developed countries fails to meet the requirements of these countries. Thus, enterprises in developing countries have comparative advantages during the market competition in these developing countries. However, his study is apparently valid only in the beginning stage of analysis. It could only explain the possible characteristics of outward FDI from developing countries in the initial stage rather than interpret the increasing FDI from developing countries to developed countries (Lindsey, 1984).⁴⁸

3. The Development of Huawei

3.1. Huawei Overview

Huawei Technologies Corporation (Huawei) was established in 1988 in Shenzhen, China's special economic zone, as a private enterprise at the beginning of China's economic reforms and technological advancement. Today, Huawei has become a high-technology MNE providing telecommunications networks products, services and solutions for 35 of the world's top 50 operators, along with over one billion users worldwide. Huawei's products and solutions encompass wireless products, core network products, applications and software, as well as terminals products and etc.⁴⁹

By the end of 2007, Huawei has set up 8 regional headquarters around the globe, including

⁴⁷ Wells, Louis T. (1983): "*Third World Multinationals: The Rise of Foreign Investment from Developing Countries*", Cambridge, Mass., MIT Press, 206 pp.

⁴⁸ Lindsey, Charles W. (1984): "*Book Review of Third World Multinationals: The Rise of Foreign Investment from Developing Countries by Louis T. Wells, Jr.*", *Pacific Affairs*, Vol. 57, No. 1, pp. 190-192.

⁴⁹ Source: *Huawei Interview* (2008-04-16) and www.huawei.com.

Asia Pacific Headquarters in Malaysia, East Pacific Headquarters in China, Commonwealth of Independent States Headquarters in Russia, Latin America Headquarters in Brazil, Middle East & North Africa Headquarters in Egypt, South Africa Headquarters in South Africa, Europe Headquarters in United Kingdom, and North America Headquarters in the U.S.A., over 100 branch offices, 12 R&D centers including Bangalore, India, Silicon Valley and Dallas, U.S.A., Stockholm, Sweden and Moscow, Russia, and Beijing, Shanghai, Shenzhen, Hangzhou, Xi'an, Nanjing and Chengdu in China, as well as 28 worldwide training centers.⁵⁰

According to Huawei's newly released official report, in 2007, Huawei achieved revenue of US\$12.6 billion, and US\$16 billion for total contract sales, increasing by 47.7% and 45.5% respectively over 2006. The overseas contract sales increased significantly by 60.4% in 2007 over 2006 to reach US\$11.5 billion, accounting for about 72% of the total contract sales (See Figure 1).⁵¹

Huawei's achievement today stems from its endeavor in the Chinese domestic market. In 1988, Huawei started with registered capital of RMB 20,000 and was involved in reselling telephone switchboard before manufacturing its own products. In 1990, Huawei invested its entire product reselling profit into research and development (R&D) of its own telephone switches. In 1992, Huawei launched its new product; it was the first large-scale digital program-control switch developed in China by independent design and development. The revenue in that year reached RMB100 million. Huawei then decided to put all capital into the R&D of C&C08 switch, which is the key product helping Huawei set up its leading position in China telecom market.⁵²

At the beginning of 1990s, the Chinese telecom equipment product market was almost monopolized by foreign equipment suppliers. When Huawei entered the market, it faced very severe competition in its rivalry with those top foreign telecom equipment suppliers. How

⁵⁰ Ibid.

⁵¹ Gan, Ross (April, 2008): "2008 Corporate Update", Huawei Global Industry Analyst Summit, Huawei Technologies.

⁵² Source: *Huawei Interview* (2008-04-16) and "Milestones of Huawei", http://www.huawei.com/corporate_information/milestones.do.

could it compete with the foreign telecom companies and the emerging Chinese telecom suppliers? The founder of Huawei, current CEO, Mr. Ren Zhengfei used Mao's ideology in the Chinese revolutionary war as a reference, and this strategy was called as "*encircling the cities from the countryside*" (Mao, 1930).⁵³ Huawei initially focused its sales on the Chinese rural regions ignored by larger companies. In these regions, Huawei gradually built up its own brand name and market foundation. Then, Huawei started to penetrate into small and medium-sized cities and large cities lastly. At that time, development of telecommunications industry was also an urgent requirement of China's economic reform. Chinese governments give strong support to the development of telecom industry in terms of policy and capital. The 1990s became the *golden* period of China's telecom industry growth. From 1991 to 1999, Chinese telecommunications industry revenue grew 2050 per cent against total postal service growth of 375 per cent (DeWoskin, 2001).⁵⁴ Huawei successfully grasped the unprecedented opportunity and grew rapidly. In 1996, Huawei achieved annual revenue of RMB2.6 billion, positioning as the leading telecom equipment supplier in China.⁵⁵

Good performance in the domestic market is usually the turning point of an enterprise's internationalization. Huawei was no longer satisfied with success in the domestic market, but set its eyes on the international market. There are three reasons: 1) Although the Chinese telecom market demonstrated great potential, the room for Huawei's growth and expansion is still relatively small and limited because of increasingly fierce competition. Since 1996, the Chinese telecom carriers' investment on basic infrastructures slowed down, with the 1996-2000 compound annual growth rate (CAGR) of the total capital expenditure decreasing to 24.9% and in 2000-2002 it plunged to 2.1%.⁵⁶ 2) In addition, the telecom industry is characterized by rapid technology innovations. Therefore, maintaining advanced technology advantage of their core products and catching up with the pace of global technology

⁵³ Mao, Zedong (Mao Tse-tung 1930): "A Single Spark Can Start a Prairie Fire", Selected Works of Mao Tse-tung, Foreign Languages Press (1967), Vol. I, pp. 117-128. During the Chinese Revolutionary War, Chinese Communist Party, led by Mao Zedong, established some revolutionary bases in rural area, to start a guerrilla war with Kuomintang based on the strategy of "encircling the cities from rural areas."

⁵⁴ DeWoskin, Kenneth J. (2001): "*The WTO and the Telecommunications Sector in China*", *The China Quarterly*, No. 167, pp. 630-654.

⁵⁵ Source: *Huawei Interview*. 2008-04-16.

⁵⁶ "*Analysis on Internationalization Strategies of Six Industries*", 2006-12-16, Released Report from Development Research of State Council, PRC. [Http://fjgyw.fjinfo.gov.cn/DRCNet.Channel.Web/](http://fjgyw.fjinfo.gov.cn/DRCNet.Channel.Web/)

innovation become the key for telecom enterprises to enhance their competitiveness and maintain sustainable development. Huawei, however, had some gaps with the world leading technologies in terms of products and R&D capability at that time. Hence, Huawei expected to cooperate with foreign leading enterprises through internationalization process, to acquire international advanced technologies and R&D resources in order to strengthen its own technology R&D system and improve the competency of core products. 3) Actively competing in the international market is better than passively defending the domestic market. Before Huawei stepped out of the country, it has already witnessed the brutality of the competition with the western giants in the Chinese market. Huawei gradually won market share from the western powers and grew to the number one telecom equipment supplier in China. Competition with the foreign leading telecom companies in the Chinese market equipped Huawei with the capability and confidence to participate in international competition. The success experience in the domestic market can be a good reference to its international market development strategy. In 1996, while protecting the existing domestic market, Huawei also set foot on its internationalization journey.

3.2. Huawei Internationalization Process

The general internationalization strategy of Huawei is technology R&D oriented and it also competes internationally with price competitiveness and technologically value-added products. Huawei follows a step-by-step development strategy, starting from the developing countries then to the developed countries, from the easiest to the most difficult. Huawei's internationalization process started in Hong Kong, then Russia, Asia, Africa and Latin America, and lastly in Europe and North America. Huawei people called this as an international edition of "*encircling the cities from the countryside*" strategy. Huawei's general internationalization strategy was tailored based on its own actual condition and that of its international competitors at that time. The market access threshold in the developed countries was very high (including strict standards, technology barriers, etc.). Compared with those top western telecom enterprises, Huawei still lagged behind in terms of technology, brand name, reputation and so on. Apparently, entering the developed countries first to directly compete with those powerful enterprises is not a wise choice for Huawei as the first step of its

internationalization process. Comparatively, the developing countries have relatively backward telecom technologies. Huawei's technologies are capable of adapting to the development of the telecom industries in these countries. Meanwhile, Huawei can rely on low-cost advantage to beat its competitors from the developed countries in these developing markets. This is the reason why MNEs from developing countries usually choose another developing country as their investment host countries (Wells, 1983).⁵⁷ To some extent, Huawei's internationalization strategy of initial stage accorded with this principle. Huawei's internationalization process can be divided into three stages: Stage I (1996-1998) – Tentative Stage; Stage II (1999-2001) – Take off Stage; Stage III (2001 till now) – Mature Stage.

3.2.1. 1996-1999 Tentative Stage

Huawei's international market exploration followed a strategy of "from the easiest to the most difficult", firstly target Shenzhen's neighbor – Hong Kong. In 1996, Huawei cooperated with Hong Kong Hutchison-Whampoa by providing fixed-line network products. Compared with its international competitors, except for price competitive advantage, Huawei also provide flexible solutions gear to new generation telecommunication business environment. Thereby Huawei helped Hutchison-Whampoa differentiate itself from the severe competition in Hong Kong telecom market. During the cooperation, Hutchison's "rigorous" requirements on the product and service quality also stimulated Huawei to alter its product and service to more closely adhere to international standards. Huawei also achieved its first international operation experience.

Then, Huawei started to consider exploring the markets in developing countries and transition economies. The initially targeted markets were Commonwealth of Independent States (like Russia) with relatively large market size, South America (like Brazil), Asian countries (like Yemen and Laos) and African Countries (like Ethiopia) with relatively backward telecom industry. For example, in 1997 when Russia encountered the economic crisis, Huawei entered the Russia market. However, Huawei had difficulty in attracting customers and expanding

⁵⁷ Wells, Louis T. (1983): *Third World Multinationals: The Rise of Foreign Investment from Developing Countries*, Cambridge, Mass., MIT Press, 206 pp.

market by itself. Therefore, in the same year, Huawei formed joint venture (Beto-Huawei) with Umberto Konzern Russia, a Russian telecommunications company. In 2000, after economic recovery, the Russian market became one of the main sources for Huawei's overseas sales. In 1997, Huawei set up a joint venture in Brazil. However, as the economic situation in Latin America kept deteriorating, Huawei's market development did not go smoothly. In 1998, Huawei entered Asian market including Yemen and Laos for the first time through international bidding. In the initial stage of Huawei's internationalization progress, the overseas potential customers did not know much about China telecom industry and its high technologies, thus they had very low confidence in Chinese high technology products. Huawei had recognized that technology and reputation are both critical factors for successful expansion of high technology enterprises. Thereafter, Huawei started to focus on brand building and international marketing on one hand; On the other hand, Huawei began to increase R&D investment on new technologies and improve R&D cooperation with world top telecom enterprises during the future internationalization process.⁵⁸

3.2.2. 1999-2001 Take-off Stage

Stage II was the fastest international expansion period. In order to change overseas potential customers' traditional understanding of China's backward economic development and low-cost and low-quality products, Huawei launched the "New Silk Road" marketing initiative and started to participate in all kinds of international expositions. Meanwhile, Huawei also invited overseas customers to China and Huawei campus in Shenzhen to get a direct impression of China's economic reform progress and Huawei's company and product technical strength. Through investing and operating in Russia, South America and Africa, Huawei gradually built up a good reputation and brand image. After 1999, Huawei accelerated the internationalization process and entered Southeast Asia (Thailand, Singapore, and Malaysia), Middle East (Saudi Arabia, United Arab Emirates) and Africa (South Africa, Egypt) in succession. In 1999, Huawei set up Bangalore R&D center in India, rapidly improved its software development capability and achieved Capability Maturity Model

⁵⁸ Source: *Huawei Interview* (2008-04-16) and "Milestones of Huawei", http://www.huawei.com/corporate_information/milestones.do.

(CMM) level-4 accreditation in 2001 and CMM level-5 accreditation in 2003. In about two years, Huawei established branch offices in over 40 countries. In 2001, it achieved total contract sales of about US\$3.1 billion, with the international sales taking up about 12%.⁵⁹

3.2.3. 2001-Now Mature Stage

Huawei's operation in the European market started in 2001 with commercial deployment of 10Gbps Synchronous Digital Hierarchy (SDH) system in Berlin, Germany. In 2004 Huawei signed and committed US\$100 million to form a joint venture with Nokia Siemens Networks for TD-SCDMA⁶⁰ technology development, marketing and manufacturing. In 2004, Huawei set up its European Headquarters in United Kingdom, which is the largest organization invested by Huawei in the oversea market and also the largest investment by Chinese enterprises in United Kingdom.⁶¹ In 2005, Huawei signed a mutual distribution agreement (MDA) with Marconi (UK) to sell each other's products. Meanwhile, in 2005, Huawei was selected by British Telecom (BT) as the supplier of its 21st Century Network (21CN) for Multi-Service Access Node (MSAN) and optical transmission. The top European presses like Reuters reported that Huawei had been rising rapidly and ranking among the world-leading telecommunications equipment suppliers (Reuters, 2005).⁶² In 2006, Vodafone selected Huawei to build the radio access part of its UMTS/HSDPA⁶³ Network in Spain. Recognition by world-leading telecom operators like British Telecom and Vodafone means the gate to European mainstream market has been opened for Huawei. Thereafter, Huawei successfully entered the European countries like Germany, France, Spain, United Kingdom, Sweden and etc, through product reselling, cooperation, joint ventures and setting up branch offices.⁶⁴ In 2007, the company's contract sales reached US\$2.05 billion.⁶⁵

North America has the world largest telecom market, which is also the most difficulty

⁵⁹ Ibid.

⁶⁰ TD-SCDMA: Time Division-Synchronous Code Division Multiple Access.

⁶¹ Source: "*Milestones of Huawei*", http://www.huawei.com/corporate_information/milestones.do.

⁶² Young, Doug (2005-05-26): "Chinese Tech Giants Knock on Europe's Gates", Reuters, Paris, <http://www.reuters.com/article/ParisTech/idUSL2632418020050526>

⁶³ UMTS: Universal Mobile Telecommunications System; HSDPA: High-Speed Downlink Packet Access.

⁶⁴ Source: *Huawei Interview* (2008-04-16) and "*Milestones of Huawei*", http://www.huawei.com/corporate_information/milestones.do.

⁶⁵ Source: *Huawei Interview* (2008-04-16).

stronghold for Huawei to capture. In 2003, Cisco Systems alleged that Huawei Technologies had infringed some of Cisco's technology patents. Finally, Cisco withdrew the lawsuit and both companies resolved all patent litigation, with each party paying for its own legal fees incurred. As compromise, Huawei withdrew all the products sold in the U.S. market. Soon in 2003 Huawei established a joint venture, Huawei-3COM (H3C), with 3COM (U.S.A.). Huawei attempted to enter the U.S market again through the well-established sales channels of 3COM. In 2006, Huawei transferred total share of H3C to 3COM, and then H3C became 3COM's wholly-owned enterprises.⁶⁶ At the end of 2007, Huawei jointly with Bain Capital (U.S.A.) put forward acquisition proposal of 3COM (U.S.A.). However, Committee on Foreign Investment in the United States (CFIUS) rejected the proposal due to national security concerns, and forced Huawei and Bain Capital to withdraw the acquisition plan (New York Times, 2008).⁶⁷

These show that Huawei strategic target of international market has been shifting to the developed countries with the increasing of company strength. On one hand, Huawei expects to enter and expand in the developed market through joint ventures with lower cost and risks; On the other hand, with further development of internationalization strategy, Huawei has become a *strategic asset seeker*. Huawei attempts to build up a good company image with strong power and international effect through acquiring asset of world-class telecom giants, in order to consolidate and enhance its strategic position in the world competition. Of course, Huawei's potential competitors also noticed this and adopted corresponding measures to restrain Huawei's expansion. Competition in this stage is even fierce and violent. It not only limits to products and technologies, but also on strategic position in the international market. In addition, it will intermingle with political factors from time to time.

In the third stage of internationalization process, Huawei consistently stresses on international R&D cooperation. After setting up R&D center in Bangalore, India, Huawei established its R&D centers in the Silicon Valley and Dallas of United States, Stockholm, Sweden and

⁶⁶ Source: "Milestones of Huawei", http://www.huawei.com/corporate_information/milestones.do.

⁶⁷ Weisman, Steven R. (2008-2-28): "U.S. Security Concerns Block China's 3Com Deal", *New York Times*, <http://www.nytimes.com/2008/02/21/business/worldbusiness/21invest.html?pagewanted=print>.

Moscow, Russia, respectively. As of June 2005, Huawei Technologies has established a total of 10 joint R&D labs with Texas Instruments, Motorola, IBM, Intel, Agere Systems, Sun Microsystems, Altera, Qualcomm, Infineon and Microsoft.⁶⁸

4. Case study of Huawei Technology Internationalization Strategy

Dunning's (1977) eclectic (OLI) paradigm set forth the three basic elements of an enterprise engaging in FDI or international production, including ownership advantages, location advantages and internalization advantages. Ownership advantages are the precondition of overseas direct investment. An enterprise must possess firm-specific advantages or comparative advantages over foreign firms before engaging in international production. Location advantages refer to the attractiveness of specific factor endowments in host country for investment by MNEs. Internalization advantages refer to MNEs' ability of efficiently internalizing their ownership specific advantages to reduce the transaction cost during the international production. Dunning's eclectic (OLI) paradigm was developed based on studies of MNEs from the developed countries. While some recent studies on MNEs from the developing countries pose a challenge to Dunning's eclectic (OLI) paradigm (Li, 2003, 2007; Mathews, 2006).⁶⁹ First of all, these studies figure out that Dunning's eclectic (OLI) paradigm only applies to MNEs from developing countries investing in the less developed countries rather than in more developed countries. However, these studies show that more and more MNE *latecomers* from Asian countries including China, Korea, Singapore, prefer to invest in the developed countries in Europe and the U.S (Li, 1994, 2003).⁷⁰ These MNE latecomers do not possess significant ownership advantages or comparative advantages over MNEs from developed country. They attempt to "*explore*" their needed ownership advantages

⁶⁸ Source: *Huawei Interview* (2008-04-16) and "*Milestones of Huawei*", http://www.huawei.com/corporate_information/milestones.do.

⁶⁹ Li, Ping P. (2003): "*Toward a Geocentric Theory of Multinational Evolution: the Implications from the Asian MNEs*", *Asian Pacific Journal of Management*, Vol. 20, No. 2, pp. 217-242.

Li, Ping P. (2007): "*Toward an Integrated Theory of Multinational Evolution: The Evidence of Chinese Multinational Enterprises as Latecomers*", *Journal of International Management*, Vol. 13 No. 3 p.p. 296-318.

Mathews, John A (2006): "Dragon Multinationals: New Players in 21st Century Globalization", *Asia Pacific Journal of Management*, Vol. 23, No. 1, pp. 5-27.

⁷⁰ Li, Ping P. (1994): "*Strategic Profile of Indigenous MNEs from NIEs: Case of South Korea and Taiwan*", *The International Executives*, Vol. 36, pp.147-170.

Li, Ping P. (2003): "*Toward a Geocentric Theory of Multinational Evolution: the Implications from the Asian MNEs*", *Asian Pacific Journal of Management*, Vol. 20, No. 2, pp. 217-242.

rather than to “*exploit*” their existing advantages in developed countries. In this case, ownership advantage is not necessarily the precondition of MNEs’ engagement in FDI. For MNE latecomers, how to realize the strategic goals in the internationalization process become more important. Secondly, they argued that Dunning’s eclectic paradigm was a static model rather than a dynamic one. It failed to explain how MNE latecomers adopt a catch-up strategy to make up for the original disadvantages and gain new ownership advantages.

The above ardent debates could possibly bring some implications to Huawei case study. In my opinion, firstly, Dunning (1993) had supplemented the idea of MNEs’ motives to the original OLI paradigm, such as technology seeking, market seeking and so on. Therefore, OLI paradigm can then explain the motives of MNEs from the developing countries to invest in the developed countries. But ownership advantages are not preconditions for MNEs from developing countries engaging in investment in developed country. Usually, these MNEs do not necessarily possess the prominent comparative advantages over MNEs from the developed countries before engaging in FDI. As for Huawei case, Huawei is a telecom enterprise belonging to technology intensive industry. The key competency or comparative advantages of high technology products mainly stem from technology and brand. Huawei has certain gap with the MNEs from the developed countries in these two aspects. Huawei’s comparative advantages over MNEs from the developed countries arise from low R&D cost. Huawei utilized low cost advantage as a competitive weapon to penetrate the markets in developed countries rather than as a purpose or motive to invest in the developed countries. Huawei intends to acquire the technology advantages rather than “*exploit*” its low cost advantages in developed countries. Technology and R&D resource seeking are Huawei’s strategic goals of investing in developed countries. Secondly, in fact, to counter the criticism that the OLI paradigm was a static model of asset exploitation, Dunning (1988) had introduced the dynamics of international production as changes in the OLI parameters of firms over time. Thereafter, he (1995) introduced the dynamic alliance feature into the OLI paradigm as well (Lundan & Hagedoorn, 2001).⁷¹ Nevertheless, Dunning’s OLI paradigm is

⁷¹ Lundan, Sarianna and Hagedoorn, John (2001): “*Alliances, Acquisitions and Multinational Advantage*”, *International Journal of the Economics of Business*, Vol. 8, No. 2, pp. 229-242

still a relative dynamic model. His dynamic idea only explains that OLI parameters of firms changes with time, external environment and competitors, but it fails to interpret the dynamic process of how MNEs from the developing countries try to catch up with MNEs from the developed countries. Mathews' (2003)⁷² contribution described this process as *learning* process through his studies on MNEs from the developing countries. In short, although Dunning's eclectic (OLI) paradigm has certain limitations in explaining the FDI activities of MNEs from the developing countries, it is still a general FDI theory with a strong capability of supporting researches on MNEs from developing countries. This chapter will utilize Dunning's eclectic (OLI) paradigm to analyze Huawei's OLI advantages demonstrated in internationalization process from a dynamic perspective. How does Huawei exert these OLI advantages in internationalization strategy? How does Huawei, as a MNE latecomer, adopt catch-up strategy to transform its disadvantages into advantages? And what are the unique OLI advantages of Huawei, as a MNE from the developing country?

4.1. Ownership Advantages

Huawei's ownership advantages are composed of two aspects: 1) Inborn advantages refer to the existing advantages including low cost, high efficiency and differentiation; 2) Acquired advantages refer to the advantages gradually formed after offsetting the weakness in technology, brand and management, through Huawei self endeavors and international cooperation. In the initial stage of internationalization, Huawei mainly utilized inborn advantages to penetrate foreign markets and adopted catch-up strategy to remedy the defects and develop acquired advantages through international competition and cooperation. In the mature stage, Huawei focused on protecting the inborn advantages and exploiting the acquired advantages to consolidate its strategic position in the international competition.

4.1.1. Inborn Advantages

4.1.1.1. Cost and Efficiency

Porter (1980) in his research on enterprise development strategy found that there were three types of generic strategies: cost, differentiation and focus. Cost is a very powerful “*offensive*”

⁷² Mathews, J. A. (2003): “*Competitive Dynamics and Economic Learning: An Extended Resource-based View*”, *Industrial and Corporate Change*, Vol. 12, No.1, pp. 115–145.

weapon in business competition.⁷³ Rugman (2006) further extended Porter's three domestic generic strategies to the internationalization strategy of MNEs from the developing countries. They suggested that MNEs from the developing countries might utilize their comparative advantages in low cost over those enterprises from the developed countries as their primary offensive strategy to penetrate international market.⁷⁴ Usually, products from developing countries have cost advantages. High performance-price ratio products and highly efficient services are Huawei's primary advantages, and also become the primary competitive weapons in Huawei's international strategy. Huawei's low-cost advantage is not generated from low cost manufacturing, but rather from low-cost China-based R&D and engineering resources. Huawei's report shows that the average cost of Huawei's R&D employee is US\$25,000 per year, while that of the European enterprises is around US\$120,000-150,000 per year, six times of Huawei's. Meanwhile, Huawei's R&D staff work on average about 2750 hours annually. While European R&D people work only 1300-1400 hours every year. The man-hour investment is about 2:1.⁷⁵ As a result, Huawei does not only have low cost R&D, but also has fast response to innovation and customer request. These are important advantages for Huawei to succeed in the international marketplace where small, nimble companies can successfully compete with large, but less responsive companies.

When Huawei entered African and Latin American markets in the initial stage of internationalization, the price of Huawei product was about 30% lower than that of the U.S. and European ones. Huawei's presence helped to break the long-term monopoly of the U.S. and European enterprises in these developing countries' telecom market. In the European and U.S. market, Huawei maintained its competitive advantage of low cost and high efficiency. Huawei not only provides price-competitive products but also cost-effective solutions. For instance, in 2003 Louis Dreyfus Group Communications (LDCOM, France) planned to build up the Dense Wavelength Division Multiplexing (DWDM) system, the national backbone transmission network. Huawei was competing with the top-ranking international telecom

⁷³ Porter, Michael E. (1980): "*Competitive Strategy: Techniques for Analyzing Industries and Competitors*", New York: Free Press.

⁷⁴ Rugman, A.M. (2006): "*Multinational Enterprise Strategy for Developing Countries*", in *Multinational Corporations and Global Poverty Reduction*, edited by Subhash C. Jain and Sushil Vachani, Edward Elgar Publishing, pp142-163.

⁷⁵ Source: Huawei Interview (2008-04-23).

equipment suppliers. Huawei's DWDM solutions could help to save 35% of LDCOM's total budget. Meanwhile, the total time of project could be shortened by 30%. In addition, Huawei's products are as good as those of any competitors in terms of technology and quality.⁷⁶ Apparently, as the operation cost in the telecom industry keeps increasing, each and every enterprise pursues the goals of minimizing cost and maximizing benefits. Therefore, virtually every telecom operator can be swayed with attractive cost savings.

Huawei had already succeeded in adopting low-cost and high-efficiency strategy to penetrate some overseas markets. Meanwhile, Huawei also clearly realized that as a high-technology enterprise, it couldn't simply rely on low cost, but also need more other advantages in the international competition. Low-cost strategy should not be a long-term and core strategy for high technology enterprise's internationalization process. With the development of the Chinese economy, increase of people's income and RMB appreciation, Chinese enterprises are gradually losing their low cost advantage, and these advantages will shift to other low-cost developing countries like Indonesia, Thailand and etc. (China Daily, 2005).⁷⁷ Cost advantage is a relatively important competitive factor for MNEs from developing countries to penetrate international market, but in order to compete in other higher value-adding markets, differentiation, innovation and brand advantages are also required (Child and Rodrigues, 2005).⁷⁸

4.1.1.2. Differentiation

Huawei's other specific advantage stems from differentiation. Specifically, differentiation advantages refer to Huawei's customized solutions of next generation telecommunications networks. Huawei is willing to customize products and solutions for the specific or special requirement of each and every customer. This is the most prominent characteristic that differentiates Huawei from those western telecom enterprises mainly offering relatively fixed solutions. This unique characteristic helped Huawei open the door to Telfort in Netherlands in

⁷⁶ Source: *Huawei Interview* (2008-04-23).

⁷⁷ China Daily (English, 2005-12-08): "*Cheap Labor Can Not Last*".
http://www.chinadaily.com.cn/chinagate/doc/2005-12/08/content_501632.htm.

⁷⁸ Child, John and Rodrigues, Suzana B. (2005): "*The Internationalization of Chinese Firms: A Case for Theoretical Extension*", *Management and Organization Review*, Vol.1, No.3, pp. 381-410.

2004 and won a Euro 200 million Wideband Code Division Multiple Access (WCDMA) contract, the very first WCDMA contract in Europe. Telfort got the 3rd Generation (3G) license in 2000, but it had yet to carry out 3G services, mainly for two reasons: 1) Netherlands is a country with high population density which also pays much attention to environment protection. To install new 3G base stations and radio frequency devices encountered strong protest from local residents. 2) The cost for setting up new base stations is extremely expensive. Therefore, Telfort preferred to reconstruct the existing base stations and upgrade them with 3G technologies. However, European telecom equipment suppliers only provided new products rather than tailored products and solutions for reconstruction. Telfort had to postpone its 3G project. Huawei's personalized solution was a more efficient remedy and met Telfort's urgent and unusual need. Huawei set up a mobile innovation center in Netherland and provided a customized solution of base stations reconstruction, enabling re-use of 90% of Telfort's original base stations. In addition, the total cost of rebuild was only one-third of that for setting up new base stations.⁷⁹ In the project for Telfort, Huawei for the first time proved that it not only have cost competitiveness, but also differentiation advantages, customized solutions and quick response to customers' need. Developing differentiation advantages is also an effective strategy for MNEs from developing countries to participate in international competitions (Rugman, 2006).⁸⁰ One of important drivers for the outward FDI being made by Chinese firms is to strengthen differentiation advantages. Usually, they go abroad to acquire advanced technologies and enhance R&D capabilities in order to maintain these existing advantages (Child and Rodrigues, 2005).⁸¹

Purely relying on the above-mentioned advantages, Huawei would not be able to achieve today's performance in the international market. Moreover, it would be hard to capture a leading position in future international competition. In the initial stage of internationalization, the largest obstacle of entering another market is low confidence and less knowledge about Huawei's technology and brand name among potential customers. In terms of technology,

⁷⁹ Source: *Huawei Interview* (2008-04-23) .

⁸⁰ Rugman, A.M. (2006): "Multinational Enterprise Strategy for Developing Countries", in *Multinational Corporations and Global Poverty Reduction*, edited by Subhash C. Jain and Sushil Vachani, Edward Elgar Publishing, pp142-163.

⁸¹ Child, John and Rodrigues, Suzana B. (2005): "The Internationalization of Chinese Firms: A Case for Theoretical Extension", *Management and Organization Review*, Vol.1, No.3, pp. 381-410.

brand and management, there still had been some gaps between Huawei and enterprises from the developed regions at that time. But Huawei today has managed to make up for the weaknesses and have already formed some acquired advantages in international competition through consistent efforts.

4.1.2. Acquired Advantages

4.1.2.1. Technology

Technology is the core competency for telecom enterprises. The one leading in technology will hold the inside track in the international competition. Therefore maintaining the technology advantage of the core product is the key for high-technology enterprises to engage in cross-boundary investment. Commonly speaking, developing countries do not have technology advantage over developed countries. Developed countries have abundant advanced technologies and patents, which could be monopolized for a relatively long period. Enterprises from developing countries, on the other hand, usually recreate the needed technologies by absorbing and refining the technologies imported from developed countries. These redeveloped technologies are easy to be copied and replaced, which will bring high risk and uncertainty. Thus, it's hard to protect the investment on these technologies. Once these technologies are copied by others, the technology advantage will disappear. Even if temporary technology monopoly is possible, the life cycle of the technology advantages will be shorter than those of advanced technologies from the developed countries.

Before 1996, Huawei underwent similar process, with its R&D based on re-development of imported technologies. After its first foray into internationalization, Huawei found that the imported non-core technologies cannot remedy the defects of technology and meet the requirement of keen competition. Therefore, Huawei puts technology R&D in primary and core position of internationalization strategy. It stresses the development of high-end and mid-range technologies through participating in international R&D cooperation and setting up independent R&D system. Especially in recent years, Huawei maintained average annual R&D intensity of 10% of total revenue, the similar level as the leading telecom enterprises

like Motorola, Alcatel (Brian, 2007).⁸² The R&D expenditure in 2005 was US\$588 million, more than triple that in 2000 (US\$180 million) (See Figure 2).⁸³ Within Huawei's 68,000 employees, 48% are dedicated to R&D in 2007. Huawei set up 12 R&D centers in succession all over the world including Bangalore in India, Silicon Valley and Dallas in U.S.A., Stockholm in Sweden and Moscow in Russia, and Beijing, Shanghai, Shenzhen, Hangzhou, Xi'an, Nanjing and Chengdu in China. Therein the R&D centers in Bangalore, Shenzhen, Shanghai and Nanjing have passed CMM level-5 international attestation. By 31 December 2007, Huawei had filed 26,880 patent applications, 4,256 of which had been approved worldwide. Huawei had held 7% (152 patents) of the world's UMTS essential patents, ranking among the top five in the world.⁸⁴ Huawei is not only a low-cost telecommunication equipment manufacturer, but also a potential Information and Communication Technology (ICT) industrial giant with a new weapon in "competitive technology". From relying on advanced overseas technologies to participating in international R&D cooperation, then to establishing independent R&D system, Huawei underwent a dynamic *learning* process in acquiring technology advantage. Technology advantages and internationalization process could interact with each other. During internationalization process, Huawei utilizes overseas advanced R&D resources and cooperates with world-leading players to improve its own technology R&D capability. Meanwhile, technology advantages enhancement will push Huawei to involve in higher level of internationalization and consolidate firm-specific advantages in the international competition.

In addition, Huawei got some relief from the lawsuit of Cisco against Huawei in 2003. It is very important for the high-tech enterprises to strengthen the legal protection of the intellectual property including patents and technical know-how, so as to actively maintain and protect their ownership advantages. Huawei has spent lots of money on dealing with intellectual property dissension as well as patent application and registration in recent years.

⁸² Brian, Low (2007): "Huawei Technologies Corporation: from local dominance to global challenge", *The Journal of Business & Industrial Marketing*, Vol. 22, No. 2, pp.138.

⁸³ Source: *Huawei Annual Report 2004* and *Huawei Annual Report 2006*, www.huawei.com

⁸⁴ Source: "Milestones of Huawei", http://www.huawei.com/corporate_information/milestones.do.

4.1.2.2. Reputation and Brand

With no exception, Huawei also suffers from lack of internationally acknowledged brands or trade names, as most of MNEs from developing countries (Wells, 1983).⁸⁵ Good reputation and international brand image are main criteria to evaluate an enterprise's success in internationalization. These could also be ownership advantages for MNEs in overseas investment. The telecom enterprises from the developed countries like Lucent, Siemens, Cisco, have been playing in the international market for tens of years and have achieved a large number of loyal customers and superior brand awareness. In 1996 Huawei stepped out of China and entered overseas market with advanced technology and high-quality products. But as a telecom brand from the developing country, "Huawei" is still an unfamiliar brand name for overseas potential customers. Some customers from less developed countries even show doubts about Huawei's product reliability. All these led to some obstacles and difficulties in Huawei's internationalization process. In response, from 1997 till 2005, Huawei invested a total of US\$ 1 billion to roll out brand internationalization strategy, including participation in large-scale international telecom expositions, "New Silk Road" plan, "Eastern Express" plan and etc. In 2000, Huawei launched its "New Silk Road" program in Hong Kong, whereby Huawei hosted potential overseas customers on tours to China, to provide them with the first-hand appreciation of China's technology capabilities, rapid economic development and Huawei's proven track record with Chinese telecommunications operators. In 2001, Huawei also invited the minister of Russia Post and Telecommunications Ministry to visit Huawei's headquarters in Shenzhen. In 2004, Huawei initiated the "Eastern Express" brand enhancement plan in Europe, to offer its potential customers free trial of Huawei's products and solutions, so as to get better understanding of the performance and quality of Huawei's technologies.⁸⁶ Through the above-mentioned strategies, Huawei's product quality and technology are recognized, gradually winning customers in the international market and set up the good reputation of leading technology, high product performance vs. price value and personalized solutions. Huawei has become a well-known brand name in the world telecom industry.

⁸⁵ Wells, Louis T. (1983): "Third World Multinationals: The Rise of Foreign Investment from Developing Countries", Cambridge, Mass., MIT Press, 206 pp.

⁸⁶ Source: *Huawei Interview* (2008-04-23).

4.1.2.3. Management Expertise

How to manage the resources, including production chain, quality control, finance and human capital, on a global scale can be seen as a key determinant for successful internationalization strategies. Highly effective control or governance of value-added activities can improve enterprises' efficiency and reduce operation cost. Huawei has an unusually capable and efficient management system. As of 2007, Huawei has set up 8 servers in the regional headquarters and over 50 global communication nodes, which established an efficient Wide Area Network (WAN) covering the globe. As international expansion, overstaffed organization, low efficiency and capital waste become the obstacles of Huawei's internationalization. In order to catch up with MNEs from the developed countries in terms of management and organizational skills, Huawei cooperated with world leading management consulting companies since 1997. For example, Huawei respectively cooperated with Hay Group (U.S.A.), Fraunhofer-Gesellschaft (FhG, Germany) and PricewaterhouseCoopers (PwC, U.S.A.) in terms of human resources management, quality control and financial management. In 2000, Huawei started to cooperate with IBM, introducing two management system of high-technology production, i.e., Integrated Product Development (IPD) and Integrated Supply Chain (ISC).⁸⁷ IPD management system is able to shorten the period of new product going-to-market, control the quality of production and enhance the return on investment. Through ISC management, Huawei reorganized the overstaffed organization, and further facilitated management efficiency and resources integration. The world-leading enterprise management mechanism gradually generated *chemical reactions* within Huawei, which reduced redundant production chain and overlapping organizations, stimulated the efficiency of production and increase of profit. Thus, Huawei has been equipped with management expertise advantages in the international competition.

4.2 Location Advantages

Location advantage refers to the attractiveness of specific factor endowments in host country

⁸⁷ Source: "Milestones of Huawei", http://www.huawei.com/corporate_information/milestones.do.

IPD (Integrated Product Development) is Integrated Product Development (IPD) is based on the integrated design of products and manufacturing and support processes. ISC (Integrated Supply Chain) is an evolving concept focusing on merging a buyer's requirements directly into a supplier's production schedule.

for investment by MNEs (Dunning 1988).⁸⁸ Location advantages include natural resources, economic environment, cultural and social factors, political power, legal environment and etc. In each different stages of internationalization process, Huawei's choice of location for FDI changed correspondingly with the adjustment of internationalization strategy. Therefore, Huawei's choice of location represented a dynamic process in general. In the initial stage, Huawei selects the developing countries or transitioning economies which it believes are ready for internationalization. While in the mature stage, Huawei chose the developed countries. The following paragraphs will give detailed analysis on how Huawei's location choice changes according to the country-specific advantages in different countries during the internationalization process.

4.2.1. Location Advantages of Developing Country or Transition Economy

Huawei's internationalization strategy demonstrates a gradual process which is from the easiest to the most difficult. In the early stage, Huawei chose to invest in the developing markets to avoid the developed markets with advanced technologies and severe competition. It specially selected to invest in the large developing countries or transitioning economies,⁸⁹ like Russia, Brazil, Thailand, India and etc., as the cut-in points of internationalization. The country-specific features of these countries are the key factors to attract Huawei's investment, including: 1) these countries have relatively backward telecom technologies and relatively low market access standards compared with the developed countries. Huawei has comparative advantages in technologies which are proper to the conditions in these countries and also meet the demand of these markets. Therefore, the risks of investing in these countries are relatively low, and the go-to-market cycle is shorter in these markets than in developed countries. 2) Low penetration rate of telecom products, and undeveloped telecom basic infrastructure in these countries will create a large potential market. Market seeking is the main motive of Huawei selecting these kinds markets. For example, in 1997 Huawei set up the joint venture (Beto-Huawei) in Russia for the large potential market. A few years later, Russia became the

⁸⁸ Dunning, John H. (1988): "The Eclectic Paradigm of International Production: A Restatement and Some Possible Extensions", *Journal of International Business Studies*, Vol. 19, No. 1, pp. 1-31.

⁸⁹ In Huawei's internationalization strategy, large developing countries refer to countries with a population of over 60 million and great market potential. Source: *Huawei Interview* (2008-04-23).

major revenue source of Huawei in the oversea market.⁹⁰ 3) Huawei could utilize the influential power of these “large” countries in the particular region to rapidly enter similar market in other countries within these regions. For example, after Huawei entering Russia’s market, it also drove Huawei’s quick penetration into other countries’ markets within Commonwealth of Independent States. With the entrance of Brazil market, it promoted a very quick market expansion in the Latin American countries. 4) These countries have abundant factor endowments including R&D resources and relatively low cost, which help Huawei to realize fast R&D localization. For example, India has the world-leading software technologies, a large number of software technicians and technical workers, and relatively low labor cost. Huawei set up the R&D center in India to fully leverage local R&D resources, so as to reduce R&D cost and realize fast localization. In short, Huawei’s investment in the developing countries demonstrated the features of market seeking, low labor cost seeking and technology seeking.

4.2.2. Local Advantages of Developed Country

In order to participate in the higher value added production activities, Huawei shifted its internationalization strategic target to the developed countries. The location advantages of the developed countries arise from the following aspects: 1) *Leading technologies and top-ranking R&D resources*. Li (2007)⁹¹ showed some evidences that the primary motive of MNEs from China engaging in cross boarder investment in the developed countries is technology seeking, through case studies on three Chinese high technology MNEs. They managed to promote their own technology strength by acquiring technology or R&D cooperation from developed countries. Huawei chose the Silicon Valley and Dallas in the U.S.A., Stockholm in Sweden to set up R&D centers, because these cities have location advantages including world-leading high-tech talents, high-class R&D infrastructure and fertile research atmosphere, which will be conducive to technology R&D and product innovation. In addition, technology clusters and science parks are always surrounded with a

⁹⁰ Source: Ibid.

⁹¹ Li, ping p. (2007): “*Toward an Integrated Theory of Multinational Evolution: The Evidence of Chinese Multinational Enterprises as Latecomers*”, *Journal of International Management*, Vol. 13 No. 3 p.p. 296-318.

mass of research institutes. The effect of technology clusters and alliances have significant positive impact to technology innovation. 2) *Market*. Developed countries possess the world largest telecom markets, with Europe and North America taking up 61.3% of the total worldwide telecom spending in 2007 (IDC, 2007).⁹² These markets are certainly the ultimate battlefields of telecom equipment suppliers. The developed countries have high penetration rate of telecom equipment and have large demand for next generation high value-added and high-tech telecom products. Because of the pursuit of higher profit, the telecom market competition in the developed countries is extremely fierce. Currently, Huawei has presented and take a share of the European market through joint venture and cooperation with European telecom giants like Siemens and Marconi. Europe has become the main revenue source of Huawei's oversea sales in recent years (See Figure 3). However, Huawei still faces many troubles in entering the North America market. 3) *Improved basic infrastructure and business environment*. Developed countries have improved basic infrastructure, such as fast and convenient transportation and communication, which is conducive to increase operation efficiency. Good education environment could continuously provide high-quality local talents for MNEs to accelerate their localization. Developed business environment could offer efficient platforms and abundant capitals for commercial operation of high-technology products. Today, most of Huawei's high-technology products are developed, designed and released in Europe and the U.S.A. In the developed countries, Huawei's internationalization strategy demonstrates the features of technology seeking and market seeking.

4.2.3. Huawei's Distinctive Logic of Location Choice

In Dunning's location advantages sub-paradigm, MNEs usually prefer to invest in politically and economically stable countries, to protect their investments and minimize risk and uncertainty. However, in Huawei's case, it has the unique logic of strategic location choice. Sometimes Dunning's location advantages sub-paradigm has difficulty in explaining Huawei's unconventional location choice. This special characteristic also let Huawei grasp the opportunities for the success in internationalization.

⁹² International Data Corporation (IDC, 2007): *Worldwide Telecom Black Book*, Version 2, <http://www.idc.com>.

In 1997, Russia encountered economic crisis. With the Ruble depreciating and the telecom industry dispirited, the international telecom giants like NEC, Siemens and Alcatel all thought that Russia's economic condition could not improve in a short time, and withdrew their investments in succession. While Huawei, on the contrary, took it as a precious opportunity and started to invest in Russia at that time. After a two-year wait, Huawei was uniquely positioned when Russia underwent an economic recovery and pre-empted the vintage point of Russia's telecom market at the end of 1999. In 2003, right after the U.S.-Iraq war, the reconstruction in Iraq was just beginning. The situation in Iraq remained unstable and terrorist attacks happened there from time to time. Many international telecom suppliers did not want to invest in Iraq. Huawei, however, entered Iraq telecom market at that time, and undertook the project of rebuilding post-war telecom basic infrastructure. There are also many other examples. For instance, Huawei invested in Algeria's reconstruction after the earthquake in 2003; it also entered the politically unstable Sierra Leone market and etc.⁹³ In these countries, there are no such attractive factor endowments like improved basic infrastructure, stable economic and political environment, but more uncertainty and high risks. However, Huawei set its eyes on the potential market behind uncertainty and risk. As a telecom enterprise from the developing country in the initial stage of participating in international competition, Huawei does not possess the strength for directly crossing swords with telecom enterprises from the developed countries. Therefore, Huawei chose those countries, which the enterprises from the developed countries are too busy or unwilling to take account of, as strategic target in the initial stage. Huawei accumulated strength and achieved international influence by grasping the opportunity of development in these countries. These also laid a good foundation for Huawei to further improve its strategic layout in global market and participate in higher level of international competition. Hence, Huawei's investment in these countries is more to adopt efficient internationalization strategy with a well-planned blue print, rather than to involve in a blind gamble with high risks.

In addition, *psychic distance* is not the key factor influencing Huawei's FDI location choice.

⁹³ Source: *Huawei Interview* (2008-04-23).

Huawei's real sense of overseas investment started from Russia and African countries, rather than the Asian countries with a similar culture. At present, most of Huawei's investment concentrates in developed countries and majority of overseas sales also come from developed countries. It seems that the attractions of markets in large developed country could more than offset any problems of *psychic distance*. Some studies (Li, 2003, 2007; Child and Rodrigues, 2005) on Chinese MNEs showed similar evidences to explain why they prefer to invest in developed countries with possible huge culture shock, because they are pursuing long-term globally-oriented strategies and the source of crucial technology and brand assets.⁹⁴

4.3 Internalization Advantages

The third strand of Dunning's eclectic paradigm – internalization advantages – is based on the Buckley-Casson internalization theory that, the firms will choose to internalize firm-specific advantages (especially intangible assets) across boundaries within their organization because of the high transaction costs caused by external market imperfection (Buckley & Casson, 1976).⁹⁵ The core of internalization theory is to reduce transaction cost. Hence, Dunning regarded MNEs' ability of efficiently internalizing their ownership specific advantages to reduce the transaction cost as a kind of advantage. This advantage is more important for high tech enterprises because the core competency of high technology enterprises arises from technology advantages, and technology, as an intermediate product or intangible asset, is highly impacted by market failure. Transaction of technologies in external markets is likely to engender loss and uncertainty due to difficulty of price evaluation. Therefore, the most effective approach is that MNEs transfer or exploit technology advantages within their administrative fiat by FDI rather than by selling them to foreign firms in external market. Commonly, MNEs from the developing countries have less comparative advantage over MNEs from the developed countries in terms of technology. In internationalization process, MNE latecomers prefer to enhance *transaction value* and *explore* new advantages rather than

⁹⁴ Li, Ping P. (2003): "Toward a Geocentric Theory of Multinational Evolution: the Implications from the Asian MNEs", *Asian Pacific Journal of Management*, Vol. 20, No. 2, pp. 217–242.

Li, ping p. (2007): "Toward an Integrated Theory of Multinational Evolution: The Evidence of Chinese Multinational Enterprises as Latecomers", *Journal of International Management*, Vol. 13 No. 3 p.p. 296-318.

Child, John and Rodrigues, Suzana B. (2005): "The Internationalization of Chinese Firms: A Case for Theoretical Extension", *Management and Organization Review*, Vol.1, No.3, pp. 381–410.

⁹⁵ Buckley, Peter J. and Casson, Mark C. (1976): "The Future of Multinational Enterprises". MacMillan, London.

to reduce *transaction cost* and *exploit* the existing advantages. Transaction value refers to the potential benefit that MNEs can obtain during transaction, including the opportunity for learning tacit knowledge (Li, 2007).⁹⁶ In my opinion, although enhancement of transaction value and reduction of transaction cost differentiate in forms and measures during the whole process of internationalization, the ultimate intention of transaction value enhancement is also to reduce the total cost of internationalization and accelerate internationalization process. For example, in terms of technology, the cost of MNE latecomers learning the advanced technologies from the MNEs of the developed countries through cooperation and alliance is lower than that of their independent R&D or direct technology purchase. In some circumstance, MNEs from the developing countries may have two motives simultaneously in the internalization process: *enhancement of transaction value* and *reduction of transaction cost*. When MNEs from the developing countries invest in the less developed country, they possess comparative advantages in intangible assets like technology. Their intentions of internalization are to reduce transaction cost and the same as those of MNEs from the developed countries. They transfer or exploit their ownership specific advantages from home country to host or foreign country within their own organization. However, when MNEs from the developed countries invest in the developed markets, they demonstrate distinctive characteristics with MNEs from the developed countries in terms of internalization. MNEs from developing countries attempt to acquire needed ownership advantages through efficiently utilizing location advantage in developed countries. Catch-up strategy pushes them to internalize location advantage in developed countries, and then combine it with their existing ownership advantage to create their new ownership advantage, which is later transferred from foreign country to home country.

As for Huawei case, Huawei's internalization process has the above-mentioned two characteristics. When Huawei invest in the developing countries in Asia, Africa and Latin America, it has the comparative advantage in technology. In these countries and regions, Huawei set up technology support centers and training centers for internalization of

⁹⁶ Li, Ping P. (2007): "Toward an Integrated Theory of Multinational Evolution: The Evidence of Chinese Multinational Enterprises as Latecomers", *Journal of International Management*, Vol. 13, No. 3, pp. 296-318.

immediate product including technology and knowledge. For example, it invested US\$10 million in Abuja, the capital of Nigeria, to establish the largest technology support and training center in Africa. Huawei employed local technical workers to form technology and product service team and imparted them telecom technologies and knowledge through trainings.⁹⁷ Huawei not only makes full use of the low-cost advantage of local technical workers, but also exploits technology advantages within its multinational organizations to avoid loss and uncertainty of transaction in external markets. In internalization process, Huawei transfers its technology advantage from China to Asian, African and Latin American countries. The motive is reduction of transaction cost.

When Huawei invests in developed countries, the strategic goals are to acquire advanced technology and seek large markets. To take Huawei's R&D center in Silicon Valley of the U.S. as an example. Numerous famous ICT enterprises have located their R&D centers in Silicon Valley, where Huawei's employees could have access to advanced technologies and R&D resources that are not available in China. In addition, U.S. employees are good at software development and project management, while Chinese employees are adept at system design and software engineering.⁹⁸ Cooperation between Chinese and U.S. employees facilitates mutual complementation of each other's advantages to upgrade Huawei's comprehensive strength in technology R&D. When Huawei's Chinese employees work in U.S. R&D center for half or one year and come back to China, they will become the cadre of Huawei's R&D and may enhance the overall R&D ability of employees in China. In this internalization process, Huawei expects to acquire the R&D resources in developed countries and combine them with its existing technology advantage to form new ownership advantages, and then transfer it from developed countries back to China. The motive is enhancement of transaction value. In short, Huawei demonstrates different motives and ownership advantage transfer directions during the internalization process of investing in developing countries and developed countries.

⁹⁷ Huawei News (2006-04-20): "Huawei Enhances Western African Service Capabilities with US\$10M Technology Support and Training Centers", <http://www.huawei.com/news/view.do?id=645&cid=42>.

⁹⁸ Source: *Huawei Interview* (2008-04-23).

4.4. Strategic Alliance and Huawei's OLI Parameters

Dunning (1995) supplemented and adjusted his eclectic (OLI) paradigm based on alliance capitalism's characteristics. He noted that due to specialization of work division in value chain and increase of R&D cost, enterprises commonly prefer to set up joint venture or choose non-equity arrangement to reduce R&D cost and improve efficiency within the networks.⁹⁹ MNEs from developing countries would prefer alliance or overseas cooperation to acquire the needed advantages in order to overcome their existing disadvantages (Li, 2003; Mathews, 2006).¹⁰⁰ Since ICT products are highly diversified, with fast technology innovation and huge investment, an enterprise is impossible to involve in the whole process from R&D, production, sales and services by itself. In this case, Huawei's international strategy is also characterized by actively participating in the strategic alliances based on fair competition and broad cooperation. Huawei may remedy its shortcomings, reduce transaction cost and enhance international competitiveness through interacting and complementing with participants in strategic alliance. Huawei is actively participating in the following three types of alliances: standard alliance, R&D alliance and market alliance (See Table 2).

Table 2: STRATEGIC ALLIANCE AND HUAWEI'S OLI PARAMETERS

Strategic Alliance and Huawei's OLI Parameters				
Alliance Types	Ownership Advantage	Location Advantage	Internalization Advantage	Examples
Standard Alliance	To possess some clout in the development of communication standards.	International telecom standard organizations are usually located in developed countries.	To avoid loss and uncertainty resulted from standard mutation; To prolong product life cycle; To maintain telecom market stability; To reduce standard usage fee.	Participating in 83 international standard organizations including ITU, 3GPP, 3GPP2, OMA, ETSI and etc.
R&D Alliance	Low cost of R&D resources and certain number of leading technologies.	Technical workers and engineers, top-ranking R&D facilities, innovation cluster effect, mature business	To acquire advanced technology and R&D resources. To enhance the technology competitiveness. To reduce the cost of technology	Setting up joint R&D labs with Texas Instruments, Motorola, IBM, Intel, Agere Systems, Sun Microsystems, Altera,

⁹⁹ Dunning, John H. (1995): "Reappraising the Eclectic Paradigm in an Age of Alliance Capitalism", *Journal of International Business Studies*, Vol. 26, No. 3, pp. 461-491.

¹⁰⁰ Li, Ping P. (2003): "Toward a Geocentric Theory of Multinational Evolution: the Implications from the Asian MNEs", *Asian Pacific Journal of Management*, Vol. 20, No. 2, pp. 217-242.

Mathews, John A (2006): "Dragon Multinationals: New Players in 21st Century Globalization", *Asia Pacific Journal of Management*, Vol. 23, No. 1, pp. 5-27.

		environment and etc.	transfer.	Qualcomm, Infineon and Microsoft.
Market Alliance	Low cost and large size market in China.	Large group of mature consumers, huge size of market, and higher value-added market.	To externalize the risks and reduce the cost. To avoid tariff and trade & technology barrier.	Strategic cooperation with Marconi; Joint ventures with Siemens and 3Com.

4.4.1. Standard Alliance

In the ICT industry, telecommunication technology is developed strictly in accordance with international standards. Therefore, participating in international standard alliances is an important strategy for telecom enterprises. Before becoming a member of international standard alliances, Huawei has to follow others' standards and pay high standard usage fee, which inhibit its development. In order to change the passive and unfavorable situation, Huawei must actively participate in standard alliances and become the constitutor of the game roles. By the end of 2007, Huawei has participated in 83 international standardization organizations including International Telecommunication Union (ITU), The 3rd Generation Partnership Project (3GPP), Open Mobile Architecture (OMA), European Telecommunications Standards Institute (ETSI) and etc. In the Next Generation Network (NGN) and 3G standard alliances, Huawei has been elected to important positions, such as vice chair of ITU-T SG11, chair of 3GPP SA5 and so on. In core networks, business applications and wireless areas, Huawei has put forward over 1500 resolutions.¹⁰¹ By joining in standard alliances, Huawei possesses some clout in the development of communication standards, thus consolidating its strategic position in international competition. Within standard alliances, Huawei cooperates with other telecom enterprises, shares information and avoids loss and uncertainty caused by abrupt changes of standards, in order to prolong product life cycle, maintain telecom market stability, reduce standard usage fee and maximize benefits.

¹⁰¹ Source: "Research & Development", http://www.huawei.com/corporate_information/research_development.do.

4.4.2. R&D Alliance

Mathews (2006) called the process of MNEs from developing countries making up their technology defects through R&D alliance as a “learning” process.¹⁰² Huawei’s technology advantage improvement is derived from this “learning” process in R&D alliances. Since 1997, Huawei has established joint R&D labs with Texas Instruments, Motorola, IBM, Intel, Agere Systems, Sun Microsystems, Altera, Qualcomm, Infineon and Microsoft.¹⁰³ Huawei has the advantages in low R&D cost and some leading technologies, and its cooperative partners have a large number of advanced technologies, R&D management expertise and abundant R&D resources (including technical workers and engineers, top-ranking R&D facilities, innovation clusters, mature business environment and etc.). In R&D alliances, Huawei not only improves technology R&D capability but also reduces R&D cost than previous independent R&D. In addition, Huawei also transfers the intangible asset or knowledge asset (including technology, R&D management expertise and etc.) within alliances to avoid loss caused by market failure.

4.4.3. Market Alliance

Freeman and Hagedoorn (1994) in their researches on 4,192 alliances found out 32% alliances were formed for improving access to markets. Joining in non-equity alliances or establishing joint ventures are effective ways for enterprises’ rapid entrance into unfamiliar market.¹⁰⁴ In the European and U.S markets, Huawei adopts market alliance approach more frequently, such as its strategic cooperation with Marconi by reselling each other’s products in their home countries. Marconi provides Huawei’s products to key customers in Europe. Huawei helps Marconi to sell its products in China. Another example is Huawei’s joint ventures with Siemens and 3Com to sell its products into European and U.S markets. Huawei tries to remedy the defects of brand ignorance by utilizing customer and reputation advantages of European and U.S telecom giants. Meanwhile, it is also a good choice to avoid trade and technology barriers, and externalize the risk of entrance into European and U.S markets.

¹⁰² Mathews, John A (2006): “Dragon Multinationals: New Players in 21st Century Globalization”, *Asia Pacific Journal of Management*, Vol. 23, No. 1, pp. 5-27.

¹⁰³ Source: “*Milestones of Huawei*”, http://www.huawei.com/corporate_information/milestones.do.

¹⁰⁴ Freeman, C. and Hagedoorn, J. (1994): “*Catching Up or Falling Behind: Patterns in International Interfirm Partnering*”, *World Development*, 1994, 22, pp. 771-780.

5. Distinctive Characteristics of Huawei Internationalization Process

This case study also finds out some other factors and drivers which affect or promote Huawei's internationalization process except above-mentioned OLI variables of Dunning's eclectic paradigm. These drivers on the one hand arise from exogenous institutional force in the context of China's transition economy, on the other hand they stem from Huawei's endogenous entrepreneurship. These are Huawei's distinctive characteristics over MNEs from developed countries. This might be able to provide some examples and evidences for extension of existing eclectic paradigm.

5.1. Role of Government

At the beginning of China's economic reform, transitioning from planned economy to market economy, Huawei set up in Shenzhen, the first special economic zone approved by Chinese government. Favorable policies offered by Chinese government in special economic zones and Huawei's private ownership enable Huawei to anticipate the opportunities in the domestic market, and develop rapidly into a large and highly competitive telecom enterprise in China, which also lays a solid foundation for Huawei's internationalization. Special institutional factors of China's transition economy become the main force accelerating Huawei's internationalization process. These domestic institutional factors include the role of government, market institution, legal environment, ownership arrangement and etc. Among all these factors, the role of government seems to be particularly significant. Since the 1990s, Chinese central and local governments actively encourage and guide Chinese more and more large enterprises to involve in overseas direct investment (Cai, 1999).¹⁰⁵ Huawei's internationalization process appears to be significantly impacted by role of Chinese government. Therefore, the following section will focus on analyzing the impacts of government support, policy and intervention on Huawei's internationalization.

5.1.1. Government Support

In China, during the transitioning period, despite the development of a market system,

¹⁰⁵ Cai, K. G. (1999): "Outward Foreign Direct Investment: A Novel Dimension of China's Integration into the Regional and Global Economy", *China Quarterly*, No.160, pp. 856-880.

governments still remain their involvement in business at firm level as in planned economy. Especially to those larger enterprises, Chinese government authorities are more interested in guiding their future development (Nee and Opper, 2007).¹⁰⁶ They are willing to provide financial support to these domestic larger firms or “*national champions*” for their internationalization and protection from domestic market, as well as prop them up quickly to become giants with global competitiveness (Child and Rodrigues, 2005).¹⁰⁷ This also accords with Chinese economy’s long-term development strategy. In Huawei case, its internationalization process also benefits from government support and protection. In early 1990s, the telecom products in Chinese market were mostly monopolized foreign enterprises, with only few emerging domestic players such as Huawei, ZTE (Zhong Xing) and Datang (DeWoskin, 2001).¹⁰⁸ Therefore, in order to better deal with competition from foreign enterprises and enhance local telecom enterprises’ competency before China’s entry into the WTO, Ministry of Information Industry (MII), as the key government bureaucrat controlling China’s telecom industry, issued a series of policies and measures to support local telecom enterprises and protect domestic telecom market. For example, MII encouraged local Chinese operators like China Telecom and China Mobile to purchase telecommunications products from Chinese manufacturers, like Huawei. In addition, to improve the R&D capability of Chinese telecom enterprises, the governments played a significant role in helping to bring about technology cooperation and strategic alliance between Huawei and foreign telecom giants like Motorola, Siemens, Nokia and etc. Governments also provide soft loan for Huawei’s international operation, for example, two state owned banks - The Export-Import Bank of China (China Eximbank) and China Development Bank (CDB) provided Huawei US\$600 million¹⁰⁹ and US\$10 billion¹¹⁰ credit respectively in 2004. Under governments’ meticulous care and support, Huawei quickly grew from a weak domestic private enterprise into a multinational telecom enterprise with international competency.

¹⁰⁶ Nee, Victor and Opper, Sonja (2007): “*On Politicized Capitalism*”, in Victor Nee and Richard Swedberg (eds.) *On Capitalism*, Stanford: Stanford University Press, pp. 93-127.

¹⁰⁷ Child, John and Rodrigues, Suzana B. (2005): “*The Internationalization of Chinese Firms: A Case for Theoretical Extension*”, *Management and Organization Review*, Vol.1, No.3, pp. 381–410.

¹⁰⁸ DeWoskin, Kenneth J. (2001): “*The WTO and the Telecommunications Sector in China*”, *The China Quarterly*, No. 167, pp. 630-654.

¹⁰⁹ Huawei News (2004-04-08): “*A US\$600 Million Export Buyer's Credit Framework Agreement Signed between China EXIM Bank and Huawei*”, http://learning.huawei.com/english/EnglishVersion/new.php?NEWS_ID=617.

¹¹⁰ MOFCOM News (2005-03-15): “*China Mobile Bids to Take First Global Step*”, <http://english1.mofcom.gov.cn/aarticle/counselorsreport/asiareport/200503/20050300025160.html>.

5.1.2. Government Policy

Huawei's internationalization process is also promoted by Chinese government policies including industrial policy, "go global" policy and even foreign policy. 1) Industrial policy. Nee and Opper (2007) presented evidence that Chinese government prefers to assist Chinese enterprises from high technology sectors to improve their competitiveness through providing financial support. Currently China's policies are more inclined to favor the high technology sector.¹¹¹ As a high technology enterprise, Huawei naturally becomes beneficiary of China's industrial policy, such as enjoying priority of access to capital resources and raw materials, preferential tax policy and etc. 2) "Go Global" policy. In 1999, in the context of huge inflows of FDI into China, the Chinese government launched "Go Global" policy to encourage and support more strong Chinese enterprises to invest overseas in order to improve their competitiveness (Child and Rodrigues, 2005).¹¹² In take-off stage of internationalization, Huawei accelerated catch-up and internationalization process by government policy. 3) Foreign policy. It is the unique characteristic of Huawei's internationalization process to carry out internationalization strategic arrangement to according to China's foreign policy orientation. For instance, in initial stage of internationalization, Huawei participated in Chinese government's assistance projects in Africa and Asia. Although most of these projects are non-profitable, Huawei won government favor and established a closer relationship with the government through these projects. Most importantly, it entered market in these developing countries, gained some international influence and realized the initial strategic layout of internationalization. Now it's time for Huawei's harvest, Huawei has set up 5 subsidiaries and 25 representative offices in Southern African countries, with its total sales in Africa reaching over US\$2 billion in 2006.¹¹³ During the Sino-African Summit held in Beijing in 2006, Huawei won contracts of US\$30 million.¹¹⁴

¹¹¹ Nee, Victor and Opper, Sonja (2007): "On Politicized Capitalism", in Victor Nee and Richard Swedberg (eds.) *On Capitalism*, Stanford: Stanford University Press, pp. 93-127.

¹¹² Child, John and Rodrigues, Suzana B. (2005): "The Internationalization of Chinese Firms: A Case for Theoretical Extension", *Management and Organization Review*, Vol.1, No.3, pp. 381-410.

¹¹³ Source: *Huawei Annual Report 2006* from www.huawei.com

¹¹⁴ Source: *Huawei Interview* (2008-04-23).

5.1.3. Government Intervention

Government support and intervention are always accompanied by each other. Government intervention is supposed to affect enterprises' important strategic decisions for internationalization, such as mergers and acquisitions. Some studies show that those enterprises with successful internationalization always try to avoid government intervention, and “*escape*” domestic institutional constraints, so as to maintain their autonomy over operation management and internationalization decisions (Child and Rodrigues, 2005).¹¹⁵ Previous state-owned enterprises like Haier, TCL achieved protection over their property right and managerial autonomy through approaches of ownership reform, being listed in stock market and etc. (Li, 2007).¹¹⁶ In the interviews with Huawei and studies of publicly released information, there is no significant evidence that governments intervened in Huawei's internationalization decisions. Possible reasons are that governments have less direct intervention, or government intervention is invisible and indirect, because Huawei is a private enterprise without state-owned shares. Commonly, because of less government intervention, private enterprises can compete effectively with state-owned enterprises or state-holding-share enterprises in China (Nee, Opper and Wong, 2007).¹¹⁷ Therefore, in the special institutional environment of China's transition economy, Huawei's success in internationalization is on the one hand resulted from high autonomy and less government intervention; on the other hand, it cannot be achieved without government support. Therefore, for Chinese entrepreneurs, the key to internationalization success is to find the proper equilibrium between corporate autonomy and government involvement.

5.2. Entrepreneurship

Entrepreneurship has always been the hot topic among the economists. Richard Cantillon (1697-1734), an Irish economist of French descent, first introduced the concept of entrepreneur. He believed that entrepreneur is the one who “*organizes and assumes the risk of*

¹¹⁵ Child, John and Rodrigues, Suzana B. (2005): “*The Internationalization of Chinese Firms: A Case for Theoretical Extension*”, *Management and Organization Review*, Vol.1, No.3, pp. 381–410.

¹¹⁶ Li, Ping P. (2007): “*Toward an Integrated Theory of Multinational Evolution: The Evidence of Chinese Multinational Enterprises as Latecomers*”, *Journal of International Management*, Vol. 13, No. 3, pp. 296-318.

¹¹⁷ Nee, Victor, Opper, Sonja and Wong, Sonia (2007): “*Developmental State and Corporate Governance in China*”, *Management and Organization Review*, Vol. 3, No. 1 pp. 19–53.

a business in return for the profits” (Casson).¹¹⁸ Schumpeter (1911) presented his ideas on entrepreneurship and innovation in his book *“The Theory of Economic Development”*. He considered that an entrepreneur is a person who is willing and able to convert a new idea or invention into a successful innovation (Schumpeter, 1949).¹¹⁹ Later, Knight (1942) considered entrepreneur as a specialist on taking risk and uncertainty and also identified three concrete functions of the entrepreneur including leadership in changes and innovations, adaptation to changes and risk bearing in connection with unforeseen events.¹²⁰ Casson (1982, 2005) defines the entrepreneur as *“someone who specializes in taking judgmental decisions about the coordination of scarce resources”*.¹²¹ We can summarize the above-mentioned viewpoints to form a general framework of entrepreneurship: entrepreneurship is an entrepreneur’s comprehensive quality of the spirit derived from long-term production operation and management activities, including the unique personal qualities (like the ability, character, charisma and ideology, etc.), the spirit of innovation as well as the ability of risk bearing. Although economists fail to reach consensus in the definition of entrepreneurship, they all believe that entrepreneurship is the key factor affecting enterprises’ development and expansion. Luo, Zhou and Li (2005), in their empirical studies on Chinese enterprises’ internationalization, found out that entrepreneurship had positive impact on Chinese enterprises’ internationalization process.¹²² In Huawei’s case study, Huawei’s internationalization development is inseparable from its unique entrepreneurship. This paper will focus on two unique characteristics of Huawei’s entrepreneurship: 1) Huawei’s CEO, Ren Zhengfei’s ideology of internationalization – the *“wolf”* spirit and 2) In the special institutional background of transition economy, entrepreneurs must have the ability to build up relations with governments to gain access to scarce resources.

¹¹⁸ Casson, Mark: “Entrepreneurship”, *The Concise Encyclopedia of Economics*, Library of Economics and Liberty. <http://www.econlib.org/Library/Enc/Entrepreneurship.html>.

¹¹⁹ Schumpeter, J. A. (1949): *“Economic Theory and Entrepreneurial History”*, In Harvard University Research Center in Entrepreneurial History. *“Change and the Entrepreneur: Postulates and Patterns for Entrepreneurial History”*, Harvard University Press, Cambridge, Mass. Reprinted in Richard V. Clemence (ed.) (1951). *Essays of Schumpeter*, Addison-Wesley, Cambridge, Mass. p. 66.

¹²⁰ Knight, Frank H. (1942): *“Profit and Entrepreneurial Functions”*, *The Journal of Economic History*, Vol. 2, Supplement: *The Tasks of Economic History*, pp. 126-132.

¹²¹ Casson, Mark (2005): *“Entrepreneurship and the Theory of the Firm”*, *Journal of Economic Behavior & Organization*, Vol. 58, No. 2, pp. 327-348.

Loasby, Brian J. (1983): *“Book Review of the Entrepreneur: An Economic Theory by Mark Casson (1982)”*, *The Economic Journal*, Vol. 93, No. 372, pp. 931-932.

¹²² Luo, Xueming; Zhou, Lianxi and Liu, Sandra S. (2005): *“Entrepreneurial firms in the context of China’s transition economy: an integrative framework and empirical examination”*, *Journal of Business Research*, Vol. 58, No. 3, pp. 277-284.

5.2.1. Ideology of Internationalization

The success of Huawei's internationalization is inseparable from its outstanding entrepreneurs. Ren Zhengfei¹²³, the co-founder and Chief Executive Officer (CEO) of Huawei, leads Huawei from a workshop starting with RMB20, 000 to a MNE with total contract sales reaching US\$16 billion in 2007, achieving a splendid miracle. In 2005, Ren was named one of the world's most influential people by the *Time* magazine in its 100 list. Huawei's success proved his "outstanding entrepreneurial skill".¹²⁴ Some researchers consider that Ren's internationalization strategies are highly influenced by Mao Zedong and Louis Gerstner (the former CEO of IBM). Ren utilizes Mao's "guerrilla war strategy" to help Huawei win the "partial battles" with international telecommunication giants in the early stage of internationalization, and deploys Gerstner's "customer-centric strategy" to further consolidate Huawei's position in the international markets (Cheng, 2006).¹²⁵ In my opinion, Huawei's success in internationalization is more reliance on Ren's unique entrepreneurship—the so-called "wolf" spirit. An article on *Forbes* appraised Ren's "wolf" spirit in the way that Huawei's rapid expansion and today's achievement rest with the "wolf" spirit. "Wolf spirit encourages Huawei's staff to feel hungry, passionate and able to work as a team" (Flannery, 2004).¹²⁶

Ren Zhengfei's military career and business experience gave him many attributes which serve him well as an entrepreneur: never-give-up character, perseverance, ability to withstand difficulties, alertness, and a sense of urgency and crisis. His personal experience, values, personal character created the "wolf" spirit and had far-reaching effects over Huawei's future. The "wolf" spirit was initiated by Ren Zhengfei before Huawei's international operation, when Huawei had become a very powerful telecommunications company in China. Ren was

¹²³ "Ren was born in a school administrator's family in poverty-stricken Guizhou Province in 1944. He attended the Chongqing Institute of Posts and Telecommunications prior to the Cultural Revolution. He spent most of his youth in People Liberation Army (PLA) where he was mainly engaged in engineering research. He joined the Chinese Communist Party (CCP) in 1977 and later was promoted to regiment-level officer. He was demobilized from military in 1982. He founded Huawei in Shenzhen in 1988" (Cheng, 2006).

Cheng, Li (2006): "China's Telecom Industry on the Move: Domestic Competition, Global Ambition, and Leadership Transition", *China Leadership Monitor* No. 19. [Http://www.hoover.org/publications/clm/issues/4469916.html](http://www.hoover.org/publications/clm/issues/4469916.html).

¹²⁴ Forney, Matthew (2005): "The 2005 Time 100 Builders and Titans-Ren Zhengfei" [Http://www.time.com/time/subscribe/2005/time100/builders/100zhengfei.html](http://www.time.com/time/subscribe/2005/time100/builders/100zhengfei.html).

¹²⁵ Cheng, Li (2006): "China's Telecom Industry on the Move: Domestic Competition, Global Ambition, and Leadership Transition", *China Leadership Monitor* No. 19. [Http://www.hoover.org/publications/clm/issues/4469916.html](http://www.hoover.org/publications/clm/issues/4469916.html).

¹²⁶ Flannery, Russell (2004-11-29): "An Air of Mystery: Huawei's Successful CEO Needs PR Help as the Company's Overseas Push Accelerates", [Http://www.forbes.com/global/2004/1129/030.html](http://www.forbes.com/global/2004/1129/030.html).

not satisfied with the status quo and thinking about how Huawei manages to survive in the increasingly fierce competition. It was the “*wolf*” spirit that inspired Ren to firmly decide to take a positive attack to the international markets rather than to passively defend the domestic market. The “*wolf*” spirit not only embodies his strong sense of urgency, but also reflects his desire for success and internationalization ambitions. Ren interpreted the “*wolf*” spirit as that: “*Developing enterprises like hungry wolves. Wolves have three significant characteristics – keen sense of smell, unyielding and never-tired offensive spirit, as well as group-fighting awareness. Similarly, an enterprise must possess the three characteristics of wolves so as to expand*”.¹²⁷ In 1998, Ren improved and extended the essence of “*wolf*” spirit, drafting out *Huawei Corporate Law* based on the “*wolf*” spirit. The core was to promote “Team, Dedication, Learning, Innovation and Fair”. Thereat, Ren created Huawei’s corporate culture with his unique entrepreneurial spirit.¹²⁸ In Huawei’s corporate culture is less bloody, aggressive and blind than the original “*wolf*” spirit, but greater emphasis on innovation, harmony and rationality. Undoubtedly, the “*wolf*” spirit is a driving force to accelerate Huawei’s internationalization process and realize its catch-up strategy. However, with the end of horizontal expansion and commencement of Huawei’s involvement in a deeper level of international competition and cooperation, the “*wolf*” spirit has to be timely adjusted in accordance with different historical backgrounds, different cultures and different institutional environment.

5.2.2. The Capability of Establishing Political Ties

In transition economy, governments remain predominance over economic scarce resources and play a dominant role in shaping economic development. Hence, compared with state owned enterprises (SOEs) and collective enterprises, it is even more important for entrepreneurs of private enterprises to establish networks. They have to cultivate two types of networks. The first one is to set up good relations with entrepreneurs of other enterprises, including suppliers, buyers, and competitors. The second one is to build up tight relations with governments. Through establishing these networks, enterprises are able to enjoy the privileges,

¹²⁷ Source: Huawei interview (2008-05-03).

¹²⁸ Ibid.

such as access to bank loans, raw material and education market and etc. These are essential for successful entrepreneurs in the transition economies, which is also the special characteristic of transition economy different from developed countries from institutional arrangement perspective (Peng and Shekshnia, 2001).¹²⁹ Child and Rodrigues (2005), in their case studies of Chinese enterprises, found that Chinese entrepreneurs are more effective in promoting internationalization when they retain their connections with the government. They called this as Chinese type “*strategic entrepreneurship*”.¹³⁰ Especially in state-controlled industrial sector, Chinese entrepreneurs are more interested in cultivating personal connections with powerful government bureaucrats to gain access to scarce resources (Nee and Opper).¹³¹ In Huawei’s case, telecom industry remains a tightly controlled industrial sector by Chinese governments. Thus, Ren Zhengfei clearly realizes that Huawei’s survival, development and international operation are inseparable from political ties with governments. Lots of evidences show that Huawei has formed favorable relations with government during its internationalization process, which demonstrates Ren’s indubitable ability in government public relations. For example, in 1996, the critical moment when Huawei was preparing for its international operation, it encountered a shortage of funds. The same year, the then Vice-Premier, Zhu Rongji inspected Huawei, encouraging Huawei’s international development, meantime, solving Huawei’s bank loan problem. In November 2000, Ren, as a representative from the Chinese business sector, accompanied the then Vice-Premier, Wu Bangguo, to visit Africa, further expanding Huawei’s presence in African market.¹³² It is precisely because of Ren’s sharp political insight and effective government public relation capability that Huawei catches the express of China’s diplomacy and embarks on rapid internationalization development.

¹²⁹ Peng, Mike W. and Shekshnia, Stanislav V. (2001): “*How Entrepreneurs Create Wealth in Transition Economies*”, *The Academy of Management Executive*, Vol.15, No. 1, pp. 95-110

¹³⁰ Child, John and Rodrigues, Suzana B. (2005): “*The Internationalization of Chinese Firms: A Case for Theoretical Extension*”, *Management and Organization Review*, Vol.1, No.3, pp. 381–410.

¹³¹ Nee, Victor and Opper, Sonja (2007): “*On Politicized Capitalism*”, in Victor Nee and Richard Swedberg (eds.) *On Capitalism*, Stanford: Stanford University Press, pp. 93-127.

¹³² Source: *Huawei Interview* (2008-05-05).

6. Conclusions

6.1. Conclusion of Thesis

Since economic reform and opening up in 1978, the Chinese economy has maintained its growth for about 30 years, with an average annual increase of around 10 percent. China has become the largest developing country and emerging economy in the world (World Bank, 2007).¹³³ In recent years, more and more Chinese enterprises become the international players on the world stage. They are likely to be the important force in promoting China's economic and even for the world economic development in the near future. Thus, studies on Chinese MNEs' internationalization process provide some examples and evidences from developing countries or transition economies for the improvement and extension of existing internationalization theories. This case study of Huawei's internationalization strategy attempted to address three research questions: 1) What are the key components of Huawei's internationalization strategy? 2) How much will Dunning's eclectic paradigm of international production be applied to explain Chinese MNE - Huawei's internationalization? 3) What are the special characteristics of the Huawei's internationalization process, which might be the supplements to the existing Dunning's eclectic paradigm?

Firstly, Huawei's internationalization is a dynamic and gradual process, undergoing tentative, take-off and mature stages. In each stage, Huawei initiates and adjusts its internationalization strategies according to different strategic targets. Huawei's general internationalization strategy is technology R&D oriented, pushing forward the internationalization process and engaging in overseas investment from developing countries to developed countries. According to Dunning's eclectic (OLI) paradigm, Huawei makes full use of its comparative advantages in low cost, differentiation and relative advanced technology as the powerful weapon to penetrate international markets. In accordance with different factor endowments of developing and developed countries, Huawei demonstrated diversified motives of technology seeking, market seeking and assets seeking. Huawei combines its firm-specific advantages and location advantages to form new advantages and internalizes them with its own

¹³³ World Bank (2007): He, Jianwu and Kuijs, Louis, "Rebalancing China's Economy- Modeling a Policy Package", *World Bank China Research Paper No. 7*, http://www.worldbank.org.cn/english/content/working_paper7.pdf.

international organizations. In addition, Huawei actively participates in strategic alliances based on competition and cooperation. Through interaction with inter-network participants, Huawei consolidates and develops its core competency, meanwhile, reducing overseas investment and international production cost and risks.

Secondly, Generally speaking, Dunning's eclectic paradigm is capable in explaining FDI and internationalization activities of MNEs from developing countries. Especially in the aspects of those investments in other developing countries or less developed countries. However, with the increase of investment by MNEs from developing countries in developed countries, Dunning's eclectic (OLI) paradigm runs into some difficulties and shows some limitations in explaining these investments in developed countries. In the internationalization process, Huawei demonstrates some unique characteristics in OLI advantages which are different from MNEs from developed countries. 1) In terms of ownership advantages, low-cost advantage is unlikely to be a long-term strategy for high technology enterprise to compete in the international market. High technology enterprises must gain the core competency in technology and brand, in order to participate in higher value-added international activities. However, Huawei does not possess comparative advantages over MNEs from developed countries in terms of technology and brand. Therefore, Huawei deploys catch-up strategy in the internationalization process. Through investing in developed countries and forming alliance or cooperation, Huawei acquires technology and brand resources to offset the defects, and gradually forms its own technology superiority and establishes brand influence. Hence, MNEs from developing countries do not necessarily possess comparative advantages when investing in developed countries. They follow a dynamic learning process to catch up with MNEs from developed countries. 2) Huawei has demonstrated distinctive logic of location choice. Economic crisis, war and natural disasters are commonly regarded as location disadvantage factors. While for Huawei, in the initial stage of internationalization, these might be the opportunities to win and expand the international market. In the mature stage, *psychic distance* does not become the obstacle of Huawei's investment in western developed countries. In Huawei's distinctive logic of location choice, potential opportunity, technology R&D and market are top priorities. 3) In the internalization process of investing in developed countries,

Huawei is more interested in *enhancing transaction value* and *exploring* technology R&D resources and potential large markets rather than *reducing transaction cost* and *exploiting* the existing advantages. Besides, the ownership advantages transfer directions are also different in the process of internalization. Huawei prefers to transfer newly formed ownership advantages from developed countries back to China, in order to drive overall improvement of its ownership advantages in China. Huawei's special characteristics of OLI advantages supported some arguments of researches (Li, 2003, 2007; Mathews, 2006)¹³⁴ on MNEs from developing countries. These evidences suggested that the existing OLI paradigm still needs to be modified so as to apply to the MNEs from developing countries, and improved in order to explain all MNEs to a greater extent.

Lastly, Huawei, as a MNE from developing country and transitional economy, demonstrated unique characteristics other than OLI parameters in the internationalization process. These characteristics stem from China's special institutional environment and Huawei's unique entrepreneurship, which are the key drivers to accelerate Huawei's internationalization process. This study focuses on two aspects including the role of government and entrepreneurship. The key findings are as follows: 1) China's transition economy is characterized by heavily institutional and political involvement in the business system. Government support, policy and intervention play significant roles in Huawei's internationalization process. 2) Entrepreneurship guides direction of MNE international expansion. A successful entrepreneur should have a strategic global vision and internationalization ambitions. The inimitable "wolf" spirit is the endogenous driver for Huawei's international expansion. It should be noted that not all enterprises have a powerful CEO like Ren Zhengfei and his "wolf" spirit. This is Huawei's unique characteristic and cannot be generalized. In the context of China's transition economy, entrepreneurs need to set up close relationship with governments so as to gain governments' support for their

¹³⁴ Li, Ping P. (2003): "Toward a Geocentric Theory of Multinational Evolution: the Implications from the Asian MNEs", *Asian Pacific Journal of Management*, Vol. 20, No. 2, pp. 217-242.

Li, Ping P. (2007): "Toward an Integrated Theory of Multinational Evolution: The Evidence of Chinese Multinational Enterprises as Latecomers", *Journal of International Management*, Vol. 13 No. 3 p.p. 296-318.

Mathews, John A (2006): "Dragon Multinationals: New Players in 21st Century Globalization", *Asia Pacific Journal of Management*, Vol. 23, No. 1, pp. 5-27.

internationalization. Based on China's experiences, a successful entrepreneur must possess the capability of balancing the relationship between corporate autonomy and government involvement in the internationalization process.

In conclusion, in order to form a real sense of "paradigm" which applies to all MNEs, OLI parameters of Dunning's eclectic paradigm need to be modified in the following aspects: 1) Possessing comparative advantages may not be the prerequisite of MNEs' engagement in FDI. MNEs from developing countries adopt catch-up strategy in their internationalization process. Therefore, enhancing their ownership advantages becomes a dynamic learning process. 2) In terms of location choice, MNEs from developing countries lay emphasis on achieving strategic goals and international layout. Therefore, they pay more attention to potential opportunities rather than worrying about economical and political instability, natural disasters and physic distance. 3) During the internalization process, MNEs from developing countries are more interested in the opportunities of enhancing transaction value rather than reducing transaction cost. With increasing number of MNEs from emerging economies participating in international value added activities, OLI parameters are no longer the limited number of factors affecting MNEs' engagement in overseas investment, and more other factors need to be taken into account. The case of Huawei also suggests that the Dunning's eclectic paradigm should take account of the potential exogenous institutional factors of home country and endogenous incentives of the enterprises, especially role of government and entrepreneurship in the context of transition economy.

6.2. Future Studies

Although Huawei is the forerunner of China's telecom enterprises in term of internationalization, it still has some gaps compared with the telecom giants from developed countries in terms of technology, capital, R&D expenditure and level of internationalization. Especially in international strategic layout, Huawei still experiences many difficulties of competing in the world's largest telecom market – the North American market. Huawei is possible to encounter some other problems in the present and future internationalization

process as well. For example, will Huawei's embedded *wolf* spirit be conflict with other corporate culture of foreign companies, especially in joint ventures? Will Huawei adopt different modes of managing and transacting to adapt to different cultures? Will Huawei successfully access new overseas networks? And how will Huawei handle with the cultural difference between Eastern and Western countries. In addition, Huawei is not a listed company yet, but going public will be the inevitable trend in Huawei's future internationalization process. After being listed in stock market, how will Huawei adjust the internationalization strategy? How will it control the stock market risk and make full use of capital advantages in its internationalization strategy? These are the potential problems which Huawei has to concern about. To sum up, the future path of Huawei's internationalization will be even more difficult, and the future international competition will become more intensive.

The above questions might generate some inspirations to our future studies on Huawei internationalization strategy. 1) Culture factors. Some studies on Chinese MNEs' internationalization process (Cai, 1999; Erdener and Shapiro, 2005)¹³⁵ have incorporated cultural factors. For example, some found that Chinese enterprises preferred to invest in countries where the Chinese social networks present. But in Huawei's case, less evidence supports this viewpoint. Some researches analyses the impacts of cultural conflicts to Chinese enterprises' internationalization from the perspective of "*liability of foreignness*" (Child and Rodrigues, 2005)¹³⁶. Future studies might also view from this interesting perspective to analyze the impact of Chinese culture on Huawei's internationalization and how Huawei could offset the *liability of foreignness* during the internationalization process. 2) Huawei's internationalization strategy adjustment after going public. Being listed in the stock market will be a new starting point for Huawei's internationalization. Huawei will face with many changes, such as changes in equity, capital and risks, which will have deep impacts on its internationalization decision-making. Thus, future case study on Huawei will continue to

¹³⁵ Cai, K. G. (1999): "*Outward Foreign Direct Investment: A Novel Dimension of China's Integration into the Regional and Global Economy*", *China Quarterly*, No.160, pp. 856-880.

Erdener, Carolyn and Shapiro, Daniel M. (2005): "The Internationalization of Chinese Family Enterprises and Dunning's Eclectic MNE Paradigm", *Management and Organization Review* Vol.1, No.3, pp. 411-436.

¹³⁶ Child, John and Rodrigues, Suzana B. (2005): "*The Internationalization of Chinese Firms: A Case for Theoretical Extension*", *Management and Organization Review*, Vol.1, No.3, pp. 381-410.

deploy a *dynamic* approach.

Reference

1. Behrman, J. N. (1972): “*The Role of International Companies in Latin America: Autos and Petrochemicals*”, Lexington, MA: Lexington Books.
2. Buckley, Peter J. and Casson, Mark C. (1976): “*The Future of Multinational Enterprises*”. MacMillan, London.
3. Brian, Low (2007): “*Huawei Technologies Corporation: from local dominance to global challenge*”, *The Journal of Business & Industrial Marketing*, Vol. 22, No. 2, pp.138.
4. Cai, K. G. (1999): “*Outward Foreign Direct Investment: A Novel Dimension of China’s Integration into the Regional and Global Economy*”, *China Quarterly*, No.160, pp. 856–880.
5. Casson, Mark (2005): “*Entrepreneurship and the Theory of the Firm*”, *Journal of Economic Behavior & Organization*, Vol. 58, No. 2, pp. 327–348.
6. Child, John and Rodrigues, Suzana B. (2005): “*The Internationalization of Chinese Firms: A Case for Theoretical Extension*”, *Management and Organization Review*, Vol.1, No.3, pp. 381–410.
7. DeWoskin, Kenneth J. (2001): “*The WTO and the Telecommunications Sector in China*”, *The China Quarterly*, No. 167, pp. 630-654.
8. Dunning, John H. (1976): “*Trade, Location of Economic Activity, and the MNE: A Search for an Eclectic Approach*”, in Ohlin, B., et al. (eds.), *The International Allocation of Economic Activity*, Macmillan, London, pp.395-418, published in 1977.
9. Dunning, John H. (1981): “*International Production and Multinational Enterprises*”, London George Allen & Unwin, pp. 111.
10. Dunning, John H. & Rugman, Alan M. (1985): “*The Influence of Hymer’s Dissertation on the Theory of Foreign Direct Investment*”, *The American Economic Review*, Vol. 75, No. 2, Papers and Proceedings of the Ninety-Seventh Annual Meeting of the American Economic Association, pp. 228-232.
11. Dunning, John H. (1988): “*The Eclectic Paradigm of International Production: A Restatement and Some Possible Extensions*”, *Journal of International Business Studies*, Vol. 19, No. 1, pp. 1-31.
12. Dunning, John H. (1993): “*Multinational Enterprises and the Global Economy*”,

- Addison-Wesley, pp. 81.
13. Dunning, John H. (1995): “*Reappraising the Eclectic Paradigm in an Age of Alliance Capitalism*”, *Journal of International Business Studies*, Vol. 26, No. 3, pp. 461-491.
 14. Erdener, Carolyn and Shapiro, Daniel M. (2005): “The Internationalization of Chinese Family Enterprises and Dunning’s Eclectic MNE Paradigm”, *Management and Organization Review* Vol.1, No.3, pp. 411–436.
 15. Freeman, C. and Hagedoorn, J. (1994): “*Catching Up or Falling Behind: Patterns in International Interfirm Partnering*”, *World Development*, Vol. 22, pp. 771-780.
 16. Gan, Ross (April, 2008): “*2008 Corporate Update*”, Huawei Global Industry Analyst Summit, Huawei Technologies.
 17. Geroski, P. A.(1979): “*Book Review of Direct Foreign Investment by Kiyoshi Kojima*”, *The Economic Journal*, Vol. 89, No. 353, pp. 162-164.
 18. Hagedoorn, John (1993): “*Understanding the Rationale of Strategic Technology Partnering: Interorganizational Modes of Cooperation and Sectoral Differences*”, *Strategic Management Journal*, Vol. 14, No. 5, pp. 371-385.
 19. Hirschman, Albert, O. (1970): “*Exit, voice and loyalty*”, Cambridge, Mass.: Harvard University Press. Cited by Dunning, John H. (1995, 464).
 20. Hong, Eunsuk and Sun, Laixiang (2006): “*Dynamics of Internationalization and Outward Investment: Chinese Corporations’ Strategies*”, *China Quarterly*, Vol. 187, pp. 610-634.
 21. Johanson, J. and Wiedersheim-Paul, F. (1975): “*The internationalization of the firm-Four Swedish Cases*”, *Journal of Management Studies*, Vol. 12, No. 3, pp. 305–323.
 22. Johanson, J. and Vahlne, J. E. (1977): “*The Internationalization Process of the Firm- A Model of Knowledge Development and Increasing Foreign Market Commitments*”, *Journal of International Business Studies*, Vol. 8, No. 1, pp. 23-32.
 23. Knight, Frank H. (1942): “*Profit and Entrepreneurial Functions*”, *The Journal of Economic History*, Vol. 2, Supplement: The Tasks of Economic History, pp. 126-132.
 24. Kojima, Kiyoshi (1978): “*Direct Foreign Investment: A Japanese Model of Multinational Business Operations*”, Croom Helm, London.
 25. Li, Ping P. (1994): “*Strategic Profile of Indigenous MNEs from NIEs: Case of South Korea and Taiwan*”, *The International Executives*, Vol. 36, pp.147–170.

26. Li, Ping P. (2003): “*Toward a Geocentric Theory of Multinational Evolution: the Implications from the Asian MNEs*”, *Asian Pacific Journal of Management*, Vol. 20, No. 2, pp. 217–242.
27. Li, Ping P. (2007): “*Toward an Integrated Theory of Multinational Evolution: The Evidence of Chinese Multinational Enterprises as Latecomers*”, *Journal of International Management*, Vol. 13 No. 3 p.p. 296-318.
28. Lindsey, Charles W. (1984): “*Book Review of Third World Multinationals: The Rise of Foreign Investment from Developing Countries by Louis T. Wells, Jr.*”, *Pacific Affairs*, Vol. 57, No. 1, pp. 190-192.
29. Loasby, Brian J. (1983): “*Book Review of the Entrepreneur: An Economic Theory by Mark Casson (1982)*”, *The Economic Journal*, Vol. 93, No. 372, pp. 931-932.
30. Lundan, Sarianna and Hagedoorn, John (2001): “*Alliances, Acquisitions and Multinational Advantage*”, *International Journal of the Economics of Business*, Vol. 8, No. 2, pp. 229-242.
31. Luo Xueming; Zhou Lianxi; Liu Sandra S(2005) : “*Entrepreneurial Firms in the Context of China’s Transition Economy: an Integrative Framework and Empirical Examination*”, *Journal of Business Research*, Vol. 58, No. 3, pp. 277-284
32. Markusen, James R. (1995): “*The Boundaries of Multinational Enterprises and the Theory of International Trade*”, *The Journal of Economic Perspectives*, Vol. 9, No. 2, pp. 169-189.
33. Mao, Zedong (Mao Tse-tung 1930): “*A Single Spark Can Start a Prairie Fire*”, *Selected Works of Mao Tse-tung*, Foreign Languages Press (1967), Vol. 1, pp. 117-128.
34. Mathews, John A. (2003): “*Competitive Dynamics and Economic Learning: An Extended Resource-based View*”, *Industrial and Corporate Change*, Vol. 12, No.1, pp. 115–145.
35. Mathews, John A. (2006): “*Dragon Multinationals: New Players in 21st Century Globalization*”, *Asia Pacific Journal of Management*, Vol. 23, No. 1, pp. 5-27.
36. Nee, Victor and Opper, Sonja (2007): “*On Politicized Capitalism*”, in Victor Nee and Richard Swedberg (eds.) *On Capitalism*, Stanford: Stanford University Press, pp. 93-127.
37. Nee, Victor, Opper, Sonja and Wong, Sonia (2007): “*Developmental State and Corporate Governance in China*”, *Management and Organization Review*, Vol. 3, No. 1 pp. 19–53.

38. Ohlin, Bertil (1933): "*Interregional and International Trade*", Harvard University Press.
39. Parry, Thomas G. (1977): "*Book Review of the International Operations of National Firms: A Study of Direct Foreign Investment by Stephen Herbert Hymer*", *The Journal of Political Economy*, Vol. 85, No. 5, pp. 1096-1098.
40. Peng, Mike W. and Shekshnia, Stanislav V. (2001): "*How Entrepreneurs Create Wealth in Transition Economies*", *The Academy of Management Executive*, Vol.15, No. 1, pp. 95-110.
41. Porter, Michael E. (1980): "*Competitive Strategy: Techniques for Analyzing Industries and Competitors*", New York: Free Press.
42. Rugman, A.M. (2006): "*Multinational Enterprise Strategy for Developing Countries*", in *Multinational Corporations and Global Poverty Reduction*, edited by Subhash C. Jain and Sushil Vachani, Edward Elgar Publishing, pp.142-163.
43. Schumpeter, J. A. (1949): "*Economic Theory and Entrepreneurial History*", In Harvard University Research Center in Entrepreneurial History. "*Change and the entrepreneur: postulates and patterns for entrepreneurial history*", Harvard University Press, Cambridge, Mass. Reprinted in Richard V. Clemence (ed.) (1951). *Essays of Schumpeter*. Addison-Wesley, Cambridge, Mass. pp. 66.
44. Vernon, R. (1966): "*International Investment and International Trade in the Product Cycle*", *The Quarterly Journal of Economics*, Vol. 80, No. 2. pp. 190-207.
45. Vernon, R. (1985): "*Multinationals as Mutual Invaders*", London: Croom Helm. Cited by Dunning (1988).
46. Wells, Louis T. (1983): "*Third World Multinationals: The Rise of Foreign Investment from Developing Countries*", Cambridge, Mass., MIT Press, 206 pp.
47. Woodside, Arch G. and Wilson, Elizabeth J. (2003): "*Case Study Research Methods for Theory Building*," *The Journal of Business & Industrial Marketing*, Vol. 18, No. 6/7, pp. 493-508.
48. Yin, R. K. (1984): "*Case Study Research: Design and Methods*", Newbury Park, CA: Sage, pp. 23.

Electronic Sources

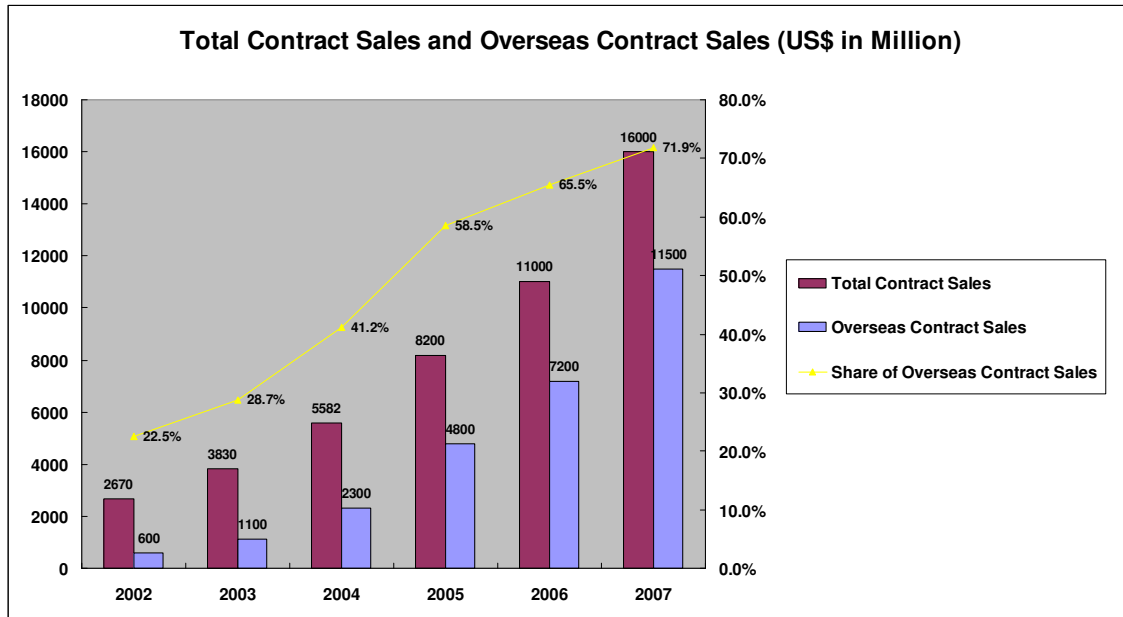
1. Casson, Mark: “*Entrepreneurship*”, *The Concise Encyclopedia of Economics*, Library of Economics and Liberty. <http://www.econlib.org/Library/Enc/Entrepreneurship.html>, 2008-04-20.
2. Cheng, Li (2006): “*China’s Telecom Industry on the Move: Domestic Competition, Global Ambition, and Leadership Transition*”, *China Leadership Monitor* No. 19. <http://www.hoover.org/publications/clm/issues/4469916.html>.
3. China Daily (English, 2005-12-08): “*Cheap Labor Can Not Last*”, http://www.chinadaily.com.cn/chinagate/doc/2005-12/08/content_501632.htm.
4. Development Research of State Council, PRC (2006-12-16), “*Analysis on Internationalization Strategies of Six Industries*”, a released report from <http://fjgyw.fjinfo.gov.cn/DRCNet.Channel.Web>.
5. Flannery, Russell (2004-11-29): “*An Air of Mystery: Huawei’s Successful CEO Needs PR Help as the Company’s Overseas Push Accelerates*”, <http://www.forbes.com/global/2004/1129/030.html>.
6. Forney, Matthew (2005): “*The 2005 Time 100 Builders and Titans-Ren Zhengfei*”, <http://www.time.com/time/subscriber/2005/time100/builders/100zhengfei.html>.
7. Huawei News (2004-04-08): “*A US\$600 Million Export Buyer’s Credit Framework Agreement Signed between China EXIM Bank and Huawei*”, http://learning.huawei.com/english/EnglishVersion/new.php?NEWS_ID=617, 2008-05-06
8. Huawei News (2006-04-20): “*Huawei Enhances Western African Service Capabilities with US\$10M Technology Support and Training Centers*”, <http://www.huawei.com/news/view.do?id=645&cid=42>, 2008
9. Huawei Technologies (2005): “*Huawei Annual Report 2004*” from <http://www.huawei.com>, 2008-05-06.
10. Huawei Technologies (2007): “*Huawei Annual Report 2006*” from <http://www.huawei.com>, 2008-05-06.
11. Huawei Technologies: “*Milestones of Huawei*”, http://www.huawei.com/corporate_information/milestones.do, 2008-04-18.

12. Huawei Technologies: “*Research & Development*”,
http://www.huawei.com/corporate_information/research_development.do, 2008-05-06.
13. International Data Corporation (IDC, 2007): “*Worldwide Telecom Black Book*”, Version 2,
<http://www.idc.com>.
14. MOFCOM News (2005-03-15): “*China Mobile Bids to Take First Global Step*”,
<http://english1.mofcom.gov.cn/aarticle/counselorsreport/asiareport/200503/20050300025160.html>
15. MOFCOM News (2007-09-10): “*Chinese enterprises arise as popular investors on global market*”,
<http://english.mofcom.gov.cn/aarticle/counselorsreport/westernasiaandafriicareport/200709/20070905079287.html>
16. UNCTAD (2008-01-08): “*Foreign Direct Investment Reached New Record in 2007*”,
<http://www.unctad.org/Templates/Webflyer.asp?docID=9439&intItemID=1634&lang=1>.
17. UNCTAD (2007-10-16): “*World Investment Report*”, <http://www.unctad.org>.
18. World Bank (2007): He, Jianwu and Kuijs, Louis: “*Rebalancing China’s Economy- Modeling a Policy Package*”, *World Bank China Research Paper No. 7*,
http://www.worldbank.org.cn/english/content/working_paper7.pdf.
19. Weisman, Steven R. (2008-2-28): “*U.S. Security Concerns Block China’s 3Com Deal*”,
New York Times,
<http://www.nytimes.com/2008/02/21/business/worldbusiness/21invest.html?pagewanted=print>.
20. Young, Doug (2005-05-26): “*Chinese Tech Giants Knock on Europe’s Gates*”, Reuters,
Paris, <http://www.reuters.com/article/ParisTech/idUSL2632418020050526>.

Interviews:

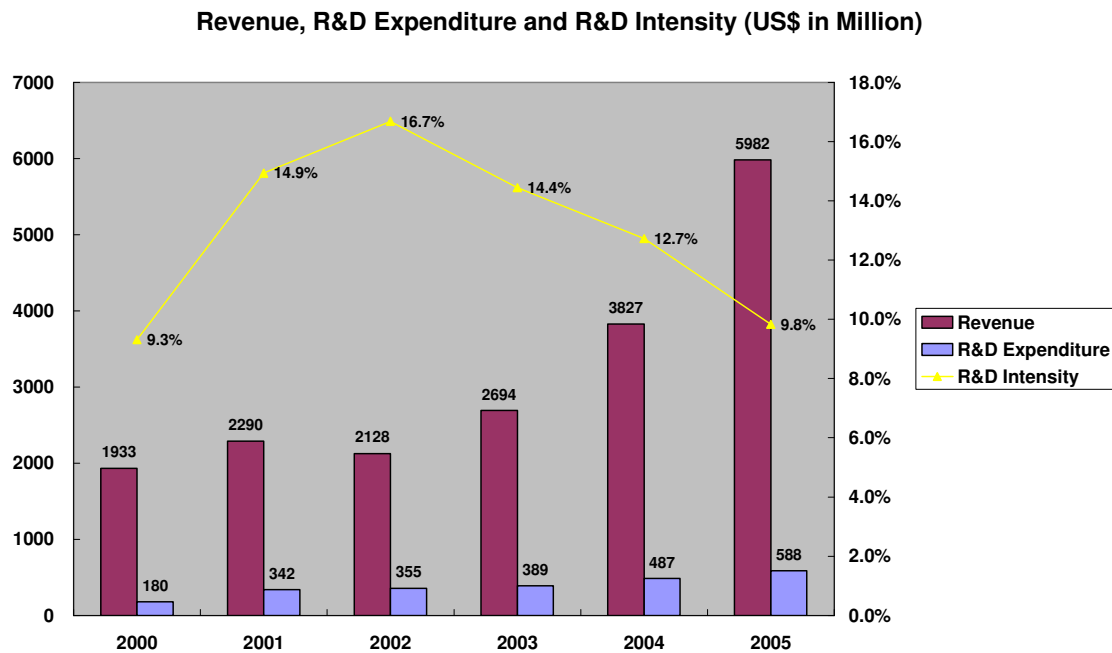
Heidi Li, Senior Branding Manager, Corporate Branding and Communications Department of Huawei Technologies Corporation, 2007-11-18, 2008-04-16, 2008-04-23, 2008-05-03.

FIGURE 1: TOTAL CONTRACT SALES AND OVERSEAS CONTRACT SALES (US\$ IN MILLION)



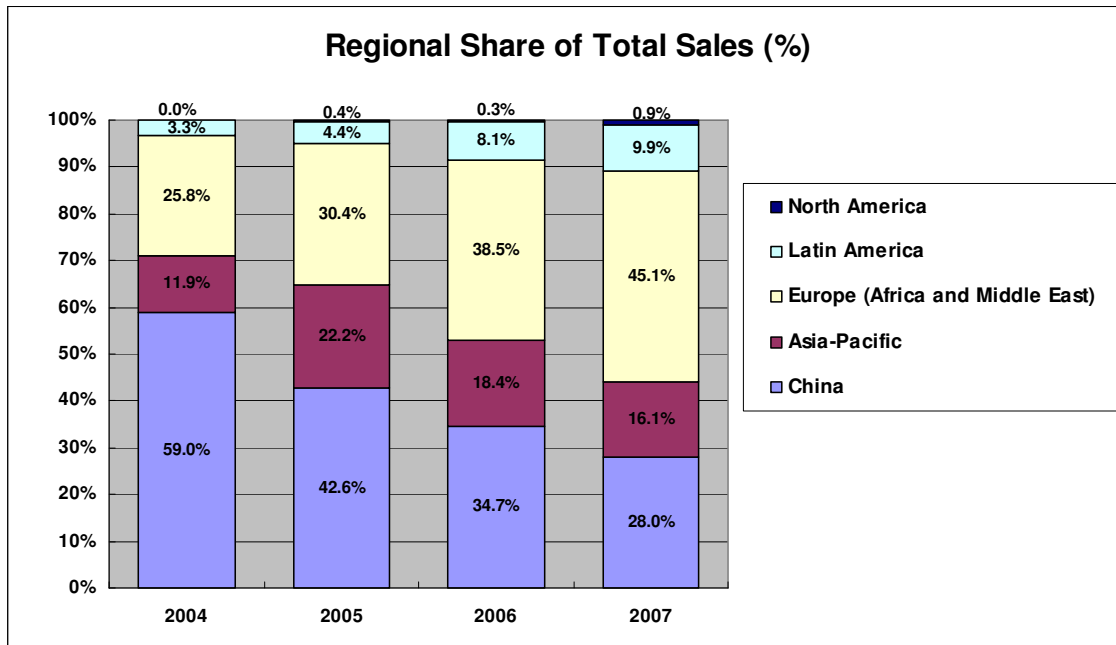
Source: *Huawei Annual Report 2004* and “*2008 Corporate Update*”, Huawei Global Industry Analyst Summit, Huawei Technologies.

FIGURE 2: REVENUE, R&D EXPENDITURE AND R&D INTENSITY (US\$ IN MILLION)



Source: *Huawei Annual Report 2004* and *Huawei Annual Report 2006*

FIGURE 3: REGIONAL SHARE OF TOTAL SALES (%)



Source: “2008 Corporate Update”, Huawei Global Industry Analyst Summit, Huawei Technologies.