Competitive Advantage Based on Innovation

---The Case of Samsung

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ABSTRACT

In the last decade, as a latercomer and undergone the Asia Financial Crisis, Samsung Electronics has been developing at an amazing speed in the world. 7 kinds of its products have taken the largest share in the world market. On the basis of objective investigation on the spot and within the analytical framework of the innovation theory and Slope-Ball Model, this paper provides a thorough look at the rising of SAMSUNG Electronics and its international strategy. The paper addresses the issue of how Samsung fully takes the advantage of being a latercomer and achieves leap-forward development. And the conclusion is that innovation is the key. And in the end, thoughts and suggestions on Chinese enterprises' management innovation are given from the point view of strategical investment on innovation and human resources.

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Introduction

SAMSUNG ELECTRIC CO., LTD (Samsung for short) was founded in 1969 in South Korea with Samsung Group as its largest shareholder. During more than 30 years of development, especially during last decade, Samsung has experienced ups and downs, which made it a character of legend. At the dawn of 1990s, Samsung was just an ordinary electrical appliance corporation engaging in OEM and assembling with CMOS chip purchased from abroad. However, within less than 10 years, Samsung has developed engineering of core technology and the application gave the company a powerful productivity. Now Samsung is leading in the world market in 7 kinds of products. In 97's economic crisis in Korea, Samsung was in more than USD 7 billion of debt. However, it became the world's largest manufacturer in EMS memory chip, LCD and color television and No.3 in mobile-phone manufacture, within only 5 years. 10 years ago, the brand "Samsung" was just a pronoun for cheap electrical appliance among consumers but now it becomes one of the leaders in high-tech digital products. On the company net value top-100 hosted by the market brand surveying company Interbrand and the *Business Weekly* of the U.S. in 2003, Samsung ranked the 25th with a brand value of USD 10.8 billion, the second year of being the most rapidly growing company in brand value global-wide. In 2003, Samsung's revenue from electronics amounted to USD 36 billion, ranking the 59th in *FORTUNE*'s World Top 500. In 2002, Samsung ascent to the top seat in the "World Top 100 IT Companies" of the *Business Weekly* of the U.S..

With all these facts, Samsung has proved that it has evolved into a leader in digital-integration technology in this digital era, from a household appliance manufacturer. How Samsung fully takes the advantage of being a latercomer, surpassing so many famous leading formers in less than 20 years and develops a powerful engineering of core technology? How Samsung shook off all the pressures brought by the East Asia Financial Crisis so quickly and regain vitality within only 2 years? How Samsung's brand strategy doubled its brand value in 2 years?

The rising of Samsung has attracted broad attention from the management kingdom and entrepreneurs, both domestically and from abroad. Marcel Corstjens and Jeffrey Merrihue discussed how Samsung Electronics grew up to be one of the most promising companies in the world from the perspectives of marketing and brand operation[1]. And Fen-Hee Lee has depicted the development journey of Samsung electronics much more completely and systematically in his book *Samsung tactics*[2]. But the study on Samsung from abroad has only a very limited impact on domestic academia and little has been referred and what's more, little about Samsung's internationalization strategy in China has been studied abroad.

The domestic academia has always attached great importance to Samsung's experience in its success and there are many working papers about Samsung. However, all these preceding studies have two problems in common:

Firstly, most of the working papers on Samsung are descriptions on its course of success, lacking the preciseness of scientific study and support of management theory.

Secondly, most of the studies on Samsung are focusing on one particular perspective of its value chain. For instance, annotation on its success from marketing, human capital, brand, internationalization, multi-modal, etc. there hasn't been any all-round study on it yet and thus the result is not convincing.

Innovation and Slope-Ball Model: A Management Framework on Innovation Analysis

This paper invokes the Innovation and Slope-Ball Model in management and addresses the key factors in Samsung's success in its leap-forward development and the possible inspirations and encouragements for Chinese enterprises.

Joseph Schumpeter believes that innovation is a kind of creative destruction and it is a change on the product function[3]. But the course of innovation is invisible and hard to track and evaluate. However, the Slope-Ball Model provides us with a clear logic-analyzing framework in analyzing Samsung's innovation (see Figure 1).

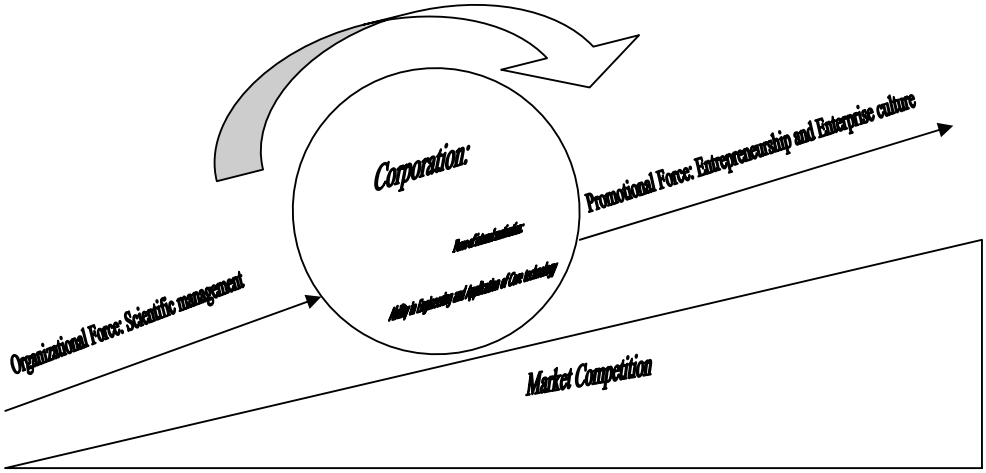

Figure 1: Slope-ball Model

In order to maintain a sustainable development in today's fierce market competition, a company has to have three lasting forces. Promotion force: entrepreneurship and company culture, which lead the way of development and strategic decision-making of a company and determine the character of a company. Organization force: scientific management, which ensures the full execution of a company's strategy. And force of internal motivation: ability in engineering of core technology and its application, which forms a company's competence. These three forces constitute the key and substantial content of a company's core competence and also, they are the sources of a company's competitive advantage, driving a company continuously upward along the grand market competition curve.

This paper elaborates on how Samsung strengthens these three forces through innovation and optimizing its competitive advantage. And with the appendage of dimensional latitude, the paper also analyzes Samsung's internationalization in China, based on the Slope-Ball Model.

Promotion Force: Innovation as the Essence of Entrepreneurship

Speaking of Samsung's resplendence, almost every manager or ordinary employee will

refer to the well-known remarks by Kun-Hee Lee, the chairman of Samsung Group, “Except wife and children, all the things have to change.”

From the point view of Joseph Schumpeter, an entrepreneur definitely is someone who makes innovation come true and brings new combinations. Innovation is the typical characteristics of entrepreneurship[4]. As a key factor of a company, entrepreneur’s spirit and implementing ability in innovation is noncompetitive and they are the basis of a company’s existence and development. Essentially, economic development is a process in which entrepreneurs discover potential market opportunities and makes profits through innovative product line activities and reallocation of resources.

In company management, innovation includes two kinds: innovation in utilizing capital and innovation in reducing transaction cost. And more specifically, the former includes: ability in directing and adjusting production, ability in identifying underling’s human capital, ability in allocating company’s human resource, ability in organizing, ability in organizational recreation and ability in constructing corporation’s management mechanism, including self-inspiring, self-accumulating, self-restricting and an pro-active innovation mechanism. And the latter includes: ability in convincing, ability in managing uncertainties, ability in penetration of insights and ability to overcome opportunistic behaviors through contracting, etc. Among all these, it is vital for a corporation’s development to obtain the ability to gain insight in market, to make decisions courageously and resolutely and to upgrade its structure actively.

From Samsung’s history, we can see chairman Kun-Hee Lee’s demonstration of innovative entrepreneurship and excellent directing ability through his forecasting and deciding power. Early in 1974, Kun-Hee Lee became aware of the necessity of Samsung’s entering semiconductor and personally purchased Fuchuan Semiconductor. Through continuous development and investment, semiconductor has become Samsung’s most competitive product ever since 1990s and has been in the first place in the world semiconductor market for 9 successive years. In 1993, Kun-Hee Lee sparkplugged the New Management program. Through continuous indoctrinization of the consciousness of crisis and the concept that only those who change can possibly survive, Samsung’s core competence begun to change from mass imitational production to independent brand development based on digital technology. “Except wife and children, all the things have to change” was put forward at this time. When the 1997 Asia financial crisis broke out, chairman Kun-Hee Lee saw it as a chance of self-optimizing and upgrading Samsung’s competence. With his firm support, Samsung adjusted its structure boldly and resolutely, peeling off or selling 10 affiliates, breaking the tradition of lifelong employment in Korea and dismissed more than 30,000 employees and transform Samsung from a household appliance centered company into a world leader in electronics.

During its course to become a world top grade company, Samsung has never stopped innovation and transformation. What is the spiritual source entrepreneur’s innovation? Joseph Schumpeter once pointed out: “The first one is the pursuing of a private kingdom or dynasty to realize one’s dream or will. The second one is the determination to conquer and the impulsion to fight. Pursuing success is not for the sake of the result from success but for success itself. And the last one is enjoyment in creation or demonstration of one’s ability and wisdom.[5]” Similar dissertation has been made in the famous sociologist Max Weber’s book: *The Protestant Ethic and the Spirit of Capitalism* “In his life, an entrepreneur lives for the sake of his career, not that he work for the sake of survival[6].” Samsung’s continuous innovation exactly proved these believes,

attitudes, value views, ways of thinking and tendencies in characteristics, and has great significance on innovation and entrepreneur spirit. From Kun-Hee Lee's point of view, Samsung should be a respectable international corporation that contributes more for the creation of a much more prosperous society. He never thinks that there could be any time for Samsung to take a rest or feel content. In 2001, in order to cope with the fast-changing information age, the program of "Digital Management" was carried out. In 2002, Samsung implemented the Wow Product system, in order to maintain its leading position through the development of a series of high-tech. And in 2003, at the 10th anniversary of the New Management program, chairman Kun-Hee Lee actively promoted the second round of New Management to cope with the fierce competition worldwide. Now, bold and resolute transformation has been made in four key fields that will strongly tough its future development and they are global human resource management system, international competence of Samsung's product and service, development and utilization of new business fields and market opportunities and the social responsibility and public image of the brand Samsung. Innovation, initially as a spiritual longing for entrepreneurs, now has become part of Samsung's spirit and culture and has become the driving force of Samsung's firm and continuous transformation.

Force of Internal motivation: "Golden" industrial structure and core technology originated from creative thinking

Since the famous Harvard management experts C. K. Prahalad and Gray Hamel initiated the concept of the "Core Competence of the Corporation" in *Harvard Economic Review* in 1990, this concept has always been regarded by mainstream management experts as the origin of company's competitiveness. It is believed by C. K. Prahalad and Gray Hamel that "the Core Competence of the Corporation is the knowledge and technology incorporated inside one organization, especially the knowledge and technology about how to balance different skills and incorporate different techniques.[7]" Because of this, many experts believe that based on the analysis and establishment of a company's Core Competence, the company should not diversify its industrial structure, but rather put resources into the fields and parts of the value chain that the company is typically good at, so as to achieve better productivity and competitiveness, and to fortify company's Core Competence through continuous research and development as well as investment.

It is proven by practice that since the end of 1980s, many world-famous MNCs have shown a tendency to return to their main operations according to the interest of Core Competence: MNCs which have diversified operations have separated its main operations from the rest, and enhanced their core operation. In the global capital market, the M&As between MNCs have often been the cases of "the strong merging with the strong, which are of the same industry". They are aiming at the structural readjustment between companies, and putting the main operations first.

However, in this tide of specialization, SamSung didn't simply follow others. In Samsung Group, three sectors, namely electronic communication, financial insurance, and trade and service take the dominant role. In the electronic communication sector, the four major industries including semiconductor, communication, digital multi-media, and home apparatus, develop in a coordinated way. And in the home apparatus industry, there are four core products

namely washing machine, refrigerator, air-conditioner, and electric cooker. People of Samsung call this kind of industrial structure "golden structure", which enjoys a coordinated development. This diversification seems to be against the trend, but it has been proved effective in the global market competition. Eighteen of Samsung's products have taken the largest part of market share in various sectors, among which electronic products take up seven. The success of the diversification originated from Samsung's creative understanding of Core Competence.

First of all, the diversified structure of Samsung is based on the advantages it enjoys in various fields. It is the diversification through establishing structure and systems that are most suitable to itself. In other words, the diversification of Samsung is not based on the unity of its products, but on the unity of the resources. Many companies have such misconception that the Core Competence of a company is simply "choice and concentrations" or "specialization". Often they would identify relevance through the unity of the products, carry out wrong operations, in the hope that competitiveness would be gained by putting resources on certain operation or on a few products that have a high degree of relevance. However, they will be disappointed by the results. Let's look at Mercury Measures[8], which transferred its operation from industrial automatic temperature controller to home temperature controller. These two sectors seem alike; however, they are different in key resources that will lead to success. After three years of heavy loss, the company had to drop out of the market. Samsung's diversification has always been implemented in accordance with the unity of the advantageous resources. Among seven Samsung's products that has the most market share in the world, between colour kinescope and colour TV set, between magnetic head, memory drum and VCR, there is a high degree of relevance in advantageous resources. 30% of the chips Samsung produced are for its cell phones. Up to now, Samsung is the only company that can produce by itself the digital graphic processing chips for 3G cell phones and the memory device for digital TVs. These newly developed products based on core techniques will surely make Samsung products more competitive.

Secondly, in today's world, with the emerging of various home apparatus and communication facilities, Home Network, Office Network and Mobile Network are increasingly incorporated. Thus it is the only choice for companies to have a rather diversified industrial structure. It is believed by Samsung that, if company stresses too much on "choice and concentration", it will contract out more and more of its operations during the process of specialization. And it will witness a decrease of core techniques among different sectors inside the company. Though the company's Core Competence will be enhanced, it will acquire rigidity in the Core Competence due to the over-dependence on outsourcing. The over-reliance on specialization will accelerate the specialization of company's human resources and fixed assets. And gradually the company will develop into a rigid model of thinking and operation and will eventually face the rigidity of Core Competence. As soon as this rigidity emerges, the company will have over-reliance on the past experience. It will curb inner innovation, and give up its ability to absorb knowledge from outside[9]. When the environment outside the company changes, the company will immediately face a big management risk, and will endure a big influence on its performance. Thus Samsung believes that it has to maintain its diversification in order to achieve sustainable development. The "golden" industrial structure of Samsung has made a very good example to demonstrate how to prevent the rigidity, how to upgrade the techniques as well as products, and how to go beyond the present achievement. In 1993, after it has made success in semiconductors, Samsung made a great effort to develop LCD technology. Now it has got return in this field.

Following semiconductors, its LCD has become world's mainstreams products due to its excellent quality, and has maintained at the top for eight consecutive years. People of Samsung call the diversification "the seed operation, garden operation and fruit trees operation". Right now, mobile communication system, Networking and non-memory devices are the "seed operation"; digital TV, TEF-LCD are its "garden operation"; big TV, mobile phones, memory devices, and portable computers are its "fruit trees" operation. These have become the driving force of Samsung, and have provided the best conditions for Samsung to embrace the coming of digital convergence age.

Thirdly, the diversified structure has prevented the risk of cyclical instability. In 2001, because of the recession in IT industry, DRAM's price greatly dropped, reducing greatly the profit margin. In the middle of 2000, the price for DRAM is $18 each. At the end of November 2001, the price was less than $1. The great drop in price has brought big storms to the semiconductor industry: Micron in US and INFINEON in Germany witnessed a loss of USD1.9 billion each. However, Samsung's cell phones and other mobile communication departments have made a fortune at the same period of time, a total profit of USD1.2 billion, making Samsung's overall performance in terms of profit rank only after GE, IBM, and Nokia. During the 1997-1998 economic crisis in ROK, when Samsung was faced with the most difficult time, some western experts tried to persuade Samsung to keep the semiconductor sector as the core industry and abandon the rest. Samsung paid no attention. Now the development strategy of diversification has enabled Samsung to achieve the balance of profits and structure, and to have different sectors develop in a coordinated manner. Some economists and international companies have changed their mind seeing Samsung's success. Now, the trend of the development strategy for multinational corporations has also changed from the "choice and concentration" to the incorporation between the invisible assets and the network.

Organization Force:

Digital Samsung = Digital Products + Digital Management

In 2001, Samsung implemented Digital Management program (DM for short), rebuilding enterprise culture and the focus of the operation process in an informationized and quantitative way of thinking. Nowadays, DM technology is incorporated in every tache of Samsung working process, and systematically achieves the macrooptimization of the value chain.

Every product line of Suzhou Samsung China is equipped with the DM system that can analyze and imitate human brain information management and thinking process, and the data of the product line inspected by this system is always displayed in the "D-line Produce Table" beside every operating process. Once such data as today's plan, current target, present results, difference and the rate of inferior is unwonted, engineers and operation personnel will arrive at the scene for inspection so as to control the rate of inferior in minimum in the producing process.

In terms of supplier and inventory management, Samsung possesses a series of strictly quantitative management system. Over 240 suppliers of Samsung white household appliance factories in Suzhou of China are classified into different degrees by five core indexes ---- quality, technology, throughput, price and the ability of response. Every index includes some sub-indexes with different roles. These data are adjusted with the change of the suppliers' performance and

market supply and demand, which therefore indicates the latest credit degree of the suppliers. Every year Samsung carries out preferential stimulation policy on those suppliers who have favorable performance, while adopts 5% elimination rate on those who fail to achieve the performance standard, by which Samsung transmits the great pressure on the final good market to every supplier. Samsung factory adopts the order-based operation model, which means that it must make quick response to clients' orders. Samsung persists that suppliers must send raw materials to Samsung's workshop within 3 hours after receiving orders. If the manufacturer is in other place, there must be a storehouse less than 2 hour's driving away from the Samsung factory to assure its prompt production. Besides, Samsung practices strict financial information shared system in suppliers to make sure that its material price is lowest compared with its competitors. What's more, technical personnel of Samsung white household appliance provide long-term technical training, guidance and supervision for 12 main suppliers, making the quality of suppliers' main parts up to Samsung's strict technology degree. Today, the flexibility of the product line of Samsung white household appliance has been greatly improved, and mostly achieves zero inventory.

DM applies informationized and quantitative management technology and system, but it more stands for a change of the way of management thinking. The change of idea is even more important than the improvement of ability. The core of DM idea is keeping improving for ever. The spirit of pursuing perfect has been incorporated into Samsung's management

Up to date, the output of Suzhou Samsung semiconductor factory has covered 12% of the total output of the world. The examination standard of Samsung semiconductor is one of the strictest standards in the world. Before semiconductor is turned over to clients, it has to be subject to a series of the strictest examination such as quakeproof, high and low temperature—proof. Because every data of Samsung's semiconductor examination standard is higher than the average degree in the semiconductor field, so the price of Samsung's semiconductor is a little higher, compared to that of its rivals. But it is warmly welcomed by the market because of its excellent quality and nearly zero rate of return. Even the most captious customers like IBM, DELL and SONY are Samsung's clients. The capability of Samsung's non-excellent products has reached the second class-producers' standard. If these non-excellent products are sold in their brand, Samsung can earn good profit without any risk. But to these products, Samsung destroy them all.

The executives of digital management are well-educated employees. Samsung's perfect human resource management system is very impressive. Samsung adopts different management models according to different types of human resource (See Figure 2).

Core and key Numbers is the core of Samsung's human resource management. Fore example, all the native core employees in China must take related trainings in Korea for one and half years before they begin to do their job. Once return to China, these core employees are appointed to great responsibility and given high salary, complete power and promising developing space. At present, some of the key Numbers' salary is even higher than that of the chairman of Samsung Electronic China.

To non-core business fields like the consulting project and public relationship and the related general talents, Samsung usually have them done by some external company in order to reduce organizing cost and utility expenditure. Fore example, the public relationship business of Samsung China's headquarter is contracted out to China's famous public relationship and market consulting expert: Ogilvy.

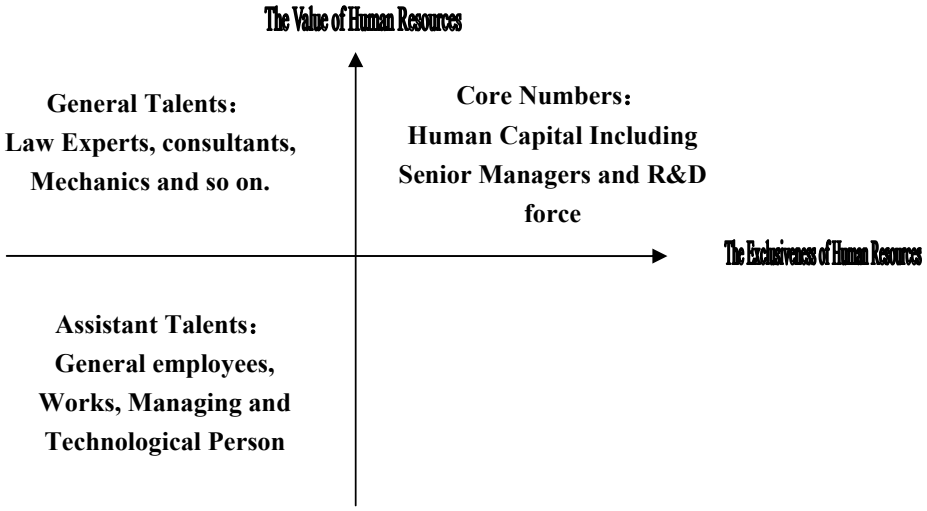

Figure 2: Human Resources Management System in Samsung

To the common employees and assistant talents, Samsung Electronic adopts the efficient salary system. Their salary and welfare is fare above the average of the market, which makes the experienced mechanics loyal to the company. As to the employees' training, the advanced methods adopted in modern production operation like 6 sigma management, JIT, flexibility, intensive production, agility production are introduced into the common employees' training process, intended to increase their operation skill and awareness of quality (See chart 2 and 3). When talking to the employees in the white household appliance product line of Suzhou Samsung, we find they are all familiar with 6 sigma management system and can give their own opinion on the sigma. In addition, the excellent workers in the product line will get the chance to receive training or visit the Samsung Company in South Korea in the off-season.

Samsung's Tactics in China: Innovation Is Still Going on

In Samsung's internationalization strategy, the part in China is the critical move. When Samsung entered China in 1993, there was no big difference between its strategy and strategies of other multinational corporations in China, mainly a manufacturing base strategy based on China's cheap labor. However, as China's economy, as well as Samsung's business in China develops and expands so quickly, Samsung adjusts its strategy in China deeply and broadly, far ahead other multinational corporations. Now for Samsung, China is the most important overseas business and brand developing market and the corporation is now actively trying to develop a brand strategy based on advanced and personalized products.

Firstly, the focus of Samsung's investment in China will be upgraded from pure production to an all-round investment including R&D and market developing. At present, Samsung not only has its world most advanced semiconductor product line set up in Suzhou, also has it set up its four R&D centers, which stand for the competence of a multinational corporation, in China, in

order to make full use of China's local human resources and satisfy the need of product research and development both within China and from abroad. And these four centers are telecommunication R&D center in Beijing, semiconductor R&D centers in Suzhou and Hangzhou and color-television R&D center in Tianjing. Pioneering digital product with high added value has been clearly defined as the direction of Samsung's product development. This reorientation on its investment undoubtedly earned Samsung recognition and favor of the local Chinese government and consumers and has firmly established a favorable environment for Samsung's investment.

Secondly, various ways of innovative marketing are used to create the image of digital Samsung and to increase its brand value as a whole. Since 1999, Samsung has been firmly sticked to high-tech products, concentrating on development of high added value product and never participating in any price war with rivals. In popularization of its brand, Samsung actively uses sports as a means of marketing. Samsung is the onymous sponsor of the annual Beijing International Marathon. And after Beijing successfully won the bid for the 2008 Olympics, Samsung implemented its Olympic Plan (TOP) and signed a contract with the International Olympic Committee without delay and has been officially appointed the sponsor and global coworker of the Beijing Olympic Committee, providing telecommunication equipment and technical support for the Beijing 2008 Olympics and trying to make the 2008 Olympics a special and successful one. Although the cost for this amounted to USD 70 million, Samsung believes that sponsoring the 2008 Olympics will greatly promote its popularity in China and globally. Affable and influential marketing shortened the distance between Samsung and consumers in China. Now Samsung is one of the most popular brands in China and its cell phones and other products are selling like hot cakes.

In Samsung's localization, Samsung has always attached great importance to being a local company in China and has actively trying to take root in China and develops with China's economy. In its localization of human resources, Samsung plans to appoint some of its Chinese employees senior management, responsible for some of its core businesses. This is apparently different with its Japanese counterparts where only Japanese themselves get the chance to be promoted to be senior managers. In its language requirement, Samsung actively encourages its employees to learn Korean and English but they are not absolute necessities, in order to attract more local elitists. This is also different from American, European or Japanese companies in China, as they require their employees to be familiar with foreign languages. In localization of its production, Samsung is now actively promoting local-finish management, which means that the whole process of a product including initial R&D, purchasing of raw material, marketing, producing and selling will be completely conducted in China. At present, the homemade ratio of many of the parts of Samsung's products has reached 80% and above, in strong contrast with European companies' emphasis on importing of key parts of their products.

Samsung's innovative strategies in China have earned itself enormous profits. Now Samsung has a workforce of more than 40,000 and its total investment has amounted to USD 3.1 billion, making China its largest host country of investment overseas. In 2003 Samsung's total sale in China (including Hong Kong) amounts to USD 11.7 billion, the largest among all foreign-funded enterprises in China and it is estimated that in 2005 the number will reach USD 14 billion. Now an enterprise framework mainly composed of tele-communication, IT and digital multimedia has been established in Samsung China and by 2006, China will surpass the United States and Europe to become Samsung's most important base overseas.

What Chinese Businesses May Learn

Samsung's innovative management gives Chinese enterprises lots of lessons and inspirations. At present, many Chinese enterprises hotly pursue quick follow in new and high-tech products like cell-phone and high-end television or just simply rely on price war, OEM to maintain their market share rather than concentrating on cultivating ability in engineering and application of core technology and creation and promotion of their brands. Although some of them have introduced advanced management system like ERP, CRM and SCM at high costs, little attention has been given to the improvement of the basic part of their internal management. Samsung's innovative management provides new room of thoughts for Chinese enterprises. As it is impossible for a single paper to make full analysis on the lessons that Samsung's innovative management provides, this paper will just address on Samsung's strategy innovation and pro-learning organization.

Innovation Is A Persevering Commitment

Innovation is not a mystery. All rivaling companies know the importance of innovation. But why companies with similar innovation strategies perform so differently? How to explain this?

Professor Pankaj Ghemawat of Harvard University thinks that this is because the differences in the devotions and commitments of their innovation strategies. Strategy and innovation are persevering devotions and commitments, unhesitating and irreversible[10]. Form this point of view, whether innovation will be successful or not depends on the determination and persistence of a company's commitment and devotion.

Samsung finally succeeds after ten years of New Management with its experience of crucifixion in the Korean financial crisis. Ghemawat's theory and the case of Samsung have great significance in instructing Chinese enterprisers and managers. They partially explain why after more than 20 years' of reform and opening up, Chinese enterprises still lag so far behind their international rivals in technology and why Chinese enterprises have been at the end of many of the world industrial chains for so long. And the reason is that they are in lacking of unhesitating and irreversible determinations and commitments in those technology-intensive fields and fields that requires long-term and massive input. So for Chinese enterprises, the thing that matters most is not the shaping of innovative strategy but are the determination and commitment to implement it, especially the determination and commitment of those leaders.

At present Chinese enterprises are still small in size and weak in strength. Many of them have been busy with their survival and have no time and energy considering long-term development. While it is a fact that they don't have abundant resources as those multinational corporations do, breakthrough is still possible if they focus all they have on one point. This is the only way out for Chinese enterprises.

More should be invested in human resources

Samsung's innovative and digital management largely has to do with its highly trained working force and its training mechanism. However, investment in human resources is the shortest part in Chinese enterprises. According to statistics from UN, in China investment in equipment,

raw material and staff amounts to 30% of its GDP while its investment in education and training is only 2.5% of its GDP (the number for India and Turkey is 3.2% and 2.9% respectively), though the return rate on human capital reaches 30%-40% much more higher than that on material investment, which is approximately 20%[11]. Many Chinese enterprises are not aware of this at all and don't have the foresight in long-term investment. Now in Chinese enterprises, industrialists are tending to be peasantized. In order to reduce their products' costs, these Chinese enterprises employ large numbers of peasants who rush into cities to find a job, without any skill. And the investment in these peasants' education and training is almost zero. This directly leads to the low quality of their products and stagnancy of technology innovation. A lot of expensive equipment purchased abroad is left unused because it is so hard to find a skilled worker. In some parts of China, the annual salary of a highly skilled worker is almost as high as that of a graduate. The lacking of large numbers of highly skilled workers resulted from peasantization of industrialists has become an invisible hindrance to the cultivation of core competence, upgrading of industrial structure and China's way to be the global manufacturer workshop.

Nobel Prize winner Jams J Heckman believes that capital and technology are supplementary for each other. New technology brought by investment in new equipment and staff requires highly skilled workers in its operation. Without a sufficient supply of highly skilled workers, Chinese enterprises won't be able to adjust themselves properly to the fierce competition brought by globalization. Training of work force is the best way of investing. To earn more long-term profits, Chinese enterprises have to attach more importance to the education and training of their employees and invest more in it.

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