

## **SME strategic management and innovation—a comparative study between Finland and China**

### **Abstract:**

This research addresses innovation strategy management concerning a number of small and medium-sized enterprises (SMEs). It is an exploratory research with an extensive literature review and knowledge development. The phenomenon of SME innovation has captured the interest of many scholars, there is a growing consensus that innovation system approach are important for fostering innovation in developing as much as developed countries. This paper is trying to make a valuable contribution to current thinking which fills the blank of contemporary scholars' topic. The objective of this study is to obtain a deep insight into innovation trajectory in Finnish companies and in comparison with Chinese companies, focusing on the major similarities and differences across the regional areas. The study attempts to examine the critical driving forces of innovation and to analyze different innovation patterns based on theoretical and empirical studies. It provides a conceptual framework to describe innovation activities on the background of country-specific, especially identifying various factors determinant the innovativeness of SMEs. The project targets the experience gain from a pilot research, which is carried out in cooperation with other researchers in the Department of Management Studies at the University of Tampere, also close collaboration with professors at Fudan University. The findings would help managers and policy makers to better foster innovation and researchers to better channel their efforts in studying the phenomenon. Prior to empirical studies, this study was started by theoretical studies and collecting available statistical database.

Key words: SME Strategic Management Innovation System Comparative study Finland China

### **1. Introduction**

Innovation is regarded as one of the most critical factors for success in a rapidly changing market. In an overview of the study of innovative strategy management, there is a new tendency of growing interest in business strategy in which more and more scholars start by examining some of the assumptions underlying the current innovation strategic management domains. As we know, strategy influences on company's performance, growth, profitability and market share (Gellatly 1999, Baldwin 1994), thereby increasing the awareness of the innovation strategy research. In general, innovation can be defined as the transition from a novel idea to a successful product in the market. By far, strategic innovation is regarded as the most important factor that has relative impact on a firm's sustainable competitive advantage.

Many enterprises are facing a number of typical problems with regard to their innovation process. "Innovation is not flash of genius, it is hard work."<sup>1</sup> Quinn (2002, P.13) states that "true innovation is complex and tumultuous full of spurts, frustrations and sudden insights". In economics terms, strategic innovation management shifts from a static to a dynamic perspective. Innovation is usually conceptualized in terms of ideas, learning, and the creation of knowledge. In other words, innovation is the implementation of new ideas in an attempt to create value, therefore creating new customer expectations, setting new standards, and making possible new satisfactions. Innovation as a subject that all companies should be focused on, regardless of their size and industry they are involved in. By implementing dynamic innovation strategies, a firm has the ability to enhance its activities in pursuit of a more complex and advantageous strategy configuration. SME must respond by adopting more innovativeness to establish or sustain competitive advantage in the market place (Mosy et al, 2002). This research also reflects a theory-development process. It is often argued that SMEs innovate in a different way to larger firms. The innovative advantages of large firms are in terms of material or resource factors, while small firms are attributed with behavioral advantages (Rothwell, 1985). However, the region or immediate local environment is more important to SMEs than to large firms (Asheim, 2002; Tödtling, 2002).

### **1.1 Purpose and Scope of the research:**

The ambition of this scientific research is to cross theoretical boundaries and to re-conceptualize the study field. In order to create research, my task is to develop a theory of Integrative Innovation Management, combined with market, organizational and technological changes. An additional aim of the study is to analyze a set of strategic models for strengthening the innovation knowledge in action. This paper will follow the line of a comparative analysis, exploring the underlying determinants of SMEs innovation disparity at the national /regional and firm level. This pilot study will increase the understanding and knowledge of the integrated approach and to develop new business innovative patterns.

### **1.2 Problem formulation:**

This study targets innovation strategy management problems and focuses on a number of small and medium-sized enterprises (SMEs), and attempts to investigate underlying innovation factors in two specific countries. Unlike large firms, small firms' innovativeness is strongly influenced by the national or regional systems of innovation in which they are embedded. The investigation is related to a cluster of distinct features between Finnish SME and Chinese SME. The academic theme is based on describing and interpreting the phenomenon of innovative SMEs in real. Why did they innovate? What types of innovation were they involved in? How those innovation activities affect the operational performance of firms? And which sorts of determining factors are significant for SME in efficiency of innovation? Moreover, a comparative framework of growth-orientation and propensities toward innovation

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<sup>1</sup> Peter Drucker

between two geographic enterprises will be illustrated.

## **2. The definition of SME:**

The definition of SME varies from countries to countries and in different size ranges (Peres and Stumpo, 2000). Employee numbers are not the sole defining criterion. In European legislation, the upper limit of a SME is 250 employees and financial assets are also used to define SMEs. This definition has been widely applied throughout the European Union (see website links<sup>2</sup>). In Finland, a small and medium-sized enterprise is defined as a firm with less than 250 employees and either an annual turnover of maximum € 40 million or a balance sheet total of maximum € 27 million. Businesses larger than this may not own more than 25% of the capital of an SME. A small business is defined as a firm with less than 50 employees and either an annual turnover of maximum € 7 million or a balance sheet total of maximum € 5 million. Businesses larger than this may not own more than 25% of the capital of a small business.<sup>3</sup> In contrast, according to the Chinese latest law on promotion of small and medium-sized enterprises, manufacturing SMEs are those with fewer than 2000 employees, or an annual turnover of less than or equal to RMB Yuan 300 million, or total assets of less than or equal to RMB Yuan 400 million. In this study, I will limit the size of the sample of Chinese firms to less than 500 employees.

## **3. Theoretical background and literature review**

### **3.1 What is innovation?**

First of all, the conceptual background of innovation should be described. The concept "innovation" can be explained in many ways. Innovation is often associated with concepts of change, invention, creative behavior and adaptation (Pierce and Delbecq 1977). Nord and Tucker (1987, p. 6) defined innovation as a "technology, strategy, or management practice that a firm is using for the first time, whether or not other organizations or users have previously adopted it, or as a significant restructuring or improvements in a process". New technology always needs new markets which were not even conceivable until the new technology created new demands.<sup>4</sup> In this context, innovation can be defined as attempts "to create competitive advantage by perceiving or discovering new and improved ways of competing in an industry and bringing them to market" (Porter, 1990, p45). Moreover, the concept of innovation refers 'the transformation of an idea into a marketable product or service, a new or improved manufacturing or distribution process, or a new method of social service' (European Commission, 1995: 4). Schumpeter classifies five categories of innovation: new products, new methods of production, new source of supply, the exploitation of new markets, and new ways to organize business.

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<sup>2</sup> [http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/index\\_en.htm](http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/index_en.htm)

<sup>3</sup> [http://www.expats-finland.com/entrepreneurship/development\\_and\\_finance.html](http://www.expats-finland.com/entrepreneurship/development_and_finance.html)

<sup>4</sup> Drucker *1969*, pp. 52–53.

Freeman and Perez (1998) categorized two types of innovations based on the characters of degree. There are incremental innovations and radical innovations. Christensen (2003) distinguishes as “disruptive innovations” and “sustaining innovations”. Radical innovation in which both the technology and the market are new and customer needs are unknown; and incremental innovation is consisting of the improved use of existing technologies to meet known customer needs (Henderson, and Clark, 1990). Radical innovations refer to significant change that simultaneously affects both the business model and the technology of the company, path-breaking, discontinuous and pioneering. Incremental innovations refer to small but useful improvements. Incremental innovation is the most prevalent style of innovation.

Concepts of innovation have been changed greatly in recent years. The dimension of innovation appears complex and broadly, and it can be understood from a linear process towards an interactive dynamic process (Kline and Rosenberg, 1986; Dosi, 1998; Malecki, 1997). The different explanation of innovation is based on three common elements: 1) *Change* or doing things in a different way; 2) *Newness* that is mostly related to the technical approach and 3) *Performance improvement* that links to economic achievement (Jorna & Waalkens, 2006). Four innovation dimensions will be applied to classify the innovation behaviors of SME. These four aspects of innovation performance are the number of innovations, the speed of innovation, the level of innovativeness (novelty, newness) and the level of aggressiveness in adopting or generating innovation. <sup>5</sup>

Innovation has been identified as a powerful way for attaining and sustaining competitive advantage. Nowadays, it is becoming a more complex, interactive, and dynamic context what is commonly labeled as the system of innovation (Edquist, 1997). Innovation-based competitive strategy emphasizes on the creative improvement of appealing new products, processes or services, or in the crafting of efficient new business models or organizational innovation. Furthermore, the strategic innovation process should be adopted for better management and more access to resources in order to compete and survive. It is a value-creating activity which determines to what extent actual change and performance match to desired change and performance.

Innovation is seen as a process of interaction between firms and their external environments. This external environment has usually been dimensioned in terms of national or regional ‘systems of innovation’. Therefore, we should understand in the context of the innovation system. Dosi(1988b), Lundvall(1988) and Thomas (1985) note that innovation may have a strong geographic dimension due to the specific and cumulative nature of knowledge-based innovative inputs. Firm-level innovation occurs in the context of an ‘innovation system’. In other words, SMEs innovation is embedded in a regional or national innovation system. The national

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<sup>5</sup> Firms Daniel I. Prajogo, “The Relationship between Innovation and Business Performance—A Comparative Study between Manufacturing and Service” P220

innovation system theory highlights three perspectives: 1) *firms innovation in a social-economic circumstance*; 2) *Interactions among actors* (universities, technological institutes, consulting companies, suppliers and even competitors); 3) *knowledge learning and diffusion*. Camagni and Capello (2000) found that within an innovative local milieu inter-SME links provide channels for knowledge acquisition, uncertainty reduction, and local collective learning.

### **3.2 Strengthening the knowledge of systematic innovation**

Keizer et al. (2002) note the factors that having effect on innovation can be divided into internal and external. The innovation factors between firm-level and the external environment represent the important focus in this research. I am interested in critical factors that relevant to success or failure in SME innovation (in Figure 1). Internal variables refer to characteristics and strategies of SMEs and external variables refer to environment impact on SMEs' innovation activities. Internal factors are determined by SMEs' specific resources and technology competencies, innovation strategies and entrepreneurship. Resource and capabilities play major roles in establishing special competitiveness. To build a set of technological competences and capabilities based on resources, firms enable to create distinctive areas of competitive advantage. Strategy indicates innovativeness among of commercialization and marketing effort, the degree of marketing involvement in product planning and firm competence in the area of technology strategy and technology management (Hoffman et al., 1998). New innovation knowledge development should adopt a variety of strategies and make sure which strategic options can be optimally matched. Entrepreneurship is SME owners or leaders' attitudes, vision and decisions toward innovation activities. On the other hand, the external environment in which a firm involved that conducts its business and also influences its innovative capability (King and Anderson, 1995). Concerning external factors, there are Market scope, firm's regional technology infrastructure, networking (suppliers, customers, etc) and government policy. Market growth is very significant in fostering innovativeness. It means firms operating in fast-growing markets are more likely to innovate. The market spurs firms to innovate through competition. Governmental support is another important element for SMEs' innovation. Government through regulation can both encourage and discourage the adoption of innovation (Tornatzky and Fleischer, 1990; Lai *et al.*, 2005). The traits of SME innovation are associated with internal factors and external factors. In other words, the strategies of SME innovation need to be conceived in relation to the firm-, sector- and country-specific advantages and disadvantages in the different parts. Building a dynamic strategy framework, setting up various innovational strategy models, and evaluating the interaction of strategic factors are based on the total business performance analysis that includes assessment of current markets, products, and management processes.

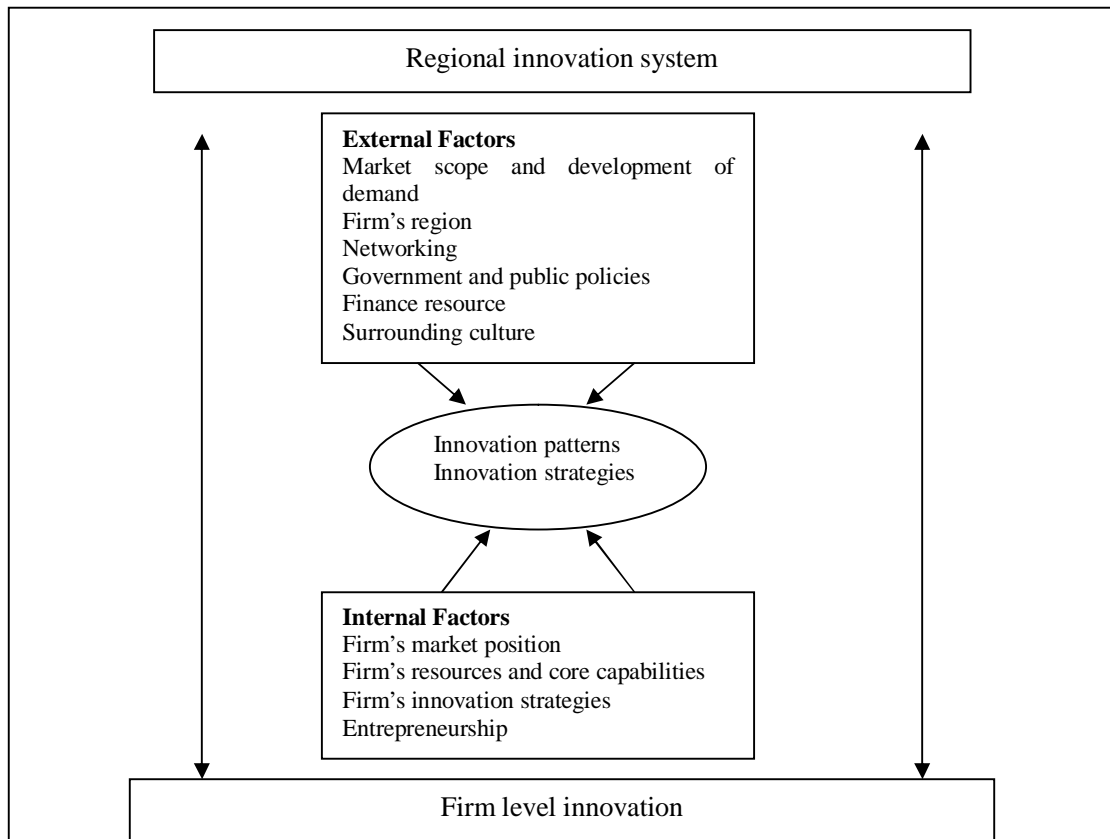


Figure 1: the framework of strategic innovation (Determinants of a firm's innovation behavior: internal and external factors, Source: Zheng Huang)

#### 4. Research Methodology

The research methodology draws on the concepts of the research wheel (Wallace, 1971). Methodology is an important scientific way in creating knowledge. Methodology is defined as a method or technique approach that is to be applied in the conducting of research. The most useful of three scientific research methods in the business area were defined by Arbnor & Bjerke in 1997. They introduced three different methodological approaches for generating business knowledge which are analytical approach, systems approach and actors approach. Each of these is based on different assumptions about their subject areas and different valid processes of knowledge creation. Systems research methodology will be chosen because the systems thinking create a better understanding of the big picture of phenomena. Systems approach is a proven methodology to view how specific elements can be combined to create a whole that is greater than the sum of the individual parts or functions. In the systems approach, reality is viewed as a social construction formed by systems.

##### 4.1 Research method and Data sources:

The goal of this paper is to discover which factors contribute to SME innovation. The core research topic concerning the importance factors of firm-level and national-level determinant of innovation activity is addressed through a comparative analysis of two countries. To effectively conduct cross-regional studies in this project, I should take into account of cross-regional

comparability, establishing data/case equivalence (Reynolds, Simintiras, and Diamantopoulos 2003).

My research approach is consistent with the basic assumptions and definitions of cross-regional research. At this stage, Secondary data are utilized in the comparison of different types of innovation patterns where demonstrated in this paper. OECD (Organization for Economic Co-Operation and Development) Statistics reports provide one of the important resources for international comparison of innovative output at country level.

The analysis is mainly based on data from “Statistical Finland”, “OECD SMEs reports” and other relevant research articles from various academic journals, etc. I try to draw some general conclusions in this paper. Analyze the extent to which structural differences between the two innovation systems can be explained by underlying characteristics in a framework. Empirical research will be conducted later by further investigation which applying case studies. This research represents a “systems innovation management”, argues that an appropriate innovation strategy will usually depend on the specific circumstances and situations.

### **5. The analysis of SME innovation in Finland and China:**

Comparative analysis shows significant differences of national innovation system across countries (Nelson, 1993; OECD, 2002a). My discussion addresses SME from the national innovation system to the business strategies in relevant to innovative management. I developed a conceptual framework to highlight the key differences in genetic innovation patterns between Finnish and Chinese SMEs. It maps out the generic strategies in national innovation systems as well as the linkages to the innovative performance of firms in two countries. The following propositions are stated in the table 1:

**Comparative differences in innovation strategies**

	<b>Finland</b>	<b>China</b>
<b>type of innovation</b>	<b>Technological creating</b>	<b>Technology adaptation and adoption</b>
<b>innovation pattern</b>	<b>exploration</b>	<b>exploitation</b>
<b>innovation field</b>	<b>ICT-related industries or service sectors</b>	<b>manufacturing sectors</b>
<b>technological infrastructure</b>	<b>good</b>	<b>growing</b>
<b>Venture capital in innovation</b>	<b>funding</b>	<b>non-funding</b>
<b>innovation behavior</b>	<b>organized</b>	<b>Individual, passive, adaptive and flexibly</b>
<b>scope of innovation</b>	<b>Muti-company innovation networks</b>	<b>Supply Chain Cluster or regional district ( larger contiguous region)</b>
<b>innovation situation</b>	<b>lack of Entrepreneurship</b>	<b>lack of organizing and supporting</b>
<b>other factors</b>	<b>innovation-support policy; supporting organization</b>	<b>competition environment, High growing domestic market</b>

*Table 1: propositions (source: ZhengHuang)*

From this comparative table, we can see two different regional innovation system models that involve a variety of firm strategies, innovation network structures, and state intervention roles.

Most of Finnish SMEs are engaged in knowledge-intensive industries, mainly in high-technology or service sector, where concentrate on product or service innovation, such as “science-driven” or “technology-driven” innovations (Hassink, 1996). Compared to Finland, China is a later-industrializing country. Chinese SMEs are primarily involved in the labor-intensive or resource-intensive manufactories, focusing more on process innovations and cost reduction. Many of them are steered by inexperienced owners and managers, and operate with relatively low capital intensity and simple technology.

China's economic growth has received world's attention recently. China moves from central planning toward a more market-driven economy since 1979. The development of China's SME is fueled by a high pace of market growth and economy booming. On the other hand, China's SMEs provide the main sources of rapid and sustainable economic growth (Yeung, 2004) and job creation, especially in the private sector (Li, 2004). By the end of June 2009, China has 9978.8 thousand enterprises, increasing 264.2 thousand than last year, It has 30636.3 thousand individual holders and small enterprises, the growth 5.01% than last year (P.R.net, July 31, 2009). Small and medium-sized enterprises occupy the 99% of the total enterprises number; enterprises accounted for 60% of contribution to GDP, 50% of the tax and provide 80% of jobs. SMEs are also changed from scattered operations to concentrated operations, from the early developing in the domestic market mainly to both of the domestic and international markets.<sup>6</sup> Chen (2006) identifies three major economic development stages of China's SMEs. The first phase (1978-1992) that was characterized by the rapid expansion of the Chinese SME sector after reforming and opening up to the world, private economy and different sorts of ownerships were highly encouraged during that period. The second stage (1992-2002) was a reform of state-owned SMEs in restructuring, merger and acquisition. Chinese SMEs was getting rapid growing after 1992, Chinese government emphasized on improving the overall quality and competitiveness of the domestic SME sector (Chen, 2006). The third stage was from 2002, it refers to setup government law and supporting policies aimed at consolidating and further fostering the expanding Chinese SME sector. The promotion of scientific and technological innovation and upgrading has been regarded as one of the most important tasks. Since then, China's SMEs innovative capabilities and research output have been growing dramatically. Many areas were opened up for bottom-up innovation and entrepreneurship. China is moving successfully from imitation to innovation. In addition, Chinese government has chosen cluster-based SMEs innovation policies. National clusters and incubators, which were

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<sup>6</sup> ZHOU Jun, GUO Tu-xin, LU Shan, “SME law and policy analysis” Journal of US-China Public Administration, May., 2010, Volume 7, No.5 (Serial No.55)



established by the central government and local governments, provide diverse supports for spin-offs and high-technology start-ups. By 2008, China has established over 200 business enterprise incubators, 53 high-tech development zones, over 62 university scientific and technological parks, over 20 enterprise parks for returned overseas students, over 40 service centers for SMEs' technology innovation, and more than 500 productivity promotion centers.<sup>7</sup> China's expenditures on scientific and technical activities and R&D of GDP have continually arisen year by year from 1994 to 2007 (see appendix I). Although those measured figures are still lower than the world average (1.6 percent) and developed countries (2.2 percent) (see appendix II).

As for opening innovation milieu, Finnish innovation system is encompassing the support and conduct of R&D and innovation, technology diffusion where embedded in networking governance structures. It is becoming more involved in international scientific cooperation compared to China (see appendix III). Nearly one-third collaboration innovation projects are carried out with international partners.<sup>8</sup> Finland has a well-developed system of innovation with R&D intensive cluster. From the late 1980s, nation-wide networks of technology parks and centers of expertise were set up in Finland. The technology parks have initiated spin-off projects and incubators.<sup>9</sup> Finland has the good technology infrastructure in shaping their innovativeness and has accumulated a plenty of experiences. A systemic supporting scheme of SMEs innovation activities and entrepreneurship is applied as part of broad national innovation strategies, aim at promoting innovation and strengthening SMEs' prosperity. For instance, regional industry-academia-government cooperation projects, it assists SME in collecting innovation-related information and working on cooperative innovation projects. Through supplying external risk capital, the projects not only encourage SMEs' willing, but also enable them to take the risks of technology innovation. These efforts are focused on helping SMEs become more innovative, more quality-conscious and more efficient. In China, innovation governance system for SME is still at a nascent stage. The Innovation Fund for Technology-Based Firms was established by the Chinese central government in 1999. Policy makers in China began to setup the task of crafting regulations to support SME innovation since 2003. National innovation system is not functioning well enough, and the supporting innovation service is still in an early stage. The institutions' services for technological innovation in China are mainly concentrated on large and medium-sized firms. The promotion of overall competitiveness of Chinese SMEs is still challenging tasks for the Chinese government. In a recent study, the All-China Federation of Industry and Commerce (the Chinese chamber of commerce) found "most" private enterprises "not interested in" or

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<sup>7</sup> Annual report on "Torch Program" of 2003, released by the Torch High-tech industry Development centre, Ministry of Science and Technology

<sup>8</sup> Statistics Finland "Innovation survey 2008 report", published by 2010

<sup>9</sup> G Ö R A N R O O S , L I S A F E R N S T R Ö M A N D O L I V E R G U P T A (2005) "NATIONAL INNOVATION SYSTEMS: FINLAND, SWEDEN & AUSTRALIA COMPARED"

“unwilling to engage in” innovation.<sup>10</sup> A very small portion of total Chinese SMEs have entered high-tech and high value-added fields.

Finnish government has given increasingly attention to education and training for entrepreneurship, teaching people how to start their own business and willingness of risk-taking. It aims to stimulate entrepreneurship and new firm start-up. In financing of SME aspect, Finnish government also provides financial support in knowledge-creating and new ideas of application, offering a range of financial programmes to help entrepreneurs manage risks and raise innovations. The purpose of national policy intervention is to assist SMEs to enhance their innovative capability, therefore to overcome size-related innovation barriers. On the contrary, Chinese SMEs can not get such benefactions. It is difficult for them to either direct financing (bonds, IPO) or indirect financing (mainly refers to bank loans). Self-financing plays an important source of the financing of the innovation activities of Chinese SMEs. It is also widely reported that Chinese SMEs have great difficulties in obtaining bank loan because the Chinese banking system has been designed for large state-owned enterprises, rather than SMEs, particularly privately owned SMEs. The financing problems of SMEs are solved through connection with friends, family or self-financing. It is also shown in relevant surveys that 62% of small and medium-sized enterprises in China regard difficulties in direct and indirect financing. Less than 10% of private enterprises are supported by bank loans and less than 1% has access to other forms of external financing. Established by central government in June 1999, the Innovation Fund for Small Technology-based Firms (Innofund) is a special government fund in support of technological innovations for small tech-based firms. Venture capital scarcity is a major constraint for Chinese small and medium-sized enterprises, thus hampering the development of innovation. Despite China implements tax system as an instrument to improve SME financing, two kinds of incentives like lowering tax rates and tax relief, for instance, including an exemption of up to 150 percent of R&D expenditure from corporate income tax and the provision of carrying forward any unused amount to offset tax liabilities up to four years in the future; “hi- and new-tech firms” be applied 15 percent tax rate instead of the normal rate of 25 percent. The sorts of tax incentives are not enough. The difficulty in raising funds in China still is a serious bottleneck which restricting the growth of SMEs. However, China’s policy makers have realized and attempted to address this issue to supply adequate and special finance for SMEs. According to recent empirical studies, shortage of talent is ranked the second-highest obstacle to innovation of China’s SME.

Most Chinese SMEs are private owned with weak capacities for technology creation. The level of technological innovation of SMEs in China is still not high. The mode of innovativeness is adoption or adaptation that SMEs’ innovators are specialized in the application of existing

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<sup>10</sup> Chunlin Zhang, World Bank, Douglas Zhihua Zeng,(2009) “Promoting enterprise-led innovation in China” William Peter Mako, World Bank Publications, P35

technologies, using of these technologies in cost-reduced ways to enhance their competitiveness. The fast growth of local market offers a big substantial space and a huge domestic demand stimulate the development of SMEs. Apparently, labor-intensive and low-technology industries are easy for new private entrepreneurs to set up. Moreover, Internationalization and FDI lead to the global knowledge diffusion, technology spillover from advanced foreign companies that provides as an opportunity to Chinese SMEs to catch up with the world-leading technologies. However, those sorts of technologies are not latest upgrade technologies because some foreign companies fear the loss of intellectual property and future competition from companies that learn the new technologies (Hayter and Han, 1998, page 3; Young and Lan, 1997). In addition, China has already demonstrated some success in building up technological infrastructure and supporting institutions in its High-Tech Industry Zones. So far, Chinese SMEs majorly dependent on a close integration of the clusters of supply chain partners which providing them to access information, know-how and new technologies, in general potential local or domestic links along and between value chains. These is limited formal collaboration across firms (or between firms and other organizations) going on locally. Many innovative SMEs have extensive linkages to other organizations through industrial cluster or Science Parks, whereas networks are weak and fragmented. R&D projects are usually conducted in-house, and seldom collaboration. Even when there is 'collaboration', it is tend to partially short-term focus and opportunistic behavior, unwillingness to take risk or failure. Therefore, the collaboration with universities and research institutes in China is still lower than developed countries. In other words, the effective industry-university-research cooperation system is still under-structure. The innovation capacity of Chinese SME is weak. Many SME owners/managers lack of relevant skills and knowledge in making important innovation reform decisions and their employees are low quality. Many firms simply don't know how to plan for and manage the innovation process. Insufficient collaboration and communication among small and medium enterprises, the innovation strategies are largely relied on their personal ties where contact with external stakeholders for generating ideas for their strategic decisions. They rely heavily on their formal and informal social-networks to gain information and advice from outside. These networks are based on family connections on the basis that family members could be trusted.

The Finnish national innovation system pursues a constant strategy in R&D/technological accumulation and human resource development. Finnish SME's innovative strategies are on the basis of knowledge-based creating. Namely, innovation strongly evolves around the creation of new knowledge. Many of them are innovation leaders with advanced technical knowledge and patents within a market niche. Networks between industry and science research are fairly developed in Finland. Innovation activities of SMEs is switching to customer- and user-oriented, networked and open innovation ecosystems which are embedded in a global economy. Nevertheless, science and technology researches are carried out more especially in ICT (information and communication technology) sector that causes the

less diversification of industrial structure. Chinese SME's innovative strategies vary in medium- and low-tech or manufacturing-based innovation development. The innovation model of Chinese SME is defined regard as Chain-linked or Supply-oriented models. Only few of them possess core technologies, due to most of them have limited capabilities to conduct a research. The local innovation system is often structured by integrating the relationships in supply chains, transition from production to innovation capabilities, making their innovation process dependent on them. The supplier-driven innovation from large companies helps SMEs on adopting advanced equipment to achieve higher quality in proficient production processes, therefore enhancing innovative capacity. The buyer-driven innovation is pulled by large costumers that requiring SMEs to improve their products' quality and technology standards. These sorts of user-supplier interactions within the local cluster spur SMEs to focus their specialties on R&D and innovation. China's SMEs Innovative activities are yielded by flexible operation and quick adaptability to market changes. They enable to enter new markets segments quickly by offering much flexibility to satisfy the requirements of market competition. However, they are facing to inadequate technology innovation infrastructure. Better absorption of available worldwide technological resources and foreign know-low has become the main strategy in Chinese SMEs to catching up with developed countries. China's SMEs pursuit profit-maximizing and have little incentives to invest in innovation and technological progress. Their innovation strategy is lack of long-range planning. Although China's SMEs have more pressure for innovation in order to survive market competition. Strong competition and inter-firm rivalry thus serves to accelerate innovation (Porter, 1990 and 1998; Grabher, 2002). Their natural tendency is to maximize short-term profit through the expansion of their existing production capacity and market share as well by controlling costs. Furthermore, Chinese SME owners/managers widely adopt an outside-in approach in developing their strategies which more highly adaptable to environmental changes, such as shorten innovation commercialization, reduce cost and increase the flexibility.

## **6. Conclusions:**

The innovative small and middle-size enterprises are considered essential for the development and growth of nations. Therefore, facilitating innovation in SMEs is central for stimulating economics development at the local, regional and even national levels (Jone and Tilley 2003). A successful innovation often contents support mechanisms outside the firm, able to provide specialized services and information that can be used to overcome innovation obstacles. Governments play a fundamental role in determining policies that can affect innovation. Policy makers should place greater emphasis on creating effective fundamental system support or policies to facilitate local cooperation network for SMEs, and establish a stable platform for cooperation to achieve mutual learning between SMEs and partners.

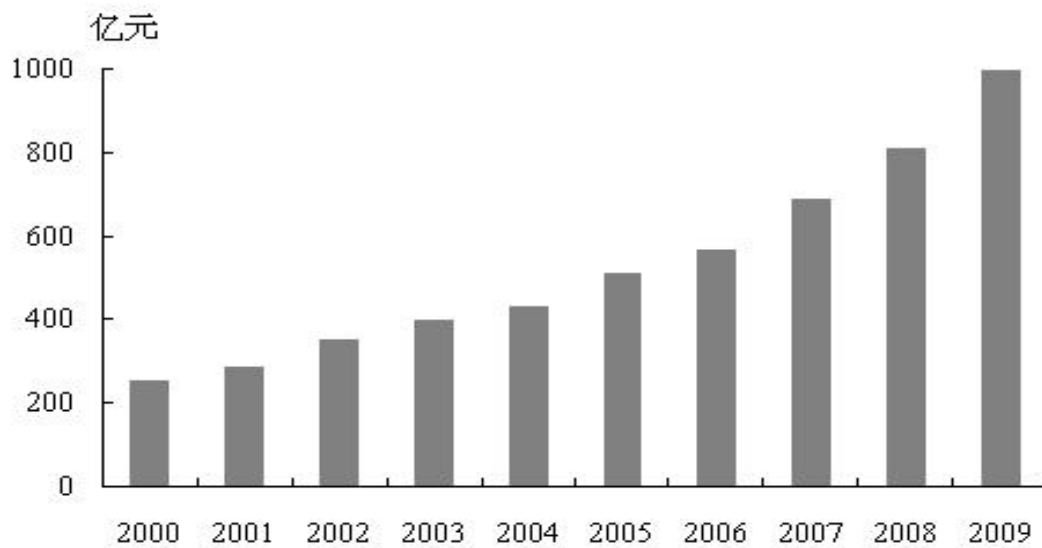
Obviously, different factors impact on strategic innovation decisions and models with regional characters. Innovativeness is not only happened in high-tech industries alone but also can be

achieved in traditional low-tech sectors. SMEs in China have more flexibility in operations, more easily adapt to changing markets and execute attack quickly in face of competitive. The success factors of Chinese SMEs lies in the ability to access, transfer, and apply technology. Finnish SMEs has knowledge-based entrepreneurial competitiveness.

As we have seen, there are many differences in innovation patterns within country-specific. But we can also find common factors as well. In summary, effective integration innovation strategy and continuous learning are critical to the survival and success of firms operating in changing and complex environments. This article represents an early research stage of my dissertation. The future research will be contacted by a qualitative investigation which to improve the indicators in practice.

***Appendix I:***

**China's research institutes' R&D expenditure (2000-2009) RBM billion**

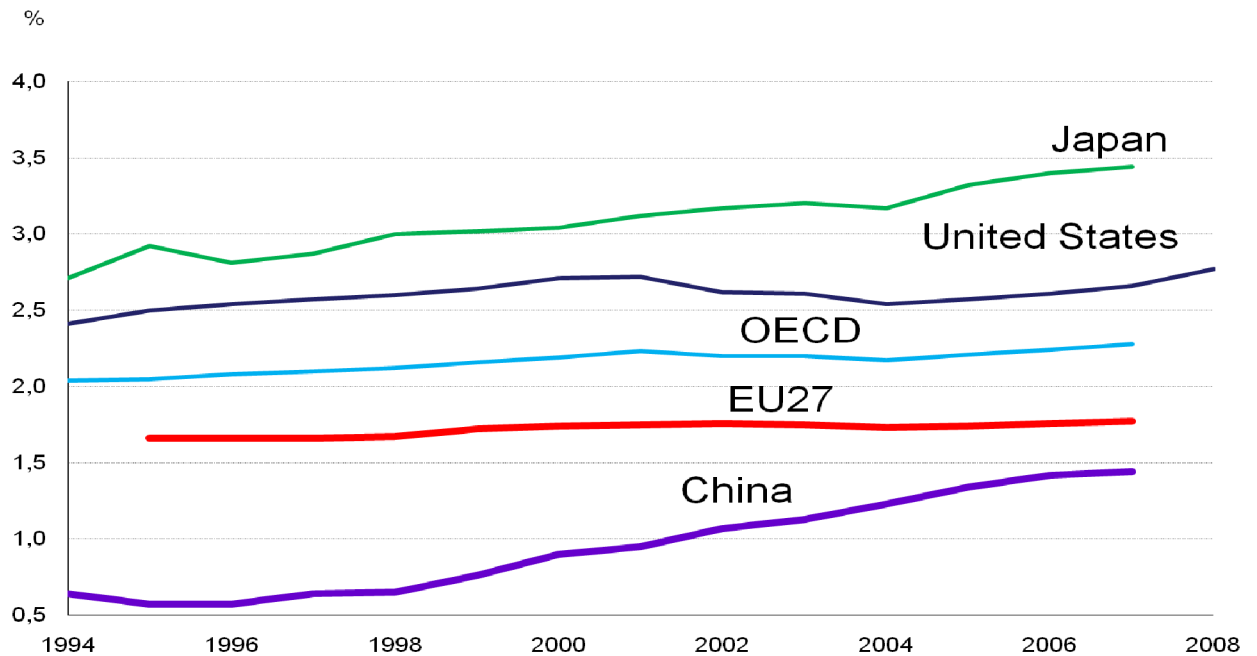


Source: *China Science and Technology Statistic*

**Appendix II:**

**Gross domestic expenditure on R&D, 1994-2008**

As a percentage of GDP

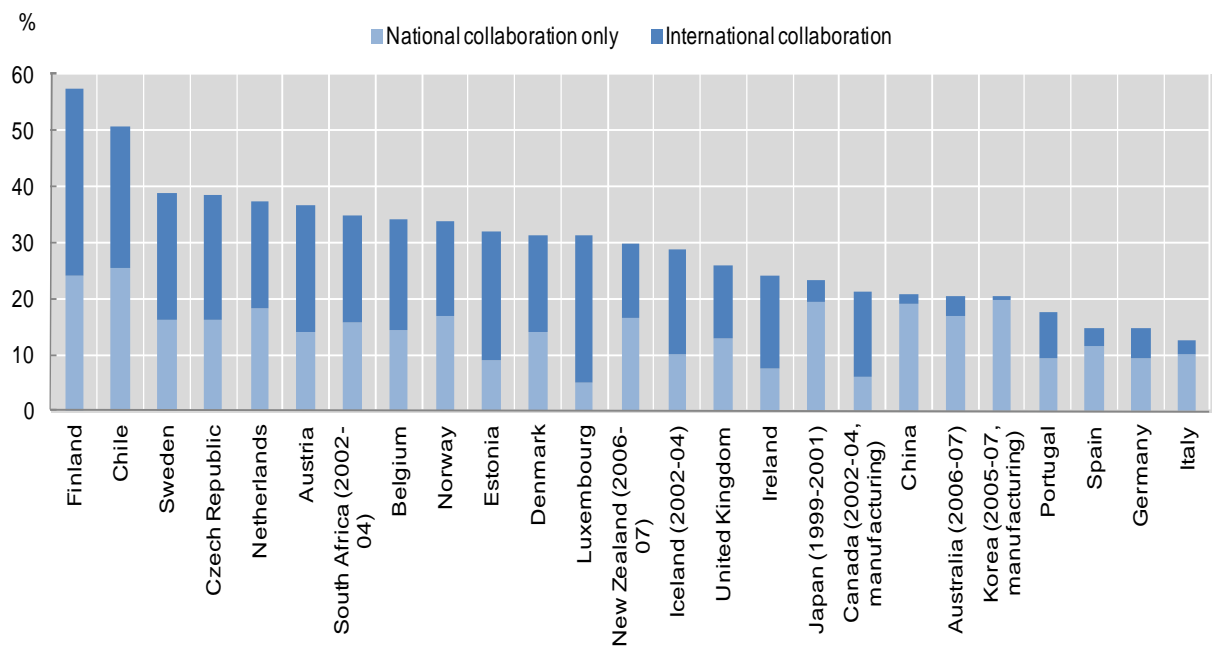


Source: OECD (2009), *Main Science and Technology Indicators 2009/2*, December.

**Appendix III:**

**Firms with national/international collaboration on innovation, 2004-06**

As a percentage of innovative firms



Source: OECD (2010), *Measuring Innovation: A New Perspective*, OECD, Paris based on OECD, *Innovation microdata project*.

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