

# Challenges of Innovation for Chinese Small and Medium-sized Enterprises: Case Study in Beijing

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## Abstract

Innovation has been regarded as one of important impetuses to gain competitive advantages and achieve sustainable development for small and medium-sized enterprises (SMEs) in the past thirty years. However, SMEs in China have currently confronted a lot of problems impairing their innovation performance. This study aims to identify the main challenges hindering successful innovation of Chinese SMEs. Based on the previous academic studies, there are five research variables are developed and evaluated: lack of financial support, inadequate research and development (R&D) activities, the shortage of technical and skilled employees, weak entrepreneur orientation, improper governmental and legal environment. Furthermore, the primary data are collected by structured-questionnaires from 120 SMEs in Beijing. According to the research results analyzed by SPSS, it reveals that lack of financial support and inadequate R&D activities are major challenges for Chinese SMEs to achieve innovation. The shortage of technical and skilled employees as well as the improper governmental and legal environment is other barrier. Therefore, more responsibilities and actions should be taken by the government and SMEs themselves to enhance the innovation capability of Chinese SMEs. On the other hand, only one factor—weak entrepreneur orientation, is not regarded as a key challenge. This indicates Chinese entrepreneurs have increasingly realized the significant role of innovation played in the survival and long-term prosperity of SMEs recently.

**Keywords:** innovation performance, SMEs, China, challenges, recommendations

## 1. Introduction

The Chinese economy has leapt forward since the implementation of economic reform and open-door policy in 1978. China is a relative late comer to modern industry but a highly successful one. The rapid growth of dynamic SMEs is one of significant achievements of this overall macro-economic reform (Kanamori et al., 2007). Moreover, as a vital driver behind the economic boom in China, Chinese SMEs make great contributions to GDP growth and employment creation. For example, Chinese SMEs represented around 61% of national GDP and provided approximately 87% of new job opportunities in 2013 (China Statistical Yearbook, 2013). With the acceleration of economic globalization and technological revolution, companies have to renew or improve their products, services and manufacturing processes timely to acquire competitive advantages in fierce market competition (Bozkurt & Kalkan, 2014; Tajeddini, 2010). Therefore, the innovation capability as an engine of technology progress is of importance to all firms, especially for SMEs (Radas & Bozic, 2009).

On the other hand, most enterprises start their business from small or medium-sized companies. SMEs provide a breeding ground for new products and services. For instance, Chinese SMEs offered 75% of new products and 65% of invention patents in 2012 (Ma, 2012). Hence, SMEs have played an essential role in the innovation of products and manufacturing processes (Zeng et al., 2010; Bruque & Moyano, 2007). However, Chinese SMEs have showed a lot of failure experiences in regard to technology innovation, which implies many constraints still existed to hamper the innovation performance of SMEs in China (Xie et al., 2013; Diez, 2000; Banyte & Kuvylaite, 2008; O'Regan et al., 2006). Overall, it is necessary to critically identify and evaluate the challenges of innovation for SMEs in China.

## 2. Literature Review

### 2.1 Theoretical Explanation of Chinese SMEs

The criterion of SMEs in China is very complicated, which is in accordance with different industrial categories concerning the number of employees, total assets, balance sheet, business revenue and annual turnover (China Briefing News, 2011). Generally, according to the latest standard of Chinese SMEs issued by the Chinese government in 2011, the annual turnover of micro-sized enterprises is less than 3 million RMB (around 0.44 million US dollars) with less than 20 employees. The annual turnover of small-sized companies is from 3 million RMB (around 0.44 million US dollars) to 30 million RMB (around 4.45 million US dollars) with 20 to 300 personnel. Furthermore, the annual turnover of medium-sized firms is from 30 million RMB (around 4.45 million US dollars) to 300 million RMB (around 44.57 million US dollars) with 300 to 2000 staff (The Ministry of Industry of the People's Republic of China, 2012).

There are approximately 60.92 million of Chinese SMEs in 2015, occupying more than 98% of total firms (National Bureau of Statistics of China, 2015). Only in Beijing City, there were around 965,773 SMEs registered in 2006, representing around 82.92% of overall enterprises. The total number of SMEs is more than that of all of Belgium and Netherland combined. Additionally, SMEs in Beijing contributed to nearly 57% of city's revenue, around 68% of profit creation, approximately 62% of taxation income, almost 73% of employment in 2010 (Deakins & Freel, 2012).

### 2.2 Theoretical Explanation of Innovation

The definition of innovation is the application of new ideas and approaches to create value for enterprises and delivery value for customers, including the application of process innovation, the adoption of product innovation and the implementation of managerial and marketing innovation (Bozkurt & Kalkan, 2014; Leskovar, 2007).

Due to the high adaptability and flexibility, SMEs usually have short reaction time to a changing environment and new marketing demands (Ferneley & Bell, 2006). However, it is still very hard for SMEs to implement innovation successfully (Xie et al., 2013; O'Regan et al., 2006). There have been a number of studies and researches on analyzing the barriers of innovation for SMEs available so far. For instance, the shortage of technically skilled employees and managerial staff, and the deficient capital support are constraints of successful innovation for SMEs in manufacturing industry (Xie et al., 2013; Smallbone et al., 2003). Furthermore, the intensity of R&D activities is one of important determinants as well (O'Regan et al., 2006; Xie et al., 2013). Although some factors influencing on innovation for different companies are varying, the entrepreneur orientation is viewed as one of common aspects (Kim et al., 1993). It is worth noting that the financial resources are indispensable for business start and growth (Xie et al., 2013; Bygrave, 1992). According to Kaufmann and Todtling (2002), the adequate capital and financial support are crucial to implement innovation.

Table 1. The Challenges of SMEs Innovation

Author(s)	Description
Piatier (1984)	Lack of government support as an important barrier of innovation in the European countries
Silva, Leitão and Raposo, Vieira (2007)	Lack of financing channels Lack of skilled employees Lack of marketing information and high technology The organizational rigidity
Madrid – Guijarro Garcia and Auken (2009)	Incomplete government policies and regulations Uncertain economic environment Lack of high-quality human resources
Triwari and Buse (2007)	Low budgets Difficulty in recruiting adequate human resources Bureaucracy Poor cooperation between enterprises
Demirbas (2010)	Lack of state policies to support technology and R&D High cost of innovation Lack of appropriate approaches of raising funds Lack of qualified personnel
Kamalian, Rashki and Arbabi (2011)	Excessive business risks Insufficient economic resources Unavailability of funds Cost associated with innovation

Source: Cordeiro and Vieira, (2012); Bozkurt & Kalkan, (2014)

Moreover, the political and legal environment also impacts on the innovation implementation of SMEs to some extent. Some scholars put forward that bureaucratic burdens placed on SMEs by incomplete government policies and improper regulations might be considered as one of key challenges of innovation (Xie et al., 2013; Henrekson & Johansson, 1999). Other previous academic studies in relation to the challenges of innovation are highlighted in Table 1 as above.

These studies conclude that the innovation of SMEs is affected by the shortage of financial and human resources, the political risks as well as the inadequate R&D activities. According to the literatures above, a conceptual model is developed for this study (see Figure 1 below).

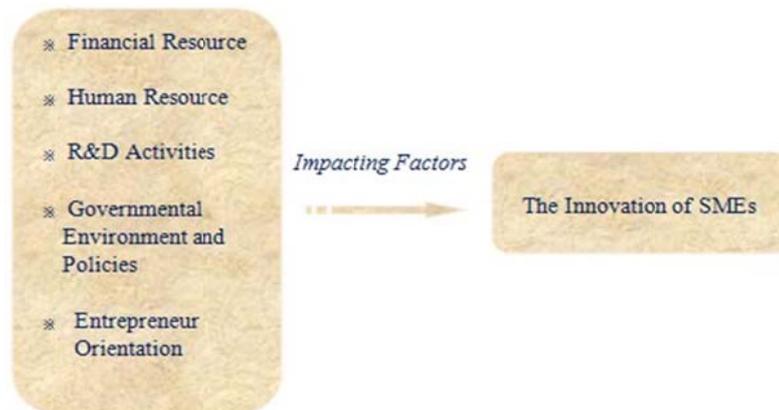


Figure 1. Conceptual Framework

Therefore, this research aims to examine these factors associated with innovation of SMEs in Beijing, China. On the basis of research findings and analysis, several appropriate suggestions are provided to improve their innovation capacity in the future.

### 3. Analysis and Discussion

#### 3.1 Research Variables and Data Resources

According to the conceptual framework developed from previous studies (see Figure 1 above), five variables are mainly concentrated in this research (see Figure 2 below).

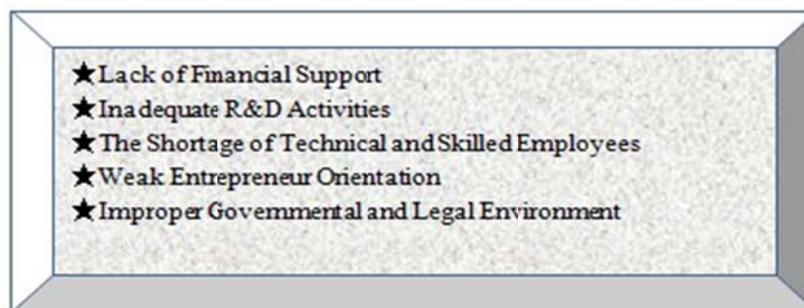


Figure 2. Key Variables

For this study, structured-questionnaires designed to explore the challenges hampering the innovation of Chinese SMEs were adopted in accordance with these five variables. Specially, from September 2014 to October 2015, 120 small and medium-sized enterprises from different industries in Beijing were investigated as a research sample. With the help from commercial chambers and associations of SMEs in Beijing, 318 SMEs were randomly selected in different districts of Beijing City. Accordingly, 318 structured-questionnaires were distributed by a combination of drop-and-collect and e-mail methods in September 2014. However, 175 replies were received and only 120 of them were valid. The rate of valid responses was around 37.74%. The participants were required to answer a series of questions with five-points Likert scale, ranging from strongly disagree '1' to strongly agree '5'.

In order to reduce a research bias, the structured-questionnaire was pre-tested for its validity by professionals who are familiar with SME sectors from universities, research institutions or commercial chambers in advance.

Moreover, the respondents of research questionnaires were general managers, consultants and department directors of SMEs.

### 3.2 Data Analysis and Discussion

After all the information received from participants, data results were analyzed by Excel and SPSS. The summary of data results is shown as follows (see Figure 3 below).

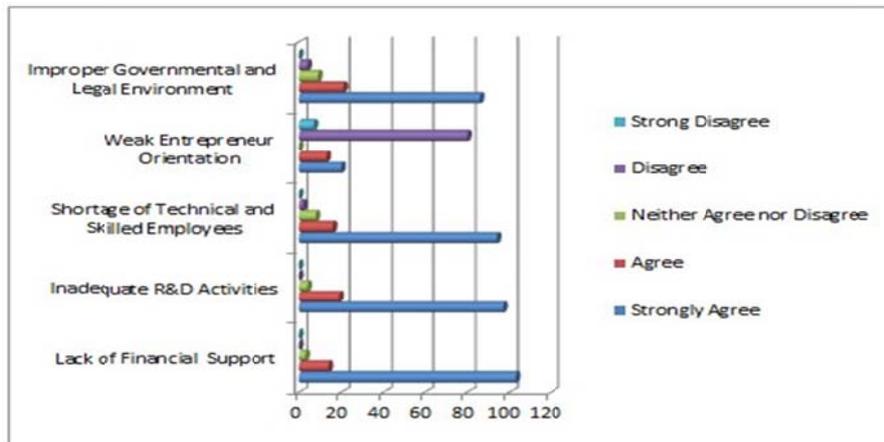


Figure 3. The Summary of Research Results

Figure 3 illustrates that a lack of financial support is the most dominating factor impeding innovation of Chinese SMEs, which is 103 (85.83%) of the respondents strongly agreed as well as 14 (13.59%) of respondents agreed. This result is demonstrated by some previous researches as well. For example, the insufficient funds cannot satisfy the demands of SMEs. The financial restriction severely limits to their implementation of innovation such as technology transfer and R&D activities. This is always complained by the managers of SMEs as well (Xie et al., 2013; Smallbone et al., 2003).

Furthermore, the inadequate R&D activities and the shortage of high-qualified employees are other two main challenges next to the insufficient financial support. Specially, a total of 116 participants strongly agree or agree the inadequate R&D activities as a constraint of innovation, representing 96.67% of this research sample. Moreover, the shortage of manpower, especially for technical and skilled staff, is also viewed as a serious problem of innovation by 110 (91.67%) of respondents.

In addition, the improper governmental and legal environment is regarded as another barrier hindering innovation progress for SMEs in China, representing 86 (71.67%) of the participants strongly agreed as well as 21 (17.50%) of the participants agreed.

On the other hand, it is not a great challenge from the perspective of entrepreneur orientation. This implies the entrepreneurs of Chinese SMEs have increasingly realized the significance of innovation played in the survival and sustainable development of their firms currently.

### 4. Findings and Recommendations

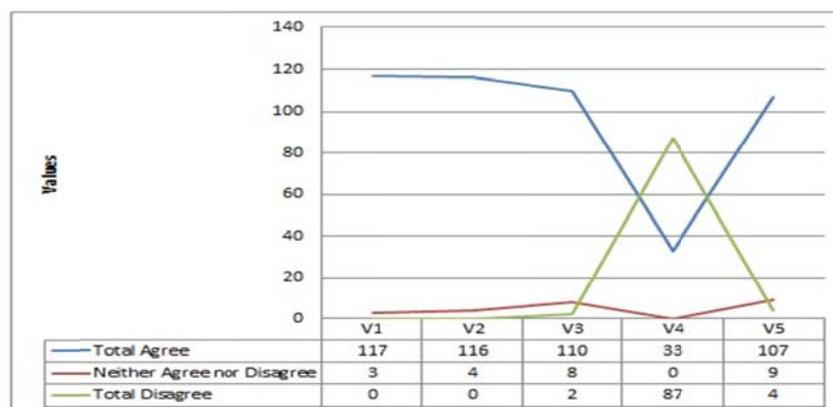


Figure 4. The Total Summary of Data Results

*Note.* V1-lack of financial support, V2- inadequate R&D activities, V3- shortage of technical and skilled employees, V4-weak entrepreneur orientation, V5- improper governmental and legal environment

From the research findings above, we can summarize that there is no less than 110 respondents regard V1, V2 and V3 as main barriers of innovation for Chinese SMEs. Additionally, 107 (89.17%) of respondents agree with V5 as the other challenge. Based on these problems, several proper recommendations are presented as follows:

#### *4.1 To Provide Adequate Financial Support*

More actions and measures should be taken to cope with financial strain of SMEs by a full range of financial support. For example, the Chinese central and local governments have to offer tax deduction even tax exemption, and public borrowing with low interest rates to encourage the innovation activities adopted by SMEs.

Furthermore, the commercial banks and financing institutions need to establish the special programs for Chinese SMEs to expand their scope of financial support.

#### *4.2 To Establish R&D Networks*

It is very difficult for SMEs to perform innovation by themselves alone owing to the limitations of available resources and R&D capabilities, compared with their larger counterparts. Therefore, more cooperation between SMEs and other enterprises, universities, science and technology institutions are necessary to enhance the innovation capability of SMEs by establishing professional associations and effective networks together. This would provide more learning opportunities, experience exchange and information sharing.

#### *4.3 To Recruit and Train More High-qualified Staff*

The recruitment of high-educated employees with technical and managerial skills is a key for SMEs to improve their poor situation of human resources. SMEs could attract an educated employee by a desired salary and an impartial promotion opportunity. Moreover, Chinese SMEs should offer good fringe benefits to retain their workers. In addition, SMEs have to make increasing efforts on the employee training in order to learn more advanced knowledge and master more useful skills.

#### *4.4 To Create Favorable Governmental and Legal Environment*

Although a variety of standards and regulations have been enacted to protect the legal rights of Chinese SMEs, the current legal and administrative systems are still incomplete, especially for the protection of intellectual property rights. The illegal imitation has severely damaged the motivation and creation of innovation. To encourage the innovation activities of SMEs in China, the government should build more favorable and fair environment by improving current policies and broadening scope of legislations. For example, a series of measures should be taken to promote intellectual property protection, including the complete prohibition of pirating and the strict enforcement of present laws (e.g. trademark law, patent law and copyright law).

### **5. Research Limitations and Suggestions for Future Research**

Before the elaboration on the suggestions for future studies, the main limitations of this study need to be informed. First of all, due to the restrictions of limited time and resources, this research merely concentrates on SMEs in one region (Beijing City). This would lead to less acceptable findings. Moreover, only structured-questionnaire is used as research approach and only one director or manager from each enterprise is responsible for answering all questions, which might influence the research results.

To broaden research samples, the future studies are advised to extend the research scope regarding different SMEs in different areas. To overcome the weaknesses of single data source, data can be collected from leaders, employees and trade unions. The deep interview is also necessary to provide more information.

### **6. Conclusion**

As discussed above, five variables are selected as the major criteria for this research. Therefore, all research results and findings are based on these five variables: lack of financial support, inadequate R&D activities, shortage of technical and skilled employees, weak entrepreneur orientation, improper governmental and legal environment. Among these five variables, there is only one factor — weak entrepreneur orientation, is not considered as a dominating challenge. This implies that the majority of entrepreneurs have recognized the importance of innovation capability in the long-term development of SMEs in China. In accordance with the main challenges, four recommendations for the government and SMEs themselves are provided to enhance future innovation capacity.

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