

## The central role of human resource management in creating innovation for small and medium-sized enterprises (SMEs) in remote areas of China

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### ABSTRACT

Chinese enterprise structure has completed the transformation from the dominant position of large enterprises to the structure of diversification pattern. The number of small and medium-sized enterprises (SMEs) occupies the dominant position in the structure. The innovation development of SMEs in remote areas has always been the focus of the Chinese government. However, the concepts related to innovation are broad and little has been presented in terms of concepts and practical implications to create innovation for SMEs in remote areas. Therefore, the purpose of this article is to present the contributions of human resource management (HRM) to create innovation based on previous literature. Identification of HRM practices and the integration of HRM practices lead to SMEs' innovation. Based on this model, propositions, recommendations for future research on this theme are presented.

### Keywords

Innovation, Small and medium-sized enterprises, Human resources management practice, Research and development

### 1. Introduction

The definition of innovation, from its inception to its development to the present stage, is both simple and complex. It is simple because people will have a relatively simple cognitive concept when they see the word. It is complex because the definition of innovation varies in

different regions, different fields, different industries and different organizations. Innovation is the core competitiveness of enterprise development. The factors affecting enterprise innovation are still important topics to be discussed (Özdemir G. D., & Gözlü, S, 2012). The factors that influence innovation often come from both internal and external factors. Internal factors include HRM, R&D, enterprise culture, etc. External factors include scientific and technological progress, political background, industry competition, etc. A large number of studies have shown that HRM practice have a significant impact on the performance of enterprise innovation. Enterprises with a well-established recruitment and selection system, focus on the cultivation of enterprise talents, guarantee the employment of employees, and a well-established incentive system tend to have better performance in innovation than others (Abdullah et al., 2010). In addition, a rapid and turbulent economic environment, continuous R&D can guide enterprises' innovation, provide enterprises with sufficient vitality and improve their performance (Masatsugu et al., 2018).

By the end of 2018, the number of SMEs in China had exceeded 30 million, accounting for more than 90 percent of the total. (SME situation analysis research group, 2019). According to the latest anti-poverty policy, the Chinese government attaches great importance to the innovation of SMEs in remote areas. However, there is little literature on this field. In general, the remote areas of China are mostly defined as the six provinces of Xinjiang, Tibet, Gansu, Ningxia, Qinghai and Inner Mongolia. The remote areas in the paper generally refer to the underdeveloped or poor areas far away from the location centers of each province. The purpose of this paper is to make a tentative analysis of the factors that influence the innovation of SMEs in remote areas of China. This paper focuses on the relationship of HRM practice, research and development, and innovation. Background and related theories are presented together with propositions for future practical studies, contributions and future study.

## **2. Literature review**

How to improve the innovation of Chinese enterprises has been studied in some literature. Compared with the United States, Germany and other developed countries, the development of SMEs in China has the problem of small but not fine, more but not strong. Statistics show that 70%

of innovation inventions in the United States are realized by small and micro enterprises, and the innovation achievements per capita of SMEs in the European Union are twice that of large enterprises. China's SMEs also provide about 65% of the country's invention patents and more than 80% of new product development, but only 2.5% of the new products developed each year reach the international level (SME situation analysis research group, 2019). Su (2013) explored the key factors of technological innovation in China's manufacturing enterprises. The factors are adhere to the development of self-centered, huge market demand, technology platform, and technology integration products. These four factors have a significant impact on enterprise innovation. Michael et.al. (2016) elaborated the support and restriction function of government policy on the innovation of SMEs through the research on China's mobile handset industry innovation. The paper found that tacit alliance between enterprises can alleviate the pressure of enterprises to fight against structural uncertainty in market competition or global competition, but this effect can only be partial. Companies will still look for ways to innovate gradually, but they are more focused on short-term profits and managing long-term R&D risks. This fundamentally restricts the possibility of product innovation.

These researchers analyzed the important role of innovation in the development of SMEs in China from macro and micro economic vision. But there is little focus on innovation of SMEs in remote areas. At the same time, researchers hold different views on how to promote the innovation of Chinese enterprises.

The development of SMEs in remote areas has a direct impact on local employment and economy. With the development of China's poverty alleviation program, how to guide and promote the innovation of SMEs in remote areas has become an important issue. This section describes theories and background of innovation and the impact of HRM practice and R&D on innovation.

## **2.1 Innovation**

The definition of Innovation has been widely discussed since it first appeared. According to the pioneering work of Schumpeter (1934), innovation is defined as the first introduction of a new product, process, method or system. Innovation can be defined as the introduction of a process,

or the final outcome of the process. Van de Ven (1986) argued that innovation is a process to develop and implement an idea. Brian (1988) concluded that innovation is the first successful application of a product or process based on the review of previous literature. Eric et. al. (2011) considered that innovation is a knowledge-based outcome, with the characteristics of should be new in the field being introduced, duplicability, and usefulness. Lukovszki et. al. (2020) stated that the innovation of an enterprise can usually be regarded as a specific behavior, purpose, or a series of creative activities to achieve a specific achievement. This includes the improvement and development of existing or new products and services. Propose new solutions, introduce company costs, promote human resources communication, acquire new technologies, etc. It's all about keeping the business competitive or growing further.

The definition of innovation has generally been given more connotations in the process of its emergence and development. Innovation is no longer just an idea, a process, or an outcome. Innovation is redefined as a new, useful process, or an outcome, in the domain in which it is applied.

#### **Innovation in the context of SMEs**

The word SMEs generally refers to small and medium enterprises, and there is no accurate definition of SMEs in academic terms, because the definition of SMEs may vary from economic level to development situation in different countries. Innovation of SMEs in remote area is defined as the creative activities carried out by SMEs with a few key resources and capabilities among many factors related to innovation due to limited resources and the limitations of their own operating characteristics (Lukovszki et al., 2020).

In fact, innovation ability is one of the important driving forces for SMEs to gain a high level of competitive advantage (Saunila, 2016). SMEs' existing knowledge reserve, R&D investment, human resources, corporate culture and other factors can affect their innovation to different degrees (Piers et al., 2013). Enterprise scale, market positioning and market environment also affect the innovation of SMEs to a certain extent (Suryono et al., 2020). We can see that innovation of SMEs is a process of integrating existing resources and combining internal and external environment to produce new ideas or products so as to gain competitive advantages or maintain survival. However, due to the size and capacity of SMEs compared with large enterprises, there are

deficiencies in all aspects. Suryono et. al. (2020) also mentioned that due to limited resources, many SMEs derive much of their innovation from imitation and learning. It is meaningful to identify the factors that affect the innovation of SMEs in the limited resources.

## **2.2 HRM practice**

### **Definition**

HRM practices include the recruitment of employees, the training and development of employees at different levels of the enterprise, the performance management system and implementation, the planning of reward and punishment system, and the management of workplace safety in the whole enterprise (Mondy, 2010). Zuraida et. al (2017) stated that Human resource management is a series of management and development measures for employees of a company in order to improve performance and stabilize the internal structure of the organization. Advocate from knowledge, skills, values and attitudes to enhance the ability of employees.

### **HRM practice in the context of SMEs**

Hashim et al. (2005) found that in the HRM practices of SMEs, complete recruitment system, people-oriented, continuous training and development, and innovation incentive mechanism can promote the innovation of enterprise. Abdullah et. al. (2010) argued that HRM Practice is regarded as the key to SME management. The demand for talent and knowledge is increasing in today's market. Enterprises need to do a good job in this area to cope with the increasingly complex economic environment. This requires SMEs to be able to set up various types of teams for continuous learning. Encourage empowerment and the dissemination of internal knowledge to each other. Human resource management has always been a key factor for the successful innovation and development of SMEs. The reason is that the execution of the innovation process is influenced by human factors (Lopez-Fernandez et al., 2016). Lohana (2016) found that the process of HRM practices in SMEs includes recruitment and selection, training and development, promotion and development and authorization. Some companies allow employees to participate in the innovation process and design incentive systems that reward innovation. The enterprise will also change the implementation of HRM practices according to external circumstances. It might take full account of external conditions such as norms, policies and culture in the process of

implementation.

The definition of HRM practice in the context of SMEs in remote areas refers to the rational use of human resource practices within organization to achieve organizational goals. HRM Practice is defined as including at least five activities related to human resources, including recruitment and selection, human resource development, salary, safety and health, and employee and labor relations (Abdullah et al., 2010).

### **2.3 Research and Development (R&D)**

Ferrari (2005) considered that R&D is a series of research and development done by enterprise from the process of market research to product or service delivery, which is carried out by using specific enterprise funds. R&D refers to research and development which means that the systematic and creative activities in the field of science and technology to increase the total amount of knowledge (including the total amount of human cultural and social knowledge) and to use this knowledge to create new applications (Masatsugu et al., 2018).

#### **R&D in the context of SMEs**

SMEs' R&D is driven first and foremost by internal goals, visions, and tasks, which drive enterprises to integrate knowledge and resources for R&D. According to Ferrari(2005), enterprises will put a lot of energy into R&D in the stage of seeking for innovation. R&D helps companies explore potential ideas and innovations in the market. Once ideas and innovations are identified, R&D may fail because there is no proper way to implement them. Ideas that are not put into practice can only be wasted and cannot be called innovation. Through innovation, SMEs can overcome the lack of R&D, maintain innovation, and improve profit margins. This method can stimulate SMEs to produce more innovation, forming a virtuous circle (Laforet, 2010). SMEs are sometimes motivated by external sources of research and development, the cooperation between SMEs and other parties will influence their internal R&D activities. The interaction between enterprises or between enterprises and the government can produce regional R&D activities, thus affecting regional innovation. The government sometimes uses subsidies, fiscal stimulus or loans to solve the problem of inadequate R&D funding for SMEs. This method can stimulate SMEs R&D

to a certain extent, reduce enterprise costs, and promote innovation (Lopez-Fernandez et al., 2016).

Because of the relative small size, SMEs in remote areas are unable to undertake the same comprehensive R&D activities as large enterprises. Therefore, the definition of R&D in the context of SMEs is divided into two parts. First, to integrate existing key resources and make a plan. Second, to learn and imitate various innovative ideas from other enterprises or fields, so as to get inspiration and combine with the key resources into practice. In this way, SMEs can create their own uniqueness and gain competitiveness through low-cost and low-risk research and development (Raquel et al., 2009).

### 3. Conceptual framework, relationship, and propositions

This paper mainly studies the influence of HRM practices and R&D on the innovation of SMEs. The purpose of this paper is to lay a foundation for future research on the innovation of SMEs in remote areas of China, and to promote and maintain the innovation of SMEs in remote areas of China. Two theoretical frameworks will be used to form the conceptual framework of this research.

#### 3.1 Theoretical framework

Two theoretical frameworks will be selected to construct the conceptual framework.

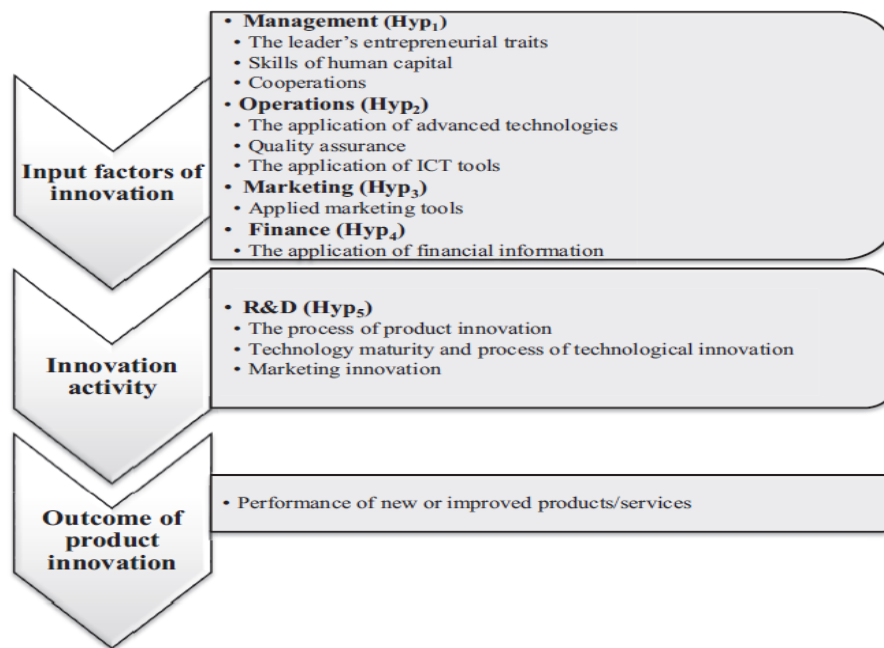
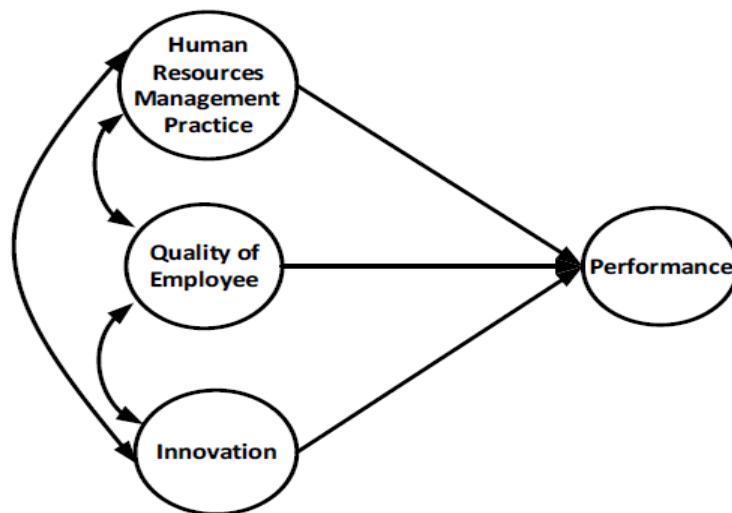


Figure 1 Resource-based view of innovation activity in SMEs: an empirical analysis based on

*the global competitiveness project*

Lukovszki et.al. (2020) created a model of a resource-based product innovation (RBV) in SMEs. The first part is the factors that need investment in order to achieve innovation, including the capability and resources of the enterprise. This is an intrinsic factor in achieving innovation. The second part is the necessary activities to achieve innovative performance, which can be summarized as R&D. The third part is the final innovation output, including the innovation of products and services.



*Figure 2 The impact of human resource practices, employee quality and innovation on performance: An analysis of woven fabric SMEs*

Zuraida et. al (2017) created a model to test the influence of HRM practice, quality of employee and innovation on performance of SMEs. Research showed that HRM practices cannot directly affect enterprise performance, but they can indirectly affect corporate performance through innovation.

### **3.2 Relationship of HRM practices and innovation**

In the research of Abdullah et. al. (2010), HRM practices can explain 57% of the variance in SMEs' innovation, Recruitment and selection and job security are important predictors. Lohana (2016) argued that HRM practices can keep employees creative through training, empowerment, and promotion, so as to improve SMEs' innovation. Zuraida (2017) stated that the degree of innovation in SMEs depends on the number of high-quality employees in the enterprise. Human

resource management practice is the key to the success of enterprises. Good HRM practices not only have a great impact on the innovation process and results, but also have a direct impact on enterprise performance. However, some scholars also believe that HRM does not have a strong relationship with SMEs innovation. Suryono et. al. (2020) mentioned that HRM practices do not play a dominant role in SMEs innovation. The dominant factors are market positioning and consumer preferences.

Consideration of prior literature from different areas and fields, HRM practices can integrate the existing resources of enterprises and promote enterprise innovation. Due to the different location and enterprise structure, the influence of human resource management practice on the innovation of SMEs in remote areas of China is relatively fuzzy and complex. It is necessary to explore the impact of HRM practices on the innovation of SMEs in remote areas of China based on the previous literature. Scale items focus on HRM practice include recruitment, training and development, performance management, reward and compensation (Abdullah et al., 2010 & Zuraida et al., 2017).

**Proposition 1: HRM practice has statistical impact on Innovation**

**3.3 Relationship of R&D and innovation**

Zhang (2012) Mention that, by improving the human resources level of SMEs, can help SMEs to make breakthroughs and win in the fierce competition. In the research of Özdemir and Gözlü (2012) , R&D has been found to be an important internal factor affecting enterprise innovation. Masatsugu et al. (2018) observed the influence of R&D group and non-R&D group on helping improve ASEAN Countries' firms innovation respectively. The interesting result was that both groups were able to use R&D and non-R&D resources in different ways to promote enterprise innovation. Lukovszki et al. (2020) found that research and development, play a vital role in the effectiveness of SMEs' innovation. The research and development capability of enterprises can influence the orientation of enterprise innovation to a certain extent. Tran (2020) noted that resources, cooperation and funds have a positive impact on R&D activities. R&D, information management and technology resources have a positive impact on innovation. But some studies also show that R&D has limited impact on enterprise innovation, Hausman (2005) noted that the limited resources and

ability to carry out internal R&D activities limited the innovation ability of SMEs. Opposite viewpoint also comes from Suryono et al. (2020), in their research results, although the investment in R&D affects the innovation of SMEs to a certain extent, it is not very significant compared with the two factors of market and product orientation.

The literature on R&D's role in SMEs innovation is complicated. Some researchers think that its role is relatively effect on innovation, some researchers think that the role is limited. It is worth investigating the impact of R&D on SMEs. Scale items focus on R&D include product/service R&D, process R&D, learning and imitation, market R&D (Raquel et al., 2009 & Lukovszki et al., 2020).

**Proposition 2: R&D has statistical impact on Innovation**

### **3.4 Conceptual framework**

Based on the literature review and theoretical frameworks, this paper established a conceptual framework to test the impact of HRM practices and R&D on innovation. This model aims to study the impact of two factors on the innovation of SMEs in remote areas of China. Scale items focus on innovation is including product/service innovation, process innovation (Lukovszki et al., 2020).

Thus, through this study, the author hope to obtain academic and practical implication from the research result. For academic contribution, this conceptual framework proposes the model further study in both quantitative and qualitative research. In term of managerial implication, SMEs entrepreneur could consider the integration of HRM practices as well as R&D activities in promoting innovation according to their existing contexts.

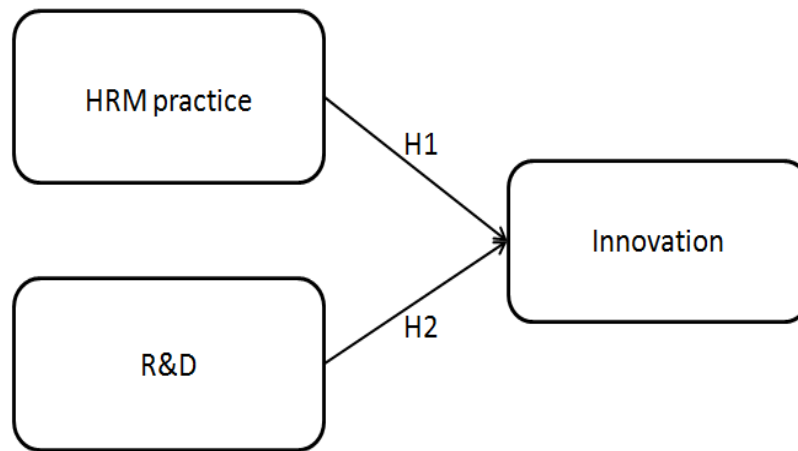


Figure 3 Conceptual framework

#### 4. Contribution and future research

The research is an exploration of the innovation of SMEs in remote areas of China. The study deeply observes the three variables of HRM practice, R&D and innovation, and the conceptual framework studies the influence of HRM practice and R&D on SMEs innovation. It provides some ideas for the innovation research of SMEs, and is helpful for the managers of small and medium-sized enterprises to clarify the content and direction of enterprise innovation.

In the future study, the research can be put into other countries or regions to observe how the innovation of SMEs in different regions is driven. At the same time, more variables or mediating variables can be included to observe their mutual relationship or mutual influence.

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