

Research on the Relationship Among Intellectual Capital, Learning from Failures and Enterprise Innovation Performance

Jianwei Ji^{1, a}, Lu Ma^{1,2, b}

¹ School of Management, Guangxi University of Science and Technology, Liuzhou 545006, China;

² Business School, Guangxi University for Nationalities, Nanning 530006, China.

^a 1762495910@qq.com, ^b malu6655@163.com

Abstract. Based on relevant literature, this paper studies the relationship among intellectual capital, learning from failures and corporate innovation performance. The study finds that intellectual capital (human capital, structural capital and relational capital) has a significant positive impact on corporate innovation performance; learning from failures plays a mediating role between intellectual capital and corporate innovation performance, intellectual capital can positively influence the innovation performance of enterprises through the internal conduction of learning from failures.

Keywords: Intellectual capital, learning from failures, enterprise innovation performance.

1. Introduction

With the advent of knowledge economy, the internal and external environment in which business operations depend is undergoing tremendous changes. The rapidly changing Internet economy has accelerated the changes in the business environment. Enterprises can no longer rely on traditional competitive advantages to form a long-lasting core competitive, any company that wants to maintain its competitive advantage and create economic value in the fierce market competition must have innovative technology and thinking [1]. Many studies have shown that the accumulation and application of intellectual capital plays an important role in the production innovation of enterprises. In order to maintain and cultivate core competitive advantages and create new value for products and services, more and more enterprises are paying attention to the organization. The absorption and accumulation of external intellectual capital. At present, the external environment is characterized by variability and uncertainty, which makes the probability of failure of innovative enterprises in science and technology research and development. In the case of failure, if the company lacks correct understanding of failure, it cannot summarize from failure. It will have a serious negative impact on corporate innovation performance [2].

So, for innovative companies, how to success and become a problem that innovative enterprises must solve in the face of innovation failure. With the continuous improvement of the degree of network embedded in the organization, the failure experience inside and outside the enterprise has become an important part of learning from failures. Based on this, this study analyzes the impact mechanism of intellectual capital on the innovation performance of enterprises, in order to reveal the mechanism of interaction between intellectual capital, failed learning and corporate innovation performance, and provides new research perspective for the development of the relationship between intellectual capital and innovation performance.

2. Intellectual Capital and Enterprise Innovation Performance

Current research generally believes that corporate intellectual capital is composed of three dimensions: human capital, structural capital and relational capital. Stewart (1997) believes that in order to maximize the use of intellectual capital, human capital, structural capital and relational capital need to support each other. The main body of enterprise innovation is enterprise members. The intellectual knowledge, professional skills and creative thinking of employees are the key factors for organizational innovation performance. Human capital has become the basic resource of enterprise innovation activities, and its importance has also been obtained from the academic and enterprise management fields. Recognition and attention, Guthrie (2001) believe that human capital

is constantly proposing new ideas and new ideas in the process of solving problems for customers, and innovative behaviors such as improving processes are increasingly improving corporate innovation performance; Hsu & Wang (2012) proposes high-quality human capital. It plays a decisive role in the effectiveness of corporate R&D activities. Therefore, human capital is the key to improving performance in technological innovation. Structural capital refers to the organization's operational procedures, culture, information technology systems, etc. Structural capital can promote the deep integration and optimization of organizational knowledge, thereby further enhancing the organization's innovation ability and innovation performance; Menona (2002), Marsh (2003) and other research show that excellent management systems, operational processes and knowledge management processes will positively influence the development of new products [3]. Enterprise relationship capital is one of the important structural dimensions of intellectual capital. Enterprise employees establish contact with knowledge communication through internal and external information, and organizational members form information network resources that are beneficial to enterprise performance innovation in information acquisition and knowledge sharing. Maurer (2011) selected 144 innovation projects in the German mechanical engineering industry for analysis and comparison, and found that relational capital can have a positive impact on innovation performance through knowledge transfer. Therefore, we believe that human capital, structural capital, and relationship capital all positively affect corporate innovation performance.

3. Mediating Role of Learning from Failures

3.1 The Impact of Intellectual Capital on Learning from Failures

In the era of knowledge economy, the intellectual capital of organizational members is the first element of enterprise development. Skills training for employees not only improves the overall quality of the enterprise, but also promotes learning within the organization[4]. As an important part of organizational learning, learning from failures has a close relationship with corporate intellectual capital. Failure experience can be divided into big failure and small failure according to severity. Small failure refers to individual members' mistakes, conflicts and errors in work. Refers to major errors in the organization's internal technology research and development and marketing. Improving the professional skills and knowledge literacy of individual members of the enterprise will enhance the overall intellectual capital of the organization, thereby enhancing the ability of individuals and even the overall response to the risk of failure, summing up experience and learning from past failures[5]. March (1993) believes that the correct cognitive structure can not only form an objective understanding of learning from failures, accept learning from failures, conduct failed learning activities, but also correctly attribute and analyze failures. The degree of matching with their own work is increased, work experience is continuously improved, human capital in the enterprise is increased, and knowledge is used to take risks and improve the ability to cope with failures. Therefore, high-quality employees undoubtedly play an important role in promoting organizational learning from failures. Therefore, we believe that intellectual capital has a significant positive impact on learning from failures.

3.2 The Impact of Learning from Failures on Corporate Innovation Performance

Failure-based learning behaviors includes two levels of research, namely, the learning from failures behavior at the individual level and the learning from failures behavior at the organizational level. It has been found that learning from failures can positively promote the innovation performance of enterprises through these two levels[6]. Carmeli and Schaubroeck (2008) also believe that failure to learn can improve the organization's preparedness for the current and future crisis. The improvement of the enterprise crisis early warning mechanism will promote the improvement of organizational performance. Chen Guoquan and Ning Nan (2010) proposed organizational learning from failures behavior to encourage employees to learn from failure through some institutional norms and incentive policies to create a relaxed organizational environment, increase the overall learning ability of the organization in the face of failure, and thus promote the innovation performance of

entrepreneurial enterprises[7].Zhu Xuechun and Chen Wanming (2014) believe that learning from failures is a way for organizations to achieve technological innovation and improve performance in a dynamic market environment. The organization sums up the failure experience in the learning from failures, establishes and perfects the crisis response mechanism, and plays an important role in promoting the performance improvement of the enterprise in the innovation activities. Therefore, we believe that learning from failures has a significant positive impact on corporate innovation performance.

In general, how to shorten the life cycle of product innovation and R&D, and to seek a dominant position in a fierce market competition environment is an important issue that enterprises must solve in the process of technological innovation, and to explore the key impact between corporate intellectual capital and innovation performance. Factors have become the focus of current academic circles. Jiang Tianying and Wang Junjiang (2009) conducted a questionnaire survey of 555 employees in 78 enterprises in Zhejiang Province and conducted empirical analysis, suggesting that organizational learning has a mediating effect between intellectual capital and corporate innovation performance. Based on the above analysis, we believe that learning from failures has a mediating effect between corporate intellectual capital and innovation performance.

4. Summary

This study finds that intellectual capital has a significant positive impact on corporate innovation performance, and learning from failures plays a mediating role between intellectual capital and corporate innovation performance. Among them, human capital has a direct impact on the innovation performance of enterprises. The influence of structural capital and relational capital on the innovation performance of enterprises is not significant. Structured capital and relational capital can have an indirect impact on the innovation performance of enterprises through learning from failures[8]. Human capital as the intellectual capital of enterprises the foundation and key dimensions can directly promote the innovation performance of enterprises. Through research, it is found that the relationship between structural capital, relational capital and corporate innovation performance is not very close. Structural capital and relational capital are more improved enterprise innovation performance through learning from failures. Intellectual capital is a systematic project consisting of human capital, structural capital and relational capital. It encourages corporate members to produce conscious learning behaviors in failure, which leads to the improvement of innovation performance.

Intellectual capital has become a key factor in maintaining competitiveness. The primary task of enterprises to promote performance innovation is to increase the input of intellectual capital. Studies have shown that human capital, structural capital, and relational capital mutually promote each other and complement each other. The relationship capital and structural capital of enterprises can improve the efficiency of human capital use, and thus enhance the innovation performance of enterprises. In the business practice of the enterprise, after experiencing some failures properly, the enterprise manager can accumulate certain experience in management skills and innovative thinking, which helps to identify the key to the problem and improve the ability to identify and resist risks. At the same time, failure is regarded as the source of learning knowledge, strive to overcome various difficulties in learning from failure, selectively accumulate various knowledge, experience and skills, and improve the efficiency of failed learning. Failures generate rich information and knowledge. When members fail to learn, they can turn this information and knowledge into useful resources for the company to enhance its innovation ability, and become a powerful pillar for improving the innovation performance of enterprises.

References

- [1]. Ahmed Riahi-Belkaoui. Intellectual capital and firm performance of US multinational firms. *Journal of Intellectual Capital*. Vol .04(2003) No. 02, p.215-226.

- [2]. Politis D, Gabrielsson J. Entrepreneurs' attitudes towards failure: An experiential learning approach. *Social Science Electronic Publishing*. Vol.15(2009) No.04, p.364-383.
- [3]. Cao Yu, Xiong Shouyao, Hu Hanli. Relationship between Intellectual Capital and Innovation Performance under Enterprise Life Cycle. *Science Research Management*. Vol.37 (2016) No. 10, p. 69-78.
- [4]. Jiang Tianying, Wang Junjiang. Analysis of the Relationship between Intellectual Capital, Organizational Learning and Enterprise Innovation Performance. *Science Research Management*. Vol. 30 (2009) No.04, p.44-50.
- [5]. Yu Xiaoyu, Cai Li. learning from failures Behaviour, Strategic Decision-making and Innovation Performance of Entrepreneurial Enterprises. *Journal of Management Sciences*. Vol.16(2013) No. 12, p.37-56.
- [6]. Wu Bo, Yan Shuai. Study on the Influence of Knowledge Capital's Intellectual Capital on Knowledge Innovation Performance——Also on the Mediating Role of Organizational Learning Ability. *Seeker*. (2011) No.09, p.84-86.
- [7]. Chen Guoquan, Ning Nan. Research on Team Construction Controversy, Learning from Experience and Performance. *Journal of Management Sciences*. Vol.13(2010) No.08, p.65-77.
- [8]. Kc D, Staats B R, Gino F. Learning from My Successes and from Others' Failures: Evidence from Minimally Invasive Cardiac Surgery. *Management Science*. Vol.59(2013) No.11, p.2435-2449.