

The Relationship Between Technological Innovation Ability, Atmosphere and Innovation Performance

Shiqiang Sun, Beijing Union University, Beijing, China

Qiu Yan Tao, Beijing Union University, Beijing, China

ABSTRACT

Under the influence of the action mechanism of the enterprise innovation atmosphere, a technological innovation ability has become the first choice for Chinese start-ups to improve their performance and upgrade their transformation. By collecting the survey data of 223 Chinese start-ups, this article uses the method of multiple hierarchical regression to explore the relationship between technological innovation ability, innovation atmosphere, and innovation performance. The results show that the technological innovation ability has a significantly positive influence on the innovation performance of the surveyed start-ups. At the same time, resource development ability, marketing ability, and learning ability all have significant positive effects on innovation performance. The innovation atmosphere is positively regulating the relationship between resource development capabilities, learning capabilities and innovation performance. The atmosphere of innovation negatively regulates the relationship between market capacity and innovation performance.

KEYWORDS

Chinese Start-Ups, Innovative Atmosphere, Innovative Performance, Technological Innovation Ability

INTRODUCTION

The party's 19th National Congress report clearly pointed out the key words of "key common technology and disruptive technological innovation", which means that China is currently in the era of transformation and upgrading, and competition among enterprises is becoming more and more severe. In a competitive market environment, how to improve innovation performance and maintain its competitive advantage has become the focus of many scholars and entrepreneurs at home and abroad.

The improvement of innovation performance lies in how to acquire the technological innovation capability with competitive advantages, and the technological innovation capability includes multiple capabilities. Among them, Guan and Ma (2003) showed that learning capability, market capability and resource development capability are important components of technological innovation capability. In addition, other scholars' research on technological innovation capabilities can be roughly divided into three categories: the first point is that some scholars regard technological innovation capability as an explained variable to analyze the deep factors that affect technological innovation capability. He and Song (2019) took SMEs as the research object and empirically analyzed that intellectual capital has a significant positive impact on technological innovation capability. Gao (2018) demonstrated that cross-border M&A has a significant positive impact in promoting technological innovation by studying companies in emerging markets. You and Jiang (2018) studied the relationship between

DOI: 10.4018/IJISSCM.2020040103

environmental regulation and technological innovation capabilities, and pointed out that market-incentive environmental regulation tools have a significant positive impact in promoting technological innovation capabilities. In addition, Hu (2018) proved that the corporate culture of private enterprises has a significant positive impact in promoting technological innovation capabilities of enterprises; the second point is that some scholars believe technological innovation capabilities as explanatory variables, for example, Yue and Yu (2019) found that technological innovation capability has a significant positive impact on commercialization performance from the perspective of dynamic environmental capability, and verified that environmental dynamics has a partial adjustment effect between technological innovation capability and commercialization performance. Huang et al. (2017) analyzed the manufacturing enterprises in the Pearl River Delta region and concluded that technological innovation capability has a significant positive impact on corporate performance; the last point is about the construction of an indicator evaluation system for technological innovation capabilities, j. Chen and y. Chen (2006) proposed the enterprise technology innovation performance evaluation index system. Xiong et al. (2019) demonstrated that the technical innovation efficiency evaluation of industrial enterprises from the perspective of R&D. Ravari et al. (2016) established a technical innovation capability evaluation framework for technical organizations.

At present, the number of small and micro enterprises in China accounts for more than 90% of the total number of enterprises, contributing more than 60% to China's GDP and providing more than 80% of urban jobs. However, the existing research literature to support the technology innovation capability and the innovation performance is mainly about large and medium-sized enterprises, the literature on the technological innovation capability and innovation performance of small and micro enterprises in science and technology is not sufficient. In addition, the transformation mechanism is not obvious. There are various opinions, mainly from intellectual capital, environmental regulation, corporate culture and index system. Therefore, based on the predecessors' research, the paper explores the relationship between technological innovation capability and innovation performance, and verifies the adjustment effect of innovation atmosphere between the two, and draws the research conclusion, points out the deficiency, and continues to deepen the direction of research in the future.

RESEARCH HYPOTHESIS

Innovation Atmosphere

The organizational innovation atmosphere represents the organization's encouragement and support for employees to actively explore innovative methods. The high level of innovation atmosphere in the enterprise supports member to take risks and encourages interaction each other. The innovation atmosphere is an environmental variable that affects employees' attitudes and behaviors. Bag (2017) showed that employees' innovation ability affects the innovation performance. And Yongping et al. (2018) proved that when team members are in a high level of innovation atmosphere, they interact more frequently and communicate new ideas in a timely and effective manner. Conversely, when the level of team innovation is low, there is a lack of tolerance, interaction and communication within the team, and hinders the communication of leadership messages among team members.

Technological Innovation Capability

Technological innovation capability is the ability of an enterprise to acquire the knowledge, equipment personnel, and expertise required for product design, manufacturing, and assembly in manufacturing process. Guan and Ma (2003) found that a company's competitive advantage comes from the efficiency and ability of new product development. Alavi et al. (2016) demonstrated that investing in key technology innovation activities is the focus of sustainable development of enterprises, which is reflected in the fact that general high-performance enterprises have more innovative capabilities than low-performance enterprises.

10 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/article/the-relationship-between-technological-innovation-ability-atmosphere-and-innovation-performance/249732

Related Content

Parallel Algorithm of Hierarchical Phrase Machine Translation Based on Distributed Network Memory

Guanghua Qiu (2022). *International Journal of Information Systems and Supply Chain Management* (pp. 1-16).

www.irma-international.org/article/parallel-algorithm-of-hierarchical-phrase-machine-translation-based-on-distributed-network-memory/282737

Optimal Solutions for a Multi-Product, Multi-Echelon Production and Replenishment System

Fidel Torresand Gonzalo Mejía (2009). *International Journal of Information Systems and Supply Chain Management* (pp. 62-72).

www.irma-international.org/article/optimal-solutions-multi-product-multi/2801

Transcritical Carbon Dioxide Refrigeration as an Alternative to Subcritical Plants: An Experimental Study

Adriana Greco, Ciro Apreaand Angelo Maiorino (2017). *Agri-Food Supply Chain Management: Breakthroughs in Research and Practice* (pp. 100-159).

www.irma-international.org/chapter/transcritical-carbon-dioxide-refrigeration-as-an-alternative-to-subcritical-plants/167405

Information Storage Security

Manjunath Ramachandra (2010). *Web-Based Supply Chain Management and Digital Signal Processing: Methods for Effective Information Administration and Transmission* (pp. 166-180).

www.irma-international.org/chapter/information-storage-security/37612

Managing Collaborative Relationships in Third Party Logistics: An Empirical Study

Vicky Ching Gu, Ray Qing Cao, Ken Blackand Hansen Zeng (2017). *International Journal of Information Systems and Supply Chain Management* (pp. 42-65).

www.irma-international.org/article/managing-collaborative-relationships-in-third-party-logistics/178555