Journal Homepage: -www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI:10.21474/IJAR01/19355
DOI URL: http://dx.doi.org/10.21474/IJAR01/19355

RESEARCH ARTICLE

THE INNOVATION PERFORMANCE OF SMES IN CHINA

Yang Yun[1] and Dr. Chere C. Yturralde[2]

1. Graduate School, Angeles University Foundation, Philippine.
2. Professor, Graduate School, Angeles University Foundation, Philippine.

Manuscript Info

Manuscript History
Received: 21 June 2024
Final Accepted: 24 July 2024
Published: August 2024

Key words:-
Innovation Performance, Incremental Innovation Performance, Radical Innovation Performance, SMEs

Abstract

In the context of innovation and development of SMEs, improving innovation performance has become the key to the future breakthrough of SMEs. The article describes the definition of innovation performance by Chinese scholars, the existing dimensions of innovation performance, and the factors affecting it. It has been found, however, that there are fewer existing studies on the innovation performance of SMEs. This paper concludes that Chinese SMEs' innovation behavior can increase their innovation performance, hence increasing their competitiveness. Breakthrough innovation focuses on revolutionary invention, whereas progressive innovation focuses on improvement. As a result, adequate emphasis should be given to the study of SMEs' innovative behavior.

Introduction:-

In today's global economy, innovation has become a crucial factor for economic development and a firm's competitive advantage. Traditional drivers, such as labor, natural resources, and financial capital, have become less important in creating value for firms' innovation capability (Vivas and Barge-Gil, 2015), Firms are called to respond to social and technological changes to maintain competitive advantage.With globalization and the highly competitive market environment, innovation has become a subject of reflection, and the firm's openness has become indispensable in the search for technological knowledge to improve innovation capabilities. A single Small and Medium Enterprise (SME) does not have the resources to cope with the market demand and the complexity of the innovation process. This process results in social connections between professionals as a tool for knowledge assimilation and creation.In China, innovation performance mainly refers to the results obtained by enterprises through innovation activities, and how these results improve the performance and capability of enterprises. It emphasizes the central role of innovation in the development and competitiveness of enterprises (Liping, Yunlong, and Tianting, 2020).Zhang et al. (2019) defined innovation performance as the innovation results obtained from the generation, refinement, and practice of new ideas or new methods that are of use to the company and beneficial to the company in gaining a competitive advantage in the industry, which is classified into breakthrough innovation performance and incremental innovation performance based on the novelty and practicality of the results. According to Sunping Qu (2021), innovation performance is the economic performance of a firm achieved through product innovation and process innovation activities.

In unfavorable environments, innovation is key for firms to withstand external shocks and enhance competitiveness (Alcalde-Heras et al, 2018). Informalized structures and centralized decision-making within SME organizations make it easier for them to carry out innovation activities and have the flexibility to choose the right innovation

Corresponding Author:-Yang Yun
Address:-Graduate School, Angeles University Foundation, Philippine.

strategy to respond quickly to external changes (Alcalde-Heras, et al., 2018; Tognazzo, et al., 2016). In March 2021, at the opening of the Fourth Session of the Thirteenth National People's Congress. Li Keqiang said that the government will raise the VAT threshold, reduce broadband and professional tariffs for SMEs, and encourage innovation and development of SMEs. Whether in terms of its status and role, or its actual contribution, promoting the healthy development of SMEs is of great significance in promoting China's economy to achieve high-quality development (13th National People's Congress, March 11, 2021).

According to data from the Ministry of Industry and Information Technology(2023), China has cultivated a total of 12,000 specialization, refinement, characterization, novelty "small giants", 103,000 " specialization, refinement, characterization, novelty" small and medium-sized enterprises, and 215,000 innovative small and medium-sized enterprises. The country has promoted the establishment of more than 1,700 public service institutions (service centers) for small and medium-sized enterprises (SMEs) at the national, provincial, municipal, and county levels, and the multi-level SME service system has been continuously improved; 31 provincial and 165 municipal SME online service platforms have been set up, and the construction of a national SME service "one network" has been steadily advanced. Sun W.K. et al. (2024) pointed out that in 2020, China's R&D expenditure by all types of enterprises reached 186.738-billion-yuan, accounting for 76.6 percent of the national R&D investment. At the same time, small and medium-sized enterprises are playing an increasing role in innovation, with 70 percent of innovation patents now coming from small and medium-sized enterprises. Analyzing the innovation performance of SMEs is of some relevance due to their relative lack of capital and low-risk tolerance.

Innovation performance

There are internal and external factors that affect the innovative performance of firms.In terms of external factors affecting firms' innovation performance. Zhou Biza et al. (2022) assert that in the VUCA (Volatility, Uncertainty, Complexity, Ambiguity) era, there is a generalized distribution of innovation resources and a blurring of organizational boundaries. Zhou Biza et al. (2022) also explained that there is a difficulty in obtaining and maintaining a competitive advantage through internal innovation, and an unavoidable choice for enterprise innovation practice to utilize external organizations and resources across organizational boundaries.Luo Feng et al. (2022) found that regional innovation policy can enhance enterprise innovation performance, particularly for non-state-owned, growth, small, medium-sized, and high-tech enterprises. The regional innovation environment and government subsidies further enhance this effect. Luo Feng et al. (2022) found that regional innovation policy can enhance enterprise innovation performance, particularly for non-state-owned, growth, small, medium-sized, and high-tech enterprises. The regional innovation environment and government subsidies further enhance this effect. In addition, some researchers focus on the influence of behavior and strategy on innovation performance in the linkage between organizations and external subjects. For example, Deng et al. (2020) studied the impact of multi-market contacts on firms' innovation performance based on the data of the Top 30 firms in the global pharmaceutical industry and, revealed that multi-market contacts have a positive impact on firms' innovation performance. Further, it has been found that the height of mobile barriers moderates the positive relationship between multi-market contacts and innovation performance.

Regarding internal factors that affect corporate innovation performance, Wang Xin et al. (2018) used data from modern service-oriented businesses to look into the internal logic of how enterprises' internal and external environments affect innovation performance. They found that the soft environment of corporate innovation organizations has a positive effect on innovation performance. By analyzing the data of listed companies in China's home appliance industry during 2013–2017, Hou Dan et al. (2022) found that competitive decision portfolio complexity positively affects corporate innovation performance. Meanwhile, the executive team's heterogeneity (heterogeneity of tenure, heterogeneity of educational background, and heterogeneity of functional background) and the action's customer orientation both strengthened the positive relationship. Usai, Fiano, Petruzzelli et al. (2021) found that the impact of digital technology on innovation performance is very low, and that R&D expenditure is a reliable indicator for improving firms' innovation performance. They also emphasized that policymakers should avoid considering digital technology as the ultimate element of innovation. Forés et al. (2016) investigated the factors influencing incremental and breakthrough innovation, and the study found that these two types of innovation are influenced by knowledge accumulation capacity, organizational size, and absorptive capacity, respectively. Dang Xinghua et al. (2013) categorize innovation into incremental and radical categories based on its magnitude and novelty. They emphasize that incremental innovation involves adjusting, improving, or extending existing technologies or activities, with a focus on enhancing the performance of the original product through minor changes.

This approach aims to strengthen or maintain the existing market position, and is typically based on the development trajectory.

Incremental innovation performance

Joseph Schumpeter (2019) first proposed the theory of technological innovation in "Economic Development Theory", which defines innovation as a new production function that realizes the new combination and application of production factors and conditions in a new production system. March (1991) defined "utilization" and "exploration" as different organizational learning methods, and based on the degree of innovation, he expressed low-risk, low-cost, and incremental utilization innovation as "incremental innovation," while high-risk, high-cost, and disruptive exploratory innovation as radical innovation, resulting in the dual innovation theory. Due to the different connotations of incremental innovation and radical innovation, they have different impact mechanisms (Li et al., 2022.). At the same time, most enterprises in China tend to choose incremental innovation with short innovation cycles, relatively low uncertainty, and easier control of innovation risks (He Lian, Zhi Wei and Yan Yang, 2014). Tu et al. (2018) said that incremental innovation performance is about making corporate technology, methods, processes, and products better and more excellent. This is because the enterprise uses knowledge resources in new and creative ways. They also said that radical innovation is a big step up from incremental innovation and needs a bigger ability to find and use external knowledge. According to Wu et al. (2019), incremental technological innovation is the ability to gradually improve technological ideas and principles without deviating from existing practices, which are relatively continuous and small changes, whereas radical technological innovation is the fundamental change of an enterprise's original technological ideas and principles, which are leap changes and sporadic breakthroughs.

Radical Innovation Performance

Radical innovations are new ideas that are fundamentally different from an organization's existing practice or approach, emphasizing novelty but not use, whereas breakthroughs are ideas that make minor changes to an existing framework system or provide minor modifications to an organization's existing practices and products, emphasizing use rather than novelty. Gilson and Madjar (2011) similarly highlight that incremental innovation performance prioritizes improvement, emphasizing the importance of devising innovative solutions to alleviate problems or enhance the status quo. This approach allows employees to anticipate their inputs and benefits ahead of time, ensuring a stable return. In contrast, radical innovation prioritizes change and is typically driven by a specific problem, where there is no specific solution to the existing issue. Liu and Liu (2014), domestic scholars, distinguished between breakthrough innovation performance and progressive innovation performance. They noted that radical innovation performance pertains to the industry, where current technology significantly influences the industry, capable of disrupting the current industry structure. Meanwhile, progressive innovation performance pertains to the company's products or technologies.

Li Bozhou and Zeng Wei (2019) distinguish and relate progressive and radical innovations, both of which stem from an enterprise's existing knowledge and technology. Progressive innovation enhances existing technology and knowledge, while radical innovation subverts and reconstructs existing technology and knowledge. Wang Daojin et al. (2020) define incremental innovation as the process of making minor improvements to existing services, products, organizational structures, and technological platforms using the existing knowledge base. On the other hand, radical innovation involves departing from the previous development trajectory, disrupting the original process, technology, and organizational pattern, and significantly altering the existing views and processes. The primary distinction between the two forms of innovation is the frequency of innovation, the extent of change, and the level of uncertainty.

Most of the existing literature focuses on large firms and there is a lack of research on SMEs. There are two areas where SMEs may differ from large firms in terms of the effectiveness of innovation support. First, due to their relative lack of capital and low risk tolerance, SMEs may be more cautious and focused on innovation. They may invest their capital in innovation activities more precisely after receiving innovation subsidies, thereby improving the effectiveness of innovation subsidies. Secondly, due to their imperfect management, SMEs are more susceptible to various distortions. As a result, analyzing SMEs' innovation effect is critical in practice. The study's relevant ideas can assist SMEs in achieving innovation performance.

Conclusion and Research Prospects:-

Conclusion:-

The innovation performance of Small and Medium Enterprises (SMEs) in China is a pivotal factor for their competitiveness and survival in the dynamic global market. The review underscores that innovation performance encompasses both breakthrough and incremental innovation, with the former emphasizing transformative changes and the latter focusing on improvements within existing frameworks.

Chinese scholars have contributed significantly to the discourse on innovation performance, as evidenced by the works of Zhang Huikang (2019) and Sunping Qu (2021), who have delineated the concept and its economic implications for firms. The Chinese government's initiatives, as mentioned by Li Keqiang during the Fourth Session of the Thirteenth National People's Congress, reflect a supportive policy environment aimed at fostering SME innovation and development.

Internal factors such as knowledge accumulation capacity, organizational size, and absorptive capacity significantly influence innovation performance. External factors, including the policy environment and regional innovation environment, also play a crucial role. The review highlights the heterogeneity in the impact of regional innovation policy, particularly on non-state-owned enterprises, growth enterprises, and high-tech firms (Luo Feng et al., 2022).

Research Prospects

Looking forward, there is a clear need for more research focusing on SMEs, given the existing literature's emphasis on large firms. SMEs, with their unique challenges such as limited capital and lower risk tolerance, require tailored approaches to innovation. The review suggests that further studies should explore how SMEs can optimize the effectiveness of innovation subsidies and manage potential distortions due to imperfect management.

The role of digital technology, as discussed by Usai et al. (2021), warrants more investigation, especially considering its low impact on innovation performance compared to R&D expenditure. It is recommended that policymakers and practitioners avoid overemphasizing digital technology as the sole driver of innovation.

Moreover, the differentiation between incremental and radical innovation performance should be further examined, as it presents different challenges and opportunities for SMEs. The review by Forés and Camisón (2016) on the factors influencing these types of innovation provides a foundation for future research.

References:-

1. Alcalde-Heras H, Iturrioz-Landart C, Aragon-Amonarriz C. (2018). SME ambidexterity during economic recessions: The role of managerial external capabilities[J]. Management Decision,57(1):21-40.
2. Dang Xinghua, Sun Yonglei, Song Jing. (2013) Impact of Dual Innovation on Network Practices under Different Trust Scenarios. Management Science, 26(04): 25-34.
3. Deng, X. M. & Ye, Z. (2020). Multi-market contact, mobile barrier height and firm innovation performance within clusters. Nankai Management Review (02), 16-26.
4. Forés B, Camisón C.(2016). Does incremental and radical innovation performance depend on different types of knowledge accumulation capabilities and organizational size?[J]. Journal of business research, 69(2):831-848.
5. Gilson L L, Madjar N. (2011). Radical and incremental creativity: Antecedents and processes. [J]. Psychology of Aesthetics Creativity & the Arts, 5(1):21-28.
6. He Lian Zhi Wei, and Yan Yang (2014). Empirical study on the relationship between progressive innovation and enterprise performance: based on financial performance and growth performance model construction [J]. Finance and accounting newsletter, 29: 30-32.
7. Hou Dan & Deng, Xinming. (2022). Can Competitive Decision Portfolio Complexity Promote Firms' Innovation Performance? --An empirical study from China's home appliance industry. Science and Science and Technology Management (03), 154-178.
8. Joseph Schumpeter (2019). Theory of economic development [M]. Beijing: Renmin University of China Press.
9. Li Bozhou, Zeng Wei. (2019). The Impact of Knowledge Inertia on Dual Innovation in Firms. Research in Science, 37(04): 750-759.
10. Liping Yu, Yunlong Duan and Tianting Fan (2020). Innovation performance of new products in China's high-technology industry. International Journal of Production Economics (219): 204-215

11. Li Qirong, Li Chunxuan, Yang Yanyu, et al. (2022). Based on the moderated mediator model of study on the effect of team performance pressure and dual innovation [J]. Management Journal, 19(12): 1811-1818.
12. Liu N, Liu Y. (2014). A review of research on the impact of corporate rewards on employee innovation performance[J]. Journal of Management, 11(12):1871.
13. Luo Feng, Yang, Dandan & Liang, Xinyi (2022). A new species of the genus Pseudourostyla (Hymenoptera, Braconidae) from China. How does regional innovation policy affect firms' innovation performance? --An empirical analysis based on the Pearl River Delta region. Science and Technology Management (02), 68-86.
14. March, J. G. 1991. Exploration and exploitation in organizational learning [J]. Organization Science, 2(01):71-87.
15. Ministry of Industry and Information Technology of China. (2023). China cultivates 12,000 'small giants' and over 100,000 innovative SMEs.
16. Qu, Sun-Ping. (2021). A Study on the Impact of Knowledge Search on the Innovation Performance of SMEs PhD (Dissertation, Jiangsu University). PhD https://link.cnki.net/doi/10.27170/d.cnki.gjsuu.2021.000130doi:10.27170/d.cnki.gjsuu.2021.000130.
17. Sun W. K., He, V. & Wang, W.J. (2024). Government subsidies and innovation performance of small and medium-sized enterprises. Journal of Economics (01), 295-318.
18. 13th National People's Congress (March 11, 2021). Fourth Session. Press Conference. Great Hall of the People. Embassy of the People's Republic of China in Solomon Islands All Rights Reserved.
19. Tognazzo A, Gubitta P, Favaron S D. (2016). Does slack always affect resilience? A study of quasi-medium-sized Italian firms[J]. Entrepreneurship & Regional Development,28(9-10):768-790.
20. Tu Xingyong, Zhao Ziwei, Wang Zeying. (2018). Research on the Influencing Factors of Progressive Innovation Performance. Research Management, 39(08): 72-79.
21. Usai A, Fiano F, Petruzzelli A M, et al. (2021). Unveiling the impact of the adoption of digital technologies on firms' innovation performance[J]. Journal of Business Research, 133(4):327-336.
22. Vivas, C. and Barge-Gil A. (2015). Impact on firms of the use of knowledge external sources: A systematic review of the literature[J]. Journal of Economic Surveys, 29(5): 943-964.
23. Wang Daojin, LvHongjiang, Zhou Yingtang (2020). A study of the effects of incremental, breakthrough and balanced innovation on organisational performance - the moderating role of formal network support and informal network help. Research and Development Management, 32(06): 165-176.
24. Wang, Xin & Xu, Ming. (2018). Soft environment, knowledge management, and innovation performance of corporate innovation organisations - A moderated mediation model in a dynamic environment. East China Economic Management (02), 35-42.
25. Wu J，Harrigan K R，Ang S H，et al. (2019). The impact of imitation strategy and R&D resources on incremental and radical innovation evidence from Chinese manufacturing firms. Journal of Technology Transfer, 44(1):210-230.
26. Zhang, Mei, and Chen (2019). Exploring the effects of inter-firm linkages on SMEs' open innovation from an ecosystem perspective: An empirical study of Chinese manufacturing SMEs.Technological Forecasting and Social Change**,** 144, 118-128.
27. Zhou, Biza, Zhao, Pengjin& Zhou, Jie. (2022). A new species of the genus Pseudopelagicus (Hymenoptera, Braconidae) from China. Outward open innovation, dynamic capabilities and firm innovation performance: a moderated mediation effect model. Shanghai Management Science (01), 60-68.