



DEVELOPMENT OF STRATEGIC, TRANSFORMATIVE INNOVATION STRATEGIES AND NETWORK IN CHINESE MANUFACTURING SMALL AND MEDIUM SIZED ENTERPRISE



Zhu Xuelei*, Amiya Bhaumik

Original Article

Lincoln University College, 47301 Petaling Jaya, Selangor D.E., Malaysia

*Corresponding Author's Email: zhu.xuelei@lincoln.edu.my

Abstract

China is currently promoting institutional change and restructuring to maintain and even accelerate its current level of economic progress, despite the fact that the globe as a whole is experiencing economic difficulties. China is putting in more efforts to innovate in response to the growing importance of innovation. Transform from a factory that creates low-quality items into a factory that creates trimming goods that are distributed all over the globe. With a diverse selection of specialized initiatives and programs, both the state and federal governments, as well as the regional governments, have made significant investments to foster creative regional and statewide development. The emphasis of these positive policy efforts has been on China's small and medium-sized companies (SMEs), which account for the vast majority of the country's firms and constitute the country's industrial base's central focus. The SME sector is increasingly driving China's economy. Historically, people have perceived small and medium-sized firms (SMEs) as low-tech and resource-intensive manufacturers. The expansion of innovative small and medium-sized enterprises (SMEs) throughout China's manufacturing industries is driving the transformation of the country's innovation system, resulting in a substantial shift in market structures and links. This is causing significant alterations to market structures and relationships.

Keywords: *Innovation Strategy; Innovation System; Manufacturing Sectors; Networking; Small and Medium-Sized Enterprises (SMEs)*

Introduction

The manufacturing industry in China is an essential part of the nation's economy and a primary factor in the country's rapid economic growth. China's long-standing adherence to the "universal factory" model of production presents enormous challenges to its efforts to establish itself as a frontrunner in innovation. It is challenging to shift the economy away from imitation, which relies on low-tech methods, given the increasing complexity of the global industry and the impacts of globalization. Most Chinese companies still operate at the lower end of the global innovation value chain, which is insufficient to sustainably propel economic growth in China. There is a lack of competitiveness in China's manufacturing sector within the global production framework as well as the worldwide innovation value chain. Despite China's efforts to catch up with the rest of the world in technological innovation, many Chinese companies continue to struggle with export-focused manufacturing, resource-intensive operations, and low research and development (R&D) intensity. Guo and N'diaye published their findings in 2007. Even though China retains the record for the most

innovations and scholarly papers, its manufacturers cannot compete intellectually with those of the USA, Japan, or even some of the less affluent European nations.

China's industrial sector is in serious need of a comprehensive, innovative overhaul. Made in China 2025 is a 10-year governmental action plan that the Chinese government began in 2015. The plan's primary goal is to transform China from a global manufacturing power into a global manufacturing behemoth. To begin with, the Chinese government is aggressively promoting national research and rebranding the country internationally by investing heavily and consistently in a vast array of sectors to foster innovation [1]. This is part of a larger push to promote China as the global innovation leader. Yet, it remains committed to the shift from a treasury-based, strategic control system to a market-driven, bottom-up design. The aim is to tackle the challenges and obstacles of this era, while also fostering the creation of innovative new inventions. Government initiatives and schemes play a significant role in the creative transformation of industrial sectors in China. Additionally, enterprises take a proactive approach to boosting the overall economy of innovative products and enhancing Chinese enterprises' competitiveness on the global market. Governmental initiatives and the creative transformation of industrial sectors in China have a significant impact on organizations. Smaller, privately held companies benefit disproportionately less from the current institutional framework compared to larger, state-owned firms and other significant corporations. While they make up a relatively small portion of all firms in China, the influence they exert is disproportionately large [2].

Background of the Study

Robust economic growth depends on flourishing small and medium-sized enterprises (SMEs) but figuring out how to ensure their long-term success is a huge challenge. Complex changes introduced by the data society or electronic business influence the performance of small and medium-sized enterprises and their standing in the economy. SME characteristics extend beyond their size. Their distinctive characteristics also change according to the economic, cultural, and political climate. Small and medium-sized enterprises differ from their larger counterparts in several ways, including their planning form and significance, as well as their insufficient resources. However, a flat and flexible organizational structure, a penchant for innovation, an open-minded mentality, and a preference for adopting and implementing evidence-based strategies can also set them apart. Some claim that small and medium-sized companies can only achieve long-term success by embracing digitalization and innovation. The demand for innovation as a core skill in today's dynamic economic environment has highlighted the significance of creation as a main business for all businesses. According to performance management research, innovation is a crucial business activity. Hence, performance frameworks are expanding beyond traditional sectors such as banking and commerce to encompass emergent domains such as digitalization, R&D, and development, where intangibles such as knowledge and expertise play a greater role in determining success.

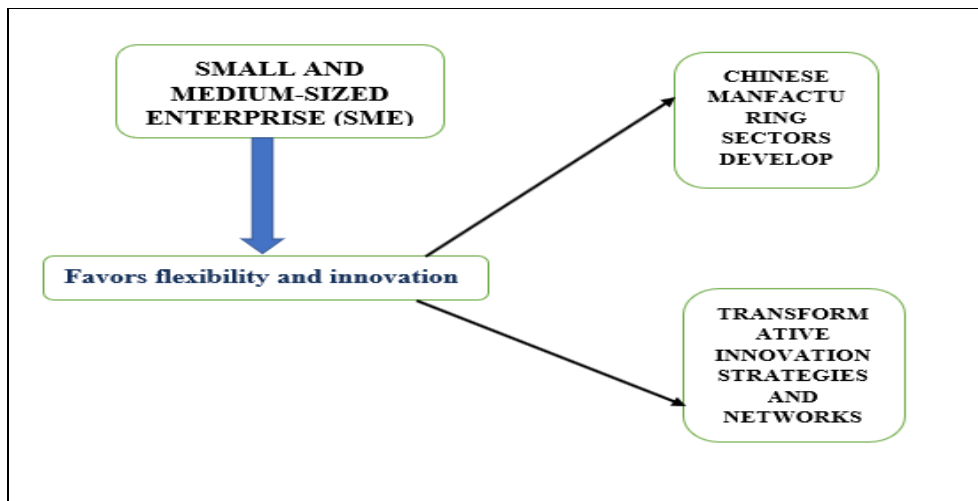
Yet, small and medium-sized enterprises are more susceptible to environmental uncertainty than large firms [3]. They have fewer resources available to learn about the industry and influence the organization's destiny. Compared to large organizations, small and medium-sized firms react to environmental changes in distinctive ways. Due to limitations imposed by their own resources and strategic choices, as well as those of their industry and geographic location, businesses can only respond with a limited degree of speed. Depending on the stage of the company's life cycle, this may require various approaches. Research on small and medium-sized businesses and entrepreneurship has increased over the last decade, and this is also true for Albania. Notwithstanding the fact that many organizations employ varying definitions of "small and medium-sized firms," it is reasonable to claim that these companies are essential to Europe's economy. As a result, the health of the SME sector is predictive of the overall health of the economy. SMEs are an asset to regional economies when it comes to generating new jobs and bringing in new funds. Small and medium-sized firms can and do innovate, and they can form adaptable supply chains via clustering. We specifically examine the impact of digitalization or sophisticated ICT systems like business intelligence, analytics, and organizational learning on the performance of SMEs [4,5]. This research primarily focuses on the growth of the business, but it is not the sole focus, as the subsequent description of the study's scope will make clear.

Problem Statement

“Because of the challenges in raising capital from outside sources, Chinese SMEs are unable to fully expand and modernize. 92% of China's small and medium-sized businesses have liquidity shortages of varied degrees, and the inability to get capital is a major reason why 67% of SMEs fail during the first three years of operation. Small and medium-sized enterprise (SME) executives in China often lack new tactics to acquire the external capital required for company growth, which is a widespread business challenge. Several Chinese business executives of small and medium-sized enterprises (SMEs) have no plans to pursue venture capital investments.”

In China, it is difficult for small and medium-sized enterprises (SMEs) to receive finance from outside sources, which hinders their development and expansion [6]. Around 92% of North Korea's small and medium-sized enterprises (SMEs) face varied degrees of financial limitations, and 67% of Korea's SMEs would not survive beyond three years without access to financing. The incapacity of Chinese firm executives and founders of medium-sized enterprises (SMEs) to develop innovative plans to get the required external finance for the development of their firms is a widespread issue in the corporate sector. The issue at stake is that a significant number of China's SME CEOs lack the necessary skills to attract venture capital investments.

Conceptual Framework



Research Objective

- To evaluate the relationship between transformative innovation strategies and networks.
- To understand the development strategy of Chinese manufacturing sectors is crucial.
- To ascertain the benefits of flexible and innovative strategies within the Chinese manufacturing sectors.
- To acquire small and medium-sized enterprises in China.
- To identify the competitive and healthier economy in innovation strategy.

Literature Review

The "Rebirth of the China Nation" approach includes promoting national innovation. The rapid rise of an economy based on activities that involve a lot of resources and labour will have far-reaching effects on the restructuring of economies worldwide. To understand China's progressive liberalization and SMEs' schemes and communications infrastructure in Chinese industrial businesses, this category will analyse Russia's innovation ecosystem, legal frameworks, policies, and stewardship grasp of China's revolutionary modernization. The following section [7] summarizes China's global economic status.

The World Bank Group in the year 2017 reported disappointingly poor global economic growth. The IMF's Macroeconomic Outlook (WEO) predicts 3.1% growth for 2016, 3.5% for 2017, and 3.8% for 2022 [8]. Growth in major economies like the US, UK, Japan, and Germany, along with rapid economic developments in emerging markets and developing economies (EMDEs), indicate a slight rise in global economic momentum in the near future. This rise is projected to occur within months. However, financial system output, particularly in developed nations, remains low in the mid- to long-term.

Similarly, the Organization for Economic Cooperation and Development (OECD) has concluded that the world's GDP is expanding, but at a slow pace, led by major countries like the US and China. Advanced nations are struggling with sluggish growth, low inflation, policy uncertainty, poor spending, and moderate productivity development. In contrast, EMDEs are likely to drive marginal economic growth. Commodity-exporting nations are reducing barriers to activity, while commodity-importing countries are increasing domestic demand. Emerging markets and developing economies account for over 75% of global production and consumer growth, and their importance to the global economy is growing.

The IMF's 10 largest members include the US, Japan, the four major European nations, and the four largest EMDEs, such as the UK, Brazil, China, India, and Russia. China's size and growth have significantly contributed to the wealth development of emerging markets and developing countries, as well as the global economy. The GDP and growth rates of the world's largest economies in 2015 were notable. With a population of almost 1.3 billion people, China's economy is the second largest in the world, following the US, and it is increasingly influencing global markets. China's rapid economic growth over the past 30 years is attributed to the government's commitment to reform and openness. Historically, China's GDP grew by double digits. Despite the global slowdown, China remains the fastest-growing major economy at 7%. Nonetheless, China faces significant challenges, and its GDP growth is expected to slow to 6.5% in 2017 and continue to decelerate beyond the 2017 National People's Congress (NPC) [9].

Methodology

The goal of qualitative and quantitative research is to identify statistically significant relationships between variables by collecting numerical data on those variables and analysing it through statistical models. Quantitative studies aim to gain a deeper understanding of society. Researchers often use quantitative methods when examining phenomena that have a personal impact. Quantitative studies produce complex data in the form of tables and graphs. These studies rely heavily on numerical data, requiring a methodical approach to data collection and analysis. This data can be used in various ways, such as averaging, forecasting, exploring connections, and extrapolating results to larger populations.

Quantitative studies contrast with qualitative studies, which rely on in-depth interviews and observations. Many academic disciplines, including biology, chemistry, psychology, economics, sociology, and marketing, widely employ quantitative research techniques.

Sampling: A preliminary study was carried out utilizing a questionnaire with a cohort of 20 consumers from China, whereas the final study involved administering the questionnaire to a sample of 385 customers. A total of surveys was delivered to clients selected using systematic random selection. All questionnaires that were completed were included in the study, while any questionnaires that were incomplete will be excluded by the researcher.

Data and Measurement: The research study gathered primary data through a questionnaire survey. The questionnaire was segmented into two sections: (A) demographic data and (B) factor responses measured on a 5-point Likert scale for both online and non-online channels. Data was gathered from many sources, with a focus on online resources.

Statistical Software: MS-Excel and SPSS 24 will be used for Statistical analysis.

Statistical tools: Descriptive analysis was utilized to comprehend the fundamental characteristics of the data. Factor analysis will be used to assess the validity.

Result & Discussion

Factor Analysis

Factor analysis is often used to confirm the latent component structure of a measurement set. Latent factors can affect the scores of observable variables. This model-based accuracy analysis models causal connections between observable occurrences, undiscovered causes, and measurement errors. The Kaiser-Meyer-Olkin (KMO) measure can test the data's suitability for factor analysis. The model and its variables are assessed to ensure proper sampling. Statistics estimate the shared variance among numerous variables.

Factor analysis works best with higher percentages of shared variance. The KMO measure returns values between 0 and 1. A KMO value between 0.8 and 1 indicates adequate sampling. If the KMO value falls below 0.6, it indicates insufficient sampling and necessitates corrective measures. When the KMO value is between 0.5 and 0.6, judgment should be used; some authors accept a minimum threshold of 0.5. A KMO value near 0 suggests modest overall correlations compared to partial correlations, making component analysis difficult.

Kaiser's acceptance thresholds for the KMO measure are as follows:

- 0.50–0.59: unacceptable
- 0.60–0.69: below average
- 0.70–0.79: average
- 0.80–0.89: good
- 0.90–1.00: excellent

These thresholds are detailed in Table 1.

Table 1: KMO and Barlett's Test

KMO and Barlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.906
Barlett's Test of Sphericity	Approx. Chi-Square	274.867
	df	19
	Sig.	0.000

Source: Collected by Author

The data used for this investigation had a KMO value of 0.906. In addition, Bartlett's test of sphericity determined that the significance level is 0.00. Therefore, it was demonstrated that the sample was appropriate for factor analysis. Exploratory Factor Analysis (EFA) identified a total of four factors. The eigen values associated with these factors were 18.37, 1.701, 1.565, and 1.006, respectively.

Test For Hypothesis:

Dependent Variable

- **Chinese Manufacturing Sectors Develop Strategic:**

The Big Leap Forward played a significant role in China's overall development strategy (GLF). This plan's objective was to achieve a complete and thorough industrialization of the economy. The nation granted farmers the go-ahead to participate in agricultural cooperatives.

- **Favors flexibility and innovation**

This research defined innovation using the 2005 Oslo Manual by the Association for Economic Founders and Development. By categorizing inventions, the handbook will help locate and assess them. Create, gather, and analyze. The book covers four subjects. The topics include product, service, technical, sales, and organizational innovations. Briefly: The Oslo Manual defines "product innovation" as "the opening of a product or service that has never existed or improved greatly considering its characteristics or intended uses." "Major changes in tech standards, materials, suppliers, embedded software, logins, or other performance criteria" qualify. Hence, "product/service innovation" will mean new products, services, technologies, etc. Innovative products transform production, industry, and labor. This leads to significant structural changes [10]. Fagerberg says innovation boosts income and employment. Economy grows. The Oslo Booklet's three technical development dimensions—launching a new product, generating an innovative product, and upgrading a current product—help businesses increase sales and employees. [10]. Product innovations improve Nigerian SME competitiveness and quality. It is observed that new product releases enhance sales. Small and medium-sized enterprises may benefit from product innovation.

H₀: There is no significant relationship between Favors Flexibility & Innovation and Chinese Manufacturing Sectors Develop Strategic

H₁: There is a significant relationship between Favors Flexibility & Innovation and Chinese Manufacturing Sectors Develop Strategic

In this study **H₁**. There is a significant relationship between Favors Flexibility & Innovation and Chinese Manufacturing Sectors Develop Strategic and **H₀**. There is no significant relationship between Favors Flexibility & Innovation and Chinese Manufacturing Sectors Develop Strategic was rejected as per the analysis (refer to table 2).

Table 2: H₁ ANOVA

ANOVA					
Sum					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	589.467	15	342.764	46.703	0.000
Within Groups	90.533	84	1.787		
Total	680.00	99			

Source: Collected by Author

The outcome of this investigation will be crucial. The F value is 46.703, which is statistically significant with a *p*-value of 0.000 (below the alpha threshold of 0.05). The hypothesis "**H₁**: There is a significant relationship between Favors Flexibility and Innovation and Chinese Manufacturing Sectors Develop Strategic" has been accepted, and the null hypothesis has been rejected (refer to table 3).

Table 3: KMO and Barlett's Test

KMO and Barlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.901	
Barlett's Test of Sphericity	Approx. Chi-Square	274.867
	df	190
	Sig.	0.000

Source: Collected by Author

The KMO value of the data used for this study will 0.901. Furthermore, Bartlett's test of Sphericity derived the significance level as 0.00. Hence, the sample was proven suitable for running factor analysis. After performing EFA, four factors were extracted and the eigenvalues of these factors were 18.37, 1.701, 1.565 and 1.006, respectively.

Dependent Variable

- **Transformative Innovation Strategies and Networks:**

To ensure the continued success of the firm in the years to come, it is necessary to implement major changes as part of a transformational business strategy. In this setting, it is possible for companies, services, and operating models, together with the resources and infrastructure that are now being used, could all undergo changes.

H₀: There is no significant relationship between Favors Flexibility & Innovation and Chinese Manufacturing Sectors Develop Strategic

H₂: There is a significant relationship between Favors Flexibility & Innovation and Chinese Manufacturing Sectors Develop Strategic

In this study, **H₂**: There is a significant relationship between Favors Flexibility & Innovation and Chinese Manufacturing Sectors Develop Strategic and **H₀**: There is no significant relationship between Favors Flexibility & Innovation and Chinese Manufacturing Sectors Develop Strategic was rejected as per the analysis (refer to table 4).

Table 4: H₂ ANOVA

ANOVA					
Sum					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	559.467	15	342.764	44.703	0.000
Within Groups	90.533	84	1.787		
Total	680.00	99			

Source: Collected by Author

In this study, the result will be significant. The F value is 44.703, which reaches significance with a *p*-value of 0.000 (which is less than the 0.05 alpha level). This implies that the null hypothesis, "**H₂**: There is a significant relationship between Favors Flexibility and Innovation and Chinese Manufacturing Sectors Develop Strategic," is rejected [11].

Conclusion

The main purpose of this paper was to investigate how merchandise, process, marketing, and service development affect the success of medium- and small-sized businesses. While this problem has received little attention from academics, especially in China and sophisticated countries like China, the major goal of this essay was to investigate how it may affect the survival of small, medium-sized firms. The study's findings are as follows: It demonstrates that, in terms of the performance metrics under consideration, all four forms of innovation outlined here have a beneficial impact on SMEs' accomplishments, with process development having the largest effect size. The adoption and execution of innovative product, process, marketing, and process innovations enhance the efficiency of small and medium-sized businesses (SMEs) in terms of revenue, profitability, customer satisfaction, market share, speed of market entry, profit, and employee development.

Limitation of the Study

Scientific research covers a given area, and the author of this article acknowledges the limitations of the study's research approach. However, these limitations also provide opportunities for further investigation. First, the study investigated

the four basic types of innovative notions. Second, the small sample size prevented generalizations about Chinese malls and medium-sized firms. Therefore, future research should incorporate regional enterprises in China. The survey employed quantitative methods, which may have limited respondents' ability to provide nuanced reasons.

To generalize the results of this study, the author suggests conducting further research in other areas of China, particularly using qualitative methods with extensive interviews. Despite the limitations, the author believes the research advances the theory and practice of small and medium-sized enterprises, provides important potential implications for managers and owners, and contributes to the existing knowledge and discussions on the relationship between product and process innovation and company performance.

Conflict of Interests

The authors declare that they have no conflict of interests.

Acknowledgement

The authors are thankful to the institutional authority for completion of the work.

References

1. Adel G. The Venture Capital Contribution to the Financing of Entrepreneurial Projects: Case of Tunisian Risk Capital Investment Company (SICAR). *Journal of Internet Banking and Commerce*. 2016 Nov 1;21(S5):1.
2. Abe M, Troilo M, Batsaikhan O. Financing small and medium enterprises in Asia and the Pacific. *Journal of Entrepreneurship and Public Policy*. 2015 Apr 13;4(1):2-32. <https://doi.org/10.1108/JEPP-07-2012-0036>
3. Banwo AO, Du J, Onokala U. The determinants of location specific choice: small and medium-sized enterprises in developing countries. *Journal of Global Entrepreneurship Research*. 2017 Dec;7:1-7. <https://doi.org/10.1186/s40497-017-0074-2>
4. Hisrich RD, Petković S, Ramadani V, Dana LP. Venture capital funds in transition countries: Insights from Bosnia and Herzegovina and Macedonia. *Journal of Small Business and Enterprise Development*. 2016 May 16;23(2):296-315. <https://doi.org/10.1108/JSBED-06-2015-0078>
5. Çoban S, Selçuk E. The effect of mind mapping technique on students' achievements in music lesson and on their attitudes towards the mind mapping technique. *Eğitim ve Bilim*. 2017;42(190). <http://dx.doi.org/10.15390/EB.2017.6856>
6. Rusu D, Sandu D. Entrepreneurship and Ethics in Small And Medium Size Enterprises: Literature Analysis. In *Proceedings of the International Management Conference 2020* (Vol. 14, No. 1, pp. 688-695). Faculty of Management, Academy of Economic Studies, Bucharest, Romania. <https://doi.org/10.24818/IMC/2020/03.21>
7. Harvey C. Ethical emotional encounters: Contemplating challenges in psychoanalytically informed research. *Psycho-analytic Psychotherapy in South Africa*. 2017 Jun 1;25(1):34-66.
8. Dušátková MS, Zinecker M, Meluzín T. Institutional determinants of private equity market in Czech Republic. *Economics & Sociology*. 2017 Oct 1;10(4):83-98. <https://doi.org/10.14254/2071-789X.2017/10-4/7>
9. Fusch P, Ness L. Are We There Yet? Data Saturation in Qualitative Research. *Walden Faculty and Staff Publications* [Internet]. 2015 Feb 1;20(9):1408–16. <https://doi.org/10.46743/2160-3715/2015.2281>

10. Osei A, Yunfei S, Appienti WA, Forkuoh SK. Product innovation and SMEs performance in the manufacturing sector of Ghana. *British Journal of Economics, Management & Trade*. 2016 Oct 29;15(3):1-4. <https://doi.org/10.9734/BJEMT/2016/29906>
11. Dong JC, Zhu LL, Wang B, Dong Z, Li XT. The evaluation of financing efficiency of China's stock market. *Mathematical Problems in Engineering*. 2016;2016(1):3236897. <https://doi.org/10.1155/2016/3236897>