

The Impact of Manufacturing Capability, Networking Capability and Digital Capability on Smes Firm Performance in India

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Abstract

There is a considerable signal from empirical studies that many factors influence firm performance. This conceptual paper aims to examine the effects of two key TICs variables manufacturing capability and networking capacity as well as digital capability, on the performance of manufacturing SMEs operating in India. The conceptual framework was developed after a systematic review of past literature. The present paper found the important influence of the study's variables on firm performance. Furthermore, the study provided some understanding of how manufacturing capability, networking capability and digital capability affect SMEs' performance in India. These independent variables are important in influencing Manufacturing SMEs' firm performance. The paper emphasizes the critical value of manufacturing capability, networking capability and digital capability for SME owners/managers consideration when acting on behalf of their company; failing which the SMEs could experience poor performance. Resource-Based View (RBV) theory and Dynamic

Capability Theory (DCT) theories were used to underline the conceptual framework. In addition, some implications of this conceptual model for theory and practice are addressed.

Keywords: Digital Capability, Firm Performance, SMEs, Technological Innovation Capability

Introduction

SMEs play an essential role in encouraging technological advancement in society and economic innovation (Mitra, 2021; Surya et al., 2021). SMEs contribute to the country's growth by acting as a crucial source of innovation and new ideas, as well as by employment generation, providing future opportunities, and national income, lowering unemployment, and improving the sustainable future in the world's growing economies (Jabbour et al., 2020). Moreover, poor management and staggering productivity worldwide competition are often linked to SMEs. Despite this, because of its small size and lack of expertise, it also restricts its accessibility to scalability, global markets, innovation financing knowledge, abilities, and technologies (Lingyan et al., 2021; Zawislak et al., 2018). Asian nations are becoming more and more well-known in the global economy, and SMEs are crucial to improving the economic performance of Asian nations. SMEs constitute many businesses in Southeast Asia, including Brunei, Myanmar, Cambodia, Timor-Leste, Indonesia, Laos, Malaysia, the Philippines, Singapore, Thailand, and Vietnam (Zawislak et al., 2018a). SMEs are also popular in South Asia, comprising Bangladesh, Bhutan, India, Pakistan, Nepal, and Sri Lanka (Chowdhury, 2020.; Jabbour et al., 2020; Ndubisi et al., 2021). SMEs account for an average of 42% of the GDP or manufacturing value-added in ASM countries (Kuwahara et al., 2019; Yasiukovich et al., 2021).

India accounts for 22% of the GDP, 33.82% of the population, and 32.52% of the potential labour force in emerging Asia. India accounts for 22% of the GDP, 33.82% of the population, and 32.52% of the potential labour force in emerging Asia. India is Asia's second-largest economy in terms of purchasing power parity (PPP) and the fourth largest in the world (Yoshino et al., 2019). India's manufacturing industry has experienced a downward trend in recent years compared with developed countries such as Japan, the USA, Sweden, and the UK (Chakraborty et al., 2020; Singh et al., 2023; Sinha & Dhall, 2020). The overall manufacturing SME sector in India is currently facing a tremendous decline in performance (MSME, 2021). Based on Figure 1, the annual GDP growth rate was 15.2% in 2016, declining to 14% by 2021. Hence, the Indian government needs to set aggressive strategies and growth targets to increase the contribution of manufacturing SMEs to GDP (Dutta et al., 2020; Pulicherla et al., 2022; Venkatesh et al., 2018).

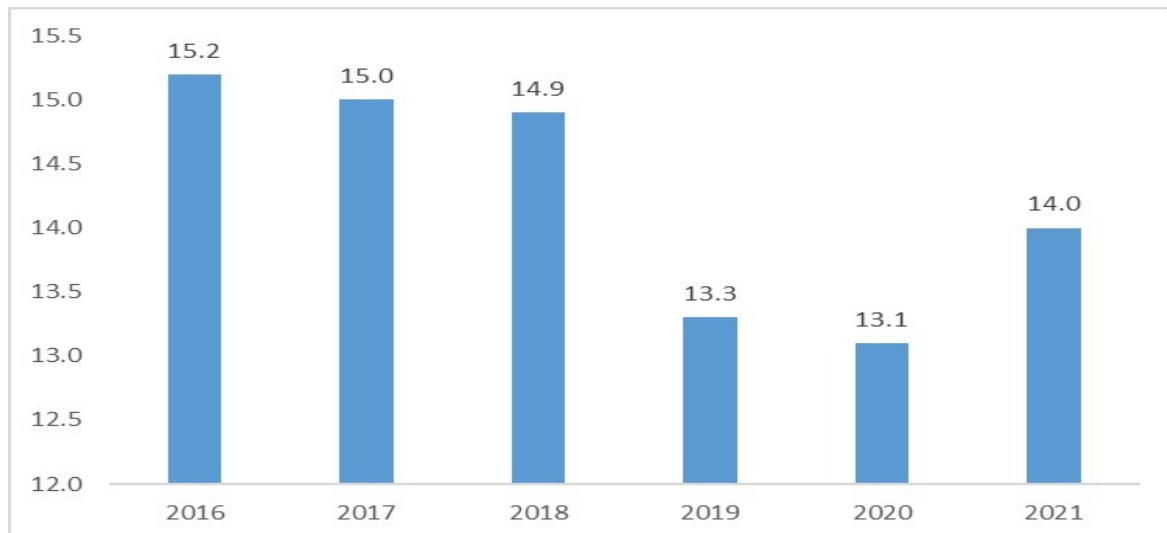


Figure 1: India's Share of Manufacturing to GDP (Source: World Bank, 2022).

MSMEs play a crucial part in the growth of the Indian economy. Two key industries hold the Indian economy's growth: services and manufacturing. They contributed 30.5% of India's GDP in 2019 and 30% in 2020. While MSMEs account for 45% of India's overall manufacturing output and 40% of its total exports (Kumari, 2018; Mehrotra et al., 2021), and produce over 6000 high-quality products, indicating enormous growth potential and support in several sectors (Pawar & Sangvikar, 2019). Furthermore, manufacturing SMEs also acquired 33% of the country's total manufacturing GVO (Gross Value of Output) between 2014-2015 and 2018-2019 (MSME, 2021). Since, manufacturing SMEs are considered the second-largest contributor toward the nation's GDP, it is regarded as an important sector in the country's economy. The declining issue has a significant impact on the overall economy and their decline in India.

Review of Literature

Firm Performance

Firm performance is defined as a company's capacity, ability and considering the significance of such successes to its customers (Taouab & Issor, 2019). The evaluation of a firm's monetary and non-monetary dimensions is done separately by its financial and non-financial performance components, respectively (Avci et al., 2011). The state of the firm's finances is reflected in its financial performance, which can assess using measures like profit margin, return on assets, returns on sales, return on investment, and others (Yee et al., 2010). In this research firm performance will be defined as the level of financial performance measured in revenue, profit, cost-cutting, return on assets, and return on sales. A firm's actual output or results are measured against its intended outcomes to determine its performance. According to a literature review, many researchers disagreed on the factors that determine firm performance, and their various indicators of firm performance. However, previous research has defined firm performance differently. Some described it as sales, return on investment, market shares, and stock market performance, while others defined it as return on sale, profitability, return on assets, and return on equity (Brown & Caylor, 2009; Singh & Kaur, 2021; Umar et al., 2018). Additionally, customer satisfaction, design performance, process quality, and productivity are additional terms for "firm performance" (Sahoo & Yadav, 2017a).

Moreover, firm performance was previously defined as the sum of revenue, profit, cost control, return on equity, and return on sales. Furthermore, all financial outcomes are assessed based on performance, including return on investment, sales and stock market performance, profitability, and revenue (Gomez et al., 2019; Yang et al., 2019). Thus, this research attempted to investigate the relationship between firm performance and identify the different types of business and technological capabilities of manufacturing SMEs in India (Rahman & Kavida, 2018). Hence, this research would adopt the firm performance definition by (Anwar & Shah, 2021).

Furthermore, firm performance is demonstrated by the prospective profits from the use of intangible resources in their business activities (Kengatharan, 2019). Similarly, there is evidence that firm performance is primarily determined by many factors, including the efficient use of manufacturing capabilities and networking capabilities (Rahim & Zainuddin, 2019). As a result, more profitability will be necessary for the firm to succeed in its sector. According to previous research, TICs (manufacturing capability and networking capability) and digital capability, as well as external and internal variables including competition, infrastructure, and technology, are the primary determinants of firm's performance (Rahim & Zainuddin, 2019; Yasa, 2019).

Research Design and Methods

Prior studies have identified design and layout as one of the firm's aspects, but the manufacturing industry's physical environment also comprises its system design and layout (Rehman et al., 2019). The design/layout of a workplace aids consumers in orienting themselves, learning and navigating signals, and obtaining personal impressions and influence (Bitner, 1992). As a result, some factors impact customers' attitudes toward product suppliers in manufacturing environments (Bitner, 1992). A comprehensive literature review was also used to produce this conceptual paper. Furthermore, the literature review was synthesized based on scholarly literature relevant to two dimensions of TICs (manufacturing capability and networking capability), as well as digital capability and its influence on firm performance, as shown in the figure (Figure 2).

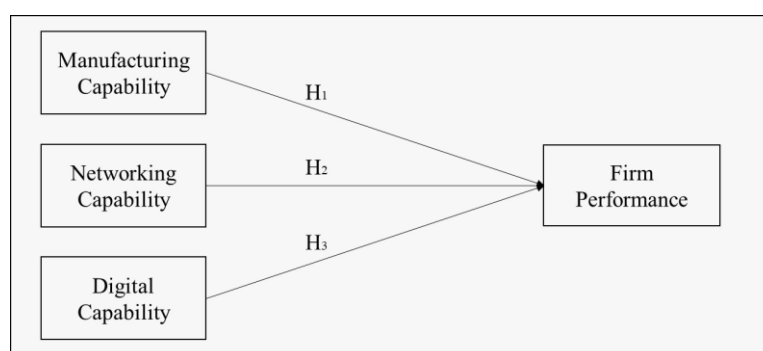


Figure 2: Conceptual Framework

Three hypotheses will be developed in the current conceptual paper to examine how the variables relate to firm performance. Additionally, a quantitative technique (based on surveys) may have been employed by future researchers to gather the study's data. Similarly, the research framework was supported by the resource-based view (RBV) and dynamic capability theory (DCT) theory. A robust, consistent technique for performing a systematic

review was used during the conceptual paper approach. In the future, the quantitative method may be used to empirically test the suggested conceptual framework.

Manufacturing capability and Firm Performance

Manufacturing capability maintains a high degree of organizational strategy in terms of productivity, quality, lead times, and flexibility (Nurchahyo & Wibowo, 2015). Moreover, a knowledgeable firm with experienced personnel will perform better because they use their skills, knowledge, and creativity more effectively. In addition, the adequate flow of high-quality design information (value-added) to stakeholders is managed by a group of dependable organizational policies and procedures under this expertise (Zhang et al., 2011; Zhao et al., 1999). The most significant element of a manufacturing firm's essential and primary operational capability is manufacturing capability (Kumar et al., 1999). Manufacturing capability has attained strategic capability during manufacturing (Roth & Velde, 1991).

According to Skinner (1969), manufacturing capability is the key to building excellent firm performance. Manufacturing can give businesses a significant competitive advantage. These attributes can be applied to achieve manufacturing performance in terms of cost, quality, and time. Manufacturing capability is the main operational capability in manufacturing companies and is the operational capability in the dynamic capability framework (Zhao et al., 1999). The main issue with the "manufacturing capability required" part is how to represent manufacturing processes, resources, the limits put on them, and their linkages (Molina et al., 2005). Five categories such as quality, cost, delivery, flexibility, and innovation are used in operations management literature to categorize manufacturing capabilities (Ward et al., 1995). An organization can increase its manufacturing capabilities by purchasing new machinery and technology. Despite this, it places minimal focus on enhancing its infrastructures, such as its planning, measurement systems, and staff policies (Hayes & Preacher, 2014; Wheel Wright, 1984).

Manufacturing capability is positively related to firm performance, as an increasing number of efficient employees improves overall performance (Gupta & Shri, 2018; Ribau et al., 2017; Saunila, 2020). In addition, previous research has also found that manufacturing capability improves firm performance (Fernando et al., 2019; Liu & Yang, 2020). According to Cleveland et al (1989) manufacturing competence is a capability that allows manufacturers to implement a product or market-specific business strategy. In recent years, a company's high-level manufacturing capability has become a requirement in globalization trends. Manufacturing capability leads to increased efficiency in areas such as operational effectiveness, asset return on investment, and firm competitiveness (Rahim & Zainuddin, 2019; Sahoo, 2019). Furthermore, manufacturing capability leads to increased efficiency in financial performance (Darus et al., 2018). According to the research article and debate, there is a link between manufacturing capability and firm performance. This study assumes that a firm's performance will improve as its production capacity grows. Based on this discussion, the following hypothesis was developed:

H₁: Manufacturing capability has a positive relationship with firm performance.

Networking capability and Firm Performance

The term "networking capability" describes the firm's and its shareholders' cooperative relationships and marketing power (Mokhtarzadeh et al., 2020). A comprehensive strategy called network capability helps to create a business, manage, and grasp opportunities through

delightful connections and partnerships (Vesalainen et al., 2014). These networks, links, and relationships contributed to the improvement in performance by marketing oriented in reducing localized obstacles (Khan et al., 2020; Nakos et al., 2019; Phuyal et al., 2020). Moreover, it is the ability of an organization to obtain, produce, and utilize both internal and external organizational interactions (Zacca et al., 2015). Furthermore, developing networking capabilities is advantageous for firms and linked to better performance (Ganguly, 2021; H. Gupta et al., 2017; Ravichandran, 2018; Tajvidi & Karami, 2021). The capacity to connect to a network is essential for businesses, especially for enterprising SMEs, since it includes the influence of the development of both new and active business procedures. Therefore, SMEs are supported by networks at every stage of growth to achieve sustainable growth and competitive advantage (Cristofer Baierle et al., 2020; Kumara et al., 2020).

Previous research on networking capability has provided a wide range of networking capability prospects, such as integrating strategic and operational procedures to achieve network achievement (Arasti et al., 2021; Mokhtarzadeh et al., 2020), collective learning (Fosss, 1999), network partnership (Walter et al., 2006) and creating new networks (Parida et al., 2017). Thus, managing external and internal relationships is essential for a firm's success because it can initiate the firm's network, which improves performance by bringing in expertise from partners or rivals outside the firm.

Due to function well and survive, developing network capability is crucial (Parida et al., 2017). Moreover, firm performance is improved by enhancing knowledge management, cost control, innovation, reputation, and organizational awareness (Abbas et al., 2019; Hilmersson & Hilmersson, 2021). Moreover, networking capability has been studied by various researchers (Abbas et al., 2019; Cenamor et al., 2019; Parida et al., 2017; Zacca et al., 2015) they found that networking capability could represent processes or approaches to perform a specific activity that rivals cannot easily imitate.

Firms with networking capabilities may increase profitability while decreasing in operating costs (Park et al., 2001). Past research has found a link between networking capability and firm performance (Ganguly, 2021; Gupta et al., 2017; Ravichandran, 2018; Tajvidi & Karami, 2021). Based on the literature review and discussion, there is a positive relationship between networking capability and firm performance. This research posits that when the firm networking capability increases, its performance will be more significant. Based on this discussion, the following hypothesis was developed:

H₂: Networking capability has a positive relationship with firm performance.

Digital Capability and Firm Performance

The term "digital capability" refers to a company's business practices, organizational culture, office environment, and quick market response (Saputra et al., 2021). In order to produce a product or service with rich knowledge in the information system that is converted into valuable resources, a company would need to use robust processes and cutting-edge technologies (Shaikh et al., 2021). These processes would give strong digital capability and superior firm performance. Despite this, the capabilities, and some skills, such as digital proficiency and technology integration skills, are harder to imitate (Gupta & George, 2016; Teece, 2014). Thus, to enhance the availability of internal resources, a firm needs technical flexibility (Kook et al., 2017).

Thus, a firm is required to investigate alternative tactics, one of which is to create plans to enhance performance using current technologies and foresight into emerging ones, with the performance serving as a necessary step for sustainable innovation (Kook et al., 2017). Likewise, an essential element for achieving business success is dynamic capability, which includes digital capabilities. Whether a company can research and use digital technology significantly impacts its ability to succeed in digitalization (Khin & Ho, 2018). The ability of a firm to develop new products and related processes would be seen as being based on technology (Miller & Breton-Miller, 2005). Digital capability is not just about technological aptitude while being tied to it. Moreover, it also has to do with human resources' capacity to stimulate collaboration and innovation using digital technologies (Saputra et al., 2021). Since, it affects the company more externally than any other capability component, previous research has claimed that digital capability is the most complex component overall (Alves et al., 2020; Nasiri et al., 2020). Additionally, a recent study has revealed that digital capability is measured by several composite indicators of quantitative methods, which play a significant role and have a good income (Khin et al., 2018). Past research has found a positive relationship between digital capability and firm performance (Gupta & Shri, 2018; Sahi et al., 2020; Smriti & Das, 2018). This research posits that its firm performance will be more significant when the digital capability increases. Based on this discussion, the following hypothesis was developed:

H₃: Digital capability has a positive relationship with firm performance.

Underpinning Theories

RBV theory helps to distinguish between resources produced by the organization and those that can be acquired from markets (Anand et al., 2002). Meanwhile, Jabbour et al. (2017) argued that RBV has continued to act as a theoretical pillar in figuring out how organizations' performance has expanded. According to this theory, the firm's resources are both tangible and intangible assets that are broadly related to the firm (Wernerfelt, 1984). The main premise of RBV theory is that organizations can gain a competitive advantage by focusing their internal and external resources on technological skills, knowledge, capacities, and competencies (Barney, 1991; Barney, 1986; Wernerfelt, 1984). These valuable and distinctive resources are the primary source of a sustainable competitive advantage and sustained higher performance (Barney & Hesterly, 2015). Scholars have long emphasized the growing significance of internal resources as sources of the competitive advantage (Wright et al., 2001).

Thus, the RBV theory proposes that firms fully prepared to match and spend resources on a particular set of practices can skillfully enjoy excellent productivity. Based on the literature review, manufacturing capability, networking capability, digital capability, and organization learning are grounded in the (RBV) theory (Arokodare & Asikhia, 2020; Burt & Soda, 2021; Clulow et al., 2003; Rozaq et al., 2020; Sminia et al., 2019). On this basis, this research adopted the RBV theory as its underpinning theory for the relationship between the research is independent variables and firm performance.

The RBV theory is a practical application and resource allocation to convert short-term competitive advantages to long-term competitive advantages (Chan et al., 2004; Halawi et al., 2005; Othman et al., 2015). The least amount of commitment was needed on the part to the company to commit the product's success by understanding the firm's market-specific actions (Wernerfelt, 1984). Matching a firm's resources to a specific program creates product success and improves performance. Consequently, resources and combined resources must be

guarded to avoid simple access to the open market for a corporation to have enduring competitive advantages (Lavie, 2006).

Resource-Based View Theory and Manufacturing Capability

Manufacturing capability allows manufacturers to implement a product or market-specific business strategy (Gupta & Singh, 2020). Several past research has used RBV theory to connect manufacturing capability's effect on the firm's performance through competitive advantages. Past studies have found that manufacturing capability creates competitive advantages and increases firm performance (Corbett & Claridge, 2002; Leung & Lee, 2004; Nurcahyo & Wibowo, 2015). Thus, the RBV theory asserts that enterprises can use various resources to perform better and maintain long-term sustainability. Therefore, a firm's sustainability depends on creating new resources, growing existing capital, and developing remarkable ability (Lei et al., 2021; Surya et al., 2021). In addition, manufacturing capability improves in resolving the standard learning style, avoids information inconsistency, and provides users with more ideal alternatives to decide, all of which assist the firm gain competitive advantages (Leung & Lee, 2004; Linder, 2019). Most of the researchers have used RBV theory regarding manufacturing capability, such as Chavez et al. (2017).

Resource-Based View Theory and Networking Capability

The study of networking capability in a larger global context in the future will likely be a valuable addition to capability research (Yang et al., 2022). Additionally, essential resources that are rare, distinctive, and irreplaceable, like networking capabilities, may be the primary tool for competitive advantages in a business and produce a high level of performance (Burt & Soda, 2021; Fink & Neumann, 2009; Mitrega et al., 2017). RBV theory emphasizes that the effective use of resources to link capabilities helps companies to create efficient processes or procedures, increase the effectiveness of product development and ultimately improve output and operational or financial performance (Burt & Soda, 2021; Fink & Neumann, 2009; Mitrega et al., 2017). Firms build expertise incorporated in the communication networks and consumer interactions in performing business (Anwar & Shah, 2021; Tsai, 2001). In order to add considerable value to organizations and increase the chance of gaining competitive advantages, a set of shared values could be established (Liu & Yang, 2020).

Dynamic Capability Theory and Digital Capability

The most effective innovation framework for describing digital capability may be the DCT. DCT aims to combine and reorganize available funds (Teece et al., 1997). DCT is unique from innovation frameworks because it takes a process-based approach technologically ((Lin et al., 2014; Roberson et al., 2017). Consequently, through advanced analytics, and the Internet of Things, businesses can develop and maintain their dynamic capabilities (Munir et al., 2022). Therefore, companies can use their abilities to either take advantage of the available resources or research new avenues for conducting business in the digital economy. While exploitation concentrates on reshaping already-existing resources such as staff and equipment, exploration focuses on innovation and new technologies (Gupta & Gupta, 2019; Wang et al., 2022). Based on the speculation of the DCT theory, this research explains digital capability enhances the firm performance, which helped the developed conceptual model of digital capability, which presents new factors and outlines the prospects for future scenario analysis of the digital economy.

Design/methodology/approach

The conceptual paper was created by carefully examining journal articles, conference materials, conference proceedings, and books associated with the subject topic and keywords. Based on the size of the literature review and the variances between the studies, the following theoretical framework was created (Figure 2). TICs and digital capabilities have been found in previous research to positively impact firm performance, according to the literature evaluation. Thus, when the TICs and digital capability activities increase; this will also improve the manufacturing SME firm's performance.

Results and Discussion

The conceptual paper was created by carefully examining journal articles, conference materials, conference proceedings, and books associated with the subject topic and keywords. Based on the size of the literature review and the variances between the studies, the following theoretical framework was created (Figure 2). According to the literature review, TICs and digital capabilities have been found in past research to positively impact firm performance. Thus, when the TICs and digital capability activities increase; this will also improve the manufacturing SME firm's performance.

Integrative Framework

Previous studies suggest that TICs play a critical role in SMEs, which are usually characterized by a lack of resources. According to Rahim and Zainuddin (2019) SMEs should concentrate on TICs (and its constituent aspects) as a method to overcome their scale-related limitations and produce recognizable strategic value. However, in this sort of organization, several variables might contribute to the development of TICs as well as the creation, systematization, and sharing of knowledge, especially in the manufacturing sector. The manufacturing formation process of SMEs, the organizational context of such companies and their networks, the competitive strategies of SMEs and/or networks, and SMEs' values sharing of knowledge inside and outside the SMEs are among the main factors highlighted by the literature as more significant.

The study of non-physical factors in Indian manufacturing industries, particularly in SMEs, has significantly increased in recent years. As a result, there are more manufacturing sectors than ever before, and fortunately, this is the situation for the fastest-growing industry among those that experts have ignored. Additionally, the bulk of research on TICs and digital readiness in Indian SMEs has a strong focus on the service sector while disregarding other industries that make substantial contributions to the GDP of the nation (Singh et al., 2023).

This conceptual paper also highlights the significance of TICs and digital capability for the performance of SMEs in India. This conceptual paper will add to the understanding of the link between TICs, digital capability, and firm performance in the management area. Owners and managers of manufacturing SMEs in India may find this paper useful in gaining a deeper comprehension of the connection between TICs, digital capability, and firm performance as well as in learning how to make the most use of their available resources. However, adopting new manufacturing capabilities, networking capabilities, and digital capabilities in a firm can have numerous benefits (Ferreira et al., 2019). The desired outcome of this conceptual paper is to discover a positive relationship between the research variables and firm performance, which might ultimately lead to a conclusion on the significance of TICs and the investment in digital capabilities in a firm. Moreover, previous research has been validated in boosting the firm's performance and fostering better relationships with clients and stakeholders.

Implications of the study

This paper provides an impetus for SME owners/managers and the government of India to give greater and renewed focus to the aspects of firm performance and its influencers. Based on the past studies' findings, this study can argue that manufacturing capability, networking capability, and digital capability are important antecedents of firm performance. The conceptual framework has not been empirically examined, despite its significance. Future studies may have considered additional influencing variables such as organizational learning. Future research may consider the effects of other independent and moderating variables and experimentally test them. Additionally, this paper reveals how the link between manufacturing, networking, digital capabilities, and firm performance. Future studies may compare the TICs and digital capabilities of SMEs in India regarding environmental issues including environmental performance.

Conclusion

The two TICs (Technological Innovation Capacity) aspects of manufacturing and networking, as well as the digital capability and its effect on firm performance, are the key points of this conceptual paper. A high focus on TICs and digital capability in Indian SMEs would also encourage other businesses to effectively use those firms' resources. In addition, it described how these tactics for enhancing manufacturing capability, networking capability, and digital capability might be applied to provide higher performance. To achieve higher performance, businesses should fully utilize their resources. Consequently, by examining the market's competitive system and rapidly evolving trends, manufacturing SMEs require a variety of strategies to provide them with a stronger competitive advantage in manufacturing better products or services to fulfil the demands of customers.

References

- Abbas, J., Raza, S., Nurunnabi, M., Minai, M. S., & Bano, S. (2019). The impact of entrepreneurial business networks on firms' performance through a mediating role of dynamic capabilities. *Sustainability (Switzerland)*, *11*(11).
<https://doi.org/10.3390/su11113006>
- Alves, G. M., Sousa, B. M., & Machado, A. (2020). The role of digital marketing and online relationship quality in social tourism: A tourism for all case study. In *Digital marketing strategies for tourism, hospitality, and airline industries* (pp. 49-70). *IGI Global*.
- Anand, B. N., & Khanna, T. (2000). Do firms learn to create value? The case of alliances. *Strategic management journal*, *21*(3), 295-315.
- Anwar, M., & Shah, S. Z. A. (2021). Entrepreneurial orientation and generic competitive strategies for emerging SMEs: Financial and nonfinancial performance perspective. *Journal of Public Affairs*, *21*(1). <https://doi.org/10.1002/PA.2125>
- Ara Shaikh, A., Vidyapeeth, B., Ali Syed, A., Zafar Shaikh, M., & Bhagubhai Mafatlal Polytechnic, S. (2021). A TWO-DECADE LITERATURE REVIEW ON CHALLENGES FACED BY SMES IN TECHNOLOGY ADOPTION. In *Academy of Marketing Studies Journal* (Vol. 25, Issue 3). <https://ssrn.com/abstract=3823849>
- Arasti, M., Garousi Mokhtarzadeh, N., & Jafarpanah, I. (2021). Networking capability: a systematic review of literature and future research agenda. In *Journal of Business and Industrial Marketing* (Vol. 37, Issue 1, pp. 160–179). Emerald Group Holdings Ltd.
<https://doi.org/10.1108/JBIM-06-2020-0273>

- Arokodare, M. A., & Asikhia, O. U. (2020). Strategic agility: Achieving superior organizational performance through strategic foresight. *Global Journal of Management and Business Research*, 20(3), 7–16.
- Avci, U., Madanoglu, M., & Okumus, F. (2011). Strategic orientation and performance of tourism firms: Evidence from a developing country. *Tourism Management*, 32(1), 147–157. <https://doi.org/10.1016/j.tourman.2010.01.017>
- Baierle, I. C., Benitez, G. B., Nara, E. O. B., Schaefer, J. L., & Sellitto, M. A. (2020). Influence of open innovation variables on the competitive edge of small and medium enterprises. *Journal of Open Innovation: Technology, Market, and Complexity*, 6(4), 179.
- Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17(1), 99–120. <https://doi.org/10.1177/014920639101700108>
- Barney, J. B. (1986). Strategic Factor Markets: Expectations, Luck, and Business Strategy. *Management Science*, 32(10), 1231–1241. <https://doi.org/10.1287/MNSC.32.10.1231>
- Barney, J., & Hesterly, W. (2015). *Strategic management and competitive advantage: Concepts and cases*. <http://103.227.140.9/handle/123456789/16972>
- Brown, L. D., & Caylor, M. L. (2009). Corporate governance and firm operating performance. *Review of Quantitative Finance and Accounting*, 32(2), 129–144. <https://doi.org/10.1007/S11156-007-0082-3>
- Burt, R. S., & Soda, G. (2021). Network Capabilities: Brokerage as a Bridge Between Network Theory and the Resource-Based View of the Firm. *Journal of Management*, 47(7), 1698–1719. <https://doi.org/10.1177/0149206320988764>
- Cenamor, J., Parida, V., & Wincent, J. (2019). How entrepreneurial SMEs compete through digital platforms: The roles of digital platform capability, network capability and ambidexterity. *Journal of Business Research*, 100, 196–206.
- Chakraborty, D., Chaisse, J., & Pahari, S. (2020). Global auto industry and product standards: A critical review of India's economic and regulatory experience. *Journal of International Trade Law and Policy*, 19(1), 8–35. <https://doi.org/10.1108/JITLP-10-2019-0063/FULL/HTML>
- Chan, L. L. M., Shaffer, M. A., & Snape, E. (2004). In search of sustained competitive advantage: The impact of organizational culture, competitive strategy and human resource management practices on firm performance. *International Journal of Human Resource Management*, 15(1), 17–35. <https://doi.org/10.1080/0958519032000157320>
- Chavez, R., Yu, W., Jacobs, M. A., & Feng, M. (2017). Manufacturing capability and organizational performance: The role of entrepreneurial orientation. *International Journal of Production Economics*, 184, 33–46.
- Chowdhury, D. (2020). Small and Medium Manufacturing Enterprises (SMEs) and Knowledge-Base: South Asian Experience. *Journal of Entrepreneurship and Management*, 9(2), 29–42.
- Cleveland, J. N., Murphy, K. R., & Williams, R. E. (1989). Multiple uses of performance appraisal: Prevalence and correlates. *Journal of applied psychology*, 74(1), 130.
- Clulow, V., Gerstman, J., & Barry, C. (2003). The resource-based view and sustainable competitive advantage: the case of a financial services firm. *Journal of European Industrial Training*, 27(5), 220–232.
- Corbett, L. M., & Claridge, G. S. (2002). Key manufacturing capability elements and business performance. *International Journal of Production Research*, 40(1), 109–131. <https://doi.org/10.1080/00207540110073091>

- Darus, F. M., Salleh, N. A. A., & Ariffin, A. F. M. (2018). Android malware detection using machine learning on image patterns. *2018 Cyber Resilience Conference (CRC)*, 1–2.
- Dutta, G., Kumar, R., Sindhwani, R., & Singh, R. K. (2020). Digital transformation priorities of India's discrete manufacturing SMEs – a conceptual study in perspective of Industry 4.0. *Competitiveness Review*, 289–314. <https://doi.org/10.1108/CR-03-2019-0031/FULL/HTML>
- Fernando, Y., Jabbour, C. J. C., & Wah, W. X. (2019). Pursuing green growth in technology firms through the connections between environmental innovation and sustainable business performance: does service capability matter? *Resources, Conservation and Recycling*, 141, 8–20.
- Ferreira, J. J. M., Fernandes, C. I., & Ferreira, F. A. F. (2019). To be or not to be digital, that is the question: Firm innovation and performance. *Journal of Business Research*, 101, 583–590. <https://doi.org/10.1016/J.JBUSRES.2018.11.013>
- Fink, L., & Neumann, S. (2009). Taking the High Road to Web Services Implementation: An Exploratory Investigation of the Organizational Impacts. *Data Base for Advances in Information Systems*, 40(3), 84–108. <https://doi.org/10.1145/1592401.1592408>
- Ganguly, S. (2021). Informality and structural change: evidence from microenterprises in India's unorganised manufacturing sector. *Journal of Small Business and Enterprise Development*, 28(1), 22–44. <https://doi.org/10.1108/JSBED-11-2019-0377/FULL/HTML>
- Garzoni, A., De Turi, I., Secundo, G., & Del Vecchio, P. (2020). Fostering digital transformation of SMEs: a four levels approach. *Management Decision* <https://www.emerald.com/insight/content/doi/10.1108/MD-07-2019-0939/full/html>
- Gomez, L. E., & Bernet, P. (2019). Diversity improves performance and outcomes. *Journal of the National Medical Association*, 111(4), 383–392. [Elsevier.https://doi.org/10.1016/j.jnma.2019.01.006](https://doi.org/10.1016/j.jnma.2019.01.006)
- Gupta, A. K., & Gupta, N. (2019). Innovation and Culture as a Dynamic Capability for Firm Performance: A Study from Emerging Markets. *Global Journal of Flexible Systems Management*, 20(4), 323–336. <https://doi.org/10.1007/s40171-019-00218-5>
- Gupta, A., & Singh, R. K. (2020). Managing operations by a logistics company for sustainable service quality: Indian perspective. *Management of Environmental Quality: An International Journal*, 31(5), 1309–1327. <https://doi.org/10.1108/MEQ-11-2019-0246/FULL/HTML>
- Gupta, H., Kumar Barua, M., Mukesh, &, & Barua, K. (2017). A novel hybrid multi-criteria method for supplier selection among SMEs on the basis of innovation ability. *Taylor & Francis*, 21(3), 201–223. <https://doi.org/10.1080/13675567.2017.1382457>
- Gupta, M., & George, J. F. (2016). Toward the development of a big data analytics capability. *Information & Management*, 53(8), 1049–1064. <https://doi.org/10.1016/J.IM.2016.07.004>
- Gupta, M., & Shri, C. (2018). Developing a Conceptual Framework for Performance Evaluation of Corrugated Packaging Firms in India. *Journal of Packaging Technology and Research*, 2(1), 45–60. <https://doi.org/10.1007/s41783-018-0028-3>
- Halawi, L. A., Aronson, J. E., Mccarthy, R. V, Halawi, L. A., Aronson, J. E., & Mccarthy, &. (2005). Resource-based view of knowledge management for competitive advantage. *Commons.Erau.Edu*, 3(2). <https://commons.erau.edu/publication/319/>
- Hayes, A. F., & Preacher, K. J. (2014). Expert Tutorial Statistical mediation analysis with a multicategorical independent variable. *British Journal of Mathematical and Statistical Psychology*, 67, 451–470. <https://doi.org/10.1111/bmsp.12028>

- Hilmersson, F. P., & Hilmersson, M. (2021). Networking to accelerate the pace of SME innovations. *Journal of Innovation and Knowledge*, 6(1), 43–49. <https://doi.org/10.1016/j.jik.2020.10.001>
- de Sousa Jabbour, A. B. L., Ndubisi, N. O., & Seles, B. M. R. P. (2020). Sustainable development in Asian manufacturing SMEs: Progress and directions. *International Journal of Production Economics*, 225, 107567.
- Jia, C., Tang, X., & Kan, Z. (2020). Does the nation innovation system in China support the sustainability of small and medium enterprises (SMEs) innovation? *Sustainability*, 12(6), 2562. *Mdpi.Com*. <https://doi.org/10.3390/su12062562>
- Khan, M., Jang, A., Hamid, A., & Shams, S. A. (2020). Language Hybridization in Advertisements of Banks in Pakistan. *European Online Journal of Natural and Social Sciences*, 9(2), 443–454. <http://www.european-science.com>
- Khin, S., & Ho, T. C. (2018). Digital technology, digital capability and organizational performance: A mediating role of digital innovation. *International Journal of Innovation Science*, 11(2), 177-195. <https://www.emerald.com/insight/content/doi/10.1108/IJIS-08-2018-0083/full/html>
- Kim, M. K., Park, J. H., & Paik, J. H. (2018). Factors influencing innovation capability of small and medium-sized enterprises in Korean manufacturing sector: Facilitators, barriers and moderators. *International Journal of Technology Management*, 76(3-4), 214-235. <https://www.inderscienceonline.com/doi/abs/10.1504/IJTM.2018.091286>
- Kook, S. H., Kim, K. H., & Lee, C. (2017). Dynamic technological diversification and its impact on firms' performance An empirical analysis of Korean IT firms. *Sustainability (Switzerland)*, 9(7). <https://doi.org/10.3390/su9071239>
- Kumar, V., Kumar, U., & Persaud, A. (1999). Building technological capability through importing technology: The case of Indonesian manufacturing industry. *Journal of Technology Transfer*, 24(1), 81–96. <https://doi.org/10.1023/A:1007728921126>
- Naradda Gamage, S. K., Ekanayake, E. M. S., Abeyrathne, G. A. K. N. J., Prasanna, R. P. I. R., Jayasundara, J. M. S. B., & Rajapakshe, P. S. K. (2020). A review of global challenges and survival strategies of small and medium enterprises (SMEs). *Economies*, 8(4), 79. *Mdpi.Com*. <https://doi.org/10.3390/economies8040079>
- Kumari, R. (2018). *India's digital transformation: Driving MSME growth*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3159128
- Kuwahara, S., Yoshino, N., Sagara, M., & Taghizadeh-Hesary, F. (2019). Establishment of the credit risk database: Concrete use to evaluate the creditworthiness of SMEs. *Unlocking SME Finance in Asia: Roles of Credit Rating and Credit Guarantee Schemes*, 89–111. <https://doi.org/10.4324/9780429401060-5>
- Lavie, D. (2006). The competitive advantage of interconnected firms: An extension of the resource-based view. *Academy of Management Review*, 31(3), 638–658. <https://doi.org/10.5465/AMR.2006.21318922>
- Lei, H., Gui, L., & Le, P. B. (2021). Linking transformational leadership and frugal innovation: the mediating role of tacit and explicit knowledge sharing. *Journal of Knowledge Management*, 25(7), 1832-1852. <https://www.emerald.com/insight/content/doi/10.1108/JKM-04-2020-0247/full/html>
- Leung, S., & Lee, W. B. (2004). Strategic manufacturing capability pursuance: A conceptual framework. In *Benchmarking* (Vol. 11, Issue 2, pp. 156–174). <https://doi.org/10.1108/14635770410532598>

- Lin, F. J., & Lin, Y. H. (2016). The effect of network relationship on the performance of SMEs. *Journal of Business Research*, 69(5), 1780-1784.
<https://www.sciencedirect.com/science/article/pii/S0148296315004786>
- Linder, C. (2019). Customer orientation and operations: The role of manufacturing capabilities in small- and medium-sized enterprises. *International Journal of Production Economics*, 216, 105–117. <https://doi.org/10.1016/j.ijpe.2019.04.030>
- Lingyan, M., Qamruzzaman, M., & Adow, A. H. E. (2021). Technological adaption and open innovation in smes: A strategic assessment for women-owned smes sustainability in bangladesh. *Sustainability (Switzerland)*, 13(5), 1–23.
<https://doi.org/10.3390/su13052942>
- Liu, H. M., & Yang, H. F. (2020). Network resource meets organizational agility: Creating an idiosyncratic competitive advantage for SMEs. *Management Decision*, 58(1), 58–75.
<https://doi.org/10.1108/MD-10-2017-1061>
- Mehrotra, S., Mohanty, B., & Sharma, T. (2021). Do Board Quality and Promoters' Holdings Affect Firm Performance? Evidence from Small and Medium-sized Enterprises. *FIIB Business Review*. <https://doi.org/10.1177/2319714520980286>
- Miller, D., & Breton-Miller, I. Le. (2005). *Managing for the long run: Lessons in competitive advantage from great family businesses*.
- Mitra, N. (2021). Impact of strategic management, corporate social responsibility on firm performance in the post mandate period: evidence from India. *International Journal of Corporate Social Responsibility*, 6(1). <https://doi.org/10.1186/s40991-020-00052-4>
- Mitrega, M., Forkmann, S., Zaefarian, G., & Henneberg, S. C. (2017). Networking capability in supplier relationships and its impact on product innovation and firm performance. *International Journal of Operations and Production Management*, 37(5), 577–606.
<https://doi.org/10.1108/IJOPM-11-2014-0517>
- Mokhtarzadeh, N. G., Mahdiraji, H. A., Jafarpanah, I., Jafari-Sadeghi, V., & Cardinali, S. (2020). Investigating the impact of networking capability on firm innovation performance: using the resource-action-performance framework. *Journal of Intellectual Capital*, 21(6), 1009–1034. <https://doi.org/10.1108/JIC-01-2020-0005>
- Molina, A., Rodriguez, C. A., Ahuett, H., Cortes, J. A., Ramirez, M., Jimenez, G., & Martinez, S. (2005). Next-generation manufacturing systems: Key research issues in developing and integrating reconfigurable and intelligent machines. *International Journal of Computer Integrated Manufacturing*, 18(7), 525–536.
<https://doi.org/10.1080/09511920500069622>
- Mubarak Rahman P., & Kavida, V. (2018). Factors Determining the Innovation Types of Manufacturing SMEs in India. *Asia-Pacific Journal of Management Research and Innovation*, 14(3–4), 94–110. <https://doi.org/10.1177/2319510x18817647>
- Munir, S., Abdul Rasid, S. Z., Aamir, M., Jamil, F., & Ahmed, I. (2022). Big data analytics capabilities and innovation effect of dynamic capabilities, organizational culture and role of management accountants. *Foresight*. <https://doi.org/10.1108/FS-08-2021-0161/FULL/HTML>
- Nakos, G., Dimitratos, P., & Elbanna, S. (2019). The mediating role of alliances in the international market orientation-performance relationship of SMEs. *International Business Review*, 28(3), 603-612.
<https://www.sciencedirect.com/science/article/pii/S0969593117307503>

- Nasiri, M., Saunila, M., Ukko, J., Rantala, T., & Rantanen, H. (2020). Shaping Digital Innovation Via Digital-related Capabilities. *Information Systems Frontiers*.
<https://doi.org/10.1007/s10796-020-10089-2>
- Ndubisi, N. O., Zhai, X. A., & Lai, K. H. (2021). Small and medium manufacturing enterprises and Asia's sustainable economic development. *International Journal of Production Economics*, 233, 107971.
<https://www.sciencedirect.com/science/article/pii/S0925527320303212>
- Nurchahyo, R., & Wibowo, A. D. (2015). Manufacturing capability, manufacturing strategy and performance of Indonesia automotive component manufacturer. *Procedia Cirp*, 26, 653–657.
- Othman, R., Arshad, R., Aris, N. A., & Arif, S. M. M. (2015). Organizational resources and sustained competitive advantage of cooperative organizations in Malaysia. *Procedia-Social and Behavioral Sciences*, 170, 120-127.
- Parida, V., Pesamaa, O., Wincent, J., & Westerberg, M. (2017). Network capability, innovativeness, and performance: a multidimensional extension for entrepreneurship. *Entrepreneurship and Regional Development*, 29(1–2), 94–115.
<https://doi.org/10.1080/08985626.2016.1255434>
- Park, S. H., & Luo, Y. (2001). Guanxi and organizational dynamics: Organizational networking in Chinese firms. *Strategic management journal*, 22(5), 455-477.
<https://doi.org/10.1002/smj.167>
- Pawar, A., & Sangvikar, B. (2019). *Understanding the SME: Role and Distribution in India*.
<https://www.researchgate.net/publication/340225176>
- Phuyal, S., Bista, D., & Bista, R. (2020). Challenges, opportunities and future directions of smart manufacturing: a state of art review. *Sustainable Futures*, 2, 100023.
- Pulicherla, K. K., Adapa, V., Ghosh, M., & Ingle, P. (2022). Current efforts on sustainable green growth in the manufacturing sector to complement “make in India” for making “self-reliant India”. *Environmental Research*, 206, 112263.
- Rahim, F. B. T., & Zainuddin, Y. Bin. (2019). The impact of technological innovation capabilities on competitive advantage and firm performance in the automotive industry in Malaysia. *AIP Conference Proceedings*, 2059. <https://doi.org/10.1063/1.5085973>
- Ravichandran, T. (2018). Exploring the relationships between IT competence, innovation capacity and organizational agility. *Journal of Strategic Information Systems*, 27(1), 22–42. <https://doi.org/10.1016/j.jsis.2017.07.002>
- Ribau, C. P., Moreira, A. C., & Raposo, M. (2017). SMEs innovation capabilities and export performance: an entrepreneurial orientation view. In *Journal of Business Economics and Management* (Vol. 18, Issue 5, pp. 920–934). Taylor and Francis Inc.
<https://doi.org/10.3846/16111699.2017.1352534>
- Roberson, Q., Holmes, O., & Perry, J. L. (2017). Transforming research on diversity and firm performance: A dynamic capabilities perspective. *Academy of Management Annals*, 11(1), 189–216. <https://doi.org/10.5465/ANNALS.2014.0019>
- Roth, A. V., & Van Der Velde, M. (1991). Operations as marketing: A competitive service strategy. *Journal of Operations Management*, 10(3), 303–328.
[https://doi.org/10.1016/0272-6963\(91\)90071-5](https://doi.org/10.1016/0272-6963(91)90071-5)
- Rozaq, M. K. A., Riani, A. L., Harsono, M., & Setiawan, A. I. (2020). Exploring digital competing capability in the intention to adopt e-commerce (toward a conceptual model). *International Journal of Trade and Global Markets*, 13(2), 199–219.
<https://doi.org/10.1504/IJTGM.2020.106750>

- Sahi, G. K., Gupta, M. C., & Cheng, T. C. E. (2020). The effects of strategic orientation on operational ambidexterity: A study of Indian SMEs in the industry 4.0 era. *International Journal of Production Economics*, 220. <https://doi.org/10.1016/j.ijpe.2019.05.014>
- Sahoo, S. (2019). Quality management, innovation capability and firm performance: Empirical insights from Indian manufacturing SMEs. *TQM Journal*, 31(6), 1003–1027. <https://doi.org/10.1108/TQM-04-2019-0092>
- Saputra, N., Sasanti, N., Alamsjah, F., & Sadeli, F. (2021). Strategic role of digital capability on business agility during COVID-19 era. *Procedia Computer Science*, 197, 326–335. <https://doi.org/10.1016/j.procs.2021.12.147>
- Saunila, M. (2020). Innovation capability in SMEs: A systematic review of the literature. *Journal of Innovation and Knowledge*, 5(4), 260–265. <https://doi.org/10.1016/j.jik.2019.11.002>
- Singh, and Singh - EPRA International Journal of Economic, & 2023. (2023). RELEVANCE OF HUMAN RESOURCE MANAGEMENT STRATEGIES TO MEET CHALLENGES OF RECENT BUSINESS SCENARIO: A REVIEW OF INDIAN MSME. *Eprajournals.Net*. <https://doi.org/10.36713/epra2012>
- Singh, P., & Kaur, C. (2021). Factors determining financial constraint of SMEs: a study of unorganized manufacturing enterprises in India. *Journal of Small Business and Entrepreneurship*, 33(3), 269–287. <https://doi.org/10.1080/08276331.2019.1641662>
- Sinha, N., & Dhall, N. (2020). Mediating effect of TQM on relationship between organisational culture and performance: evidence from Indian SMEs. In *Total Quality Management and Business Excellence* (Vol. 31, Issues 15–16, pp. 1841–1865). Routledge. <https://doi.org/10.1080/14783363.2018.1511372>
- Skinner, W. (1969). *Manufacturing-missing link in corporate strategy*. http://peessoas.feb.unesp.br/vagner/files/2009/02/Aula-2_2010_Skinner-1969-HBR.pdf
- Sminia, H., Ates, A., Paton, S., & Smith, M. (2019). High value manufacturing: Capability, appropriation, and governance. *European Management Journal*, 37(4), 516–528. <https://doi.org/10.1016/j.emj.2018.11.004>
- Smriti, N., & Das, N. (2018). The impact of intellectual capital on firm performance: a study of Indian firms listed in COSPI. *Journal of Intellectual Capital*, 19(5), 935–964. <https://doi.org/10.1108/JIC-11-2017-0156>
- Surya, B., Menne, F., Sabhan, H., Suriani, S., Abubakar, H., & Idris, M. (2021). Economic growth, increasing productivity of SMEs, and open innovation. *Mdpi.Com*. <https://doi.org/10.3390/joitmc7010020>
- Tajvidi, R., & Karami, A. (2021). The effect of social media on firm performance. *Computers in Human Behavior*, 115. <https://doi.org/10.1016/j.chb.2017.09.026>
- Taouab, O., & Issor, Z. (2019). Firm Performance: Definition and Measurement Models. *European Scientific Journal ESJ*, 15(1). <https://doi.org/10.19044/esj.2019.v15n1p93>
- Teece, D. J. (2014). A dynamic capabilities-based entrepreneurial theory of the multinational enterprise. In *Journal of International Business Studies* (Vol. 45, Issue 1, pp. 8–37). <https://doi.org/10.1057/jibs.2013.54>
- Teece, D. J., Pisano, G., & Shuen, A. (1997). DYNAMIC CAPABILITIES AND STRATEGIC MANAGEMENT. *Strategic Management Journal*, 18, 509–533. [https://doi.org/10.1002/\(SICI\)1097-0266\(199708\)18:7](https://doi.org/10.1002/(SICI)1097-0266(199708)18:7)

- Tsai, W. (2001). Knowledge Transfer in Intraorganizational Networks: Effects of Network Position and Absorptive Capacity on Business Unit Innovation and Performance. *Academy of Management Journal*, 44(5), 996–1004. <https://doi.org/10.5465/3069443>
- Umar, H., & Dikko, M. U. (2018). The effect of internal control on performance of commercial banks in Nigeria. *International Journal of Management Research*, 8(6), 13-32.
- Ur Rehman, S., Bhatti, A., & Chaudhry, N. I. (2019). Mediating effect of innovative culture and organizational learning between leadership styles at third order and organizational performance in Malaysian SMEs. *Journal of Global Entrepreneurship Research*, 9(1). <https://doi.org/10.1186/S40497-019-0159-1>
- Venkatesh, J., & Kumari, L. R. (2018). Effectiveness of R&D: Analysis Of Indian Msme's With Specific Reference to Manufacturing Sector. *International Journal of Innovative Research Explorer*, 5, 24-35.
- Vesalainen, J., & Hakala, H. (2014). Strategic capability architecture: The role of network capability. *Industrial Marketing Management*, 43(6), 938-950.
- Walter, A., Auer, M., & Ritter, T. (2006). The impact of network capabilities and entrepreneurial orientation on university spin-off performance. *Journal of business venturing*, 21(4), 541-567.
- Wang, X., Gu, Y., Ahmad, M., & Xue, C. (2022). The Impact of Digital Capability on Manufacturing Company Performance. *Sustainability*, 14(10), 6214. <https://doi.org/10.3390/su14106214>
- Ward, P. T., Duray, R., Leong, G. K., & Sum, C. C. (1995). Business environment, operations strategy, and performance: an empirical study of Singapore manufacturers. *Journal of operations management*, 13(2), 99-115.
- Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, 5(2), 171–180. <https://doi.org/10.1002/SMJ.4250050207>
- Wheel Wright, S. C. (1984). Manufacturing strategy: Defining the missing link. *Strategic Management Journal*, 5(1), 77–91. <https://doi.org/10.1002/SMJ.4250050106>
- Wright, P. M., Gardner, T. M., Moynihan, L. M., Park, H. J., Gerhart, B., & Delery, J. E. (2001). Measurement error in research on human resources and firm performance: Additional data and suggestions for future research. *Personnel Psychology*, 54(4), 875–901. <https://doi.org/10.1111/J.1744-6570.2001.TB00235.X>
- Yang, Q., Liu, Y., Chen, T., & Tong, Y. (2019). Federated machine learning: Concept and applications. *ACM Transactions on Intelligent Systems and Technology*, 10(2). <https://doi.org/10.1145/3298981>
- Yang, T., Xun, J., & Chong, W. K. (2022). Complementary resources and SME firm performance: the role of external readiness and E-commerce functionality. *Industrial Management and Data Systems*, 122(4), 1128–1151. <https://doi.org/10.1108/IMDS-01-2022-0045/FULL/PDF>
- Yasa, N. N. K., Ekawati, N. W., & Rahmayanti, P. L. D. (2019). The role of digital innovation in mediating digital capability on business performance. *European Journal of Management and Marketing Studies*.
- Yasiukovich, S., & Haddara, M. (2021). Social CRM in SMEs: A systematic literature review. *Procedia Computer Science*, 181, 535-544.
- Yee, R. W., Yeung, A. C., & Cheng, T. E. (2010). An empirical study of employee loyalty, service quality and firm performance in the service industry. *International Journal of Production Economics*, 124(1), 109-120.

- Yoshino, N., & Taghizadeh-Hesary, F. (2019). Optimal credit guarantee ratio for small and medium-sized enterprises' financing: Evidence from Asia. *Economic Analysis and Policy*, 62, 342-356.
- Zacca, R., Dayan, M., & Ahrens, T. (2015). Impact of network capability on small business performance. *Management Decision*, 53(1), 2–23. <https://doi.org/10.1108/MD-11-2013-0587>
- Zawislak, P. A., Fracasso, E. M., & Tello-Gamarra, J. (2018). Technological intensity and innovation capability in industrial firms. *Innovation and Management Review*, 15(2), 189–207. <https://doi.org/10.1108/INMR-04-2018-012/FULL/HTML>
- Zhang, Q., Vonderembse, M. A., & Lim, J. S. (2003). Manufacturing flexibility: defining and analyzing relationships among competence, capability, and customer satisfaction. *Journal of Operations Management*, 21(2), 173-191.
- Zhao, J., Cheung, W. M., & Young, R. I. M. (1999). A consistent manufacturing data model to support virtual enterprises. *International Journal of Agile Management Systems*, 1(3), 150–158. <https://doi.org/10.1108/14654659910296517/FULL/HTML>