Innovation Strategy and Sustainable Competitive Advantage in Asian SMEs: The Mediating Role of Knowledge Management

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Abstract

Small and medium-sized enterprises (SMEs) are essential to economic growth and innovation-driven expansion, but many of them find it difficult to stay competitive in quickly evolving markets. Knowledge management (KM) and innovation strategy (IS) are becoming more and more important to SMEs in Asia's emerging economies as industrial transformation, digitalization, and global integration pick up speed. Achieving Sustainable Competitive Advantage (SCA) in unstable and resource-constrained environments requires these two strategic facets. This study integrates knowledge from the resource-based and dynamic capabilities perspectives to investigate the mediating role of knowledge management (KM) in the relationship between IS and SCA among Asian SMEs. A quantitative, cross-sectional survey was conducted among 500 Indian SMEs representing manufacturing, services, information technology, and retail sectors. Data were analyzed using descriptive and correlational techniques within the mediation framework proposed by Baron and Kenny. The results revealed strong positive relationships among IS, KM, and SCA (r = 0.63, 0.68, and 0.56, respectively), indicating that KM strengthens the transformation of innovation into sustainable performance outcomes. The study concludes that embedding KM practices within innovation frameworks enables SMEs to convert creativity into enduring competitiveness, offering valuable implications for policymakers and business leaders across Asia's dynamic SME ecosystem.

Keywords: Asia, Dynamic Capabilities, Innovation Strategy, Knowledge Management, Sustainable Competitive Advantage

1. Introduction

Most jobs and industrial output are generated by small and medium-sized enterprises (SMEs) that constitute Asia's economy. The modern business climate, which is characterized by rapid globalization, sustainability pressures, and rapidly evolving technology, has made innovation crucial for SMEs looking to maintain their competitiveness. In the emerging economies of Asia, where the SMEs are particularly those in India and Southeast Asia, the pressure is mounting on them to be strategic in their innovations to survive in the turbulent markets (Agazu and Kero, 2024; Weaven et al., 2021). An innovation strategy (IS) helps businesses line up resources, capabilities, and processes to create innovative goods and services that make the company unique in the market compared to competitors (Audretsch et al., 2023). But in order to remain competitive, innovative activities are not enough, in spite of the fact that innovation provides new opportunities. It relies on the capacity of the company to systematically accumulate, integrate, and utilize knowledge. Accordingly, knowledge management, or KM, is essential for transforming innovation with a sustained competitive advantage (Durst et al., 2023). In the case of the Asian SMEs, the crossover of the innovation and knowledge process is currently regarded as a critical factor in the success of the organization in the long run. India, one of the most dynamic SME ecologies in Asia, provides a case study to examine the patterns of innovation and knowledge integration that are representative of other, more general trends in emerging Asian markets.

Knowledge management, competitive advantage, and innovation strategy have long been studied using the viewpoints of the resource-based view (RBV) and dynamic capabilities. The dynamic capabilities viewpoint is the best way to address the issue of open innovation in SMEs as, as recent studies have shown, businesses must constantly change their knowledge sources to maintain their competitiveness (Al Nuaimi et al., 2024; Pertheban et al., 2023). Based on those paradigms, knowledge and

innovation represent intangible assets with the help of which business entities can evolve, integrate, and restructure their competencies in the long-term benefit (Cooper et al., 2023). In the markets with a high level of competition, the proactive approach to innovation and the simultaneous creation of a system of structured knowledge led to the companies being more competitive than their rivals (Agazu and Kero, 2024). Knowledge-based leadership and customer knowledge management have been linked to greater innovation quality and firm performance when it comes to SMEs (Chaithanapat et al., 2022). Furthermore, in cases supported by robust KM potential, collaboration, and external sources of knowledge improve the outcomes of innovation (Tippakoon et al., 2023).

Recent studies on dynamic capabilities confirm the concept that the resilience of SMEs in uncertain environments can be defined by their ability to modify and regenerate resources (Dejardin et al., 2023; Akkaya and Qaisar, 2021). The more flexible and responsive SMEs are within the context of application of the knowledge management (KM) practices, the more supported they become with the digital transformation (Hafeez et al., 2025). On the same note, Cannas (2023) restates that not only dynamic capabilities but also digital transformation optimize innovation-based competitiveness in such sectors as agrifood SMEs. At the same time, the case of sustainability and the environment shows that dynamic capabilities based on knowledge sharing can be used to improve the performance of the business (Singh et al., 2022). Studies have also shown that knowledge management (KM) brokers the connection between product innovation and entrepreneurial orientation, which further increases its position in achieving long-term competitive advantage (Asad et al., 2024). Similarly, Aslam et al. (2025) discovered that knowledge integration and technology connections could improve the results of innovation in SMEs. Nevertheless, a significant proportion of SMEs have yet to have formal knowledge management (KM) systems, which is a constraint on the long-term advantages of innovation (Durst et al., 2023). Collectively, these findings suggest that SMEs need to coordinate their innovation strategy and knowledge management (KM) to transform potential creativity into competitiveness over time.

Whereas the currently published literature demonstrates that innovation strategy and knowledge management (KM) are the factors that play independent roles in the firm's success. Empirical research that integrates the two ideas in the context of Asian SMEs is still lacking. The majority of previous study have been on Western economies and multinational businesses, whose institutional support and resource richness differ significantly from those of the SME environment in Asia. Therefore, it remains that we have not completely learned how KM mediates the competitive advantage of innovation strategy and the long-term competitive advantage in emerging economies. Also, the information in Asian markets remains insufficient and often indicates the implementation of innovations without consideration of the knowledge processes that underlie them (Durst et al., 2023). As a result, there is a necessity of coming up with a detailed, empirically based model as to how KM can facilitate innovation-based competitiveness among Asian SMEs, thus bridging these contextual and theoretical gaps.

Since India is representative of the emerging Asian markets, it will be the main empirical location of the research, which will employ SMEs that are subject to operations across Asia. The research is able to get numerous perspectives on innovation and knowledge management practices by examining many different industries, such as manufacturing, information technology, services, retail, and so forth. In the study, the design adopted is a quantitative cross-sectional study to measure the correlations of SCA, KM, and innovation strategy. The results are contextually oriented in the Asian SME setting and not likely to be extrapolated to the large-scale businesses or non-Asian setting, although it is intended to provide regionally relevant information. Nevertheless, the research provides a considerable contribution to the literature on the topic of SME competitiveness in economies generating innovation but possessing a small number of resources.

This study has theoretical and practical implications. It integrates the RBV and dynamic capabilities frameworks to suggest a mediation model in which knowledge management (KM) scales up the relationship between innovation strategy and long-term competitive benefit to improve the comprehension of how intangible resources influence SME performance, an aspect that has been largely neglected in emerging Asian economies. In practice, the results would help policymakers and leaders of SME to match innovation with KM practices, indicating that investing in innovation without adequate KM is associated with only short-term benefits. Evidence-based suggestions are also presented in the study to reinforce the innovation ability of SMEs through educational initiatives and online knowledge bases to establish stronger, more competitive, and knowledge-based SME ecosystems in Asia.

The research is expected to examine the association among knowledge management (KM), innovation strategy (IS), and sustainable competitive advantage (SCA) in Asian SMEs. It will look at the relationship between IS and KM, the role that IS plays in SCA, and how KM would be utilized to make sure that the organization is competitive. The relationship between IS and SCA, which is mediated by KM, is also explored in the paper. Collectively, these goals offer a

reasonable paradigm to appreciate how Asian SMEs can make the most of effective knowledge management to translate innovation initiatives into sustainable competitive advantages.

2. Methodology

2.1 Research Design

A quantitative cross-sectional study approach was employed in this study in order to investigate the mediation of Knowledge Management (KM) between Innovation Strategy (IS) and Sustainable Competitive Advantage (SCA) in Asian SMEs, where India was the major empirical setting. To determine correlations between the constructs, but not causation, the design was able to collect similar data across multiple industries simultaneously. Regionalized patterns of innovation, use of knowledge, and competitiveness that constitute the greater Asian context of SMEs could be captured by focusing on Indian SMEs, which are indicative of the structural and institutional characteristics of emerging Asian markets.

2.2 Population, Sampling, and Data Collection

The population in the study comprised SMEs involved in the leading industrial sectors in India, which included manufacturing, service industries, retail, information technology, and other emerging industries. These sectors were selected to ensure that there is diversity in terms of technological orientation and strategic maturity. To identify organizations that are actively engaged in the areas of innovation or knowledge-based endeavors, purposive sampling approach was adopted. The respondents comprised middle- and senior-level managers who had either been in the operations, strategy development, or performance evaluation roles.

Data was collected in an online and field-based survey in 4 months. Out of the 530 questionnaires administered, 500 valid responses were kept after being screened in terms of consistency and completeness. The sample is adequate based on the recommendations regarding sample size that are recommended in correlational studies in management research, and it can be analyzed using multiple variables. To encourage open and honest feedback, the anonymity of the respondents was maintained.

2.3 Measurement Instrument

The study involved a structured survey questionnaire containing 30 questions, where the construct-specific indicators were combined with demographic variables. The three primary constructs of the study that were measured using the instrument were Innovation Strategy (7 items), Knowledge Management (8 items), and Sustainable Competitive Advantage (5 items). The ratings were performed on each of the items on a five-point Likert scale, with 1 representing strongly disagree and 5 strongly agree. The items were refined after consulting with experts and pilot testing, as they were narrowed down to ensure that they were relevant and clear to the context of small businesses in India, having been altered based on the known literature.

2.4 Data Analysis Procedures

The data analysis was conducted systematically to ensure that the results were true, valid, and in tandem with the study objectives. The preliminary screening was conducted through the analysis of the data regarding consistency, completeness, and normality. In the quest to seek general patterns and differences between the three core constructs, which are Innovation Strategy (IS), Knowledge Management (KM), and Sustainable Competitive Advantage (SCA), descriptive statistics were determined to incorporate a measure of central tendency and dispersion.

The mediation between Knowledge Management (KM) and Innovation Strategy (IS), and Sustainable Competitive Advantage (SCA) was examined on the mediation logic concept proposed by Baron and Kenny (1986). The relevance limit of $p < 0.05$ was analyzed to determine the direct relationship between IS and SCA, the indirect role of IS on SCA through KM, and the relationship between IS and KM. The identification of the relational patterns according to the theoretical predictions was the main goal in order to make sure that the result was the real reflection of the behavior dynamics of the SMEs.

2.5 Ethical Considerations

There was compliance with ethics in the entire research. Informed consent of all respondents was being sought, and their involvement was voluntary. An introductory note was provided in the questionnaire to clarify the aim of the study by assuring confidentiality and openness. None of the data that could be applied to identify the individual was obtained. All the procedures were conducted per the ethical standards of research integrity and the institutional review, and the data were not utilized beyond academic purposes.

3. Results

3.1 Descriptive Statistics

Before the statistical analysis, the measurement model was tested for validity and reliability. The results indicated high levels of internal consistency in all the constructs due to the values of Cronbach's alpha having values that were above the recommended levels of 0.70 (IS = 0.87, KM = 0.89, SCA = 0.84). Convergent and discriminant validity were confirmed using Composite Reliability (CR) values of more than 0.70 and Average Variance Extracted (AVE) values of more than 0.50. Data

screening was done after listwise retention, and it revealed that there was no significant deviation from normality and outliers (N = 500).

The central tendencies/dispersion of the three basic constructs that include Innovation Strategy (IS), Knowledge Management (KM), and Sustainable Competitive Advantage (SCA) were then analyzed using the descriptive statistics. The highest mean, followed by KM (M = 3.82, SD = 0.68) and SCA (M = 3.57, SD = 0.74), was the mean of IS (M = 4.12, SD =0.61). However, unlike their degree of knowledge integration or long-term competitiveness, this tendency has shown that Indian SMEs are more oriented towards innovation. The declining value of the means of the constructs signifies the gradual development of capabilities. In the first place, the businesses become innovative, next, formalize the knowledge process, and lastly, convert the initiatives into long-term performance. This is not true of all the firms, which are as developed in their strategic maturity, and the standard deviations confirm it, showing sufficient variability. These results can be attributed to the dynamic capabilities perspective that focuses on the capability accumulation in stages with innovation, learning, and performance dimensions.

Table 1: Descriptive Statistics of Key Constructs (N = 500)

Construct	Mean	Std. Dev.	Min	Max	Cronbach's α
Innovation Strategy (IS)	4.12	0.61	2.20	5.00	0.87
Knowledge Management (KM)	3.82	0.68	1.80	5.00	0.89
Sustainable Competitive Advantage (SCA)	3.57	0.74	1.60	5.00	0.84

A graphical representation of the comparative trends is given in Figure 1, which indicates that IS is clearly cutting ahead of KM and SCA. This highlights the significance of the innovation-based initiatives in the present SME environment.

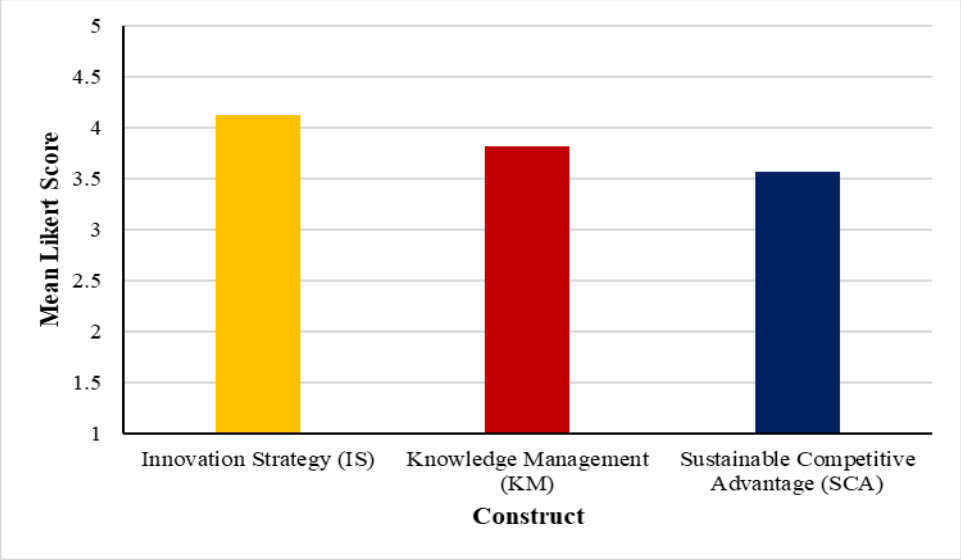

Figure 1: Average Mean Scores of Innovation Strategy (IS), Knowledge Management (KM), and Sustainable Competitive Advantage (SCA)

3.2 Correlation Analysis

A Pearson correlation matrix was estimated to determine the level of association between the study constructs as indicated in Table 2. Based on the results, there is a positive correlation between knowledge management and sustainable competitive advantage (r = 0.68), which implies that knowledge management practices that are organized normally bring about stability in business performance. Although the positive relationship between Innovation Strategy and Sustainable Competitive Advantage (r = 0.56) reflects the fact that the positive impact of innovation on long-term competitiveness is partially direct, the positive relationship between Innovation Strategy and Knowledge Management (r = 0.63) shows that in the case of an innovation-oriented organization, there is a greater likelihood of institutionalizing knowledge-sharing processes. Table 2 interrelations support the empirical nature of the mediating role of knowledge management (KM): the innovation initiatives lead to organizational learning and codification of knowledge, which enhances long-term competitiveness. The constructs used to measure the variables are coherent and sound, as demonstrated by the correlation values (r = 0.56-0.68), which are moderate and strong. The theoretical framework in Figure 3, where knowledge management (KM) plays the key role between innovation efforts and long-term advantage, is empirically based upon this structure of relations.

Table 2: Correlation Matrix of IS, KM, and SCA (N = 500)

Variable	1	2	3
Innovation Strategy (IS)	1		
Knowledge Management (KM)	0.63	1	
Sustainable Competitive Advantage (SCA)	0.56	0.68	1

Note: All correlations are positive and statistically significant at $p < 0.05$

3.3 Industry-wise Comparison

In order to determine the distinction between IS, KM, and SCA by sector, differences at the industry level were analyzed. Table 3 shows that all three constructs were highest in information technology (IT) companies (IS = 4.39; KM = 4.03; SCA = 3.78), which is reflective of their well-developed digital infrastructures and culture of innovation. There is partial translation of innovation into sustained performance, and manufacturing companies, which are also highly emphasized on innovation (IS = 4.26), also show relatively low KM (3.74) and SCA (3.62). Service companies record nearly the same levels of IS (3.92) and KM (3.85) in accordance with their knowledge-intensive and people-based operations. Its averages are lower in retail and other industries, especially in the case of SCA. This is most likely due to limitations of resources and competition pressure. Table 3 demonstrates the industry-specific IS, KM, and SCA means.

Table 3. Industry-wise Means of IS, KM, and SCA

Industry	IS	KM	SCA
Information Technology	4.39	4.03	3.78
Manufacturing	4.26	3.74	3.62
Services	3.92	3.85	3.44
Retail	3.73	3.70	3.55
Other	3.99	3.66	3.25

Figure 2 shows how the differences across industries show a realistic dispersion in strategic capability maturity, confirming that sectoral context has a significant impact on innovation and knowledge integration.

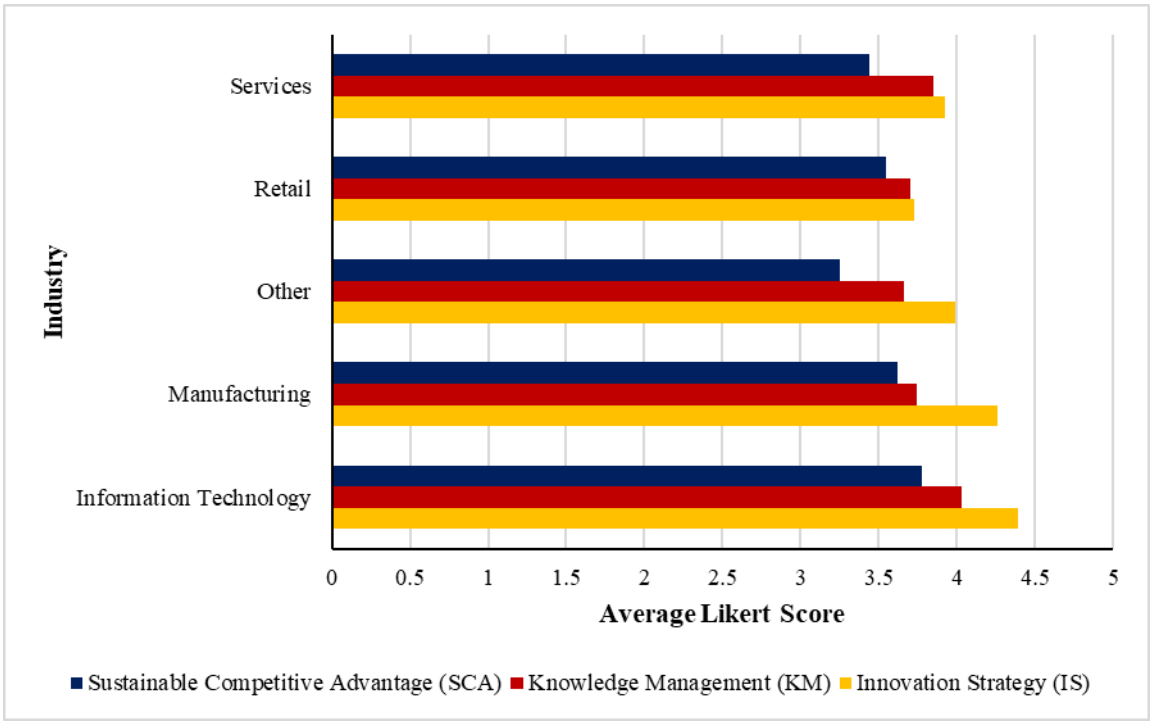

Figure 2: Industry-wise Comparison of Innovation Strategy (IS), Knowledge Management (KM), and Sustainable Competitive Advantage (SCA)

3.4 Conceptual Model Interpretation

The conceptual model presented in Figure 3 integrates the statistical data into a logical model explaining the mediating role of Knowledge Management (KM) in the links between the Innovation Strategy (IS) and Sustainable

Competitive Advantage (SCA). The model suggests that innovation will never ensure long-term benefit on its own unless it is enhanced by systematized mechanisms to obtain, distribute, and utilize knowledge. The KM-mediated pathway proves to be stronger and more stable despite the fact that the direct effect of the IS on the SCA indicates that innovation has a direct effect on competitiveness. The alignment of resource-based and dynamic capabilities approaches leads to the postulation in the framework that although innovation is what generates new knowledge assets, knowledge management (KM) ensures that these new performance-generating assets are strategically deployed in the long run. Collectively, these results confirm the essential role of KM in transforming the innovativeness capabilities into the long-term competitive advantage and provide empirical evidence in support of the proposed mediation model.

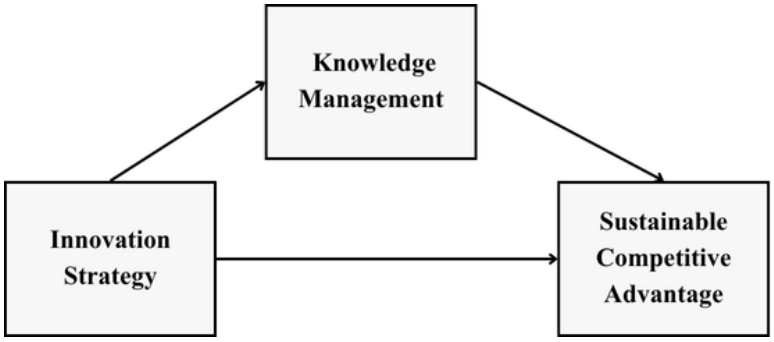

Figure 3: Conceptual Model Illustrating the Mediating Role of Knowledge Management (KM) between Innovation Strategy (IS) and Sustainable Competitive Advantage (SCA).

Altogether, the results prove the thesis that Indian SMEs tend to move slowly towards the strategy of knowledge-based competitiveness instead of the innovation-based approach. The strong and positive relation between the IS, KM, and SCA proves the idea that knowledge processes transform the innovative intent into sustainable performance. Inequality between industries also demonstrates that industries such as manufacturing and IT, with more advanced knowledge management structures, are the ones that have a competitive advantage. Overall, the results justify the fact that an effective knowledge management system is necessary to assist in changing innovation into a sustainable competitive advantage.

4. Discussion

The results of the study show that knowledge management (KM), innovation strategy (IS), and sustainable competitive advantage are highly correlated in Asian SMEs (SCA). Although the positive relationships between these constructs become even stronger in the case they are combined with the organized knowledge processes, the existence of the positive relationship shows that the innovation efforts directly increase the competitiveness. It implies that knowledge must be gathered, transferred, and used systematically in the company in order to be innovative so as to maintain a competitive advantage in the long run. The results also show that KM is a mediator of the relationship between IS and SCA, which also proves that the companies that institutionalize the learning processes and knowledge codification become more likely to transform innovative ideas into sustainable strategic outcomes. Differences at the industry level revealed that manufacturing and technology-oriented SMEs are more innovative and more mature in knowledge management, which translates into being more strategic. These results are in line with the theoretical justification of the resource-based view and dynamic capabilities viewpoint, which highlight the importance of knowledge reconfiguration and capability development for sustained performance in a challenging environment.

The observed relationships are in line with new studies that establish that dynamic capabilities enable SME competitiveness at the time that they are going through a period of disruption. Just like in the present study, finding that knowledge system improves innovation performance, Martins (2023) also reported that digitalization improves the capability-performance nexus of SMEs. Just like this, Qvarfordt and Aadan (2021) emphasized the role that SMEs can turn innovation strategies into operational change by means of digital dynamic capabilities; all of this has already been observed in the Asian contexts. The assertion stated by Khammadee (2022) that knowledge integration through market orientation and strategic flexibility results in business model innovation is supported by the mediating influence of KM in this case. Moreover, the interaction of IS and KM in the given research is comparable to the intellectual capital and technology adoption synergy, which brings about sustainable advantage as emphasized by Suryantini et al. (2023). The findings also concur with those of Olazo (2023), who explains that marketing innovation and competency participate in the determination of

competitive sustainability, and that strong knowledge management (KM) underpinnings are required for the success of any type of innovation, be it strategic or technological. Wang et al. (2025) addressed this assertion further and confirmed the mediating role of knowledge-oriented practices by demonstrating that service innovation and continuous learning can collaborate to enhance the ability of SMEs to survive in the competitive environment. The findings are up to date, as Held et al. (2025) have emphasized the importance of creating digital leadership and culture to stimulate the dynamic capabilities that help to sustain the performance that is driven by innovation. The fact that digital maturity and dynamic capabilities co-exist to generate innovation outcomes in high-tech SMEs was also affirmed by Jie et al. (2025). The findings of the research are also in line with the findings of Teoh et al. (2022), which revealed that integration of digital capability and business model innovation enhances the competitiveness of SMEs in the Malaysian market. All these comparative remarks put together support the idea that knowledge management (KM) is the strategic relationship between innovation and sustainability, which fits in with the rest of the literature on the subject in various geographical and industrial environments.

Hypothetically, the study will support the arguments of the dynamic capabilities model that knowledge management and innovation strategy are inseparable. It shows that knowledge management (KM) helps in organizational learning, reconfiguring resources, and flexibility, which alters inputs of innovation into performance outputs that are sustainable. This contribution is based on the resource-based view in that it can show how the impact of innovation on the long-term advantage is mediated by intangible capabilities, such as knowledge sharing and learning systematized. The study has implications in practice as far as policymakers and SME leaders are concerned. Managers have to institutionalize knowledge management activities that include digital collaboration platforms, learning networks, and knowledge repositories so as to make sure that the innovation activities are capitalized on the same. In order to strengthen the innovation ecosystem, policymakers are encouraged to facilitate cross-industry exchange of knowledge platforms, digital literacy, and capacity building using KM. Such initiatives will witness SMEs in Asia becoming resilient, agile, and competent over time despite technological discontinuity and market volatility.

There are certain limitations of this research, although the research is highly empirical. Since the correlations among IS, KM, and SCA are measured at a single time, the cross-sectional study design does not allow for establishing causality and can overlook the dynamics over time. Although the sample is representative of Indian SMEs, it may not be a representative sample of the diversity of Asian economies, which may have different institutional and technological environments. Furthermore, the self-reported statistics may be biased, especially when it comes to opinions on the usefulness of innovations and the application of knowledge. Additionally, the study overlooks other mediators or moderators that might assist in the mechanism of sustained competitiveness, such as the organizational culture, its leadership orientation, or digital capability, by focusing on IS, KM, and SCA.

In order to assess how the nature of the relationship between innovation and knowledge management varies over time and has an impact on sustained advantage, future research ought to adopt longitudinal designs. Extrapolation of findings to the region can further be confirmed through the comparative studies of the economies of Asia like that as Malaysia, Thailand, Indonesia, and Vietnam. The researchers can also include intellectual capital, absorptive capacity, and readiness for digital transformation to obtain more insights into the mediating role of KM. Mixed-method approaches may perhaps be able to offer a deeper understanding of the qualitative features of the knowledge creation and diffusion in the SMEs. Moreover, the incorporation of sustainability-focused innovative strategies, e.g., social and ecological ones, can also improve the general perception of the competitive advantage in the dynamic business environment. With an expansion of these models, a more comprehensive model of how SMEs can integrate creativity, expertise, and adaptability to continue achieving long-term success in dynamic markets will be developed.

5. Conclusion

The study used Asian SMEs as a sample example of India to examine the mediating function of knowledge management (KM) in the relationship between innovation strategy (IS) and sustainable competitive advantage (SCA). The findings indicated that, as much as innovation strategies have a direct positive impact on the competitiveness of a firm, their long-term implications depend on systematic knowledge management (KM) practices that enable the acquisition of knowledge, sharing, and utilization of such knowledge. Based on the analysis, KM mediates the IS-SCA relationship, which means that innovation results are sustained in case knowledge processes are effectively supported. This makes knowledge management (KM) a dynamic capability that transforms the potential of innovation into sustained performance and justifies the theoretical approach of integrating the views of resource-based and dynamic capabilities. The study adds to our knowledge regarding how SMEs may appropriately integrate innovation and knowledge management in their strategic goals to gain a sustainable advantage.

According to the findings, the sustainability of companies and their competitiveness is increased as the knowledge management (KM) processes are introduced in the context of innovation-related practices. Knowledge management systems should be institutionalized by managers to ensure that the long-term benefit is attained as a consequence of innovation-based outcomes. The proposed strategies to be applied by future researchers are cross-national and longitudinal research methods to examine the transformation of KM-based innovation capabilities over time within different Asian SME settings.

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