

Research in Strategic Information Systems (SIS): Review and Future Research Opportunities

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Abstract

Strategic Information Systems (SIS) are crafted to bolster and advance organizational strategic initiatives by providing essential and timely information to management. This paper explores the role of SIS in boosting competitive advantages across various industries through a systematic review of critical studies from 2014 to 2024. Twenty-one studies from the Scopus database were meticulously selected using the Prisma flow chart methodology to ensure comprehensive coverage and relevance. The findings demonstrate that SIS not only supports but often redefines competitive strategies by delivering essential data and insights that influence internal and external organizational dynamics. SIS is instrumental in improving operational efficiency, driving innovation, and enhancing strategic decision-making processes, thereby augmenting organizational competitiveness. Future research should investigate how these systems adapt to emerging technological challenges to maintain their strategic importance and sustain their competitive advantages. Expanding the search to include other databases, such as Web of Science, could provide broader perspectives and enable comparative analyses with this study.

Keywords: Strategic Information Systems, SIS, Strategic Information, Competitive Advantage

Introduction

Strategic Information Systems (SIS) are vital across all business sectors, playing a crucial role in enhancing decision-making and competitiveness by aligning IT with business strategies (Prabatha & Handoyo, 2022). These systems support and often redefine competitive strategies by providing critical data and insights, identifying opportunities and threats in the external environment, and evaluating internal strengths and weaknesses. Such capabilities make SIS fundamental in strategic planning and management, helping organizations maintain a competitive edge in a dynamic business environment.

Unlike traditional information systems, SIS are specifically designed to support or redefine competitive strategies. By analyzing the competitive environment and addressing organizational strengths and weaknesses, SIS enables firms to react to market conditions and proactively shape their competitive landscape. This strategic integration of technology with business goals allows organizations to maintain a competitive edge by enhancing operational efficiencies and fostering innovation (Stukalina, 2021). In the current digital age, the importance of SIS has been magnified. The rapid evolution of technology and the increasing reliance on data-driven strategies have transformed information systems from mere support structures into critical strategic resources. Information has become a competition weapon, where the right insights at the right time can determine market leadership (Kim, 2022).

Despite the recognized importance of strategic information systems, there remains a gap in the literature, especially regarding their role in sustaining competitive advantages. There is a need for a deeper understanding of how these systems contribute to achieving competitive advantage. This research aims to address this gap by exploring the extent to which SIS helps organizations develop and maintain competitive advantages, relying on recent studies and critical literature in the last decade (2014-2024) in the field of strategic information systems.

Literature Review

This paper discusses previous studies related to strategic information systems and competitive advantages. Twenty-one papers were reviewed and classified according to their common themes. The researcher chose specific topics to achieve the research objectives.

Strategic Information

Strategic information serves as a guiding light in the darkness for senior management, illuminating the path to make decisions that foster success in competitive environments. The outputs of strategic information systems manifest as strategic information across three timeframes: short-term, medium-term, and long-term. The critical distinction between strategic information and general information lies in the fact that strategic information not only provides immediate value but also offers benefits that extend into the future. Olsen and Davis defined strategic information as data that has been processed and transformed into a form that is meaningful to its recipient and has real perceived value in current and future decisions.

Organizations must have the appropriate tools and techniques to benefit from strategic information (Qaruty et al., 2022). Strategic information is not limited to possessing data only; instead, it is a matter of converting it into actionable intelligence in line with the organization's comprehensive goals (Qaruty et al., 2022). This necessitates thoroughly comprehending the organization, its management, and the technology that constitutes these systems (Samba et al., 2020).

Strategic Information Systems and Competitive Advantages

When discussing how strategic information systems contribute to the competitive edge of business organizations, it is clear that this impacts every organization; therefore, the organization aims to expand and maintain its success. Strategic information is one of the aspects through which organizations can build and develop competitive advantages (Zheng, 2024). Investing in appropriate information systems is widely acknowledged as a highly

effective approach for businesses to improve operational efficiency and secure a competitive edge (Zheng, 2024). Strategic information systems also play a significant competitive role by providing new services/products capable of gaining competitive advantages (Kim, 2022). Strategic information systems perform a set of roles, as shown below:

First: Improving Operational Efficiency

This involves executing tasks within the organization at minimal costs while ensuring optimal performance. This function enables the organization to pursue a cost leadership strategy. Additionally, it enhances the quality of its services/products, allowing it to implement a differentiation strategy (Kapukha, 2023).

Second: Encouraging Innovation at Work

Strategic information systems foster innovation by introducing new services and products, which help organizations penetrate new markets. The unique products and services provided by the organization enhance its bargaining power with customers. Investing in strategic information systems can lead to a dependency for customers and suppliers on these systems, imposing costs in terms of time, effort, and complexity should they choose to transition to a competitor's services (Rtal & Hanoune, 2021).

Third: Building Strategic Information Resources

This is accomplished through the organization's investment in sophisticated strategic information systems that facilitate the creation of a strategic database. This database encompasses details about the organization's operations and activities, along with information on competitors, suppliers, customers, and the external environment. The availability of this information is regarded as a valuable asset for the organization, aiding in the promotion of new services and products (Winter et al., 2023).

Research Methodology

This paper reviews the importance of strategic systems for organizations, with a particular focus on their impact on competitive advantage, mainly through a review of previous literature. The literature is reviewed to identify potential research gaps because a literature review is a tool that helps highlight the limits of knowledge of the research topic (Kraus et al., 2020). This research uses various literature to provide an in-depth and comprehensive. A qualitative approach was used in the current study's data collection process. Data were gathered from papers featured in well-known international journals, exclusively using the Scopus database. This database is the most extensive database that offers searchable abstracts and citations across various disciplines including technology, social sciences, arts, and humanities, which can be customized to meet researchers' needs (Pristianti, 2022). The duration of the research included the last decade (2014-2024) to explore the latest developments and trends that occurred in strategic information systems. The researcher collected previous literature based on the article's title, abstract, and keywords of studies related to the current research topic. 116 studies were obtained during the initial exploration process, based on keywords ("SIS" or "Strategic Information Systems" AND "Competitive advantages"). The study only included journal articles and conference papers subjected to peer review. This precaution aimed to ensure relevance and adherence to standards and transparency for readers, so this study obtained 32 papers after focusing on articles in the English language.

The researchers read the article title, abstract, keywords, and findings to ensure their suitability to the current study, so 6 studies were removed, and 26 studies were obtained. Then, after searching the studies for suitability, 5 studies were excluded due to ineligibility. As a result, the number of studies used in this research reached 21 studies. Figure 1 shows the Prisma flow chart used in this study to select articles for this paper (Moher, 2015).

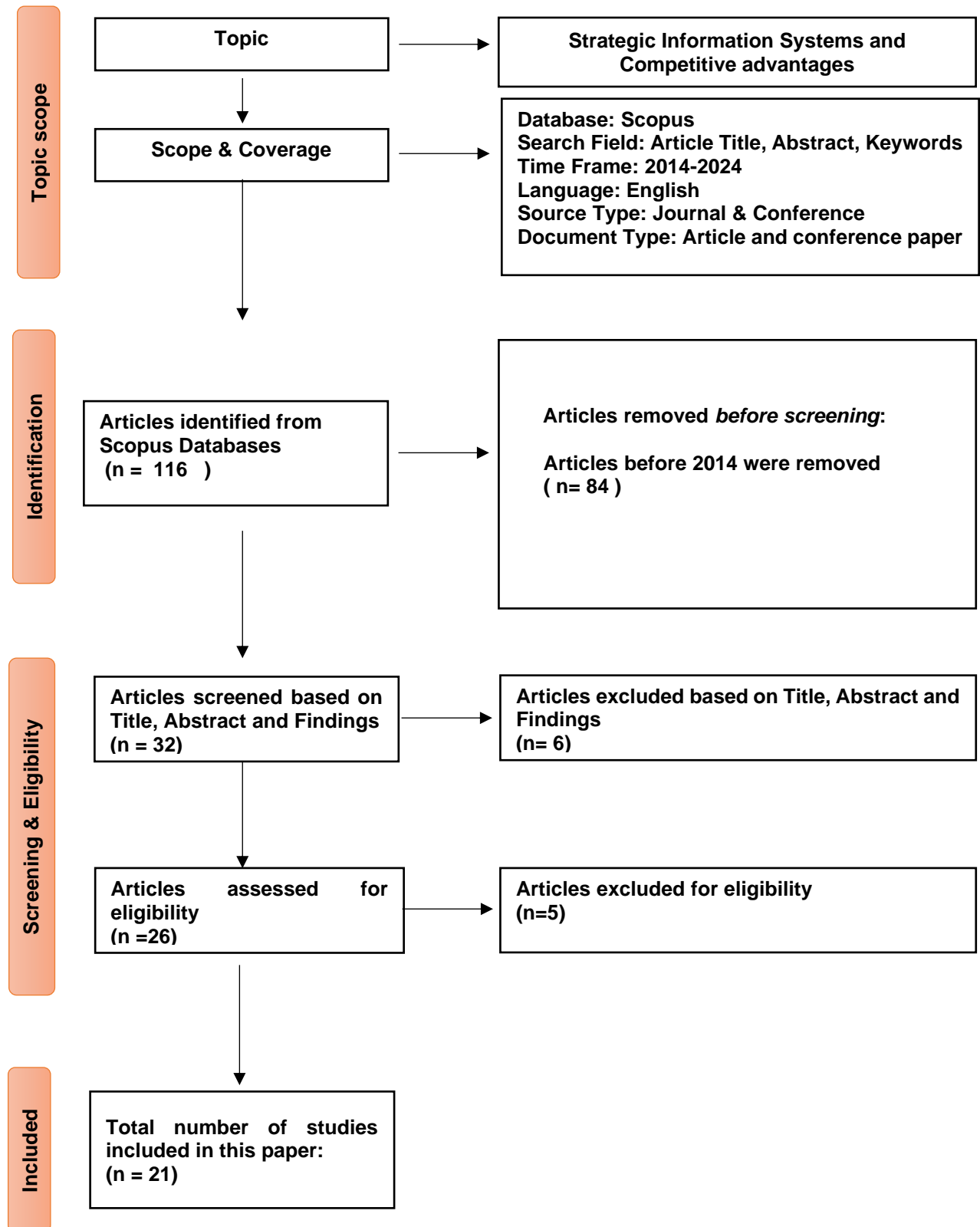


Figure 1. Prisma Flow Diagram- Overview of Methodology

The collection of 21 papers included in this study provides a comprehensive exploration of Strategic Information Systems (SIS) across various organizational contexts, highlighting their crucial role in enhancing strategic alignment, organizational performance, and securing competitive advantages. These studies collectively underscore the transformative impact of SIS on enterprises, demonstrating their capability to confer significant competitive edges.

Prominent studies such as those by Kadri S. Al-Shukri (2024) and Kamariotou and Kitsios (2021, 2019, 2017) elucidate how strategic planning of information systems not only boosts performance but also establishes formidable competitive positions in sectors like SMEs and logistics. Similarly, Al-Ammary et al. (2019) and Albadri Fayez A. (2018) validate the efficacy of SIS in enhancing strategic decision-making and improving competitive outcomes.

Technological innovations, mainly through the integration of machine learning in healthcare, are detailed by Mayadunne and Wang (2024), showcasing how SIS can leverage cutting-edge technology to streamline services, enhance operational efficiencies, and solidify competitive leverage. Further, Mahendra Irfan et al. (2022) stresses the importance of aligning SIS planning with business strategies to adeptly navigate the challenges posed by rapid technological and industrial changes.

Studies like those by Ferede Dereje Mulat et al. (2024) and Yang Jungho et al. (2015, 2014) rigorously examine the broad organizational and societal impacts of SIS. They discuss how SIS can fundamentally transform enterprise capabilities and foster a competitive, adaptable organization through strategic information planning.

Baptista Márcia et al. (2017) and Hung Shin-Yuan et al. (2016) explored decision-support systems based on knowledge management. These systems emphasize how they can not only increase the maturity of SIS in strategic decision-making but also significantly contribute to gaining and sustaining competitive advantages within the hotel industry.

The role of contextual and environmental factors in SIS success is also critically analyzed. Studies by Yang Jungho and colleagues (2014) and Zubovic Amel et al. (2014) demonstrate how internal and external factors, along with IS capabilities, crucially influence the outcomes of strategic information system planning, thereby affecting an organization's adaptability and competitive standing.

Furthermore, sector-specific studies by Farzaneh Mandana et al. (2015) on Internet banking and Said H.M. et al. (2015) on environmental scanning within the hotel industry highlight how strategic applications of SIS address unique industry challenges, enhancing performance and competitive positioning.

These 21 studies provide a nuanced understanding of the strategic importance of information systems across diverse organizational settings. They showcase the pivotal roles of SIS in achieving strategic alignment, enhancing performance, and achieving competitive advantages in dynamically changing markets. This work illustrates how SIS is integral to contemporary business strategies, enabling organizations to thrive in competitive environments. Table 1 provides a summary of the above studies.

Table 1
Literature Summary Table

No	Authors & Year	Title	Journal	Finding	Theme
1	Kadri S. Al-Shukri , 2024	Strategic Information Planning and Performance of SMEs: A Structural Equation Modelling Approach	Human Systems Management	implementing strategic information systems planning significantly contributes to superior performance in SMEs. This implementation enhances managerial agility and decision-making capabilities.	efficacy of strategic information systems
2	Mayadunne, Gayathri Kawshali; Wang, Yi, 2024	Machine Learning – A Strategic Information System Opportunity to Strengthen Healthcare	13th International Workshop of Advanced Manufacturing and Automation	the significant benefits of leveraging these technologies to streamline healthcare services, improve patient outcomes, and enhance operational efficiencies.	SIS and Machine Learning
3	Ferede, Dereje Mulat; Negash, Solomon; Meso, Peter, 2024	Strategic Information Systems (SIS) Implementation at a Bank in an Emerging Economy: Implications for Strategic Enterprise Capabilities and Societal Development	Information Technology for Development	while there is matured business and technical talent, there are significant concerns regarding the maturity of organizing and enterprise-level elements. The study suggests strategic modifications to enhance enterprise capabilities.	SIS and enhance enterprise capabilities
4	Mahendra, Irfan; Ramadhan, Arief;Trisetyarso, Agung; Abdurachman, Edi; Zarlis, Muhammad, 2022	Strategic Information System Planning in the Industry 4.0 Era: A Systematic Literature Review	2022 IEEE Creative Communication and Innovative Technology	While considerable research has focused on aligning information system strategies with business strategies, there is a pressing need for a dynamic Strategic Information System Planning (SISP) framework that can adapt to rapidly changing business landscapes.	Alignment of SIS Planning with business strategies
5	Kamariotou, Maria; Kitsios, Fotis; Madas, Michael, 2021	E-Business Strategy for Logistics Companies: Achieving Success through Information Systems Planning	Logistics	strategic utilization of IS planning significantly enhances competitive advantages. It further helps in aligning IT facilities with business strategy and structure, thus leading to improved logistics functions. Theme:	strategic planning of information systems within the logistics sector
6	Kitsios, F., & Kamariotou, M. (2019).	Strategizing information systems: An empirical analysis of IT alignment and success in SMEs.	Computers	The study finds that strategic planning in IS significantly enhances competitive advantages in SMEs.	SIS and competitive advantages
7	Kitsios, Fotis; Kamariotou, Maria, 2019	Information Systems Strategy and Strategy-as-Practice: Planning Evaluation in SMEs	25th Americas Conference on Information Systems (AMCIS 2019)	There is a deficiency in formulating IT strategies and priorities, which hinders their ability to anticipate risks and effectively manage crises.	strategic integration of information systems planning

No	Authors & Year	Title	Journal	Finding	Theme
8	Kamariotou, Maria; Kitsios, Fotis, 2019	Evaluating IT alignment and performance in SMEs using multivariate regression analysis	19th International Conference on Electronic Business (ICEB 2019)	formulation of strategy significantly impact business performance, emphasizing the critical role of strategic IT alignment	strategic alignment of IT and business strategy
9	Al-Ammary, Jafrah Hassan; Al-Doseri, Sara; Al-Blushi, Zahra; Al-Blushi, Noor; Aman, Manar, 2019	Strategic Information Systems Planning in Kingdom of Bahrain: Factors and Impact of Adoption	International Journal of Business Information Systems	There is a positive perception of SISP's role in supporting business strategies and enhancing organizational performance.	strategic alignment between IT and business strategies
10	Albadri, Fayed A., 2018	Strategic Information Systems (SIS) Evaluation Model: The Context of Arab Organization	32nd International Business Information Management Association Conference (IBIMA 2018)	Strategic Information Systems, when properly analyzed and implemented considering organizational structure and strategic needs, significantly impact business performance. And achieve competitive advantages	Strategic Information Systems in Enhancing Business Performance
11	Kamariotou, Maria; Kitsios, Fotis, 2017	Information Systems Phases and Firm Performance: A Conceptual Framework	4th International Conference on Strategic Innovative Marketing, IC-SIM 2015	Strategic information systems planning positively affects the performance of organizations	SIS and competitive advantages
12	Baptista, Márcia; Vasconcelos, José Braga; Rocha, Álvaro, 2017	Decision Support Systems Based on Knowledge Management: A Case Study for Strategic Information Systems Maturity of Madeira Island Hotel Organisations	5th World Conference on Information Systems and Technologies, WorldCIST'17	A conceptual model for decision support systems (DSS) based on knowledge management can increase IS maturity, enhancing the effectiveness of strategic decision-making.	DSS based on KM to enhance the SIS maturity in the hotel industry
13	Hung, Shin-Yuan; Huang, Wei-Min; Yen, David C.; Chang, She-I; Lu, Chien-Cheng, 2016	Effect of Information Service Competence and Contextual Factors on the Effectiveness of Strategic Information Systems Planning in Hospitals	Journal of Global Information Management	environmental unpredictability and the business competence of Information System (IS) executives are negatively related to SISP outcomes. Conversely, information intensity positively influences these SIS constructs	leveraging SIS to improve management efficiency and competitive positioning
14	Yang, Jungho; Singh, Mohini; Pita, Zijad; Storey, Ian, 2015	The Relationship Between Strategic Information Systems Planning Facilitators and the Success of South Korean Organisations	19th Pacific Asia Conference on Information Systems (PACIS 2015)	SISP facilitators such as business-IT alignment and planning effectiveness significantly impact SISP success. This success translates into dynamic capabilities and IT infrastructure flexibility, ultimately improving organizational outcomes.	successful implementation of SISP
15	Farzaneh, Mandana;	A Study of Employees' Views of	International Journal of	The research reveals that employees regard Internet	Internet banking as a SIS

No	Authors & Year	Title	Journal	Finding	Theme
	Najafloo, Fatemeh; Rasouli, Hatef , 2015	Strategic Information Systems in Iranian Banks: The Case of Internet Banking	Information and Communication Technology	banking as a strategic information system.	
16	Said H.M., Latif R.A., Ishak N.K., 2015	Strategic Information System and Environmental Scanning Practices in Malaysian Hotel Organizations	2nd International Hospitality and Tourism Conference 2014	The study conceptualizes that there is a significant relationship between environmental scanning, strategic response, and organizational performance.	Integration of SIS and environmental scanning
17	Yang, Jungho; Pita, Zijad; Singh, Mohini, 2014	Measurement of Determinants for Enhancing Strategic Information Systems Planning Success and Dynamic Capabilities in South Korea	25th Australasian Conference on Information Systems, ACIS 2014	The research confirms a positive relationship between these determinants, SISP success, and the improvement of dynamic capabilities, highlighting the efficacy of SISP in fostering an adaptable and competitive organization.	successful SIS
18	Viktor Arvidsson, Jonny Holmström, Kalle Lyytinen 2014	Information systems use as strategy practice: A multi-dimensional view of strategic information system implementation and use	Journal of Strategic Information Systems	The study found that despite technically successful IS implementations, strategic changes often fail to materialize due to cognitive rigidity and entrenched practices among key actors	strategic information system implementation
19	Yang, Jungho; Pita, Zijad, 2014	Research Instrument for the Measurement of Facilitators for Enhancing SISP Success and Dynamic Capabilities	18th Pacific Asia Conference on Information Systems, PACIS 2014	A pilot study conducted with top Korean organizations validated the research instrument, confirming its adequacy and reliability for SISP success and enhancing dynamic capabilities	SIS benefits
20	Zubovic, Amel; Pita, Zijad; Khan, Shahadat, 2014	A Framework for Investigating the Impact of Information Systems Capability on Strategic Information Systems Planning Outcomes	18th Pacific Asia Conference on Information Systems, PACIS 2014	IS collaboration and IS personnel competencies impact the SISP process and its outcomes.	IS capabilities and strategic planning outcomes
21	Fürstenau, Daniel; Schinzel, Johannes; Cleophas, Catherine, 2014	Strategic Information Systems Planning as a Dynamic Capability: Insights from an Agent-Based Simulation Study	28th European Conference on Modelling and Simulation, ECMS 2014	SISP, as operationalized within the framework of Eisenhardt and Martin, does not support the notion of SISP as a dynamic capability. It was found that firms in the simulation failed to realize competitive advantages due to a lack of anticipation of competitors' moves and environmental uncertainties.	SIS as a dynamic capability.

Discussion

The synthesis of findings from the 21 studies reveals the crucial role of Strategic Information Systems (SIS) in enhancing operational efficiencies, fostering innovation, and strengthening

strategic alignment, which collectively contributes to achieving a competitive advantage. The integration of technologies like machine learning, as demonstrated in healthcare systems by Mayadunne and Wang (2024), not only streamlines operations but also significantly enhances service delivery and operational efficiencies, showcasing the dynamic capability of SIS to leverage technological advancements effectively.

The strategic planning capabilities of SIS, highlighted by Kadri S. Al-Shukri (2024) and Kamariotou and Kitsios in multiple studies, enhance decision-making processes and operational performance, particularly within SMEs. This strategic orientation helps firms not only in cost management but also in adopting differentiation strategies through improved service quality and innovation, enabling them to penetrate new markets and maintain competitive positions.

Furthermore, the critical analysis of environmental and contextual factors in studies by Yang Jungho et al. and Zubovic Amel et al. illuminates how both internal and external organizational environments influence SIS adaptability. This adaptability is paramount in today's volatile market conditions, where strategic flexibility and responsiveness are vital to maintaining market relevance and competitive edge.

Sector-specific implications, such as those identified in the studies of Internet banking by Farzaneh Mandana et al. (2015) and environmental scanning in the hotel industry by Said H.M. et al. (2015), further underline the versatility and strategic necessity of SIS in addressing unique industry challenges. These findings suggest that SIS supports generic strategic functions and is crucial in tailoring strategies to meet specific sector demands and opportunities.

One limitation of the current study is its exclusive focus on the Scopus database. Future researchers might consider broadening the scope to include other databases, such as the Web of Science, which could provide a more comprehensive view and allow for comparisons across different scholarly repositories. Given the pivotal role that Strategic Information Systems (SIS) play in enhancing competitive advantages and operational efficiencies, it is crucial to delve deeper into how these systems adapt to rapidly changing technological environments. Future research should focus on the strategic relevance of SIS amid advancements in digital technologies. This includes examining how these systems evolve to meet new technological standards and challenges, ensuring they continue to provide strategic value to organizations.

Conclusion

This research has thoroughly examined the role of Strategic Information Systems (SIS) in enhancing organizational performance, fostering innovation, and achieving competitive advantages across various sectors. As demonstrated by recent studies, particularly those by Mayadunne and Wang (2024) and Kadri S. Al-Shukri (2024), SIS are instrumental in integrating advanced technologies like machine learning to not only streamline operations but also significantly enhance service delivery and efficiency. These systems prove essential in adapting to the rapidly evolving digital landscape, providing strategic value through improved decision-making and operational excellence.

The research has also highlighted SIS's strategic planning capabilities, which enable organizations, especially SMEs, to excel in cost management and market differentiation. This dual capability supports businesses in penetrating new markets and maintaining robust competitive positions. Furthermore, SIS's adaptability in response to internal and external environmental factors is critical in today's volatile market conditions, where strategic flexibility and responsiveness are essential for sustaining market relevance and competitive edge.

The sustainability of the competitive advantages offered by SIS warrants deeper investigation as future research should focus on how these systems evolve to meet new technological standards and challenges to ensure their continued importance for achieving competitive advantages. Also, future researchers should think about expanding their search to encompass additional databases like Web of Science, which would offer a more extensive perspective and enable comparisons across different scholarly repositories.

In conclusion, Strategic Information Systems are integral to modern business strategies, enabling organizations to thrive in competitive environments. By aligning information technology with business goals, these systems support current organizational needs and pave the way for future innovations and strategic advancements.

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