



ARTIFICIAL INTELLIGENCE-AIDED STRATEGIC INFORMATION SYSTEM TOOLS FOR COMPETITIVE POSITION IN THE MARKET: A SYSTEMATIC REVIEW

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ABSTRACT: *This systematic review examines the role of Artificial Intelligence (AI)-aided Strategic Information System (SIS) tools in enhancing organizational performance and competitive position in modern business environments. Organizations increasingly adopt AI-enabled technologies such as Business Intelligence (BI), Decision Support Systems (DSS), Customer Relationship Management (CRM) systems, predictive analytics, machine learning, and Generative AI to improve strategic decision-making, operational efficiency, innovation capability, and market responsiveness. However, existing studies are largely fragmented across industries, organizational contexts, and individual AI applications, with limited systematic evidence synthesizing how AI-aided Strategic Information System tools collectively influence organizational performance and sustainable competitive advantage. This knowledge gap limits a comprehensive understanding of their strategic value in modern business environments. Following PRISMA guidelines, a systematic search was conducted across Scopus, ScienceDirect, and Google Scholar for studies published between 2017 and 2026. After rigorous screening and eligibility assessment, 22 studies were included in the final synthesis. The extracted data were analyzed thematically to identify patterns, opportunities, and challenges associated with AI-enabled Strategic Information Systems. The findings indicate that AI-aided SIS tools significantly enhance organizational competitiveness by enabling data-driven decision-making, improving customer intelligence, optimizing supply chain performance, and strengthening strategic agility. AI-powered CRM and predictive analytics systems were found to improve marketing effectiveness and customer engagement, while BI and DSS tools enhance managerial decision speed and accuracy. Additionally, Generative AI and large language models are emerging as transformative tools for market intelligence and strategic insight generation. Despite these benefits, challenges such as data privacy concerns, algorithmic bias, ethical risks, workforce skill gaps, organizational resistance, and high implementation costs persist. The review concludes that successful AI adoption depends on organizational readiness, leadership commitment, technological infrastructure, and governance frameworks. Overall, AI-enabled Strategic Information Systems are reshaping competitive dynamics by enabling adaptive, intelligent, and sustainable organizational decision-making.*

KEYWORDS: Artificial Intelligence, Business Intelligence, Competitive Advantage, Decision Support Systems, Digital Transformation, Strategic Information Systems.



INTRODUCTION

The rapid advancement of Artificial Intelligence (AI) technologies has transformed the strategic and operational landscape of modern organizations. In today's highly competitive and digitally driven economy, organizations increasingly rely on AI-enabled Strategic Information System (SIS) tools to improve decision-making, organizational efficiency, innovation capability, and competitive positioning. Unlike traditional information systems that mainly focus on data collection and storage, AI-aided strategic systems possess predictive, adaptive, and intelligent analytical capabilities that allow organizations to process large volumes of business data in real time and generate actionable strategic insights (Kammoun, 2025; Ohiomah, 2026; Al Dhaheri et al., 2024). These systems have become increasingly important in helping organizations respond to environmental uncertainties, changing customer demands, and rapidly evolving market conditions.

The dynamic relationship between Artificial Intelligence and Strategic Information Systems has become increasingly significant in modern business management and digital transformation initiatives. Strategic Information Systems traditionally support organizational coordination, managerial decision-making, and operational integration; however, the integration of AI technologies has expanded their capabilities toward intelligent automation, predictive analytics, and strategic adaptability (Kammoun, 2025). Recent studies indicate that AI-powered systems significantly improve organizational performance and competitive advantage. Alnofeli et al. (2025) revealed that AI-powered Customer Relationship Management systems enhance marketing ambidexterity, profitability, and competitive performance through intelligent customer analytics and strategic responsiveness. Similarly, Elrayah and Mirzaliev (2024) found that the integration of Artificial Intelligence and Decision Support Systems significantly improves supply chain performance, particularly when strengthened by top management support. These findings demonstrate that AI-enabled systems are increasingly becoming strategic organizational capabilities rather than merely technological tools.

The increasing adoption of disruptive technologies has also accelerated organizational dependence on AI-driven systems for sustainable digital transformation. Ohiomah (2026) explained that disruptive technology adoption has become a strategic necessity for organizations pursuing sustainable digital transformation and competitive advantage. The study identified leadership commitment, organizational readiness, and strategic alignment as major determinants influencing successful technology adoption. Likewise, Lada et al. (2023) found that top management commitment and organizational readiness significantly influence Artificial Intelligence adoption among small and medium-sized enterprises. These studies suggest that successful implementation of AI-enabled strategic systems depends not only on technological availability but also on organizational preparedness, strategic leadership, and institutional support.

In increasingly turbulent business environments, organizations are utilizing AI-enabled systems to improve strategic adaptability, innovation capability, and market responsiveness. Al Dhaheri et al. (2024) revealed that environmental turbulence compels organizations to adopt Artificial Intelligence applications and dynamic capabilities to strengthen innovation and improve firm performance. Similarly, Lam et al. (2024) introduced an intelligent multi-criteria analytics framework capable of improving digital business management and strategic



competitiveness through AI-driven market intelligence systems. Estevez et al. (2025) further highlighted the growing role of Generative Artificial Intelligence and Large Language Models in market research and customer intelligence generation [7]. Their findings suggest that AI-powered market intelligence systems provide organizations with scalable, faster, and cost-effective strategic insights capable of improving brand positioning and competitive advantage within digitally evolving business environments.

Additionally, Strategic Information Systems play a critical role in supporting organizational competitiveness, operational intelligence, and sustainable business performance. Business intelligence systems, predictive analytics, and AI-driven decision support systems increasingly assist organizations in integrating business operations, improving strategic coordination, and enhancing managerial decision-making (Elrayah & Mirzaliev, 2024; Gauzelin & Bentz, 2017). Rahman (2025) explained that AI functions as an integrated infrastructural layer capable of connecting predictive analytics, governance mechanisms, production systems, and supply chain operations to improve market efficiency and organizational resilience. However, despite these strategic benefits, organizations continue to encounter implementation challenges associated with ethics, trust, transparency, accountability, and workforce readiness. Alawamleh et al. (2024) emphasized that AI systems still require human insight and contextual understanding to overcome limitations relating to reliability and ethical concerns. Likewise, Alzoori and Ali (2025) argued that successful AI implementation requires continuous digital skill development and workforce capability enhancement to maximize the long-term strategic benefits of AI integration.

Recent global studies further suggest that Artificial Intelligence is increasingly becoming a central driver of organizational competitiveness and strategic innovation. Calvi et al. (2025) argued that Strategic Information Systems significantly strengthen competitive advantage through improved innovation capability, cost efficiency, and strategic decision-making processes. Similarly, Şahin (2023) highlighted that Artificial Intelligence is reshaping competitive dynamics across industries by transforming operational models, customer interactions, and strategic business processes. Although substantial literature exists on Artificial Intelligence, digital transformation, and strategic management, existing studies remain fragmented across industries, technologies, and organizational contexts. Therefore, this systematic review seeks to synthesize current literature concerning Artificial Intelligence-aided Strategic Information System tools and their role in enhancing competitive position in the market. The review aims to identify major AI-enabled strategic technologies, examine their contributions to organizational performance and competitive advantage, evaluate implementation opportunities and challenges, and provide a comprehensive understanding of the evolving role of AI-driven strategic systems within modern business environments.

Rationale

The rapidly evolving nature of Artificial Intelligence (AI) technologies and Strategic Information System (SIS) tools within modern business environments necessitates a comprehensive assessment to identify emerging trends, consolidate existing knowledge, and evaluate their influence on organizational competitiveness. Although previous studies have examined individual AI applications such as decision support systems, customer relationship management systems, predictive analytics, business intelligence, and machine learning technologies, many of these studies remain fragmented across industries, organizational



contexts, and technological domains (Kammoun, 2025; Ohiomah, 2026; Al Dhaheri et al., 2024; Elrayah & Mirzaliev, 2024). Furthermore, earlier reviews may not sufficiently capture recent advancements in Generative Artificial Intelligence, intelligent automation, and AI-driven strategic systems that increasingly shape competitive positioning in modern digital markets (Lada et al., 2023; Lam et al., 2024; Estevez et al., 2025). Therefore, a systematic synthesis of current literature is necessary to provide a clearer understanding of how AI-aided Strategic Information System tools contribute to organizational performance, innovation capability, market responsiveness, and sustainable competitive advantage.

Through a comprehensive examination of significant studies, frameworks, and technological approaches, this review seeks to highlight the growing importance of AI-driven strategic systems in enhancing organizational adaptability, operational intelligence, and competitive resilience. Existing literature demonstrates that AI technologies increasingly function as strategic organizational capabilities capable of transforming market intelligence, predictive analysis, strategic responsiveness, and operational coordination (Ohiomah, 2026; Al Dhaheri et al., 2024; Lam et al., 2024; Gauzelin & Bentz, 2017). Simultaneously, organizations continue to encounter implementation challenges associated with ethics, transparency, accountability, workforce readiness, and organizational preparedness (Papastefanou, 2021; Van Lier, 2020). Consequently, this systematic review aims to synthesize both the opportunities and challenges associated with AI-enabled strategic systems while identifying emerging research gaps and future directions capable of guiding organizations, policymakers, and researchers in leveraging AI technologies for sustainable competitive advantage within modern digital economies.

Objectives

- i. To evaluate the current application of Artificial Intelligence-aided Strategic Information System tools in enhancing organizational performance and competitive position in the market.
- ii. To assess the various AI technologies, strategic methodologies, and intelligent systems utilized by organizations to improve decision-making, operational efficiency, innovation capability, and market responsiveness.
- iii. To identify emerging trends, implementation challenges, strategic opportunities, and the overall effectiveness of AI-enabled Strategic Information System tools in achieving sustainable competitive advantage within modern business environments.

MATERIAL AND METHODS

Eligibility Criteria

Through meticulous adherence to the systematic review methodology outlined by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, this study conducts a comprehensive examination of the current landscape of Artificial Intelligence (AI)-aided Strategic Information System (SIS) tools and their contribution to competitive position in the market. The eligibility criteria were carefully developed to ensure the inclusive selection of studies relating to Artificial Intelligence applications, strategic information systems, digital transformation, business intelligence systems, customer relationship management systems,



predictive analytics, decision support systems, and organizational competitiveness within modern business environments (Kammoun, 2025; Ohiomah, 2026; Al Dhaheri et al., 2024; Elrayah & Mirzaliev, 2024; Lada et al., 2023; Lam et al., 2024).

The inclusion criteria encompassed studies focusing on the application of Artificial Intelligence technologies in strategic management, operational intelligence, market analytics, customer intelligence, organizational performance, innovation capability, and competitive advantage. Studies examining machine learning systems, Generative Artificial Intelligence, AI-powered Customer Relationship Management systems, intelligent decision support systems, predictive analytics, business intelligence platforms, dynamic capabilities, and digital transformation initiatives across industries were included in the review (Al Dhaheri et al., 2024; Elrayah & Mirzaliev, 2024; Estevez et al., 2025; Gauzelin & Bentz, 2017; Alawamleh et al., 2024). Both empirical and conceptual studies published between 2017 and 2026 were considered to ensure comprehensive coverage of contemporary developments within the field. Conversely, studies unrelated to Artificial Intelligence applications in organizational strategy, Strategic Information Systems, or competitive advantage were excluded. Technical engineering studies lacking direct business or strategic management implications, duplicate studies, non-peer-reviewed publications without substantial academic contribution, and studies with insufficient methodological or conceptual information were also excluded from the review process (Papastefanou, 2021; Van Lier, 2020).

To compile comprehensive information, a multi-sourced search strategy was employed. Primary databases including Scopus, Google Scholar, ScienceDirect, SpringerLink, Emerald Insight, IEEE Xplore, and ResearchGate were selected because of their extensive coverage of scholarly journals, conference proceedings, and strategic management literature. Additional searches were conducted using reports and publications from institutional repositories and organizations such as OECD to identify recent studies relating to Artificial Intelligence, digital transformation, strategic management, and competitive dynamics (Calvi et al., 2025; Şahin, 2023). Furthermore, the reference lists of selected studies were carefully examined to identify additional relevant publications capable of enriching the scope of the review. This comprehensive strategy facilitated a detailed exploration of Artificial Intelligence-aided Strategic Information System tools, organizational competitiveness, strategic decision-making, market intelligence, and sustainable competitive advantage within modern digital economies.

The review further considered studies examining organizational readiness, leadership commitment, workforce capability development, ethical considerations, and governance structures associated with Artificial Intelligence adoption and implementation. Existing studies demonstrate that successful implementation of AI-enabled strategic systems depends not only on technological sophistication but also on organizational adaptability, digital skill development, strategic alignment, and responsible governance mechanisms (Rekhadi & Devi, 2023; Bohnsack & de Wet, 2025; Rahman, 2025; Alnofeli et al., 2025; Hatidja et al., 2025; Mikalef et al., 2023). Consequently, this systematic review incorporated both technological and managerial perspectives to provide a balanced and comprehensive understanding of how Artificial Intelligence-driven Strategic Information System tools contribute to organizational performance, innovation capability, operational efficiency, and sustainable competitive advantage within contemporary business environments.



Search Strategy

The search plan included three main databases: Scopus, ScienceDirect, and Google Scholar. Every database utilized a customized search term to guarantee the extraction of pertinent research.

Scopus

The search string utilized in Scopus was:

((("artificial intelligence" OR AI OR "machine learning*" OR "intelligent system*") AND("strategic information system*" OR "decision support system*" OR "business intelligence system*" OR "management information system*" OR "competitive intelligence system*" OR "strategic analytic*") AND (tool* OR framework* OR technique* OR method* OR model* OR technolog* OR application* OR system* OR platform* OR solution*) AND ("competitive position*" OR "competitive advantage*" OR "market position*" OR "competitive positioning" OR "market competitiveness" OR "strategic positioning" OR "market advantage" OR "business competitiveness" OR "industry competitiveness")) The timeframe for publication was confined to the period between 2017 and 2026. Additionally, only articles published in English and categorized as journal articles (SRCTYPE,"j") were included to maintain consistency in language and focus on peer-reviewed literature.

ScienceDirect

In ScienceDirect, the search query was:

Artificial Intelligence-Aided Strategic Information System Tools for Competitive Position in the Market. This search query focused on identifying studies related to Artificial Intelligence applications, Strategic Information Systems, digital transformation, business intelligence systems, decision support systems, predictive analytics, customer relationship management systems, organizational performance, and competitive advantage. The search process specifically targeted articles examining the role of AI-enabled strategic systems in enhancing managerial decision-making, operational efficiency, market intelligence, innovation capability, and sustainable competitive positioning within modern business environments.

Google Scholar

For Google Scholar, the search query used was:

Artificial Intelligence-Aided Strategic Information System Tools for Competitive Position in the Market.

Each search string was carefully designed to capture relevant studies while aligning with the unique features and search capabilities of the respective databases. The search process focused on studies relating to Artificial Intelligence applications, Strategic Information Systems, business intelligence systems, decision support systems, predictive analytics, customer relationship management systems, digital transformation, organizational competitiveness, and market positioning.



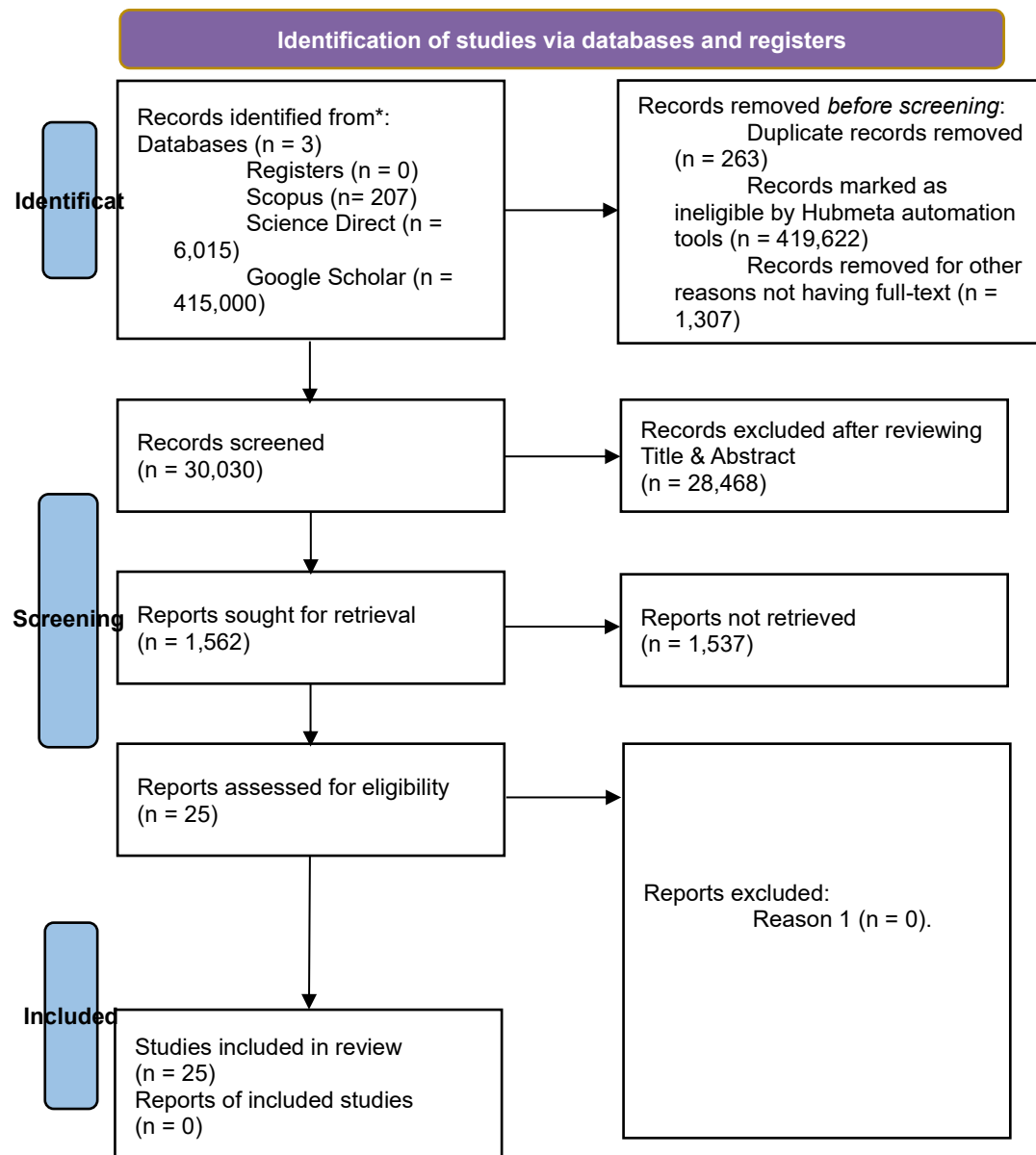
In total, the search process yielded 58 records from Scopus, 1,279 records from ScienceDirect, and 88 records from Google Scholar, resulting in 1,425 records collectively identified across all databases. Following title screening, abstract review, duplicate removal, and eligibility assessment based on the predefined inclusion and exclusion criteria, 22 studies met the inclusion criteria and were included in the final systematic review. This rigorous search strategy ensured a comprehensive and balanced selection of relevant literature for analysis, encompassing studies that examined Artificial Intelligence-aided Strategic Information System tools and their contributions to organizational performance, strategic decision-making, market competitiveness, and sustainable competitive advantage.

Selection Process

The systematic review employed a comprehensive and structured search strategy across three primary databases: Scopus, ScienceDirect, and Google Scholar. Each database utilized tailored search strings designed to capture relevant studies focusing on Artificial Intelligence-aided Strategic Information System tools and their role in enhancing competitive position in the market. The search strategy specifically targeted studies relating to Artificial Intelligence applications, Strategic Information Systems, business intelligence systems, decision support systems, customer relationship management systems, predictive analytics, digital transformation, organizational performance, and competitive advantage within modern business environments.

In Scopus, the search string targeted studies published between January 2017 and May 2026, written in English, and categorized as review articles or research articles. The initial search generated 207 records. After applying publication year, document type, language, and access-type filters, 58 relevant studies were retained for further evaluation. In ScienceDirect, the search query focused on identifying studies relating to Artificial Intelligence-aided Strategic Information System tools, strategic analytics, digital transformation, and organizational competitiveness. The initial search yielded 6,015 results, which were subsequently refined using eligibility criteria and database filters, resulting in 1,279 relevant records. Similarly, Google Scholar searches targeted the intersection of Artificial Intelligence, Strategic Information Systems, and competitive advantage within organizational settings. The initial search generated approximately 415,000 records. Following publication year restrictions, relevance screening, sorting by date, and preliminary assessment, 88 articles were retained for further evaluation.

Following the database searches, all retrieved studies were exported and carefully screened for duplication and relevance. A total of 266 duplicate studies were identified and removed during the screening process. Subsequently, titles, abstracts, and full-text articles were assessed based on the predefined inclusion and exclusion criteria. After the final eligibility assessment, 22 studies met the inclusion criteria and were selected for the systematic review. These selected studies provided comprehensive insights into the application of Artificial Intelligence-enabled Strategic Information System tools in improving organizational performance, strategic decision-making, operational intelligence, innovation capability, market competitiveness, and sustainable competitive advantage. The rigorous selection process ensured a balanced and comprehensive evaluation of relevant literature concerning Artificial Intelligence-driven strategic systems within modern digital business environments.

Figure 1. The diagram showing the screened studies

Data Collection Process

In the data collection process, all the selected studies were carefully reviewed and relevant information was extracted using a structured format prepared for the study. Important information such as Artificial Intelligence applications, Strategic Information System tools, business intelligence systems, decision support systems, organizational performance, digital transformation, and competitive advantage was extracted from each article. The studies were cross-checked properly to ensure consistency and accuracy, while any differences observed during the extraction process were resolved through proper review and discussion. The manual



and systematic approach used for the data collection helped to capture detailed and relevant information from the selected studies, while quality control measures and repeated verification ensured the reliability, transparency, and credibility of the review findings.

Data Items

Data extraction focused on several important areas related to Artificial Intelligence-aided Strategic Information System tools and their contribution to competitive position in the market. Information extracted from the selected studies included Artificial Intelligence technologies, business intelligence systems, decision support systems, customer relationship management systems, predictive analytics, digital transformation strategies, and organizational performance outcomes. Other important data items considered during the extraction process included study objectives, research design, industry context, implementation approaches, organizational readiness factors, innovation capability, market competitiveness, publication characteristics, funding sources, ethical considerations, and conflicts of interest where available. In situations where some information was not clearly provided in the studies, reasonable assumptions were carefully documented to ensure transparency, consistency, and reliability throughout the data extraction process.

Study Risk of Bias Assessment

The risk of bias assessment for the selected studies was carefully conducted to ensure the credibility and reliability of the findings included in the systematic review. The assessment focused on important areas such as study design, data collection methods, clarity of methodology, consistency of findings, reporting transparency, and possible sources of bias within the selected articles. Multiple reviews and cross-checking were carried out during the assessment process to ensure accuracy and reduce personal bias. The manual assessment approach was preferred in order to allow detailed evaluation and proper understanding of the methodological quality of each study rather than depending completely on automated tools. Regular discussions and verification processes also helped to resolve any differences observed during the assessment and ensured transparency and consistency throughout the review process.

Effect Measures

Different effect measures were considered in this systematic review based on the nature and objectives of the selected studies. Since the review focused on Artificial Intelligence-aided Strategic Information System tools and competitive position in the market, measures relating to organizational performance, operational efficiency, innovation capability, strategic decision-making, digital transformation, market competitiveness, customer engagement, and competitive advantage were examined across the studies. Descriptive analysis and comparative evaluations were also used to summarize key information, including study design, Artificial Intelligence technologies applied, business intelligence systems, organizational contexts, implementation strategies, publication characteristics, and key findings. In addition, factors such as organizational readiness, leadership support, ethical considerations, and data availability were carefully considered to provide a balanced and comprehensive understanding of the effectiveness of Artificial Intelligence-enabled Strategic Information System tools within modern business environments.



Synthesis Methods

A systematic procedure was employed to synthesize the selected studies, beginning with study screening, full-text assessment, data extraction, comparison of findings, and organization of results into structured formats for analysis. Relevant information from the selected studies was carefully synthesized to identify patterns, trends, opportunities, challenges, and the overall contribution of Artificial Intelligence-aided Strategic Information System tools to organizational performance and competitive advantage. Consistency checks, reviewer discussions, and verification processes were conducted throughout the synthesis stage to ensure the transparency and reliability of the findings. Descriptive analysis, comparative summaries, tables, charts, and flow diagrams were also used to present the results clearly and support meaningful interpretation of the reviewed studies.

RESULT

The search strategy identified a total of 1,425 records from Scopus, ScienceDirect, and Google Scholar after applying the predefined search terms and database filters. Following title and abstract screening, eligible studies were selected for full-text assessment based on their relevance to Artificial Intelligence-aided Strategic Information System tools and competitive position in the market. After the final eligibility assessment, 22 studies satisfied the inclusion criteria and were included in the systematic review. The selected studies examined different Artificial Intelligence applications, business intelligence systems, decision support systems, predictive analytics, customer relationship management systems, digital transformation strategies, and organizational competitiveness across various business environments. Key information relating to study design, Artificial Intelligence technologies, implementation approaches, organizational performance outcomes, and strategic contributions was extracted and analyzed to support the objectives of the review.

Risk of bias in studies

The risk of bias in the selected studies was assessed using adapted quality assessment criteria suitable for systematic reviews in management and information systems research. The assessment considered important domains such as study design, clarity of methodology, data collection procedures, reporting transparency, consistency of findings, and reliability of results. In addition, principles from the Cochrane Risk of Bias approach were considered where applicable to ensure a structured and transparent evaluation process. Multiple reviews and cross-checking were carried out during the assessment to minimize bias and improve the credibility of the findings.

The results from the included studies, together with relevant statistical outcomes and key findings, were organized and presented using structured tables and summary descriptions to support clear understanding and comparison across the selected studies.

**Table 3.2: Findings of Included Studies**

S/N	Author(s) (Year)	Title	Summary
1	Amal Kammoun (2025)	Strategic Management in The Era of Artificial Intelligence: Implications, Opportunities, and Challenges	The study examined the implications, opportunities, and challenges associated with Artificial Intelligence adoption in strategic management. The findings revealed that AI improves predictive analytics, strategic planning, decision-making, operational efficiency, customer experience, and competitive advantage, while also presenting challenges relating to ethics, data quality, privacy, and organizational transformation.
2	Ifije Ohiomah (2026)	Disruptive Technology Adoption for Sustainable Digital Transformation in South Africa's Manufacturing Sector	The study investigated the challenges and enabling factors influencing disruptive technology adoption for sustainable digital transformation within South Africa's FMCG sector. The findings revealed that high implementation costs, infrastructural limitations, poor collaboration, and organizational resistance hinder digital transformation, while leadership commitment, strategic alignment, digital readiness, and operational cost reduction significantly support successful adoption and competitive advantage.
3	Mariam Hamad Al Dhaheri, Syed Zamberi Ahmad, and Avraam Papastathopoulos (2024)	Does Environmental Turbulence, Dynamic Capabilities, and Artificial Intelligence Force SMEs to be Innovative?	The study examined how environmental turbulence, dynamic capabilities, and Artificial Intelligence influence innovation and performance among SMEs. The findings showed that environmental turbulence significantly drives SMEs to adopt dynamic capabilities and AI applications, which subsequently improve innovation, adaptability, organizational resilience, and competitive advantage during uncertain market conditions.
4	Elrayah Mirzaliev (2024)	Moderating the Role of Top Management Support among Decision Support	The study examined the impact of Decision Support Systems (DSS) and Artificial Intelligence (AI) on Supply Chain Performance (SCP) among dairy



		System, Artificial Intelligence, and Supply Chain Performance	product manufacturing firms, with Top Management Support (TMS) acting as a moderating variable. Using Structural Equation Modeling (SEM), the findings revealed that Key Performance Indicators (KPIs), Critical Success Factors (CSFs), and Artificial Intelligence significantly improved supply chain performance. The study further established that Top Management Support strengthened the relationship between DSS dimensions, AI, and SCP, thereby enhancing organizational efficiency, operational responsiveness, strategic decision-making, and competitive advantage within supply chain management.
5	Lada, Chekima, Ayub, Abdul Karim, Amirul, Ansar, Fabeil, Bouteraa, Fook, and Zaki (2023)	Determining Factors Related to Artificial Intelligence (AI) Adoption among Malaysia's Small and Medium-Sized Businesses	The study investigated the factors influencing Artificial Intelligence adoption among SMEs in Sabah, Malaysia. Using Smart PLS analysis on data collected from SME owners and managers across different sectors, the findings revealed that Top Management Commitment and Organizational Readiness significantly influence AI adoption, while Competitive Pressure, Employee Adaptability, and External Support showed insignificant effects. The study emphasized that strong leadership support, organizational preparedness, and strategic readiness are essential for successful AI implementation and improved organizational competitiveness within SMEs.
6	H.Y. Lam, V. Tang, C.H. Wu, and V. Cho (2024)	A Multi-Criteria Intelligence Aid Approach to Selecting Strategic Key Opinion Leaders in Digital Business Management	The study proposed an intelligent multi-criteria KOL analytics framework (iMcKAF) that integrates fuzzy Best-Worst Method (BWM) and fuzzy TOPSIS to support strategic decision-making in digital business management. The findings revealed that Artificial Intelligence-enabled multi-criteria decision approaches improve the systematic identification, evaluation,



			and selection of Key Opinion Leaders (KOLs) for business-to-business (B2B) digital marketing. The framework enhanced decision consistency, customer engagement, strategic marketing effectiveness, brand trust, and competitive positioning within digital business environments.
7	Macarena Estevez, María Teresa Ballestar, and Jorge Sainz (2025)	Market Research and Knowledge Using Generative AI: The Power of Large Language Models	The study examined the application of Generative Artificial Intelligence (GAI) and Large Language Models (LLMs) in market research and consumer behavior analysis. Using surveys on beer consumption in Spain, the researchers compared the outputs of ChatGPT, Gemini, Claude, and LLaMA with traditional market research methods. The findings revealed that LLMs can serve as reliable and cost-effective tools for market research, customer segmentation, brand perception analysis, and strategic marketing decision-making. However, the study also established that LLMs cannot completely replace traditional market research methods due to issues relating to variability, data bias, and limitations in accurately capturing complex consumer psychology and decision-making behaviors.
8	Sophian Gauzelin and Hugo Bentz (2017)	An Examination of the Impact of Business Intelligence Systems on Organizational Decision Making and Performance: The Case of France	The study examined the impact of Business Intelligence Systems (BIS) on organizational decision-making and performance among Small and Medium Enterprises (SMEs) in France. Using qualitative interviews with 200 participants from 10 SMEs, the findings revealed that BIS significantly improved timely decision-making, organizational efficiency, employee productivity, customer satisfaction, and overall business performance. The study further established that BIS enhanced strategic planning, competitive advantage, and operational effectiveness despite challenges relating to complexity, high



			costs, and lack of skilled personnel in SMEs.
9	Mohammad Alawamleh, Natalie Shammass, Kamal Alawamleh and Loiy Bani Ismail (2024)	Examining the Limitations of AI in Business and the Need for Human Insights Using Interpretive Structural Modelling	The study investigated the major limitations of Artificial Intelligence (AI) in business and emphasized the importance of integrating human insights with AI systems. Using Interpretive Structural Modelling (ISM) and MICMAC analysis, the researchers identified 15 critical AI limitation factors, including trust, transparency, accountability, privacy, creativity, emotional intelligence, intuition, contextual understanding, and ethics. The findings revealed that accountability and privacy were the strongest driving factors influencing AI limitations, while trust and adaptability were highly dependent variables. The study concluded that although AI improves efficiency, decision-making, and competitiveness, human intelligence remains essential for creativity, emotional understanding, ethical judgment, tacit knowledge, and contextual interpretation in business environments.
10	Papastefanou (2021)	Smart Grids and Machine Learning in Chinese and Western Intellectual Property Law	The study examined the role of machine learning and artificial intelligence (AI) in integrating renewable energy into smart grid systems and analyzed the corresponding intellectual property (IP) protection approaches in Chinese, European, and U.S. patent law. The paper explained how smart grids rely on AI-driven predictive algorithms, cyberattack detection, energy optimization, and intelligent energy distribution to improve sustainability and energy efficiency. It compared the patentability standards of AI-related inventions under the European Patent Office (EPO), the United States Patent and Trademark Office (USPTO), and the China National Intellectual Property Administration (CNIPA), emphasizing



			concepts such as technical effect, technical character, and practical application. The study found that China adopts a broader and more innovation-driven approach toward AI patentability compared to Western jurisdictions, reflecting its national strategy for technological leadership. The paper concluded that while patents can incentivize AI and smart grid innovation, excessive exclusionary rights may hinder market entry and innovation diffusion, suggesting that practical market accessibility and balanced IP protection are essential for sustainable technological development.
11	Michel van Lier (2021)	Optimizing Neural Networks for Low-Complexity Channel Estimation	This master's thesis investigated how neural networks can improve OFDM wireless channel estimation while reducing computational complexity and memory requirements for embedded communication systems such as 4G/LTE and 5G networks. The study proposed a framework for optimizing neural-network-based channel denoising through design-space exploration, quantization, pruning, and layer sharing techniques. Several architectures were evaluated, including fully connected neural networks (FC-NNs), convolutional neural networks (CNNs), complex-valued neural networks (CVNNs), and binary neural networks (BNNs). The research demonstrated that careful neural network configuration significantly reduces computational and storage demands while maintaining denoising performance. Experimental findings showed that model memory size could be reduced by up to 83.2% and computational complexity by up to 86.2% using quantization and pruning techniques. The study also concluded that multiple smaller neural networks trained for different signal-to-noise ratio (SNR) ranges outperform a single large



			network trained across all SNR conditions, achieving better denoising performance with lower resource requirements. Fully connected neural networks were identified as the most effective architecture in balancing performance and efficiency for channel estimation tasks in wireless communication systems.
12	Calvi, A., Posada, R., & Wise, M. (2025)	Artificial Intelligence and Competitive Dynamics in Downstream Markets	The study examines how artificial intelligence affects competition in downstream markets. It finds that AI can enhance productivity, innovation, and market entry by reducing operational costs and improving decision-making. However, it may also increase market concentration through data advantages, economies of scale, algorithmic coordination, and dependence on dominant AI providers. The report concludes that effective competition policy and regulatory oversight are necessary to ensure that AI promotes competitive and inclusive market outcomes.
13	Şahin (2023)	Ecology and Landscape Planning: Evolution in the World and Türkiye	The chapter examined the evolution of ecological and landscape planning globally and in Türkiye, emphasizing landscape ecology as the scientific foundation for sustainable spatial planning. The study argued that landscape planning should function as a preliminary action area within spatial planning processes because landscapes are dynamic systems shaped by structure, function, and change. Drawing on the works of Ian McHarg, Philip Lewis Jr., Angus Hills, and Buchwald, the chapter reviewed the historical development of ecological planning approaches and highlighted the importance of holistic, nature-based planning methods. It further discussed the challenges facing ecological planning implementation in Türkiye, including fragmented planning systems,



			insufficient legal integration of landscape planning, and limited recognition of ecological processes in urban and regional planning practices.
14	Rekhadi & Devi (2023)	The Impact of Artificial Intelligence in HRM: Assessing Recruitment, Performance Management, and Employee Experience	The study examined how Artificial Intelligence (AI) improves recruitment, performance management, and employee experience in organizations. The findings showed that AI enhances candidate selection, reduces recruitment bias, supports real-time employee performance monitoring, and improves workplace engagement. However, the study also identified concerns relating to ethics, privacy, and employee resistance to AI adoption in HRM.
15	René Bohnsack & Mickie de Wet (2025)	AI is the Strategy: From Agentic AI to Autonomous Business Models onto Strategy in the Age of AI	The study explored how Artificial Intelligence is transforming business strategy from a supporting technology into a core strategic driver. The findings showed that Agentic AI and autonomous business models improve strategic decision-making, operational automation, innovation capability, adaptability, and competitive advantage within digital business environments.
16	SM. Toufiquir Rahman (2025)	Strategic Application of Artificial Intelligence in Agribusiness Systems for Market Efficiency and Zoonotic Risk Mitigation	The study examined how Artificial Intelligence (AI) improves market efficiency, supply chain management, and zoonotic risk mitigation within agribusiness systems. The findings showed that AI enhances predictive analytics, logistics optimization, disease surveillance, smart farming, and decision-making processes, thereby improving productivity, food security, market stability, and biosecurity within global agribusiness networks.
17	Vaghi, Cristina Rodallec, Anne Fanciullino, Raphaëlle Ciccolini, Joseph Mochel, Jonathan P. Mastri, Michalis Poignard, Clair	Population modeling of tumor growth curves and the reduced Gompertz model improve prediction of the age of	The research article discusses a reduced Gompertz model for tumor growth, utilizing machine learning techniques, the Xenograft model, and focusing on lung cancer. The study shows improved predictive power in modeling tumor growth curves, specifically in the



	Ebos, John M.L. Benzekry, Sébastien. (2020)	experimental tumors	context of lung cancer xenografts, offering insights for personalized prediction and potential clinical applications.
18	Hatidja, S., Jamaluddin, & Mursidin, I. I. (2025)	Artificial Intelligence Technology as a Driver of Investment and Economic Innovation	This literature review examines the role of artificial intelligence (AI) in promoting investment and economic innovation. The study finds that AI enhances productivity, operational efficiency, decision-making, and innovation across sectors such as finance, healthcare, education, and manufacturing. It highlights AI's ability to attract investment by improving business performance and creating new market opportunities. The study also identifies challenges related to ethics, privacy, data access, labor market disruptions, and digital inequality. The authors conclude that supportive policies, data infrastructure, education, and multi-stakeholder collaboration are essential to maximize AI's economic benefits while ensuring sustainable and inclusive growth.
19	Mikalef, P., Islam, N., Parida, V., Singh, H., & Altwaijry, N. (2023)	Artificial Intelligence (AI) Competencies for Organizational Performance: A B2B Marketing Capabilities Perspective	The study investigates how AI competencies influence organizational performance through B2B marketing capabilities. Using survey data from 155 organizations in the Nordic region and PLS-SEM analysis, the authors found that AI competencies significantly enhance marketing information management, planning, and implementation capabilities. These capabilities, in turn, positively affect organizational performance, including competitiveness, profitability, innovation, and market growth. The findings suggest that organizations can achieve superior performance by developing AI competencies as a strategic capability and integrating AI into marketing processes.
20	Pitakaso, R., Khonjun,	Embracing Open	This study explores the application of



	S., Golinska-Dawson, P., Luesak, P., & Srichok, T. (2025)	Innovation in Hospitality Management: Leveraging AI-Driven Dynamic Scheduling Systems for Complex Resource Optimization and Enhanced Guest Satisfaction	AI-driven dynamic scheduling systems in hospitality management within an open innovation framework. The authors demonstrate that AI-based scheduling improves resource allocation, workforce management, and operational efficiency in complex hospitality environments. The findings indicate that intelligent scheduling systems enhance service quality, optimize staff utilization, reduce operational costs, and improve guest satisfaction. The study concludes that integrating AI with open innovation practices enables hospitality organizations to achieve greater flexibility, competitiveness, and customer-centered service delivery..
21	Basnet, S. (2024)	Artificial Intelligence and Machine Learning in Human Resource Management: Prospects and Future Trends	This study examines the growing role of Artificial Intelligence (AI) and Machine Learning (ML) in Human Resource Management (HRM). It highlights how AI and ML enhance recruitment, talent acquisition, employee performance management, workforce planning, training, and decision-making through data-driven insights. The study finds that these technologies improve efficiency, reduce administrative burdens, and support strategic HR functions. However, it also identifies challenges related to ethics, privacy, bias, transparency, and workforce adaptation. The author concludes that AI and ML will continue to transform HRM, requiring organizations to balance technological innovation with ethical and human-centered management practices.
22	Ustapha, B., Aduwo, A. E., Adebayo, A. I., Olasehinde, S. A., Aduwo, O. O., Adekanmi, A. D., Owoniya, B., Alabadan, D. A., & Ajewole, A. S.	Artificial Intelligence and Corporate Earnings Management	This study investigates the relationship between artificial intelligence (AI) and corporate earnings management. The authors argue that AI technologies can improve the accuracy, transparency, and efficiency of financial reporting by enhancing data analysis, anomaly



	(2026)		detection, and internal control processes. The study finds that AI has the potential to reduce opportunistic earnings manipulation and strengthen corporate governance. However, it also notes that AI systems may introduce new risks related to algorithmic bias, data quality, and ethical concerns. The authors conclude that organizations should implement robust governance frameworks and regulatory oversight to maximize the benefits of AI in financial reporting and earnings management.
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Results of syntheses

The systematic review synthesized evidence from 22 studies investigating the application of Artificial Intelligence (AI)-aided Strategic Information System (SIS) tools and their contribution to organizational performance and competitive advantage. Overall, the reviewed literature consistently demonstrates that AI has evolved from a supporting technology into a strategic organizational capability that enables organizations to improve decision-making, operational efficiency, innovation, and market competitiveness.

A dominant finding across the reviewed studies is the positive influence of AI on strategic decision-making. AI-enabled Decision Support Systems (DSS), Business Intelligence (BI) platforms, and machine learning models enhance organizations' ability to process large volumes of structured and unstructured data, generate predictive insights, and support evidence-based managerial decisions. These intelligent systems improve strategic planning, resource allocation, risk assessment, and organizational responsiveness, allowing firms to adapt more effectively to dynamic business environments (Kammoun, 2025; Elrayah & Mirzaliev, 2024; Lam et al., 2024; Calvi et al., 2025).

The review also indicates that AI-powered Strategic Information Systems contribute substantially to organizational performance and competitive advantage. Business Intelligence systems, predictive analytics, Customer Relationship Management (CRM) systems, and Generative AI technologies improve customer intelligence, operational efficiency, innovation capability, and organizational productivity. Organizations adopting these technologies reported enhanced customer engagement, optimized business processes, improved supply chain performance, and stronger competitive positioning. These findings suggest that AI-enabled Strategic Information Systems serve not only as operational tools but also as strategic assets that support sustainable organizational growth (Estevez et al., 2025; Alnofeli et al., 2025; Mikalef et al., 2023; Gauzelin & Bentz, 2017).

Another recurring theme across the reviewed studies is the role of AI in facilitating digital transformation and organizational adaptability. AI technologies enable organizations to anticipate market trends, forecast customer behavior, optimize resource utilization, and respond



proactively to environmental changes. Organizations with supportive leadership, adequate technological infrastructure, and strong organizational readiness consistently reported greater success in AI implementation and superior competitive performance. These findings emphasize that successful AI adoption depends on both technological capability and strategic organizational preparedness (Ohiomah, 2026; Al Dhaheri et al., 2024; Lada et al., 2023).

Despite the substantial benefits associated with AI-enabled Strategic Information Systems, the review identified several common implementation challenges. Across multiple studies, organizations reported concerns relating to data privacy, cybersecurity, algorithmic bias, ethical decision-making, workforce skill shortages, organizational resistance to change, implementation costs, and governance deficiencies. These challenges highlight that technological advancement alone is insufficient for successful AI adoption. Effective governance frameworks, employee training, responsible AI practices, and leadership commitment remain essential for maximizing organizational value while minimizing implementation risks (Alawamleh et al., 2024; Rekhadi & Devi, 2023; Basnet, 2024; Hatidja et al., 2025).

Overall, the synthesis demonstrates a strong consensus across the reviewed literature that AI-aided Strategic Information System tools significantly improve organizational performance, strategic decision-making, innovation capability, and competitive positioning. Although implementation barriers remain, the evidence suggests that organizations adopting AI within a well-defined strategic framework, supported by effective governance, skilled personnel, and leadership commitment, are more likely to achieve sustainable competitive advantage in increasingly digital and competitive business environments. These findings reinforce the strategic importance of integrating AI into organizational information systems as a critical enabler of long-term business success.

Reporting biases

Potential reporting biases were carefully considered throughout the review process, including publication bias, selective reporting, and language bias. To minimize these biases, studies were obtained from multiple academic databases and assessed using predefined inclusion and exclusion criteria. However, the review was limited to English-language publications and predominantly peer-reviewed journal articles, which excluded relevant studies published in other languages or non-indexed sources. Despite these limitations, the inclusion of studies from diverse industries, countries, and organizational contexts provided a broad and balanced perspective on the role of Artificial Intelligence-aided Strategic Information System tools in enhancing organizational performance and competitive position in the market.

DISCUSSION

Interpretation in the Context of Other Evidence

The findings of this systematic review confirm that Artificial Intelligence (AI)-aided Strategic Information System (SIS) tools play a significant role in strengthening organizational performance and competitive positioning in contemporary digital markets. Across the reviewed studies, AI-enabled technologies such as Business Intelligence (BI), Decision Support Systems



(DSS), Customer Relationship Management (CRM) systems, predictive analytics, machine learning, and Generative AI were consistently shown to enhance strategic decision-making, operational efficiency, innovation capability, and market responsiveness.

The results indicate that AI-powered systems improve organizational competitiveness by enabling data-driven decision-making, enhancing customer intelligence, and optimizing operational processes such as supply chain management and resource allocation. In particular, AI-driven CRM systems and predictive analytics tools were frequently associated with improved marketing performance, customer engagement, and profitability. Similarly, BI and DSS platforms were found to support faster, more accurate, and more consistent managerial decisions, thereby strengthening strategic agility in dynamic market environments.

The review also highlights the emerging role of Generative AI and large language models in transforming market intelligence and strategic analysis. These tools provide scalable and cost-effective alternatives for generating insights into customer behavior, brand perception, and market trends. However, their effectiveness is moderated by data quality, interpretability limitations, and methodological variability across applications.

Despite these advantages, several constraints limit effective AI adoption. These include data privacy concerns, algorithmic bias, ethical risks, workforce skill gaps, organizational resistance to change, and high implementation costs. These challenges indicate that technological capability alone is insufficient without appropriate organizational and governance structures.

Overall, the findings reinforce AI as a strategic organizational capability that reshapes competitive dynamics through intelligent, adaptive, and data-driven decision-making processes.

CONCLUSION

This systematic review demonstrates that Artificial Intelligence (AI)-aided Strategic Information System (SIS) tools are critical enablers of organizational competitiveness in modern business environments. The evidence indicates that AI-driven technologies enhance strategic decision-making, operational efficiency, innovation capability, and market responsiveness, thereby strengthening overall organizational performance and competitive positioning.

The review further establishes that technologies such as Business Intelligence systems, Decision Support Systems, Customer Relationship Management systems, predictive analytics, machine learning, and Generative AI are increasingly integrated into organizational strategies to support data-driven decision-making and digital transformation initiatives. These systems are no longer viewed as supportive tools but as core strategic capabilities that influence long-term competitiveness.

However, the successful adoption and impact of AI-enabled SIS tools depend on key organizational factors, including leadership commitment, technological infrastructure, workforce capability, and organizational readiness. In addition, governance mechanisms addressing ethical considerations, data privacy, algorithmic bias, and transparency are essential for sustainable implementation.



Overall, AI-aided Strategic Information Systems represent a transformative force in shaping competitive dynamics across industries. Organizations that effectively integrate these systems into their strategic processes are better positioned to achieve sustainable competitive advantage in increasingly dynamic and data-driven markets.

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