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Review

Effect of Generative Artificial Intelligence on Strategic Decision-Making in Entrepreneurial Business Initiatives: A Systematic Literature Review

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Abstract: Generative Artificial Intelligence (GAI) is emerging as a promising tool with which to improve strategic decision-making in a business environment characterized by increasing complexity. There are external and internal factors that are part of the success of entrepreneurial initiatives. Relevant factors that make decision-making effective include the technological environment, as an external factor, and innovation, as an internal factor. **Methods**: This study reviews the existing literature on implementing GAI in business decision-making. It assesses its short-, medium- and long-term effects, considering the interaction between GAI and human judgment. Challenges related to uncertainty, complexity, and ambiguity are examined, and the relevant literature is reviewed to understand these aspects comprehensively. **Results**: The review shows that, despite the advanced capabilities of GAI to analyze data and generate patterns, human judgment remains crucial in situations of high uncertainty. The results suggest that combining GAI with human expertise can improve the accuracy and efficiency of strategic decision-making by integrating the strengths of both parties. **Conclusions**: The implementation of GAI can offer significant improvements in the efficiency and accuracy of business decisions. However, human judgment and experience remain essential, especially in uncertain contexts. The key to maximizing the benefits of GAI lies in finding the right balance between artificial intelligence and human capital.

Keywords: strategic decisions; entrepreneurial business initiatives; Generative Artificial Intelligence; uncertainty; modern management systems

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1. Introduction

The success of entrepreneurial initiatives depends on a combination of external and internal factors that influence their development. Among these, the technological environment plays a crucial role as an external factor, providing tools and opportunities to adapt to market demands. For its part, innovation stands out as a key internal factor, driving creativity and efficiency within organizations. Together, these elements strengthen strategic decision-making processes, allowing startups to stay competitive and achieve

their goals effectively. In an increasingly complex and changing entrepreneurial business environment, adopting modern management systems is essential to driving organizational innovation and efficiency in the marketplace (Meissner & Wulf, 2017). The implementation of GAI has become a focus of research due to its ability to potentially transform business management processes, promising to revolutionize the way companies make strategic decisions (Edwards et al., 2000). Its ability to manage large amounts of data and generate complex patterns paves the way to improving the quality, accuracy, and efficiency of all processes within an organization (Bhowmik & Wang, 2020).

Assessing the effect of GAI within entrepreneurial initiatives and corporate strategic decision-making at the business level is critical to providing a comprehensive and up-to-date understanding of its advantages and disadvantages in the long, short, and medium term. In this context, diverse approaches are required to effectively address uncertainty, complexity, and ambiguity (Choo, 1991; Moore, 2018; Simon, 1972). Sadler-Smith and Shefy (2004) indicate that although AI has superior qualities, human judgment and experience are vital factors in situations of uncertainty, where AI's cognitive capacity is one of its greatest assets. Based on this, it is important to highlight the analysis presented by authors such as Hoffman (2018) and Jarrahi (2018), who state that collaboration between humans and generative technologies may be the key to achieving a balance and optimizing the reliability of results.

AI has experienced a remarkable trajectory since its beginnings in the 1950s, when Alan Turing proposed the possibility of machines that could mimic human reasoning (Pearce & Atkinson, 1998). Since 2000, advanced deep learning and big data analysis have expanded AI into many applications, optimizing organizations' strategic management (Bouschery et al., 2023). Generative neural networks (GANs) have played a key role in this move towards GAI by enabling extensive data synthesis and optimizing predictive models (Bengesi et al., 2024; Creswell et al., 2018).

Despite the great potential of GAI to revolutionize business decision-making, there is a glaring gap in the literature regarding its specific impact on entrepreneurial initiatives and corporate strategy. While considerable progress has been made in simulating and understanding human behavior through cognitive modeling, significant challenges remain (Åström et al., 2022; Celik & Eltawil, 2024; Kanbach et al., 2024). Addressing these knowledge gaps is critical to maximizing the benefits of GAI in strategic business decision-making.

Understanding the effect of GAI on strategic decision-making in business initiatives is crucial because it can transform how organizations process information and generate insights. In an increasingly competitive and complex business environment, GAI enables the analysis of large volumes of data, identifying complex patterns, delivering evidence-based recommendations, and facilitating more informed and timely decisions. Additionally, understanding this effect helps businesses balance the use of technology with human judgment, thereby maximizing accuracy and adaptability in the face of uncertainty. This case improves operational efficiency and drives innovation and responsiveness to market changes, consolidating sustainable competitive advantages (Gaibor-González et al., 2024).

The main objective of this article is to evaluate the impact of GAI on strategic business decision-making, providing a comprehensive and up-to-date understanding of its advantages and disadvantages in the short, medium, and long term. In addition, this article seeks to address existing gaps in the literature regarding the specific influence of GAI on entrepreneurial initiatives and corporate strategy and explore the potential for collaboration between humans and generative technologies to optimize outcomes in complex, uncertain, and ambiguous organizational environments (Lalaleo-Analuisa et al., 2021). It is important

to know how to foster the technological environment to support entrepreneurship. GAI-led innovation allows entrepreneurs to take advantage of this type of tool for decision-making.

This article contains an (i) Introduction, (ii) a Theoretical Framework, (iii) a Materials and Methods section, (iv) a Results section, (v) a Discussion, (vi) Conclusions, and finally (vii) Bibliographic References.

2. Theoretical Framework

Defining what GAI is can be challenging, as the topic is surrounded by complexity. However, clearly, it can be described as a subcategory within the broad field of artificial intelligence, which itself is divided into three main areas: deepfakes, neural networks, and generative AI itself (Babl & Babl, 2023; García-Peñalvo et al., 2024). Andrew et al. (2023) assert that GAI is based on the ability of a computer system to create new data or make predictions based on previously learned patterns. This type of artificial intelligence is aligned with the principles of continuous learning, where information develops and grows dynamically. Its main objective is to provide the user with data or solutions that were not previously available, thus expanding the possibilities of knowledge and creativity in different fields.

The design of GAI capable of representing and simulating future scenarios and offering meaningful solutions and recommendations has progressed significantly (Alavi et al., 2024). In addition to being a topical issue, this development generates great interest and debate. Beyond creative applications such as music production, literary texts, works of art, or realistic-looking characters, its impact has become particularly evident in the business environment. Numerous applications, designed to empower entrepreneurial initiatives and corporate managers, transform complex data into practical business intelligence, and support decision-making in various sectors, are now available (Bonilla-Jurado et al., 2023). GAI also excels in areas such as personalized recommendation systems or the transfer of styles in the design of products and services (García-Peñalvo et al., 2024; Mariani & Dwivedi, 2024).

Shkarupa et al. (2021) state that strategic decision-making at the entrepreneurial initiative level is one of the most complex stages of the strategic process. This process is developed in structured phases, including identifying observable facts, available resources, and necessary interventions. However, its complexity transcends this scheme, as it is influenced by numerous contextual and dynamic factors that go beyond a linear and predictable model (Abu-Alsondos, 2023). Often, the success of an entrepreneurial initiative depends on the political conditions of the country, the behavior of the demanders, and other factors.

Although it might be expected that these decisions are always the result of logical and deductive reasoning, reality shows a different picture. In many cases, strategic decisions are made by applying simple rules that facilitate the process, minimize mental effort, and take advantage of available tools (Jusman et al., 2023). These decisions are determined by the individual's and group's criteria, which may be based on previous experience, historical evidence, expert opinions, or practical action–reaction approaches. This balance between logic, intuition, and adaptation reflects strategic management's pragmatic and contextual nature in business (Al-Kubaisi, 2023).

Integrating GAI into strategic decision-making requires thorough a review of the tools and techniques used and the logic with which organizations approach these processes (Rane, 2023). The shift from an explanatory to a generative model implies a change in how problems are conceptualized and handled within an organization. Doshi et al. (2024) state that this shift involves focusing more on the interactions between key variables and less on independent variables. It also means valuing the ability of models to generate new insights

and uncover future scenarios rather than simply explaining or understanding existing situations (Grove et al., 2023).

At the enterprise level, the adoption of GAI can significantly transform the value chain, improving productivity and supporting strategic decisions. Entrepreneurial initiatives can stay ahead of the competition by innovating and developing unique value propositions (Shekhar et al., 2023; Richey et al., 2023). However, their implementation is not without its challenges. The complexity of these tools can be challenging for those without technical expertise, and integrating new analytical solutions into established processes requires careful change management (Basir et al., 2023).

For the implementation of GAI to be successful, a cultural change must be fostered in the organization that sparks interest in and passion for these new tools rather than fear. Big companies must be early adopters and understand these technologies to guide and empower their teams (Kshetri et al., 2024; wael AL-khatib, 2023). It is essential to empower entrepreneurs to take the lead in exploring and exploiting the opportunities identified by AI. In addition, continuous training that addresses predictive AI and GAI should be encouraged, preparing professionals to navigate and lead in a business environment increasingly influenced by artificial intelligence's advanced analytics and predictive capabilities.

In addition, implementing GAI in enterprises requires a robust infrastructure to support the analysis and processing of large volumes of data from various sources (wael AL-khatib, 2023). This case implies significant investment in technology and human resources specialized in data science and machine learning (Kirelli, 2023). Integrating and synchronizing these technologies with existing systems is crucial to maximizing their effectiveness. Organizations must also establish clear data security and privacy protocols, ensuring that adopting these advanced tools does not compromise data integrity or customer trust. Ultimately, GAI should be seen as a tool with which to improve efficiency and innovation and a catalyst for a broader transformation towards a more agile, proactive, and forward-looking organizational culture.

3. Materials and Methods

3.1. Search Strategies

This research focuses on assessing GAI's impact on strategic decision-making within entrepreneurial initiatives and analyzing its influence on quality, accuracy, and efficiency. Based on this, the research questions were formulated, the processes for study selection were defined, and strategies for data extraction were established, considering the methodologies used in previous research to ensure a solid basis for the review.

The PRISMA 2020 Statement was used to implement the study (Rethlefsen & Page, 2022). First, the review's objective was established, and then a detailed search strategy was designed based on the parameters set out in the PRISMA guide (Sánchez et al., 2022). The selected studies were reviewed and analyzed, ensuring the high quality and relevance of the information. Finally, data extraction and synthesis were performed, selecting elements that facilitated our understanding of the topic (Hutton et al., 2016).

3.2. Search Questions

Table 1 details the research questions, which were structured around effectiveness and accuracy in strategic decision-making, essential for optimizing and achieving organizational resources; decision complexity; and market volatility, which concerns the ability to anticipate and respond to changes and fluctuations in the economic environment. Additionally, there was an important focus on entrepreneurship.

Table 1. Research questions.

N°	Question	Reason
RQ1	How does the integration of GAI influence the accuracy and effectiveness of strategic decisions in different entrepreneurship?	Assess how GAI can improve the accuracy and effectiveness of strategic decisions in entrepreneurial initiatives, providing a detailed, sectoral analysis of their impact.
RQ2	What influence does decision complexity have on the ability of GAI to improve strategic decision-making in organizations?	Identify how GAI handles different levels of complexity in the decision-making process.
RQ3	How does market volatility influence the relationship between GAI and strategic decision-making in organizations?	Analyze how market conditions, particularly market volatility, affect the interaction between GAI and strategic decision-making.

3.3. Systematization of the Search

A comprehensive search for high-quality articles was carried out in the Scopus and Web of Science databases, using terms such as 'Generative Artificial Intelligence', 'Strategic Decision-Making', 'Modern Management Systems', and 'Business Entrepreneurial t'. In addition, the following combinations were applied: 'Generative Artificial Intelligence' AND 'Strategic Decision-Making', 'Generative AI' AND 'Entrepreneurial', 'Modern Management Systems' OR 'Strategic Decision-Making', and 'Business Management' AND 'Generative Artificial Intelligence'. Several combinations and variations were experimented with to ensure relevant and high-quality articles were obtained, following the criteria detailed in Table 2.

Table 2. Inclusion and Exclusion.

N°	Category	Inclusion	Exclusion
C1	Type of study	Empirical articles investigating the relationship between GAI and strategic decisions.	Theoretical articles without empirical data or analysis of the relationship between GAI and decisions.
C2	Language	Publications in English.	Articles published in languages other than English.
C3	Journal quality	Articles published in journals classified as Q1 or Q2 in SCOPUS and Web of Science.	Articles in journals outside the Q1 or Q2 categories or in journals not indexed in SCOPUS and Web of Science.
C4	Thematic relevance	Articles that address the effect of GAI on strategic decision-making.	Articles dealing with GAI but not in the context of strategic decision-making.
C5	Date of publication	Articles published between 2000 and 2024 to ensure relevance and timeliness.	Articles published before 2000 or without an established publication date.

3.4. Article Selection and Data Mining

The criteria detailed in Table 2 were rigorously implemented to ensure a high-quality review. These criteria guided each stage of the article selection process: identification, screening, eligibility assessment, and the final inclusion of studies. Once the articles were selected, the information needed to answer the research questions was extracted and organized.

4. Results

As shown in Figure 1, 227 articles were initially identified through searches of various academic databases. During the initial screening phase, 149 articles were discarded based on their titles' relevance and duplicates' elimination. In the full-text screening phase, 16 additional articles were excluded as they did not meet the established inclusion criteria. The screening process resulted in a total of 30 articles, as 28 were excluded as they did not contain information relevant to the review.

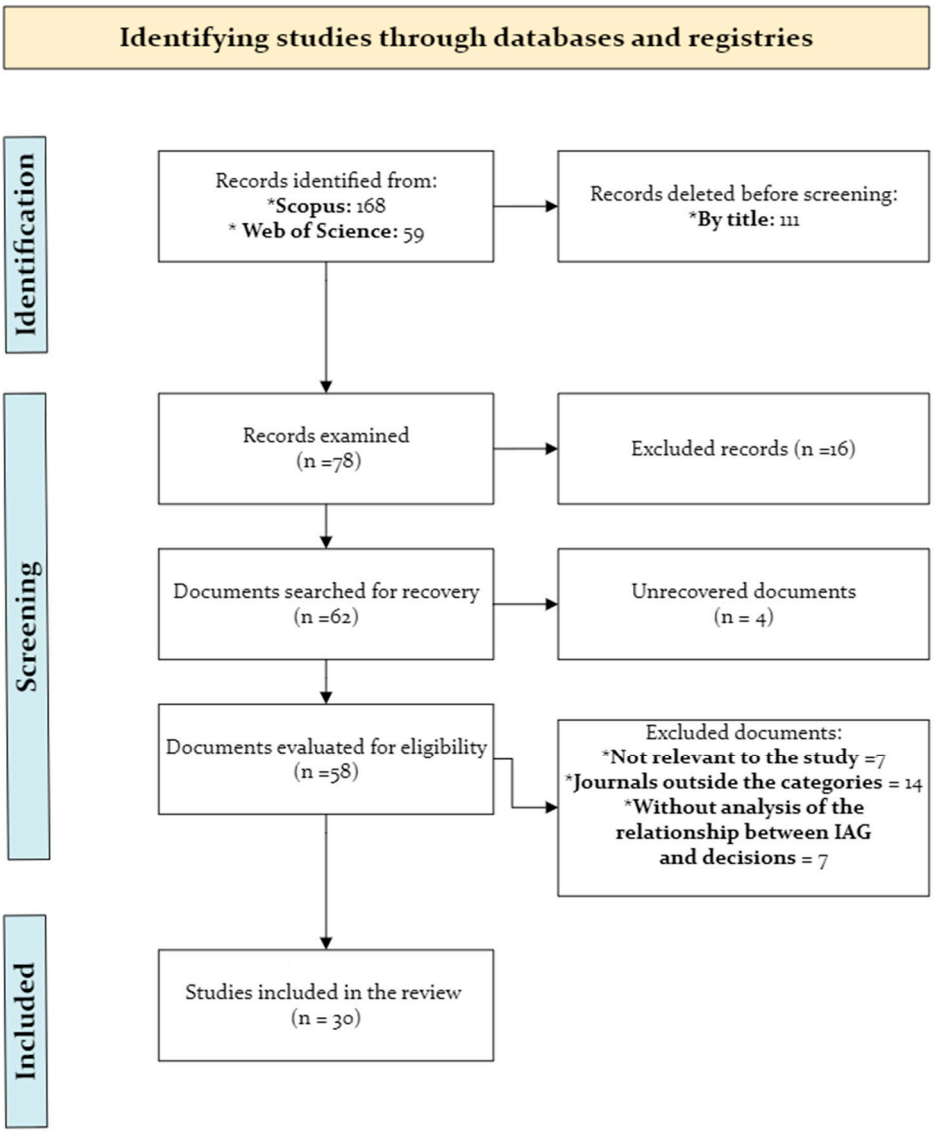

Figure 1. PRISMA flow chart. * **Scopus and Web of Science:** Main databases for the PRISMA. * **By title:** Database selection by title.

Each article contains quality information supporting the development of the review. This information comes from research in artificial and/or generative intelligence, strategic decisions, modern management systems, and business management. This case has allowed for an interdisciplinary view, providing a more complete and diverse understanding of the research topic. The publications are organized chronologically to show the evolution of the concept over time.

Characteristics of the Studies

Table A1 highlights aspects such as the impact of GAI on the effectiveness of strategic decisions, decision complexity, and market volatility. This information will be used to identify the main patterns and trends in the literature reviewed.

The data extracted from each of the articles presented in Table A1 show the potential of artificial intelligence (AI) in various business sectors. Of the 30 articles analyzed, 27 reported improvements in operational efficiency. Eight studies (A1, A2, A6, A10, A11, A19, A21, and A30) highlighted process optimization and productivity gains as significant advantages of GAI, especially in manufacturing and healthcare. Seven studies (A3, A4, A5, A5, A9, A12, A17, and A23) demonstrated that this technology increases the reliability of strategic and operational decision-making when handling large volumes of data if human judgment is present. On the other hand, five studies (A6, A10, A17, A19, and A21) pointed out that cost reduction due to the elimination of repetitive processes is a significant advantage.

Finally, four studies (A4, A13, A22, and A24) highlight the role of GAI in innovation for new product development. On the other hand, six studies (A8, A11, A16, A19, A20, and A27), while recognizing certain advantages in implementing GAI, also pointed out significant disadvantages related to market volatility, trust issues, and biases. Figure 2 illustrates the frequency of the main results addressed by each study analyzed.

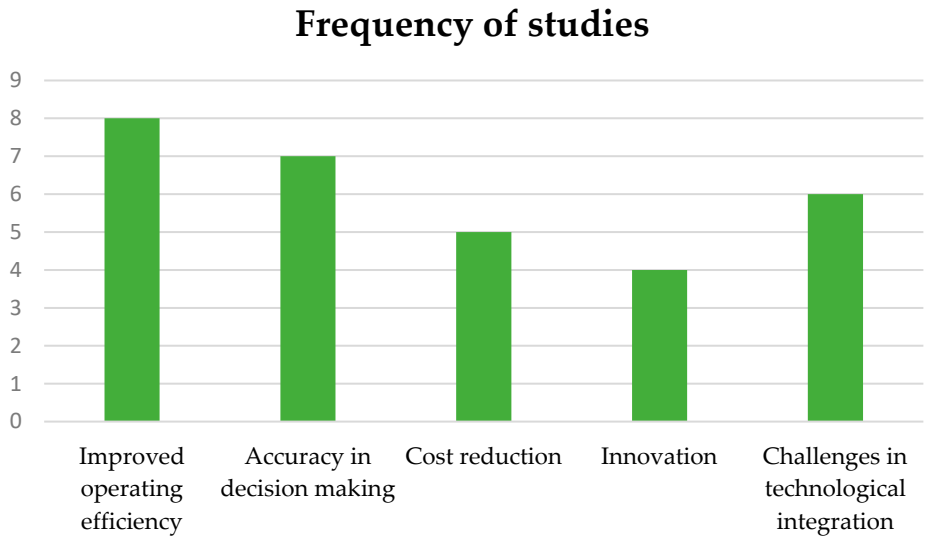

Figure 2. Frequency of main results of analysis of each study.

On the other hand, Table 3 focuses on the evaluation criteria and limitations of the studies, facilitating an understanding of how methodological differences and evaluative criteria may have influenced the findings, as well as identifying areas that require further attention or development in future research.

The data extracted and presented in Table 3 provided a comprehensive overview of the current landscape of GAI research. It was found that most studies (18 out of 30) adopted a qualitative approach that relied on AI algorithms, predictive analytics, and simulations to assess the impact of GAI, while 12 adopted a mixed approach involving case studies and interviews to assess the effects of GAI. A few considerable limitations were also highlighted, such as the dependence on data quality, which led to several recommendations for future research.

Table 3. General and contextual summary of the selected studies.

N°	Methodological Design	Evaluation Criteria	Limitations of the Study	Recommendations for Future Research
A1	**Type of study:** Conceptual. **Methods:** Literature review and analysis of previous studies. **Analysis:** Conceptualization and theoretical discussion.	Accuracy in content generation impacts efficiency and productivity and affects the industry.	Dependence on training data, biases in AI models, challenges in verifiability.	Mitigate biases in AI, investigate its impact on industries and contexts, and develop guidelines for responsible and sustainable use.
A2	**Type of study:** Qualitative. **Methods:** Semi-structured interviews and observations. **Analysis:** Coding of technological and human factors.	The evaluation of usability, integration, perceived benefits/challenges, and impact on diagnostic accuracy.	Due to costs, dependence on integration with existing information systems, and challenges in sustained adoption.	Explore AI integration in clinical settings, strategies to overcome challenges and costs, and impact on efficiency and diagnostic accuracy.
A3	**Type of study:** Comparative. **Methods:** Analysis of historical data and executive surveys. **Analysis:** Predictive models and statistical analysis.	The evaluation of predictive accuracy, impact on risk reduction, and decision-making effectiveness.	Limited focus on the technology sector could affect the generalizability of the results to other industries.	Explore GAI in industrial sectors, improve its integration into strategic decisions, and assess its long-term impact.
A4	**Type of study:** Comparative and experimental. **Methods:** Experiments with humans and cognitive models. **Analysis:** Quadratic residual sums and Bayesian criteria will be used to compare performance.	Prediction accuracy, learning speed, generalization capacity, and similarity to human behavior.	The integration of generative and cognitive models, adjustment of representations and parameters according to contexts and tasks.	Explore the integration of generative models in varied cognitive contexts and multimodal models and develop strategies to mitigate misuse in sensitive contexts.
A5	**Type of study:** Comparative. **Methods:** Historical analysis and executive surveys. **Analysis:** Statistical and predictive models.	Accuracy in predictions, efficiency in decisions, and adaptation to volatile conditions.	Focus on technology and consulting limits generalization.	The application of AI in other sectors, integration improvement, and long-term impact evaluation.
A6	**Type of study:** Comparative case study. **Methods:** Analysis of historical data and interviews with bank executives. **Analysis:** Statistical and predictive models.	The accuracy of financial forecasts, impact on operational efficiency, and ability to adapt to market changes.	Limited to the banking sector in the United Arab Emirates, with generalization to other sectors or regions.	Explore GAI in other financial sectors and geographic contexts and investigate strategies to improve its integration.
A7	**Type of study:** Qualitative. **Methods:** Interviews with SME owners and managers, document analysis. **Analysis:** Content and thematic coding.	The evaluation of operational efficiency, precision in strategic decisions, and adaptability.	Focus on Tanzanian SMEs, limited to other contexts.	Explore AI in SMEs in other countries, assess support for different strategic decisions, and study long-term impact.
A8	**Type of study:** Quantitative. **Methods:** Human annotations and GPT-4 ratings in US occupational data. **Analysis:** The assessment of task exposure to GPTs with a specific rubric.	The assessment of the potential for exposure of work tasks to GPT, considering the technical capacity to increase work efficiency.	Dependence on the quality of GPT-4 annotations and rankings and bias due to lack of occupational diversity among annotators.	Investigate patterns of adoption of GPT in sectors and occupations and explore capabilities and constraints in complex tasks.

Table 3. *Cont.*

N°	Methodological Design	Evaluation Criteria	Limitations of the Study	Recommendations for Future Research
A9	**Type of study:** Qualitative. **Methods:** Interviews and observations in AI hospitals. **Analysis:** Thematic coding and content analysis.	The evaluation of the accuracy and efficiency of AI systems, impact on clinical decision-making, and user perception.	The focus is limited to hospitals in developed countries, which could affect generalizability in other contexts.	Explore: the application of AI in healthcare. Investigation: strategies for integrating AI into clinical workflows. Study: the long-term impact of AI on efficiency and clinical outcomes.
A10	**Type of study:** Comparative case study. **Methods:** The analysis of historical data and interviews with manufacturing company executives. **Analysis:** Statistical and predictive modeling.	The evaluation of prediction accuracy, impact on operational efficiency, and cost reduction.	Limited focus on manufacturing companies could affect generalization to other industrial sectors.	Explore AI in other sectors, improve its integration in the supply chain, and study its impact on efficiency and cost reduction.
A11	**Type of study:** Systematic literature review. **Methods:** Database search. **Analysis:** Deductive coding to categorize and analyze.	The assessment of the interaction between rationality and politics in ITG decision-making and the impact of AI on this process.	Reliance on existing literature, the potential for bias due to exclusion of unpublished studies.	Conduct empirical research to validate correlations and explore qualitative (interviews, case studies) and quantitative methods in ITG.
A12	**Type of study:** Quantitative. **Methods:** The analysis of historical data and analysis of analyst surveys. **Analysis:** Predictive and statistical models.	Evaluation of prediction accuracy, impact on risk reduction, and decision optimization.	Dependence on quality of market data, potential for bias in AI models.	Explore AI in finance, improve predictive accuracy, and assess the long-term impact on investment management.
A13	**Type of study:** Systematic review and case studies. **Methods:** The analysis of previous studies and practical examples. **Analysis:** The qualitative analysis of capabilities and applications of language models.	The evaluation of the effectiveness of AI in idea generation, sentiment analysis, and innovation improvement.	Reliance on existing literature and practical examples, potential for biases in the data used to train the models.	Investigate practical applications of AI in various industries, improve human-AI collaboration, and assess the long-term impact on innovation.
A14	**Type of study:** Case study and literature review. **Methods:** The analysis of previous studies and case studies. **Analysis:** Qualitative analysis of AI capabilities and applications.	Evaluating how AI improves project planning, monitoring, and control, reducing risks and optimizing resources.	Reliance on literature and practical examples, with risk of bias in data to train AI tools.	Investigate applications of AI in project management, improve collaboration and communication in teams, and study the long-term impact on efficiency and effectiveness.
A15	**Type of study:** Case study and quantitative. **Methods:** Academic analysis and surveys. **Analysis:** Statistical and predictive models.	The effectiveness of AI for the personalization of learning and the impact on academic performance and student engagement.	Dependence on academic data quality, the potential for bias in AI models.	Explore applications of AI in education, improve model accuracy, and study long-term impact on student achievement and engagement.

Table 3. *Cont.*

N°	Methodological Design	Evaluation Criteria	Limitations of the Study	Recommendations for Future Research
A16	**Type of study:** Quantitative and qualitative. **Methods:** Historical analysis, surveys, and case studies. **Analysis:** Statistical, predictive modeling, and content analysis.	Evaluate how AI improves productivity, reduces errors, and improves the quality of decisions.	Dependence on data quality and model accuracy, risk of bias in AI implementation in services.	Investigate applications of AI in other service sectors, improve integration in processes and decisions, and study the long-term impact on productivity.
A17	**Type of study:** Experimental and analytical. **Methods:** Analysis of chemical and biological data. **Analysis:** Deep learning models and AI techniques.	Accuracy, efficiency, and cost reduction impact.	Need for high-quality data and the complexity of AI models.	Research new applications of AI in other areas of biotechnology.
A18	**Type of study:** Case and comparative. **Methods:** Interviews, document analysis, observation. **Analysis:** Comparison between human and AI-assisted decisions.	Efficiency, accuracy, and response time.	Dependence on data quality and AI system capabilities.	Explore the use of AI in other business contexts and its long-term impact.
A19	**Type of study:** Single, inductive case study. **Methods:** Interviews and documentary analysis in leading AI companies. **Analysis:** Process framework for business model innovation.	The assessment of the ability of business models to capture and create value through AI.	Focusing on a single company may limit the generalizability of results.	Explore the application of the proposed framework in different industrial contexts and study its long-term impact.
A20	**Type of study:** Dynamic optimization. **Methods:** Market simulations. **Analysis:** Comparison between learning strategies and market outcomes.	Collusive strategy formation and algorithm efficiency.	Quality of historical data and exportability of algorithms.	Regulatory mechanisms to avoid collusive outcomes and applications in different market contexts.
A21	**Type of study:** Case and comparative. **Methods:** Interviews, documentary analysis, observation. **Analysis:** The comparison of efficiency before and after implementing AI.	The evaluation of operational efficiency and cost reduction.	Dependence on data quality and variability in AI implementation	Explore the application of AI in different industrial contexts and its long-term impact.
A22	**Type of study:** Theoretical and literature review. **Methods:** The analysis of previous studies and theoretical proposals. **Analysis:** The evaluation of ADM models and their ethical and social implications.	Measures of equity, bias reduction and effectiveness of ADM models.	Dependence on data quality and complexity of equity implementation.	Design mechanisms to audit and improve equity in ADM models in various contexts.

Table 3. *Cont.*

N°	Methodological Design	Evaluation Criteria	Limitations of the Study	Recommendations for Future Research
A23	**Type of study:** Quantitative and data analysis. **Methods:** Behavioral data analysis in e-commerce. **Analysis:** Machine learning models and predictive analytics.	Accurate predictions and improved personalization of the customer experience.	Dependence on data quality and variability in customer behavior patterns	Explore new AI techniques to improve the accuracy of predictions and apply the models in different e-commerce contexts.
A24	**Type of study:** Literature review and case study analysis. **Methods:** The analysis of studies and interviews with experts. **Analysis:** Qualitative and comparative analysis of the effectiveness of AI in decision-making.	The accuracy and efficiency of business decisions impact competitiveness.	Dependence on data quality and variability in AI implementation in different contexts.	Explore new applications of AI in different industrial sectors and assess its long-term impact on decision-making.
A25	**Type of study:** Literature review and comparative analysis. **Methods:** Analysis of studies and experimental results. **Analysis:** Evaluation of neural network architectures.	Accuracy, performance, and generalizability of deep learning models.	Computational complexity and need for large amounts of data for model training.	Explore new architectures and training techniques to improve the efficiency and performance of deep neural networks.
A26	**Type of study:** Systematic literature review and longitudinal case study. **Methods:** The analysis of previous articles and interviews with industry experts. **Analysis:** Qualitative and comparative analysis of the effectiveness of big data in creating business value.	Impact on decision-making, operational efficiency, and value creation.	Dependence on data quality and variability in the implementation of big data systems.	Explore new big data applications in different sectors and assess its long-term impact on decision-making and value creation.
A27	**Type of study:** Systematic review and case study. **Methods:** The analysis of articles and interviews. **Analysis:** Qualitative and comparative analysis.	Impact on decisions and efficiency.	Data quality and variability in implementation.	New applications of big data and their long-term impact.
A28	**Type of study:** Theoretical proposal and practical experiments. **Methods:** Simulations and experiments on various data sets. **Analysis:** Qualitative and quantitative evaluation.	Quality and realism of generated samples, the ability of models to learn complex data distributions.	Need for synchronization between generator and discriminator during training.	Explore new architecture and training techniques to improve the stability and efficiency of GANs.

Table 3. *Cont.*

N°	Methodological Design	Evaluation Criteria	Limitations of the Study	Recommendations for Future Research
A29	**Type of study:** Literature review and conceptual proposal. **Methods:** The analysis of academic and industry publications. **Analysis:** Bibliometrics and qualitative analysis of trends in BI&A.	Impact on decision-making and business value creation.	Dependence on data quality and variability in BI&A applications.	Explore new BI&A applications and techniques and assess their long-term impact in various sectors.
A30	**Type of study:** Literature review. **Methods:** The analysis of previous studies and experiments. **Analysis:** Comparison with traditional AI methods.	Model accuracy, generalizability, and computational efficiency.	Large amounts of data and computational power are needed to train deep learning models.	Investigate techniques to improve the efficiency of models and reduce the need for large volumes of data.

Figure 3 presents an overview of the analysis of the articles and, in turn, provides a clear and visual representation of how the different study types, limitations, and recommendations are distributed in GAI research.

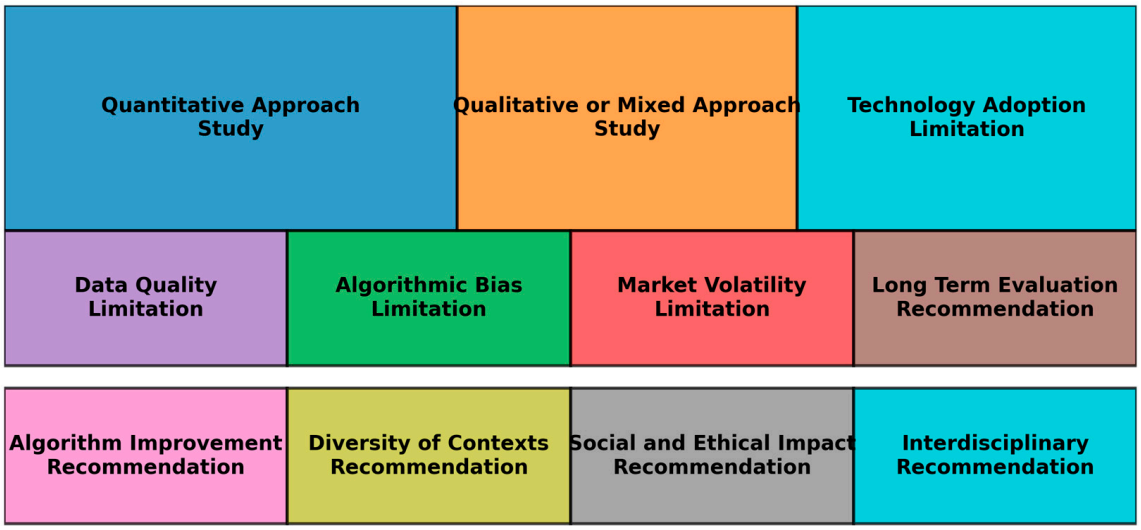

Figure 3. Tree diagram: distribution of approaches, constraints, and recommendations in GAI studies.

5. Discussion

The use of emerging technologies and the application of modern management systems are essential in order to avoid being left behind in an environment that is constantly updated, such as in entrepreneurship (Kanjee et al., 2023). The implementation of artificial intelligence (AI) systems in various business sectors and entrepreneurship initiatives has become a focus of interest for those seeking to make strategic decisions with different areas, such as reducing costs, processes and added value (Jarrahi, 2018; Parry et al., 2016). However, it is important to highlight that human judgment and experience are fundamental pillars that ensure the reliability and veracity of AI implementation (Shmueli et al., 2019).

5.1. The Role of GAI in the Accuracy and Effectiveness of Multisectoral Strategic Decisions

The integration of GAI within entrepreneurial initiatives has presented a few advantages, which are mainly related to the accuracy and effectiveness of strategic decision-making, decision complexity, and market volatility. Feuerriegel et al. (2024), in their research, highlight how GAI improves efficiency and innovation in the development of processes within individual departments, resulting in a considerable increase in productivity rates. However, the risk of bias and low confidence levels cannot yet be ruled out.

On the other hand, in the financial sector, Neiroukh et al. (2024) highlight the ability of GAI to predict market trends, improving accuracy and reducing risk in investment decisions. Using algorithms developed specifically for predictive analytics facilitates better strategic decision-making.

Furthermore, studies presented by Bandi et al. (2023) underline how implementing GAI in entrepreneurial initiatives and corporate systems is essential to cope with the constantly developing and challenging environment. However, several studies have clarified the importance of human judgment and the control of the use of GAI due to the unexpected risk of biases or the generation of erroneous information derived from patterns or misinterpreted information (Agrawal et al., 2023; Åström et al., 2022; Gouiaa & Bazarna, 2023).

5.2. The Influence of Decision Complexity on the Ability of GAI to Improve Strategic Decision-Making in Entrepreneurial Initiatives

Internal strategic decision-making is a fundamental and delicate process that is usually carried out by the company's management and, as a result, can increase or decrease the effectiveness of processes (Al Naqbi et al., 2024). Malloy and Gonzalez (2024) found that GAI can increase the accuracy and speed of complex cognitive decision-making by generating memory and predictions to simulate human behavior patterns. Such a capability is instrumental when making strategic decisions that require deep analysis with multiple variables and the need to constantly adapt to new data (Charles et al., 2022).

In their research, Al Naqbi et al. (2024) focused on the banking sector, highlighting the effectiveness of GAI for complex financial decision-making. This is due to its versatility in analyzing and handling large amounts of data and generating answers based on new inputs, making GAI a determining factor for improving the most complex strategic areas of companies involved in the financial sector. For SMEs, it was reported that GAI has the potential to analyze and execute processes focused on strategic and operational decision-making in the short, long, and medium term (Bengesi et al., 2024). This has enabled small and medium-sized enterprises to make more efficient and competitive decisions in a volatile economic and technological environment.

Based on all the aspects of GAI discussed and the feasibility of adapting to different business sectors, it is possible to establish that decision complexity positively influences the capability of GAI (Lecun et al., 2015; Zeng et al., 2022). This situation is due to GAI's many advantages in analyzing large amounts of data and adapting new data (Phillips-Wren & Jain, 2006). Its ability to process information allows large companies and SMEs to make informed decisions based on strategies. Moreover, its flexibility in adjusting to diverse contexts makes it a key tool for any organization (Kim & Seo, 2023; Rajagopal et al., 2022).

5.3. The Influence of Market Volatility on the Relationship Between GAI and Strategic Decision-Making

Market volatility is one of the most representative factors when making strategic decisions that drive a company toward a better future (Farič et al., 2024). Fosso Wamba et al. (2015) focused on highlighting this and other problems as factors that prevent the implementation of GAI from being justified in relation to the costs of its implementation. However, Eloundou et al. (2023) highlight how GAI mitigates the impact of market

volatility, as it can predict trends and provide adaptive recommendations, significantly influencing the traditional thinking of IT managers and decision-makers.

Kanbach et al. (2024) found that the technology- and consulting-focused sectors have significantly benefited from GAI. Market volatility significantly influences GAI and strategic decision-making in companies. Although market volatility is one of the most challenging factors in strategic decision-making, if properly managed using AI as a tool, it can be transformed from an impediment to a catalyst for process improvement, informed decision-making, and increased market competitiveness (Jick & Sturtevant, 2017; Mhatre, 2023). However, there remains a need for longitudinal studies to assess long-term impact and gain further insight into the integration of GSI into small and medium-sized enterprises (Alsharhan et al., 2024).

This study has important practical and theoretical implications that enrich both the business field and the existing literature. From a practical perspective, it provides entrepreneurs with a framework with which to understand how to integrate GAI into strategic decision-making, highlighting its potential to improve efficiency, accuracy, and adaptability in highly uncertain environments. It also underscores the importance of balancing technology with human judgment, offering guidelines that can be applied across multiple sectors. In terms of its contribution to literature, this study expands knowledge on the impact of IAG by exploring its technical capabilities and the challenges associated with its implementation, such as change management and human–machine interactions. This comprehensive approach provides a solid foundation for future research on the responsible and effective adoption of IAG in diverse organizational contexts.

6. Conclusions

The integration of GAI, focused on entrepreneurial initiatives and corporate strategic decision-making, has made a significant impact. Innovation, process optimization, market prediction, and increased competitiveness are among the main advantages reported by research. Such processes and the inclusion and management of modern management systems enable entrepreneurial initiatives to turn their challenges into opportunities. Also, several studies have highlighted the importance of maintaining a balance in using GAI based on the risk of obtaining erroneous information due to factors such as a lack of information or the absence of human judgment.

Each of the studies selected for the development of the review demonstrated that the inclusion of GAI within companies is imperative and necessary in order to adapt to a changing environment. Among the main limitations highlighted were the variability of technological adoption, challenges in integrating GAI, and the risks of bias and trust. One of the gaps identified by all authors is the need to include longitudinal studies to assess the effect of GAI over the long term and explore how GAI can be adapted and optimized in different organizational contexts.

The integration of GAI, focused on entrepreneurial initiatives and corporate strategic decision-making, has significantly affected the industry. Innovation, process optimization, market prediction, and increased competitiveness are among the main advantages reported by research. Such processes and the inclusion and management of modern management systems will enable companies to turn their challenges into opportunities. Also, several studies have highlighted the importance of maintaining a balance in using GAI based on the risk of obtaining erroneous information due to factors such as a lack of information or the absence of human judgment.

Each of the studies selected for the development of the review demonstrated that the inclusion of GAI within entrepreneurial is imperative and necessary to adapt to a changing

environment. Among the main limitations highlighted are the variability of technology adoption, challenges in integrating GAI, and the risks of bias and trust.

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Appendix A

Table A1. General summary of the objective of integrating GAI in strategic decisions for entrepreneurship.

N°	Author and Date	Objective Integration of the GAI	GAI Integration	Decision Complexity	Market Volatility
A1	(Feuerriegel et al., 2024)	Conceptualize GAI in socio-technical systems, analyzing opportunities and challenges for the Business and Information Systems Engineering (BISE) community.	**Implementation:** Computational techniques generate content from data. **Effects:** Workplace and communication revolution, intelligent care, GDP growth, possible loss of 300 million jobs. **Context:** IT, content creation, information systems.	**Types of decisions**: Based on content creation and intelligent assistance. **GAI capability**: Content generation and task support. **Examples are GPT-4, DALL-E 2, and Copilot models for text, images,** and code.	**Market:** High volatility due to rapid technological advances. **GAI–strategic decision relationship:** GAI improves efficiency and innovation in strategic decisions. **Results:** Transformation of industries, efficiency gains, challenges in trust and biases.
A2	(Farič et al., 2024)	To explore the first experiences of integrating an AI-based diagnostic decision support system in radiology environments.	**Implementation:** GAI software will detect, classify, and measure lung nodules on CT scans. **Effects:** Improvement and diagnostic confidence. **Context:** Health, radiology.	**Types of decisions:** Diagnosis and follow-up of pulmonary nodules.	**Market:** High variability in technology adoption and integration challenges.

Table A1. *Cont.*

N°	Author and Date	Objective Integration of the GAI	GAI Integration	Decision Complexity	Market Volatility
A3	(Neiroukh et al., 2024)	Assess the impact of AI on financial decision-making in technology companies.	**Implementation:** AI algorithms for market prediction and investment decisions. **Effects:** Improved accuracy and risk reduction. **Context:** Technology and finance.	**Types of decisions:** Investment and risk management. **GAI capability:** Analyzing data and predicting trends. **Case study:** AI in technology companies for long-term investments.	**Market:** High volatility in technology and finance. **GAI–strategic decision relationship:** GAI mitigates the impact of volatility with predictive analytics. **Results:** Improved strategic decisions and reduced errors and risks.
A4	(Malloy & Gonzalez, 2024)	Introduce categorization of GAI applications in cognitive decision-making models and evaluate the effectiveness of a model.	**Description:** Generative models create memory representations and predict decisions. **Effects:** Improved accuracy, fast learning, and similarity to human behavior. **Context:** Psychology and decision sciences.	**Types of decisions:** Experiential learning and prediction. **Capacity of GAI:** Generate memory and predict in visual learning and language. **Examples:** GPT and VAEs, transfer of learning.	**Market:** Variability in the adoption of generative models. **GAI–strategic decision relationship:** Improved accuracy and speed in cognitive decisions. **Results:** Better generalization capacity and similarity with human behavior.
A5	(Kanbach et al., 2024)	Evaluate how GAI tools can transform strategic management and decision-making in companies.	**Description:** GAI analyses market data and predicts trends. **Effects:** Increased accuracy and reduced decision time. **Context:** Technology and consulting.	**Types of decisions:** Strategies, investments, positioning. **Capacity of the GAI:** Process data and generate recommendations. **Examples:** Models in strategic consulting.	**Market:** High in technology and consultancy. **GAI–strategic decision relationship:** Rapid adaptation. **Results:** Improved accuracy, agility, and risk reduction.
A6	(Al Naqbi et al., 2024)	Assess the impact of GAI on business process optimization in the UAE banking sector.	**Description:** GAI models improve efficiency and accuracy in banking decisions. **Effects:** Improvements in operational efficiency and financial accuracy. **Context:** Banking sector in the United Arab Emirates.	**Types of decisions:** Financial and operational. **Capacity of the GAI:** Analyze data and provide recommendations. **Examples:** GAI in leading banks in the United Arab Emirates.	**Market:** High volatility due to technological adoption. **GAI–strategic decision relationship:** Greater precision and efficiency in financial decisions.
A7	(Bengesi et al., 2024)	To investigate how AI affects strategic decision-making in SMEs in Tanzania.	**Description:** Implementation of AI to improve strategic decisions in SMEs. **Effects:** Increased operational efficiency and decision accuracy. Context: SMEs in Tanzania.	**Types of decisions:** Operational and strategic in the short and long term. **Capacity of the GAI:** Analyze data and provide recommendations.	**Conditions:** High economic and technological volatility. **GAI–strategic decision relationship:** Rapid adaptation and informed decisions. **Results:** Increased efficiency, strategic decisions, and competitiveness.

Table A1. *Cont.*

N°	Author and Date	Objective Integration of the GAI	GAI Integration	Decision Complexity	Market Volatility
A8	(Eloundou et al., 2023)	Investigate the impact of GPT models on the US labor market.	**Description:** Assessment of occupations with GPT-4. **Effects:** 80% of workforce with 10% of tasks affected; 19% with 50% impacted. **Context:** Impact on all wage levels.	**Types of decisions:** Labor and automation. **GAI capability:** Affects tasks and generates content. **Examples:** US economic data and O*NET.	**Market:** High technological volatility. **GAI–strategic decision relationship:** GPT affects labor and political decisions. **Outcomes:** Increased inequality and labor disruption.
A9	(Cresswell et al., 2023)	Examine the impact of artificial intelligence on operational efficiency and decision-making in the healthcare sector.	**Description:** Implementing AI in hospitals to manage data and support clinical decisions. **Effects:** Improvement in efficiency, reduction of errors, and optimization of resources. **Context:** Health sector, hospitals, and clinics.	**Types of decisions:** Clinical and operational in hospitals. **Capacity of the GAI:** Processes clinical data and gives accurate recommendations. **Examples:** Early detection of diseases and optimization of workflows	**Market:** High volatility due to technological advances and changes. **GAI–strategic decision relationship:** Improved accuracy and resource management. **Results:** Increased diagnostic accuracy, better resource management, and cost reduction.
A10	(Kanitz et al., 2023)	Assess the impact of AI on strategic decision-making in manufacturing companies.	**Description:** AI will optimize the supply chain and predict demand. **Effects:** Improved demand accuracy, inventory optimization, and cost reduction. **Context:** Manufacturing industry.	**Decision types:** Supply chain management and production planning. **GAI capability:** Analyze data and provide recommendations. **Examples:** AI in manufacturing companies for optimization and demand forecasting.	**Market:** High volatility due to changes in demand and fluctuations. **GAI–strategic decision relationship:** Greater precision in strategic decisions. **Results:** Improved forecasting, inventory optimization, and cost reduction.
A11	(Gouiaa & Bazarna, 2023)	Investigate how rationality, politics, and AI influence decision-making in IT governance.	**Description:** Analysis of AI and its interaction with traditional methods in ITG. **Effects:** Increased alignment with rational models and efficiency in governance. **Context:** Information technology governance.	**Types of decisions:** Strategic and tactical in IT governance. **GAI capability:** Improved efficiency and accuracy using big data and machine learning.	**Market:** High volatility and rapid adoption of advanced technologies. **GAI–strategic decision relationship:** Improved rationalization of decisions. **Results:** Improvement in resource management and IT decision-making.

Table A1. *Cont.*

N°	Author and Date	Objective Integration of the GAI	GAI Integration	Decision Complexity	Market Volatility
A12	(Y. Chen et al., 2023)	Investigate the impact of AI on investment decision-making in the financial sector.	**Description:** AI models for predictive market analysis and investment decisions. **Effects:** Increased accuracy in predictions and risk reduction. **Context:** Financial sector	**Types of decisions:** Investment and risk management. **GAI capacity:** Data analysis and recommendations. **Examples:** AI in investment firms to predict trends and manage risks.	**Market:** High volatility. **GAI–decision relationship:** Improved accuracy and efficiency in investments. **Results:** Prediction accuracy, risk reduction, and portfolio optimization.
A13	(Bouschery et al., 2023)	Explore how transformer-based language models can empower innovative teams in the development of new products.	**Description:** Use language models for summary, analysis, and idea generation. **Effects:** Improved innovation and exploration of solutions. **Context:** Product development in various sectors.	**Types of decisions:** Innovation and product development. **Capacity of the GAI:** Data management and innovation. **Examples:** Idea generation and sentiment analysis with GPT-3.	**Market:** High volatility and rapid technological adoption. **GAI–strategic decision relationship:** AI drives opportunities and solutions. **Results:** Increased productivity in innovation and development.
A14	(Barcaui & Monat, 2023)	Explore how artificial intelligence improves efficiency and effectiveness in project management.	**Description:** AI tools for project planning, monitoring, and control. **Effects:** Improved estimation, risk reduction, and resource optimization. **Context:** Project management in technology and construction.	**Types of decisions:** Project planning, resource allocation, and risk management. **GAI capacity:** Data analysis and accurate recommendations. **Examples:** AI in infrastructure and technology projects.	**Market:** High volatility due to changes in market requirements and conditions. **GAI–strategic decision relationship:** Greater precision and adaptability. **Results:** Improved estimates, optimization of resources, and risk reduction.
A15	(Bandi et al., 2023)	Investigating how AI impacts higher education, focusing on personalizing learning and improving academic performance.	**Implementation:** AI systems will personalize content and educational recommendations. **Effects:** Academic improvement, increased engagement, and personalization. **Context:** Higher education, universities, and colleges.	**Types of decisions:** **Personalization of learning,** educational recommendations, academic support. **GAI capability:** Analyze data and provide personal recommendations. **Example:** AI in universities to personalize courses and improve student performance.	**Market:** High volatility due to technological changes in education. **GAI–strategic decision relationship:** Personalization and improvement in academic decisions. **Results:** Improved student performance and engagement.

Table A1. *Cont.*

N°	Author and Date	Objective Integration of the GAI	GAI Integration	Decision Complexity	Market Volatility
A16	(Agrawal et al., 2023)	Evaluate how AI affects labor productivity and decision-making in the service sector.	**Description:** Task automation and decision support. **Effects:** Increased productivity, fewer errors, better decision-making. **Context:** Services (finance, customer service, administration).	**Types of decisions:** Operational and strategic in services. **GAI capability:** Process data, automate repetitive tasks, and support complex decisions. **Examples:** AI in finance for automation and customer care for query management.	**Market:** High volatility due to technological adoption and changes in demand for services. **GAI–strategic decision relationship:** Increased efficiency and informed decisions. **Results:** Increased productivity, reduced costs, and improved quality.
A17	(Zeng et al., 2022)	Evaluate the use of AI in molecular design and drug discovery.	**Description:** Implementation of AI in compound design and molecular optimization. **Effects:** Increased precision and efficiency in molecule design. **Context:** Pharmaceutical industry.	**Types of decisions:** Selection and optimization of chemical compounds. **GAI capability:** Handling big data and complex decisions. **Examples:** Successful identification of new bioactive compounds.	**Market:** High competition and innovation. **GAI–strategic decision relationship:** Fast and informed decisions in drug development. **Results:** Lower cost and time in drug discovery.
A18	(Rajagopal et al., 2022)	Investigate the impact of AI systems on business decision-making.	**Description:** Implementation of AI in organizational decision-making. **Effects:** Improved accuracy and efficiency. **Context:** Technology and business	**Types of decisions:** Strategic and operational. **GAI capability:** Analyze big data and generate insights. **Examples:** Implementations in technology and services.	**Market:** Rapid changes and need for adaptability. **GAI–strategic decision relationship:** Facilitates rapid and adaptive decisions. **Results:** Increased competitiveness and operational efficiency.
A19	(Åström et al., 2022)	Explain how AI vendors align value creation and capture to develop commercially viable business models.	**Description:** AI in business models for efficiency and value creation. **Effects:** Increased efficiency, better management of uncertainties, increased revenues. **Context:** Industries with disruptive technologies.	**Types of decisions:** Strategic and operational in AI adoption and commercialization. **GAI capability:** Manage big data and make complex decisions. **Examples:** Leading companies adopting AI to innovate business models.	**Market:** High volatility due to disruptive AI. **GAI–strategic decision relationship:** Facilitates informed decisions in volatile contexts. **Results:** Improved competitiveness, efficiency, and value.
A20	(Abada & Lambin, 2023)	Evaluate how AI algorithms can lead to collusive outcomes in markets with limited agents.	**Description:** Machine learning algorithms in storable goods markets. **Effects:** Collusive decisions without formal communication. **Context:** Batteries and energy systems.	**Types of decisions:** Buying and selling in storable goods markets. **GAI capability:** Optimization with historical price data. **Examples:** Management of battery operations.	**Market:** Imperfections and incomplete data. **GAI–strategic decision relationship:** Facilitates collusive strategies. **Results:** Collusive strategies without communication need regulation.

Table A1. *Cont.*

N°	Author and Date	Objective Integration of the GAI	GAI Integration	Decision Complexity	Market Volatility
A21	(Al-Surmi et al., 2022)	To explore the impact of AI on improving operational efficiency in the manufacturing industry.	**Description:** AI to optimize manufacturing processes. **Effects:** Increased efficiency and cost reduction. **Context:** Manufacturing industry.	**Types of decisions:** Production and maintenance. **GAI capability:** Process big data and optimize operations. **Examples:** Efficiency improvement and downtime reduction in production plants.	**Market:** High competitiveness and demand for efficiency. **GAI–strategic decision relationship:** Facilitates informed decisions and manufacturing optimization. **Results:** Increased productivity and reduced operating costs.
A22	(Adomavicius & Yang, 2022)	Understand and address algorithmic bias from a human-centered perspective.	**Description:** AI for automated decision-making (ADM) in various domains. **Effects:** Identification of biases and promotion of fairness in ADM models. **Context:** Recommendation and judicial decisions.	**Types of decisions:** Strategic and operational with algorithmic biases. **GAI capability:** Analyze and mitigate biases in data and models. **Examples:** ML models in lending and recidivism predictions.	**Market:** Algorithmic biases in competitive and dynamic markets. **GAI–strategic decision relationship:** Identifying and correcting biases for fairness and accuracy. **Results:** Fairer and more equitable decisions.
A23	(Agyemang et al., 2022)	Investigate how AI transforms business by focusing on strategic decisions.	**Description:** Customizes strategies and improves management. **Effects:** Personalized strategies, content adaptation, and better understanding of data. **Context:** Companies of all sizes.	**Decisions:** Adaptation of business strategies and pace of implementation. **GAI capability:** High ability to analyze business data and adjust strategies. **Examples:** Use of predictive analytics and data-driven business models.	**Market:** Technological inequality and privacy concerns. **GAI–strategic decision relationship:** Personalization of strategies and dynamic business environments. **Results:** Improved customer retention and motivation.
A24	(Zhang & Lu, 2021)	Investigate the use of AI in predicting customer behavior in e-commerce.	**Description:** AI models to analyze customer behavior patterns. **Effects:** Improved predictions and personalization of shopping experiences. **Context:** E-commerce	**Decision types:** Marketing and sales. **GAI capability:** Process big data on customer behavior. **Examples:** ML models to predict buying preferences.	**Market:** High competition and changing preferences. **GAI–strategic decision relationship:** Facilitates informed and adaptive decisions. **Results:** Improved customer satisfaction and increased sales.
A25	(Duan et al., 2019)	Evaluate the impact of AI on business decision-making.	**Description:** AI systems for strategic and operational decisions. **Effects:** Improved accuracy and efficiency of business decisions. **Context:** Finance, manufacturing, and services.	**Types of decisions:** Strategic, tactical, and operational. **GAI capability:** Analyze big data and generate insights. **Examples:** AI in various industries to improve decisions.	**Market:** High volatility due to new technologies and competition. **GAI–strategic decision relationship:** Facilitates fast and accurate decisions. **Results:** Improved operating efficiency and competitiveness.

Table A1. *Cont.*

N°	Author and Date	Objective Integration of the GAI	GAI Integration	Decision Complexity	Market Volatility
A26	(Lecun et al., 2015)	Review advances in deep learning and its impact on various AI applications.	**Description:** Implement deep neural networks in speech and image recognition tasks. **Effects:** Improved accuracy and performance. **Context:** Pattern recognition, computer vision, and natural language processing.	**Types of decisions:** Classification and prediction from large volumes of data. **GAI capability:** Learning and generalizing complex patterns. **Examples:** Speech recognition, object detection, and machine translation.	**Market:** High demand for advanced technologies and constant evolution of algorithms. **GAI–strategic decision relationship:** Deep AI improves the accuracy and speed of decisions in multiple domains. **Results:** Accelerated adoption of AI and increased operational efficiency.
A27	(Fosso Wamba et al., 2015)	Assess the impact of big data on business value creation.	**Description:** Analysis of big data in emergency services. **Effects:** Increased operational efficiency and resource optimization. **Context:** Emergency services in New South Wales, Australia.	**Types of decisions:** Operational and strategic. **GAI capability:** Analysis of large volumes of data. **Example:** NSW SES implementation for disaster management.	**Market:** High demand for efficiency and quick response. **GAI–strategic decision relationship:** Optimizes resource planning and coordination. **Results:** Increased operational efficiency and responsiveness.
A28	(Goodfellow et al., 2014)	Propose a new framework for estimating generative models using an adversarial process.	**Description:** Implement generative adversarial networks (GANs) with a generative and a discriminative model. **Effects:** Improvement in the quality and realism of the samples generated. **Context:** Generation of images, videos, and synthetic data.	**Decision types:** Sample generation and discrimination between real and synthetic data. **GAI capability:** Learning complex distributions and generating realistic data. **Examples:** Realistic image generation and data synthesis.	**Market:** High demand for quality synthetic data for training and simulations. **GAI–strategic decision relationship:** GANs improve the robustness and performance of AI models by generating synthetic data. **Results:** Accelerated adoption of AI and improved quality of data generated.
A29	(H. Chen et al., 2012)	Review the evolution and applications of business intelligence and analytics (BI&A) and propose a framework for future research.	**Description:** Implementation of BI&A techniques to improve decision-making in various business applications. **Effects:** Improved business insight and data-driven decision-making. **Context:** E-commerce, market intelligence, e-government, innovative health, and public safety.	**Types of decisions:** Strategies and operations based on analysis of large volumes of data. **GAI capability:** Processing and analysis of structured and unstructured data. **Examples:** E-commerce, smart health, and public safety analytics.	**Market:** High demand for data analysis. **GAI–strategic decision relationship:** BI&A improves decision-making.

Table A1. *Cont.*

N°	Author and Date	Objective Integration of the GAI	GAI Integration	Decision Complexity	Market Volatility
A30	(Phillips-Wren & Jain, 2006)	To present a comprehensive review of deep learning techniques' current state of the art.	**Description:** Deep learning is used in computer vision, voice, and natural language. **Effects:** Increased accuracy and generalization. **Context:** Technology, health, transportation.	**Types of decisions:** Automated and data-driven. **GAI capability:** Complex data analysis. **Examples:** Recommendations, medical diagnostics, autonomous vehicles.	**Market:** Rapid evolution and high competitiveness. **GAI–strategic decision relationship:** Advanced AI to adapt and compete. **Results:** Improved innovation and efficiency.

References

Abada, I., & Lambin, X. (2023). Artificial intelligence: Can seemingly collusive outcomes be avoided? *Management Science*, *69*(9), 5042–5065. [CrossRef]

Abu-Alsondos, I. A. (2023). The impact of business intelligence system (BIS) on quality of strategic decision-making. *International Journal of Data and Network Science*, *7*(4). [CrossRef]

Adomavicius, G., & Yang, M. (2022). Integrating Behavioral, Economic, and Technical Insights to Understand and Address Algorithmic Bias: A Human-Centric Perspective. *ACM Transactions on Management Information Systems*, *13*(3), 34. [CrossRef]

Agrawal, R., Wankhede, V. A., Kumar, A., Luthra, S., & Kataria, K. (2023). A systematic and network-based analysis of data driven quality management in supply chains and proposed future research directions. *The TQM Journal*, *35*, 73–101. [CrossRef]

Agyemang, P., Kwofie, E. M., & Fabrice, A. (2022). Integrating framework analysis, scenario design, and decision support system for sustainable healthy food system analysis. *Journal of Cleaner Production*, *372*, 133661. [CrossRef]

Alavi, M., Leidner, D. E., & Mousavi, R. (2024). Knowledge management perspective of generative artificial intelligence. *Journal of the Association for Information Systems*, *25*(1), 1–12. [CrossRef]

Al-Kubaisi, N. A. (2023). The black box of implementing strategic decisions. *International Journal of Customer Relationship Marketing and Management*, *14*(1), 1–21. [CrossRef]

Al Naqbi, H., Bahroun, Z., & Ahmed, V. (2024). Enhancing work productivity through generative artificial intelligence: A comprehensive literature review. *Sustainability*, *16*(3), 1166. [CrossRef]

Alsharhan, A., Al-Emran, M., & Shaalan, K. (2024). Chatbot adoption: A multiperspective systematic review and future research agenda. *IEEE Transactions on Engineering Management*, *71*, 10232–10244. [CrossRef]

Al-Surmi, A., Bashiri, M., & Koliousis, I. (2022). AI based decision making combining strategies to improve operational performance. *International Journal of Production Research*, *60*(14), 4464–4486. [CrossRef]

Andrew, K., Sullivan, M., & Strampel, K. (2023). Generative artificial intelligence: University student awareness, experience, and confidence in use across disciplines. *Journal of University Teaching and Learning Practice*, *20*(6), 1–18. [CrossRef]

Åström, J., Reim, W., & Parida, V. (2022). Value creation and value capture for AI business model innovation: A three-phase process framework. *Review of Managerial Science*, *16*(7), 2111–2133. [CrossRef]

Babl, F., & Babl, M. (2023). Generative artificial intelligence: Can ChatGPT write a quality abstract? *EMA—Emergency Medicine Australasia*, *35*(5), 809–811. [CrossRef] [PubMed]

Bandi, A., Adapa, P. V. S. R., & Kuchi, Y. E. V. P. K. (2023). The power of generative AI: A review of requirements, models, input–output formats, Evaluation metrics, and challenges. *Future Internet*, *15*(8), 260. [CrossRef]

Barcaui, A., & Monat, A. (2023). Who is better in project planning? Generative artificial intelligence or project managers? *Project Leadership and Society*, *4*, 100101. [CrossRef]

Basir, A., Puspitasari, E. D., Aristarini, C. C., Sulastri, P. D., & Almaududi Ausat, A. M. (2023). Ethical use of ChatGPT in the context of leadership and strategic decisions. *Journal Minfo Polgan*, *12*(1), 1239–1246. [CrossRef]

Bengesi, S., El-Sayed, H., Sarker, M. K., Houkpati, Y., Irungu, J., & Oladunni, T. (2024). Advancements in generative AI: A comprehensive review of GANs, GPT, autoencoders, diffusion model, and transformers. *IEEE Access*, *12*, 69812–69837. [CrossRef]

Bhowmik, R., & Wang, S. (2020). Stock market volatility and return analysis: A systematic literature review. *Entropy*, *22*(5), 522. [CrossRef] [PubMed]

Bonilla-Jurado, D., Guevara, C., Sánchez Montero, I. K., Iza Pazmiño, S., & Chenet, M. (2023). The triple helix model linked to knowledge transfer and economic progress from universities. *Salud, Ciencia y Tecnología*, *3*. [CrossRef]

Bouschery, S. G., Blazevic, V., & Piller, F. T. (2023). Augmenting human innovation teams with artificial intelligence: Exploring transformer-based language models. *Journal of Product Innovation Management*, *40*(2), 139–153. [CrossRef]

Celik, A., & Eltawil, A. M. (2024). At the dawn of generative AI Era: A tutorial-cum-survey on new frontiers in 6G wireless intelligence. *IEEE Open Journal of the Communications Society*, *5*, 2433–2489. [CrossRef]

Charles, V., Rana, N. P., & Carter, L. (2022). Artificial intelligence for data-driven decision-making and governance in public affairs. *Government Information Quarterly*, *39*(4), 101742. [CrossRef]

Chen, H., Chiang, R. H. L., Storey, V. C., Lindner, C. H., & Robinson, J. M. (2012). Business intelligence and analytics: From big data to big impact quarterly-business intelligence and analytics: From big data to big impact. *Source: MIS Quarterly*, *36*(4), 1165–1188.

Chen, Y., Liu, T. X., Shan, Y., & Zhong, S. (2023). The emergence of economic rationality of GPT. *Proceedings of the National Academy of Sciences of the United States of America*, *120*(51), e2316205120. [CrossRef] [PubMed]

Choo, C. W. (1991). Towards an information model of organizations. *The Canadian Journal of Information Science*, *16*(3), 32–62.

Cresswell, K., Rigby, M., Magrabi, F., Scott, P., Brender, J., Craven, C. K., Wong, Z. S. Y., Kukhareva, P., Ammenwerth, E., Georgiou, A., Medlock, S., De Keizer, N. F., Nykänen, P., Prgomet, M., & Williams, R. (2023). The need to strengthen the evaluation of the impact of Artificial Intelligence-based decision support systems on healthcare provision. *Health Policy*, *136*, 104889. [CrossRef] [PubMed]

Creswell, A., White, T., Dumoulin, V., Arulkumaran, K., Sengupta, B., & Bharath, A. A. (2018). Generative adversarial networks: An overview. *IEEE Signal Processing Magazine*, *35*(1), 53–65. [CrossRef]

Doshi, A. R., Bell, J. J., Mirzayev, E., & Vanneste, B. (2024). *Generative artificial intelligence and evaluating strategic decisions*. SSRN Electronic Journal. Available online: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4714776 (accessed on 15 October 2024).

Duan, Y., Edwards, J. S., & Dwivedi, Y. K. (2019). Artificial intelligence for decision making in the era of big data–Evolution, challenges and research agenda. *International Journal of Information Management*, *48*, 63–71. [CrossRef]

Edwards, J. S., Duan, Y., & Robins, P. C. (2000). An analysis of expert systems for business decision making at different levels and in different roles. *European Journal of Information Systems*, *9*(1), 36–46. [CrossRef]

Eloundou, T., Manning, S., Mishkin, P., & Rock, D. (2023). GPTs are GPTs: An early look at the labor market impact potential of large language models. *arXiv*, arXiv:2303.10130.

Farič, N., Hinder, S., Williams, R., Ramaesh, R., Bernabeu, M. O., van Beek, E., & Cresswell, K. (2024). Early experiences of integrating an artificial intelligence-based diagnostic decision support system into radiology settings: A qualitative study. *Journal of the American Medical Informatics Association: JAMIA*, *31*(1), 24. [CrossRef]

Feuerriegel, S., Hartmann, J., Janiesch, C., & Zschech, P. (2024). Generative AI. *Business and Information Systems Engineering*, *66*(1), 111–126. [CrossRef]

Fosso Wamba, S., Akter, S., Edwards, A., Chopin, G., & Gnanzou, D. (2015). How 'big data' can make big impact: Findings from a systematic review and a longitudinal case study. *International Journal of Production Economics*, *165*, 234–246. [CrossRef]

Gaibor-González, M., Bonilla-Jurado, D., Zumba-Novay, E., & Guevara, C. (2024). Strategic quality management of processes in nursing services within internal and general medicine units for a sustainable future in health systems. *Georgian Medical News*, *355*(10), 192–200.

García-Peñalvo, F., Llorens-Largo, F., & Vidal, J. (2024). The new reality of education in the face of advances in generative artificial intelligence. *RIED-Revista Iberoamericana de Educación a Distancia*, *27*(1), 9–39. [CrossRef]

Goodfellow, I., Pouget-Abadie, J., Mirza, M., Xu, B., Warde-Farley, D., Ozair, S., Courville, A., & Bengio, Y. (2014). Generative Adversarial Nets. In Z. Ghahramani, M. Welling, C. Cortes, N. Lawrence, & K. Q. Weinberger (Eds.), *Advances in neural information processing systems*. Curran Associates Inc. Available online: https://proceedings.neurips.cc/paper_files/paper/2014/file/5ca3e9b122f61f8f06494c97b1afccf3-Paper.pdf (accessed on 15 October 2024).

Gouiaa, R., & Bazarna, A. (2023). The interaction between rationality, politics and artificial intelligence in the decision-making process. *Entrepreneurial initiatives and corporate Governance and Organizational Behavior Review*, *7*(4), 263–271. [CrossRef]

Grove, H., Clouse, M., & Xu, T. (2023). Strategic foresight for companies. *Entrepreneurial Initiatives and Corporate Board Role Duties and Composition*, *19*(2), 8–14. [CrossRef]

Hoffman, R. (2018). Using artificial intelligence to set information free. In *What the digital future holds: 20 groundbreaking essays on how technology is reshaping the practice of management*. The MIT Press. [CrossRef]

Hutton, B., Catalá-López, F., & Moher, D. (2016). La extensión de la declaración PRISMA para revisiones sistemáticas que incorporan metaanálisis en red: PRISMA-NMA. *Medicina Clínica*, *147*(6), 262–266. [CrossRef] [PubMed]

Jarrahi, M. H. (2018). Artificial intelligence and the future of work: Human-AI symbiosis in organizational decision making. *Business Horizons*, *61*(4), 577–586. [CrossRef]

Jick, T. D., & Sturtevant, K. D. M. (2017). Taking stock of 30 years of change management: Is it time for a reboot? *Research in Organizational Change and Development*, *25*, 33–79. [CrossRef]

Jusman, I. A., Almaududi Ausat, A. M., & Sumarna, A. (2023). Application of ChatGPT in business management and strategic decision making. *Journal Minfo Polgan*, *12*(2), 1688–1697. [CrossRef]

Kanbach, D. K., Heiduk, L., Blueher, G., Schreiter, M., & Lahmann, A. (2024). The GenAI is out of the bottle: Generative artificial intelligence from a business model innovation perspective. *Review of Managerial Science*, *18*(4), 1189–1220. [CrossRef]

Kanitz, R., Gonzalez, K., Briker, R., & Straatmann, T. (2023). Augmenting organizational change and strategy activities: Leveraging generative artificial intelligence. *The Journal of Applied Behavioral Science*, *59*(3), 345–363. [CrossRef]

Kanjee, Z., Crowe, B., & Rodman, A. (2023). Accuracy of a generative artificial intelligence model in a complex diagnostic challenge. *JAMA*, *330*(1), 78. [CrossRef]

Kim, J. S., & Seo, D. (2023). Foresight and strategic decision-making framework from artificial intelligence technology development to utilization activities in small-and-medium-sized enterprises. *Foresight*, *25*(6), 769–787. [CrossRef]

Kirelli, Y. (2023). Analysis of factors affecting common use of generative artificial intelligence-based tools by machine learning methods. *International Journal of Computational and Experimental Science and Engineering*, *9*(3), 233–237. [CrossRef]

Kshetri, N., Dwivedi, Y. K., Davenport, T. H., & Panteli, N. (2024). Generative artificial intelligence in marketing: Applications, opportunities, challenges, and research agenda. *International Journal of Information Management*, *75*, 102716. [CrossRef]

Lalaleo-Analuisa, F. R., Bonilla-Jurado, D., & Robles-Salguero, R. (2021). Information and Communication Technologies exclusively for consumer behavior from a theoretical perspective. *Retos*, *11*(21), 147–163. [CrossRef]

Lecun, Y., Bengio, Y., & Hinton, G. (2015). Deep learning. *Nature*, *521*(7553), 436–444. [CrossRef]

Malloy, T., & Gonzalez, C. (2024). Applying generative artificial intelligence to cognitive models of decision making. *Frontiers in Psychology*, *15*, 1387948. [CrossRef] [PubMed]

Mariani, M., & Dwivedi, Y. K. (2024). Generative artificial intelligence in innovation management: A preview of future research developments. *Journal of Business Research*, *175*, 114542. [CrossRef]

Meissner, P., & Wulf, T. (2017). The effect of cognitive diversity on the illusion of control bias in strategic decisions: An experimental investigation. *European Management Journal*, *35*(4), 430–439. [CrossRef]

Mhatre, A. (2023, October 6–7). *Detecting the presence of social bias in GPT-3.5 using association tests*. 2023 International Conference on Advanced Computing Technologies and Applications (ICACTA) (pp. 1–6), Mumbai, India. [CrossRef]

Moore, A. W. (2018). Predicting a future where the future is routinely predicted. In *What the digital future holds: 20 groundbreaking essays on how technology is reshaping the practice of management*. The MIT Press. [CrossRef]

Neiroukh, S., Emeagwali, O. L., & Aljuhmani, H. Y. (2024). Artificial intelligence capability and organizational performance: Unraveling the mediating mechanisms of decision-making processes. *Management Decision*. *ahead-of-print*. [CrossRef]

Parry, K., Cohen, M., & Bhattacharya, S. (2016). Rise of the machines: A critical consideration of automated leadership decision making in organizations. *Group & Organization Management*, *41*(5), 571–594. [CrossRef]

Pearce, D., & Atkinson, G. (1998). The concept of sustainable development: An evaluation of its usefulness ten years after Brundtland. *Revue Suisse d Economies Politique et de Statuesque*, *134*, 251–270. [CrossRef]

Phillips-Wren, G., & Jain, L. (2006). Artificial intelligence for decision making. In B. Gabrys, R. J. Howlett, & L. C. Jain (Eds.), *Knowledge-based intelligent information and engineering systems* (Vol. 4252, pp. 531–536). KES 2006. Lecture Notes in Computer Science. Springer. [CrossRef]

Rajagopal, N. K., Qureshi, N. I., Durga, S., Ramírez Asis, E. H., Huerta Soto, R. M., Gupta, S. K., & Deepak, S. (2022). Future of business culture: An artificial intelligence-driven digital framework for organization decision-making process. *Complexity*, *2022*, 7796507. [CrossRef]

Rane, N. (2023). *Role and challenges of chatgpt and similar generative artificial intelligence in business management.* SSRN Electronic Journal. Available online: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4603227 (accessed on 15 October 2024).

Rethlefsen, M. L., & Page, M. J. (2022). PRISMA 2020 and PRISMA-S: Common questions on tracking records and the flow diagram. *Journal of the Medical Library Association*, *110*(2), 253–257. [CrossRef]

Richey, R. G., Chowdhury, S., Davis-Sramek, B., Giannakis, M., & Dwivedi, Y. K. (2023). Artificial intelligence in logistics and supply chain management: A primer and roadmap for research. *Journal of Business Logistics*, *44*(4), 532–549. [CrossRef]

Sadler-Smith, E., & Shefy, E. (2004). The intuitive executive: Understanding and applying "gut feel" in decision-making. *Academy of Management Executive*, *18*(4), 76–91. [CrossRef]

Sánchez, S., Pedraz, I., & Donoso, M. (2022). ¿Cómo hacer una revisión sistemática siguiendo el protocolo PRISMA? Bordón. *Revista de Pedagogía*, *74*(3), 51–66. [CrossRef]

Shekhar, A., Prabhat, P., Yandrapalli, V., Umar, S., Abdul, F., & Wakjira, W. D. (2023). Generative AI in supply chain management. *International Journal on Recent and Innovation Trends in Computing and Communication*, *11*(9), 4179–4185. [CrossRef]

Shkarupa, O., Vlasenko, D., Vesperis, S., Treus, A., & Juhaszova, Z. (2021). Strategic management for sustainable decisions in business: A case of greening the transport companies. *Problems and Perspectives in Management*, *19*(4), 311–324. [CrossRef]

Shmueli, G., Sarstedt, M., Hair, J. F., Cheah, J.-H., Ting, H., Vaithilingam, S., & Ringle, C. M. (2019). Predictive model assessment in PLS-SEM: Guidelines for using PLSpredict. *European Journal of Marketing*, *53*(11), 2322–2347. [CrossRef]

Simon, H. A. (1972). Theories of bounded rationality. *Decision and Organization*, *1*(1), 161–176.

wael AL-khatib, A. (2023). Drivers of generative artificial intelligence to foster exploitative and exploratory innovation: A TOE framework. *Technology in Society*, *75*, 102403. [CrossRef]

Zeng, X., Wang, F., Luo, Y., Kang, S. G., Tang, J., Lightstone, F. C., Fang, E. F., Cornell, W., Nussinov, R., & Cheng, F. (2022). Deep generative molecular design reshapes drug discovery. *Cell Reports Medicine*, *3*(12), 100794. [CrossRef] [PubMed]

Zhang, C., & Lu, Y. (2021). Study on artificial intelligence: The state of the art and future prospects. *Journal of Industrial Information Integration*, *23*, 100224. [CrossRef]