ISSN 2409-2665
Journal of Logistics, Informatics and Service Science
Vol. 11 (2024) No. 4, pp. 166-179
DOI:10.33168/JLISS.2024.0410

Exploring the Research Landscape of Artificial Intelligence Integration with Business Management: A Bibliometric Analysis from 1994-2024

Muhammad Farooq [1], Yuen Yee Yen [2], Hafsa Qadir Buzdar [3], Qasim Ali Qureshi [4]

[1] Head Department of Business and Public Administration, Emerson University, Multan, Pakistan
[2] Senior Lecture, Faculty of Business, Multimedia University, Malaysia
[3] Lecturer of English, NUML, Multan Pakistan
[4] Lecturer of Management Science, CUI Islamabad Campus
muhammad.farooq@mmu.edu.my

Abstract. Artificial Intelligence's (AI) permeation in reshaping business models, operations and strategies necessitates continual investigation of the research landscapes to discern directions. This bibliometric analysis maps AI-business research publications over 1994-2023 by themes, author networks and trends. Temporal analyses of 481 articles indicate an exponential increase in the last five years. Text mining and visualizations reveal prominent focus areas like management, marketing, human resources, supply chain, ethics, and sustainability alongside emerging avenues. Cluster analysis of keywords and author interconnectivity exposes interdisciplinary expansiveness yet geographical concentration requiring mitigation. Quantitative measurement of knowledge development coupled with qualitative interpretations furnishes business academicians and practitioners an information base for gauging prospects in melding managerial acumen with machine cognition. The analysis offered in this study serves as a valuable resource for academics, researchers, and students who aim to comprehend the dynamic and ever-changing research in the domain of business, management, and artificial intelligence. The results of our investigation indicate the presence of a dynamic area of academic inquiry, distinguished by a wide range of research topics and scholarly contributions.

Keywords: Business, Management, Artificial Intelligence, Future Research Areas, Research Topics

1. Introduction

In 2022, the global artificial intelligence market reached a value of $428.00 billion, and it is expected to increase to $515.31 billion in 2023. The market is projected to experience substantial growth, reaching a significant milestone of $2,025.12 billion by the year 2030 (Insight, 2023). The integration of Business Management with Artificial Intelligence (AI) in recent decades has resulted in a significant surge of research and innovation (Iaia et al., 2023). The domain of artificial intelligence, once confined to the world of speculative literature, has now become an indispensable component of our everyday existence (Odrekhivskyi et al., 2023). The applications of this technology in the field of business management are diverse, leading to significant transformations in several sectors, improving the process of decision-making, and fundamentally altering the framework of corporate strategy (Zhong et al., 2023) . In the year 2023, there has been a notable increase in research activity at the dynamic intersection of artificial intelligence (AI) and the business sector (Q. Li, 2023). This spike in research reflects the pressing need for and importance of comprehending and effectively using the promise of AI in the realm of business. The graph below highlights only US artificial intelligence market size from 2022 to 2032 which is expected to $594 billion.

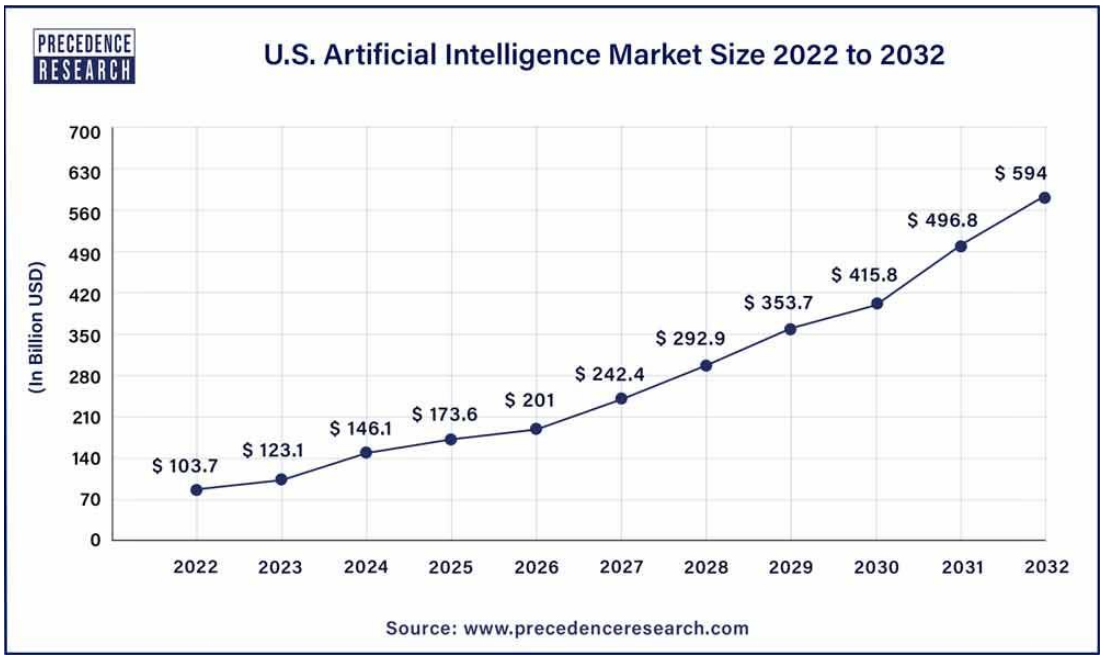

Fig.1: Artificial Intelligence Market Predication

The interaction between artificial intelligence (AI) and corporate management extends beyond conventional limits, presenting new aspects and intricacies (Farooq et al., 2024; Farooq, Bakhsh, et al., 2023; Farooq, Hafsa Qadir, et al., 2023; Yen et al., 2023). AI technologies, such as machine learning, natural language processing, and robotics, have exhibited their capacity to enhance operational efficiency, increase productivity, and reveal previously unattainable insights. As a result, there has been a substantial increase in scholarly investigations examining different aspects of incorporating artificial intelligence into commercial operations(X. Tian et al., 2023). at order to provide a comprehensive understanding of this emerging field, this study aims to explore potential avenues for future research at the intersection of Business Management and Artificial Intelligence (AI). This investigation is based on an extensive collection of 481 research articles, which were selected based on their relevance to the core themes of "business," "management," and "artificial intelligence." The collection of articles, spanning the years 1994 to 2023, offers a thorough perspective on the progression of this discipline and highlights the urgent inquiries that require academic investigation.

2. Literature Review

In recent decades, the integration of Business Management and Artificial Intelligence (AI) has led to an exponential increase in related research and innovation. Upon conducting an extensive examination of the available literature, it becomes evident that the current body of knowledge encompasses a diverse and intricate terrain, marked by a multitude of noteworthy patterns and subjects that warrant in-depth academic investigation (Hangl et al., 2023).

The literature frequently explores the prominent issue of the transformational influence of artificial intelligence (AI) on corporate operations. Numerous scholarly investigations have explored the impact of artificial intelligence (AI)-driven automation and optimization on the streamlining of supply chain management, the reduction of operational costs, and the enhancement of efficiency (Sumarliah & Al-hakeem, 2023). The application of artificial intelligence (AI) in supply chain management has been examined by Gupta et al. (2018), while the utilisation of AI to improve business operations during emergencies such as the COVID-19 pandemic has been discussed by Chen et al. (2020).

An area of significant study focuses on the influence of AI on modern business models. The study conducted by Leonardi and Vaast (2017) provides a comprehensive analysis of the skills and responsibilities of senior executives in the context of business model innovation facilitated by artificial intelligence (AI). These studies highlight the crucial significance of artificial intelligence (AI) in shaping company strategies and models to effectively manage the always changing business environment. The convergence of Artificial Intelligence (AI) and Knowledge Management (KM) is a dynamic and developing area of academic inquiry. The impact of artificial intelligence (AI) on information exchange inside organisations and its subsequent effect on organisational performance has been investigated by scholars such as Chen and Huang (2018). The focal point of this subject is to emphasise the complex interconnection between artificial intelligence (AI) and the efficient distribution and use of knowledge.

The utilisation of artificial intelligence (AI) in the field of marketing and the comprehension of customer behaviour has attracted considerable scholarly interest. Numerous scholarly investigations, such those conducted by Davenport et al. (2017) and Yang et al. (2019), underscore the significance of artificial intelligence (AI) in enhancing marketing tactics and tailoring client experiences. The potential of artificial intelligence (AI) in defining marketing strategies and improving consumer interaction is a promising area of research as the e-commerce industry continues to develop.

The advent of artificial intelligence (AI) in the corporate sector has led to the emergence of ethical considerations. Researchers such as He et al. (2021) have conducted investigations on the ethical utilisation of knowledge within the realm of artificial intelligence, so illuminating the significance of adopting responsible practises in the field of AI. The examination and discussion of the ethical aspects surrounding the utilisation of artificial intelligence in corporate operations and decision-making necessitate continuous evaluation and deliberation.

The themes encompass but a portion of the intricate dialogue that encompasses the field of AI within the realm of Business Management. The literature examined in this study highlights the dynamic and intricate nature of this emerging discipline. The exploration of AI's potential and the examination of ethical, social, and operational difficulties that arise are crucial aspects of doing comprehensive research in response to the transformative impact of AI on business paradigms. By engaging in this process, researchers and professionals may enhance their ability to traverse the dynamic field of artificial intelligence (AI) and make valuable contributions to the advancement of ethical, environmentally conscious, and cutting-edge commercial strategies.

3. Methodology

The present study utilizes a rigorous and all-encompassing research technique to examine prospective topics of research that connect the fields of Business Management and Artificial Intelligence (AI). The

primary aim is to acquire a comprehensive understanding of the dynamic nature of artificial intelligence's involvement in the business sector, discern emerging patterns, and provide guidance for future research endeavours. The main data source utilised in this study consists of a corpus including 481 research publications, which encompasses the period from 1994 to 2023. The publications included in this study were obtained from the Web of Science database, employing a specific set of three keywords: "business," "management," and "artificial intelligence." The dataset presented in this study offers a comprehensive and reliable basis for examining patterns of research and the evolution of themes over a span of around thirty years.

In order to organise the study, the chosen publications were classified into certain categories within the Web of Science database. These categories encompass Management, Business, and Business; Management. To assist theme grouping and investigation, each document was given to one or more related categories. The temporal analysis of the dataset enabled a thorough investigation of research patterns. A compilation of publication counts from 1994 to 2023 was conducted in order to examine changes in research concentration over time. Special attention was given to the most recent five-year period, which exhibited a notable increase in the number of publications.

The use of the VOSviewer programme was utilised to generate bibliometric maps and conduct network analysis on the dataset. This methodology facilitated the depiction of concurrently appearing concepts and their interconnections, so revealing the latent thematic frameworks. The NVIVO-10 software was employed to analyse and extract significant themes, hence shedding light on the dominant areas of study and the developing focus points within the dataset.

The research methodology encompasses the integration of both quantitative and qualitative methodologies. Quantitative analysis encompasses the utilisation of bibliometric mapping and statistical summaries to visually represent data and quantify publication numbers based on categories and years. The qualitative component of this study is doing a comprehensive analysis of the content of specific scholarly articles, with a special focus on the fields of Management, Business, and Artificial Intelligence. The objective is to extract subtle insights pertaining to research domains and emerging trends. In addition to employing quantitative measurements, this study technique incorporates a thematic analysis of the content derived from the chosen articles, with a particular focus on recent publications. These analyses will aid in the identification of significant themes, gaps in research, and areas that require additional investigation. When undertaking this study, ethical issues entail the protection of data privacy and the maintenance of academic integrity. This work utilises readily accessible and anonymised data obtained from publicly available academic articles, while complying to ethical research norms. This study technique provides a comprehensive and holistic approach to identifying future research opportunities in the fields of Business Management and Artificial Intelligence, through the integration of data-driven bibliometric analysis and qualitative content inspection. The amalgamation of many methodologies facilitates a thorough comprehension of the dynamic environment and the discernment of crucial pathways for future investigation.

4. Data Analysis and Results

The data analysis conducted in this study offers significant insights into the progression of research at the convergence of Business Management and Artificial Intelligence (AI). A comprehensive analysis was conducted on a dataset consisting of 481 research publications, covering the time frame from 1994 to 2023. The objective of this analysis was to uncover significant patterns, emerging themes, and regions of study concentration within the dataset. The chronological evolution of research in this subject is a significant finding of this study. In the period spanning from 2019 to 2023, a discernible increase in scholarly works has been seen, indicating a rising fascination with the intersection of business management and artificial intelligence. The findings of this temporal study indicate that the field is actively adapting to the changing technological environment.

The analysis of publications for classification into separate categories within the Web of Science database highlighted the prevalence of three main categories: Management, Business, and Business; Management. These aforementioned categories constituted a substantial fraction of the dataset, suggesting that studies at the crossroads of artificial intelligence and business frequently draw from these established academic fields. Nevertheless, it is crucial to acknowledge that artificial intelligence (AI) surpasses the confines of certain disciplines and is more pertinent in a wide range of sectors.By employing bibliometric mapping and doing thematic analysis, significant themes within the dataset were identified. These themes not only encompass well-established areas of study, but also draw attention to developing and possibly revolutionary subjects. Several notable subjects that are frequently discussed in academic literature and research encompass artificial intelligence (AI) in the field of marketing, knowledge management, supply chain management, ethics, innovation, and human resource management. The aforementioned findings highlight the intricate and diverse impact of artificial intelligence on the business domain, indicating a fertile ground for further investigation. The cross-disciplinary nature of research in this topic is apparent based on the dataset. The incorporation of artificial intelligence (AI) into several domains of business management underscores the interdisciplinary character of this area. For example, the integration of artificial intelligence (AI) in the field of marketing encompasses the convergence of AI and commercial domains, highlighting the significance of collaborative research and the exchange of information across several disciplines.

An important finding pertains to the increasing focus on ethical considerations and sustainability within the realm of artificial intelligence (AI) and business administration. This indicates a heightened recognition of the societal ramifications of artificial intelligence (AI) and the imperative for the development and implementation of AI applications that are both ethically sound and environmentally sustainable. The dataset not only elucidates the junction of artificial intelligence (AI) with the domains of business and management, but also uncovers the synergistic relationship between AI and other areas, including Green & Sustainable Science, Information & Library Science, and Industrial Management. These intersections highlight the capacity of artificial intelligence (AI) to tackle intricate and multidisciplinary problems.

In essence, the findings of the data analysis demonstrate a complex and multifaceted terrain where the fields of Business Management and Artificial Intelligence cross. The expanding study focus in this subject is indicated by the increase in publications, the cross-disciplinary character of the research, and the inclusion of ethical and sustainability components. The themes that have been discovered serve as a guide for future research endeavours, shedding light on potential avenues for researchers and practitioners to delve into the diverse effects of artificial intelligence on the corporate landscape. Furthermore, below tables show the prominent themes of web of science published papers. It is important to note the business management and artificial intelligence combined papers writing has increased. The figure-1 shows a strong connection between the artificial intelligence and business management. It highlights several aspects in three clusters.

Future research areas in Business Management and Artificial Intelligence for MS & PhD Students in Doctoral Studies.

Table 1 Business Management and Artificial Intelligence Category Wise Papers

	Publication Year									
Web of Science Categories	2022	2023	2021	2020	2019	2018	2017	2016	1994-2015	Total
Management	10	12	2	5	6	2			1	38
Business	5	5	4	8	2	1			1	26
Business; Management	6	5	9	2	2				0	24
Green & Sustainable Science	4	4	5	1	2				0	16
Information & Library Science	5	1	4	3	1				0	14
CS, Information Systems	3	4	2	2					2	13
CS, Artificial Intelligence	2		3	3	1				2	11
CS Interdisciplinary Applications	1	5		3	1		1		0	11
Industrial; Management	2	5	3						0	10
Economics	2	4	2		1	1			0	10
Telecommunications	4		3		3				0	10
Operations Research	3	4	2						1	10
Business, Finance	4	1	3	1					0	9
Other	80	58	55	29	25	10	6	2	13	278
Total	131	108	97	57	44	14	7	2	20	480

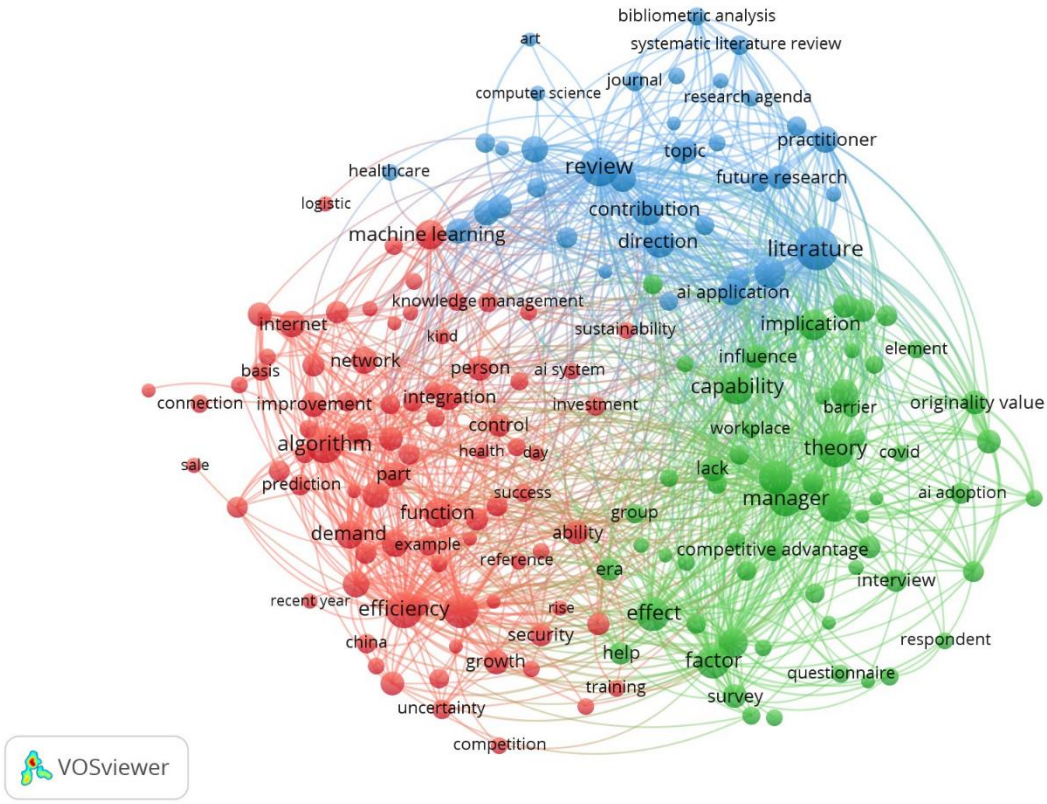

Fig.2: Business Management and Artificial Intelligence Network of 481 Articles

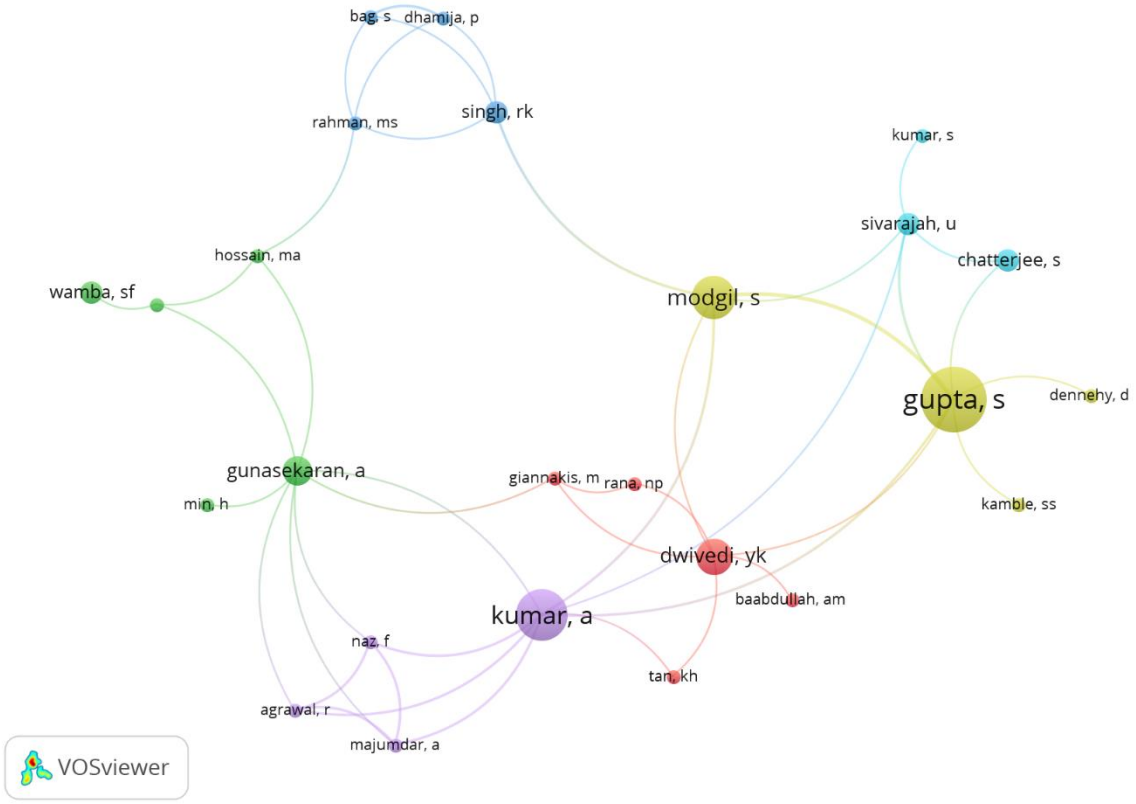

Fig.3: Business Management and Artificial Intelligence Authors Bibliographic Analysis Top Authors

Table 2 Future research areas in Business Management and Artificial Intelligence

Author/Year	Objective	Future Research Areas	Citations
(Mendling et al., 2018)	Analyzing the impact of emerging technologies on business process management.	Impacts on employment, technology acceptance, ethics, customer experience, job design, social integration, and regulation.	77
(Hangl et al., 2023)	Providing an overview of systematic reviews related to AI adoption in business and management.	Recommending rigorous evaluation, increased use of hybrid solutions, multidisciplinary AI design and evaluation, and identifying sectors with limited reviews.	75
(Paschek et al., 2017)	Exploring the optimization of business processes using machine learning and AI.	Recommendations for action in BPM and process optimization, selecting the best tool for automated BPM.	33
(Maggi et al., 2019)	Proposing the integration of automated planning techniques into BPM for solving problems.	Methodology for encoding problems as planning tasks, steps for integrating planning technology in BPM, and practical examples of planning techniques in BPM.	26
(Butleris, 2009)	Demonstrating the use of PSO algorithm for improving business rules management.	Potential application of PSO algorithm in business rules management.	14
(Marrella & Mecella, 2018)	Discussing automated planning techniques for enhancing business processing in dynamic domains.	Examples of AI-driven automation in different BPM stages.	14
(Gardner et al., 2019)	Presenting an intelligent production model for facial masks production.	Application of AI in smart CPS for production coordination and logistics management.	12
(Neighbors et al., 2023)	Investigating automation in scientific research processes for management and business sciences.	Exploring the possibilities and implications of automation in management and business science.	11

Author/Year	Objective	Future Research Areas	Citations
(Basri, 2020)	Examining the impact of AI-assisted social media marketing on SME performance.	Role of AISMM in enhancing SME performance and effective business management.	11
(Sulis et al., 2020)	Applying agent-based methodologies in healthcare management.	Extensive application of agent-oriented methodologies in healthcare management.	11
(Feuerriegel et al., 2022)	Unpacking core factors affecting decision delegation to AI for managers.	Identifying organizational and technical hurdles and fostering effective AI decision delegation.	9
(Hallioui et al., 2022)	Proposing Re-engineered 4th Generation Management as a systems-based approach for sustainable businesses.	Suitability of the framework for sustainable businesses with Industry 4.0 technologies and providing research implications.	9
(Alfhaid & Qasrawi, 2022)	Introducing BI system with AI for real-time analysis of hospital patient management.	Role of AI in real-time patient management and future developments.	8
(Szelagowski & Lupeikiene, 2020)	Discussing the impact of knowledge management on business process management.	Evolving software systems supporting BPM towards integration with knowledge management.	8
(Khan & La Torre, 2021)	Urging strategic management of quantum information technology.	Management of quantum information technology and its strategic significance.	7
(Hsu et al., 2022)	Presenting an innovative decision architecture to assess corporate risks using AI.	Associations between risks and operating performance using AI-based risk assessment models.	7
(Dodangeh & Md Yusuff, 2011)	Developing a comprehensive model for assessing EFQM in practice.	Validating a comprehensive EFQM-based assessment model.	6
(Montano-Arias & Uribe, 2018)	Proposing a framework for the development of chronic disease support systems.	Application of support systems for chronic patients and medical staff using BPMN.	7
(Mosteanu, 2020)	Discussing AI and cybersecurity to protect businesses from cyberattacks.	Combining AI and cybersecurity for business protection and case studies on risk management.	6
(Marrella & Mecella, 2018)	Introducing adaptive Cognitive Process Management System.	Adaptive approach for executing cyber-physical processes in the presence of exogenous events.	6
(Lin, 2021)	Developing an effective pre-warning model in the turbulent market environment.	Creating a pre-warning model using SVM, MIL, and interpreting SVM-based decision logic.	6
(Karpa et al., 2023)	Considering the development of public administration using digital technologies.	Applying digital technologies in public administration systems for sustainable development.	5
(Huo et al., 2019)	Exploring the role of ant colony optimization in quality management on the E-business market.	Application of ant colony optimization to control and regulate quality management nodes.	5
(Patria et al., 2019)	Analyzing the impact of strategic decision-making in business and management.	Building incremental decision processes for better decision outcomes.	5
(Karpa et al., 2023)	Discussing best practices for using AI in digital public administration systems.	Use of AI and smart solutions for sustainable development and analytics in public administration.	5
(Sumarliah & Al-hakeem, 2023)	Investigating the impact of SSCM and green entrepreneurial preference on business performance.	Post-COVID-19 impacts of SSCM and digital innovations for firms.	2

Author/Year	Objective	Future Research Areas	Citations
(Shrivastava, 2023)	Identifying trending topics and emerging themes in supply chain management.	Anticipating future research trends in supply chain management.	2
(Jorzik et al., 2023)	Exploring top management's role in encouraging AI-enabled business model innovation.	Developing top management competencies and roles for AI-enabled business model innovation.	1
(S. Tian et al., 2023)	Utilizing AI and machine learning techniques for employee selection in HR.	Comparing machine learning techniques for resume classification and the use of AI in HR.	1
(Iaia et al., 2023)	Investigating the use of AI in business communication from a KM perspective.	AI integration in business communication and the role of knowledge management.	0
Odrekhivskyi et al., 2023	Developing a system model of enterprise for intelligent management.	Application of mathematical models for assessing enterprise development and employee state.	0
(Almaraz-López et al., 2023)	Analyzing AI's impact on the environment and digital platforms for GHG emission reduction.	Insights for AI's role in environmental sustainability and reducing GHG emissions using AI.	0
(L. Li et al., 2023)	Examining the challenges and opportunities of AI and internet in supply chain finance and urban planning.	The role of AI, the internet, and big data in supply chain finance and urban planning.	0
(McCartney et al., 2023)	Focusing on the effects of AI on the environment and GHG emissions reduction.	AI's impact on the environment and its role in reducing GHG emissions through digital platforms.	0

5. Conclusion and Recommendations

In Conclusion, this detailed examination underscores the many and intricate functions of Artificial Intelligence (AI) in the realm of business administration. The primary emphasis of this study pertains to the amalgamation of sustainability and artificial intelligence within the realm of business management. This underscores a burgeoning inclination to harmonise corporate operations with the fundamental tenets of sustainable development. The paper highlights the transformational potential of artificial intelligence (AI) in resource allocation and environmental impact reduction by examining AI-driven business models and competences. The convergence of knowledge management and artificial intelligence (AI) is a developing area of scholarly inquiry, wherein the integration of AI holds the potential to augment the interchange of information inside organisations and improve overall performance. Furthermore, the significant importance of artificial intelligence (AI) in the field of supply chain management is underscored, encompassing both its theoretical underpinnings and real-world implementations that aim to enhance resilience, efficiency, and sustainability.

The core subjects of this study encompass marketing and consumer behaviour analysis, with a particular focus on investigating the influence of artificial intelligence (AI) on marketing strategies and decision-making processes. The financial industry has experienced a swift integration of artificial intelligence (AI), providing valuable perspectives on its impact on financial analysis, risk management, and accounting methodologies. The research also examines the involvement of artificial intelligence (AI) in the field of human resource management, which includes activities such as talent acquisition, employee engagement, and ethical issues. This research investigates the potential of artificial intelligence (AI) to promote innovation and improve organisational performance within the field of innovation management. Moreover, this study investigates the utilisation of artificial intelligence (AI) in the context of business-to-business (B2B) marketing and sales tactics. It sheds light on the synergistic partnership between human agents and AI across the many stages of the sales funnel.

The scope of this study encompasses the crucial domain of supply chain resilience, with a specific

emphasis on the role of artificial intelligence (AI) in bolstering the strength of supply chains, particularly during periods of disruption such as the COVID-19 pandemic. Furthermore, this paper examines the incorporation of artificial intelligence (AI) in the fields of e-commerce and online education, providing an in-depth analysis of how AI technologies are transforming consumer experiences and educational methodologies. The emergence of ethical issues pertaining to artificial intelligence (AI), big data, and data analytics in the realm of corporate management has been a prominent area of focus. Finally, this paper examines the function of artificial intelligence (AI) in the innovation of business processes, providing insights into its influence on the monitoring of processes and decision-making. This study highlights the incorporation of artificial intelligence (AI) into the framework of Customer Relationship Management (CRM), with a specific focus on its potential impact on organisational performance. The many study domains mentioned collectively highlight the significant impact of artificial intelligence (AI) on modern corporate management, hence emphasizing the need for ongoing investigation and ethical deliberation within this rapidly evolving field.

Following are the recommendations for research for business and management domain professionals.

The integration of sustainability with artificial intelligence (AI) in business management

Paper in this domain is recommended to study the potential contributions of artificial intelligence (AI) towards the promotion of sustainable business practises, aligning with the objectives of sustainable development. The studies must be aimed to the significance of artificial intelligence (AI) in enhancing resource allocation efficiency and mitigating environmental consequences.

AI-Driven Business Models and Competencies

Paper in this domain is recommended to study the abilities and duties of senior management inside organisations that employ AI-driven business models. Study must be aimed to study the effects of artificial intelligence (AI) on business model innovation and sustainability. The intersection of knowledge management and artificial intelligence (AI) has become a topic of significant interest and research in recent years. The study must also be aimed to investigate the impact of artificial intelligence integration on knowledge management practises within organisations. The papers must aimed conduct an analysis of the ways in which artificial intelligence (AI) facilitates and improves the exchange of information inside organisations, ultimately leading to enhanced organisational performance.

The Role of Artificial Intelligence in Supply Chain Management:

Paper in this domain is recommended to study the theoretical underpinnings and real-world implementations of artificial intelligence (AI) within the context of supply chain management. The studies must be aimed investigate the potential of artificial intelligence (AI) in augmenting the resilience, efficiency, and sustainability of supply chains.

The Role of Artificial Intelligence in Marketing and Analysis of Customer Behaviour

Examine the use of artificial intelligence (AI) inside marketing plans and campaigns.
The studies must be aimed to analyse the influence of AI-driven consumer behaviour models on business intelligence and marketing decision-making processes.

The application of artificial intelligence (AI) in the field of financial management and accounting has gained significant attention in recent years.

The studies must be aimed to examine the effects of artificial intelligence (AI) on financial analysis, risk management, and accounting procedures. Explore the dependability of accounting information in the context of AI.

The Intersection of Human Resource Management and Artificial Intelligence.

Paper in this domain is recommended to study the impact of artificial intelligence (AI) on human resource management (HRM), specifically focusing on its function in talent acquisition and employee engagement. The papers must be aimed to analyze the ethical concerns associated with the use of artificial intelligence (AI) in human resources (HR) practises.

The Role of Artificial Intelligence in Innovation Management:

Paper in this domain is recommended to study the impact of artificial intelligence (AI) on innovation management within organisational contexts. This study aims to examine the possibilities of AI-driven innovation and their influence on the performance of firms.

The Role of Artificial Intelligence in Business-to-Business Marketing and Sales:

Examine the use of artificial intelligence (AI) inside business-to-business (B2B) marketing and sales method. Examine the partnership between human agents and artificial intelligence in generating value throughout the business-to-business (B2B) sales funnel.

The Application of Artificial Intelligence in Enhancing Supply Chain Resilience.

Examine the application of artificial intelligence (AI) in the establishment of robust supply chains, with a specific focus on addressing interruptions such as the COVID-19 pandemic.

The Role of Artificial Intelligence in the Fields of E-Commerce and Online Education:
This study aims to examine the use of artificial intelligence (AI) within the realm of electronic commerce (e-commerce) and its consequential effects on consumer experiences.

This study aims to conduct an analysis of the advancements observed in the realm of online education pertaining to finance and business management, specifically focusing on the integration of artificial intelligence (AI) technologies.

The Ethical Considerations in Artificial Intelligence (AI)

The paper in this domain is recommended to study the ethical considerations associated with the utilisation of artificial intelligence (AI), big data, and data analytics within the context of corporate management. Examine the ethical implications around the utilisation of artificial intelligence (AI) knowledge and data.

Business Process Innovation Utilizing Artificial Intelligence:

This inquiry must delve at the impact of artificial intelligence (AI) on business processes and innovation. This study aims to examine the effects of artificial intelligence (AI) on the monitoring of business processes and the subsequent decision-making inside organisations.

The integration of artificial intelligence (AI) into the realm of Customer Relationship Management (CRM)

Paper in this domain is recommended to study the utilisation of artificial intelligence (AI) within the context of customer relationship management (CRM) and its consequential effects on organisational performance. The Role of Artificial Intelligence in Risk Management within the Banking Sector

References

Alfhaid, L. H. K., & Qasrawi, A. F. (2022). Pt/SeO2optical receivers designed for terahertz and 5G/6G technologies. *Physica Scripta*, *97*(5). https://doi.org/10.1088/1402-4896/ac6545

Almaraz-López, C., Almaraz-Menéndez, F., & López-Esteban, C. (2023). Comparative Study of the

Attitudes and Perceptions of University Students in Business Administration and Management and in Education toward Artificial Intelligence. *Education Sciences*, *13*(6). https://doi.org/10.3390/educsci13060609

Basri, W. (2020). Examining the Impact of Artificial Intelligence (AI)-Assisted Social Media Marketing on the Performance of Small and Medium Enterprises: Toward Effective Business Management in the Saudi Arabian Context. *INTERNATIONAL JOURNAL OF COMPUTATIONAL INTELLIGENCE SYSTEMS*, *13*(1), 142–152. https://doi.org/10.2991/ijcis.d.200127.002 WE - Science Citation Index Expanded (SCI-EXPANDED) WE - Social Science Citation Index (SSCI)

Butleris, R. (2009). Improving Business Rules Management Through the Application of Adaptive Business Intelligence Technique. *Technology*, *38*(1), 21–28.

Dodangeh, J., & Md Yusuff, R. (2011). ICMS From the SelectedWorks of Jay Daniel Assessment system based on fuzzy scoring in European Foundation for Quality Management (EFQM) business excellence model Assessment system based on fuzzy scoring in European Foundation for Quality Management (EFQM). *African Journal of Business Management*, *5*(15), 6209–6220. http://works.bepress.com/javad_dodangeh/6/http://www.academicjournals.org/AJBM

Farooq, M., Bakhsh, A., Hafsa Qadir, B., & Warda, N. (2023). Digital Empowerment: Freedom of Expression Beyond 5G and 6G Networks in Developing Countries. *Pakistan Journal of Social Sciences*, *43*(4), 569–584. https://doi.org/10.5281/zenodo.10448484

Farooq, M., Buzdar, H. Q., Yen, Y. Y., & Bakhsh, A. (2024). Integrating AI in Sustainable Writing: An Empirical Investigation of the Technology Acceptance Model in Asian Social Sciences. *Journal of Logistics, Informatics and Service Science*, *11*(3), 324–338. https://doi.org/10.33168/jliss.2024.0321

Farooq, M., Hafsa Qadir, B., & Saeed, M. (2023). AI-Enhanced Social Sciences: A Systematic Literature Review and Bibliographic Analysis of Web of Science Published Research Papers. *Pakistan Journal of Society, Education and Language (PJSEL)*, *10*(December 2023), 1–2.

Feuerriegel, S., Shrestha, Y. R., von Krogh, G., & Zhang, C. (2022). Bringing artificial intelligence to business management. *NATURE MACHINE INTELLIGENCE*, *4*(7), 611–613. https://doi.org/10.1038/s42256-022-00512-5 WE - Science Citation Index Expanded (SCI-EXPANDED)

Gardner, M., Grus, J., Neumann, M., Tafjord, O., Dasigi, P., Liu, N. F., Peters, M., Schmitz, M., & Zettlemoyer, L. (2019). AllenNLP: A Deep Semantic Natural Language Processing Platform. In *NLP OPEN SOURCE SOFTWARE (NLP-OSS)* (Issue Workshop on NLP Open Source Software (NLP-OSS), pp. 1–6). https://doi.org/10.18653/v1/w18-2501

Hallioui, A., Herrou, B., Santos, R. S., Katina, P. F., & Egbue, O. (2022). Systems-based approach to contemporary business management: An enabler of business sustainability in a context of industry 4.0, circular economy, competitiveness and diverse stakeholders. *Journal of Cleaner Production*, *373*. https://doi.org/10.1016/j.jclepro.2022.133819

Hangl, J., Krause, S., & Behrens, V. J. (2023). Drivers, barriers and social considerations for AI adoption in SCM. *Technology in Society*, *74*. https://doi.org/10.1016/j.techsoc.2023.102299

Hsu, M. F., Hsin, Y. S., & Shiue, F. J. (2022). Business analytics for corporate risk management and performance improvement. *Annals of Operations Research*, *315*(2), 629–669. https://doi.org/10.1007/s10479-021-04259-x

Huo, D., Chen, Y., Hung, K., Ouyang, R. H., Sun, B. W., & Cai, Y. H. (2019). QUALITY MANAGEMENT OF E-BUSINESS: A KEY NODE ANALYSIS OF ECOLOGICAL NETWORK IN DIGITAL ECONOMY BY USING ARTIFICIAL INTELLIGENCE. *ROMANIAN JOURNAL OF ECONOMIC FORECASTING*, *22*(2), 166-179 WE-Social Science Citation Index (SSCI).

Iaia, L., Nespoli, C., Vicentini, F., Pironti, M., & Genovino, C. (2023). Supporting the implementation of AI in business communication: the role of knowledge management. *Journal of Knowledge Management*. https://doi.org/10.1108/JKM-12-2022-0944

Insight, F. B. (2023). The global algorithmic trading market size was valued at $2.03 billion in 2022 & is projected to grow from $2.19 billion in 2023 to $3.56 billion by 2030. *Market Research Report*, 150. https://www.fortunebusinessinsights.com/algorithmic-trading-market-107174

Jorzik, P., Yigit, A., Kanbach, D. K., Kraus, S., & Dabic, M. (2023). Artificial Intelligence-Enabled Business Model Innovation: Competencies and Roles of Top Management. *IEEE Transactions on Engineering Management*. https://doi.org/10.1109/TEM.2023.3275643

Karpa, M., Kitsak, T., Domsha, O., Zhuk, O., Akimova, L., & Akimov, O. (2023). ARTIFICIAL INTELLIGENCE AS A TOOL OF PUBLIC MANAGEMENT OF SOCIO-ECONOMIC DEVELOPMENT: ECONOMIC SYSTEMS, SMART INFRASTRUCTURE, DIGITAL SYSTEMS OF BUSINESS ANALYTICS AND TRANSFERS. *AD ALTA-JOURNAL OF INTERDISCIPLINARY RESEARCH*, *13*(1), 13-20 WE-Emerging Sources Citation Index (ESCI).

Khan, F. S., & La Torre, D. (2021). Quantum information technology and innovation: a brief history, current state and future perspectives for business and management. *Technology Analysis and Strategic Management*, *33*(11), 1281–1289. https://doi.org/10.1080/09537325.2021.1991576

Li, L., Wu, X. H., Kong, M., Liu, J. H., & Zhang, J. W. (2023). Quantitatively Interpreting Residents Happiness Prediction by Considering Factor-Factor Interactions. *IEEE TRANSACTIONS ON COMPUTATIONAL SOCIAL SYSTEMS*. https://doi.org/10.1109/TCSS.2023.3246181

Li, Q. (2023). Assistance of Internet of Things to Intelligent Business Management Model of Supply Chain Finance and Modern Logistics Enterprises. *International Journal of Data Warehousing and Mining*, *19*(4). https://doi.org/10.4018/IJDWM.323189

Lin, S. J. (2021). Integrated Artificial Intelligence and Visualization Technique for Enhanced Management Decision in Today's Turbulent Business Environments. *Cybernetics and Systems*, *52*(4), 274–292. https://doi.org/10.1080/01969722.2021.1881244

Maggi, F. M., Marrella, A., Senderovich, A., & Sulis, E. (2019). Third International Workshop on Artificial Intelligence for Business Process Management (AI4BPM). In C. DiFrancescomarino, R. Dijkman, & U. Zdun (Eds.), *BUSINESS PROCESS MANAGEMENT WORKSHOPS (BPM 2019)* (Vol. 362, Issue Blockchain Forum / Central and Eastern Europe Forum (CEE Forum) / 17th International Conference on Business Process Management (BPM), pp. 2-3 WE-Conference Proceedings Citation Index-).

Marrella, A., & Mecella, M. (2018). Cognitive business process management for adaptive cyber-physical processes. In E. Teniente & M. Weidlich (Eds.), *Lecture Notes in Business Information Processing* (Vol. 308, Issue 15th International Conference on Business Process Management (BPM), pp. 429–439). https://doi.org/10.1007/978-3-319-74030-0_33

McCartney, M., Wan, X. Q., Griep, C. D., & Lighthall, N. R. (2023). Primary Scientific Literature Is Not Just for Students and Academics: a Study of Primary Source Modalities and Predictors of Learning across Adulthood. *JOURNAL OF MICROBIOLOGY & BIOLOGY EDUCATION*. https://doi.org/10.1128/jmbe.00122-22

Mendling, J., Decker, G., Reijers, H. A., Hull, R., & Weber, I. (2018). How do machine learning, robotic process automation, and blockchains affect the human factor in business process management? *Communications of the Association for Information Systems*, *43*(1), 297–320. https://doi.org/10.17705/1CAIS.04319

Montano-Arias, D., & Uribe, R. (2018). Evaluation of the learning of cognitive, emotional and social skills in a group of students from the School of Arts and Letters using neurolinguistic programming

strategies (NLP). In S. C. Castillo, C. A. Roldan, D. A. G. Jimenez, O. R. Diaz, & C. J. R. Delgado (Eds.), *Evaluacion De Aula, Evaluacion Estandarizada Y Emergencia De Sistemas De Evaluacion De Aprendizajes*.

Mosteanu, N. R. (2020). Artificial Intelligence and Cyber Security - A Shield against Cyberattack as a Risk Business Management Tool - Case of European Countries. *QUALITY-ACCESS TO SUCCESS*, *21*(175), 148-156 WE-Emerging Sources Citation Index (ESC.

Neighbors, H. W., Mattingly, D. T., Johnson, J., & Morse, K. (2023). The contribution of research to racial health equity? Blame and responsibility in navigating the status quo of anti-black systemic racism. *SOCIAL SCIENCE & MEDICINE*, *316*. https://doi.org/10.1016/j.socscimed.2022.115209

Odrekhivskyi, M., Pshyk-Kovalska, O., Zhezhukha, V., & Ivanochko, I. (2023). Intelligent Management of Enterprise Business Processes. *Mathematics*, *11*(1). https://doi.org/10.3390/math11010078

Paschek, D., Luminosu, C. T., & Draghici, A. (2017). Automated business process management - in times of digital transformation using machine learning or artificial intelligence. In I. Bondrea, C. Simion, & M. Inta (Eds.), *8TH INTERNATIONAL CONFERENCE ON MANUFACTURING SCIENCE AND EDUCATION (MSE 2017) - TRENDS IN NEW INDUSTRIAL REVOLUTION* (Vol. 121, Issues 8th International Conference on Manufacturing Science and Education (MSE)-Trends in New Industrial Revolution). https://doi.org/10.1051/matecconf/201712104007 WE - Conference Proceedings Citation Index - Science (CPCI-S)

Patria, H., Wahyuni, S., & Kusumastuti, R. D. (2019). Intellectual structure and scientific evolution of strategic decision in the field of business and management (1971 to 2018). *Asian Journal of Business and Accounting*, *12*(2), 233–286. https://doi.org/10.22452/ajba.vol12no2.9

Shrivastava, S. (2023). Recent trends in supply chain management of business-to-business firms: a review and future research directions. *Journal of Business and Industrial Marketing*. https://doi.org/10.1108/JBIM-02-2023-0122

Sulis, E., Terna, P., Di Leva, A., Boella, G., & Boccuzzi, A. (2020). Agent-oriented Decision Support System for Business Processes Management with Genetic Algorithm Optimization: an Application in Healthcare. *Journal of Medical Systems*, *44*(9). https://doi.org/10.1007/s10916-020-01608-4

Sumarliah, E., & Al-hakeem, B. (2023). The effects of digital innovations and sustainable supply chain management on business competitive performance post-COVID-19. *Kybernetes*, *52*(7), 2568–2596. https://doi.org/10.1108/K-09-2022-1326

Szelagowski, M., & Lupeikiene, A. (2020). Business Process Management Systems: Evolution and Development Trends. *Informatica (Netherlands)*, *31*(3), 579–595. https://doi.org/10.15388/20-INFOR429

Tian, S., Cho, S. Y., Jia, X., Sun, R., & Tsai, W. S. (2023). Antecedents and outcomes of Generation Z consumers' contrastive and assimilative upward comparisons with social media influencers. *Journal of Product and Brand Management*. https://doi.org/10.1108/JPBM-02-2022-3879

Tian, X., Pavur, R., Han, H., & Zhang, L. (2023). A machine learning-based human resources recruitment system for business process management: using LSA, BERT and SVM. *Business Process Management Journal*, *29*(1), 202–222. https://doi.org/10.1108/BPMJ-08-2022-0389

Yen, Y. Y., Wen, L. J., Ramasamy, S., & Farooq, M. (2023). Sustainable petrol subsidy program in Malaysia. *Asian Development Policy Review*, *12*(1), 1–9. https://doi.org/10.55493/5008.v12i1.4948

Zhong, J., Hu, X., Alghamdi, O. A., Elattar, S., & Sulaie, S. Al. (2023). XGBoost with Q-learning for complex data processing in business logistics management. *Information Processing and Management*, *60*(5). https://doi.org/10.1016/j.ipm.2023.103466