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The Role of Artificial Intelligence in Business Management: A Bibliometric Analysis

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Abstract
This study has been designed to analyse the academic realm of AI in business management. The authors analysed the information they obtained from Scopus using R-Studio. The study quantitatively analyses publication trends, prominent authors, and thematic advancements in the field using the Bibliometrix R-package. According to the findings, there has been a notable increase in scholarly interest in recent years, along with changes in the focus of research and new fields of study. Liu Y is the most productive author and China has become a major contributor to this field of study, despite the fact that international cooperation is still quite limited.

Keywords: Bibliometric analysis, R-Studio, Artificial Intelligence, Business analytics, Decision making

1. INTRODUCTION

The integration of Artificial Intelligence (AI) into business management is changing how company's function, compete, and provide value. AI has quickly become a transformative force in a number of industries. AI technologies are increasingly seen as crucial tools for contemporary businesses, from automating repetitive tasks and enhancing customer engagement to optimizing decision-making and predicting trends. Consequently, there has been a significant surge in related scholarly output over the past ten years due to the growing interest of both industry professionals and academic researchers in the intersection of AI and business management.

The body of research in this area still needs to be systematically mapped and assessed, despite the growing interest. Gaining knowledge about the development of scholarly interest, the contributions of prominent writers and nations, and the research's thematic directions can help one better understand the field's maturity and gaps. This is especially critical for directing future studies, encouraging global cooperation, and coordinating scholarly endeavours with the real-world needs of companies going through digital transformation.

The current study uses information from the Scopus database to perform a bibliometric analysis of the literature on artificial intelligence in business management in order to meet this need. The study looks at a curated dataset of 164 articles published between 2010 and 2025 using the Bibliometrix R-package in RStudio. Annual publication trends, author productivity, the impact of citations, the geographic distribution of research, collaboration networks, and thematic clusters are some of the important dimensions that are the focus of the analysis. By using this multifaceted approach, the study hopes to pinpoint not only the most active institutions and contributors, but also the new fields of study and possible avenues for further investigation.

Significant growth in AI-related research output is highlighted in the results, particularly in the years after 2020, with authors like Liu Y and Zhou H emerging as important influencers. Despite differing degrees of international cooperation, China, India, and the US have taken the lead in the field. Studies on decision-making, predictive analytics, and AI's contribution to improving business efficiency and customer-centric strategies are concentrated, according to thematic analysis.

This study's five main sections have been compiled. The opening section consists of an overview of the study and a comprehensive review of the literature. The methodology and outcome were discussed in the next section. The fifth section provides a description of the discussions and findings.

2. Review of Literature

Research on the incorporation of Artificial Intelligence (AI) into different facets of business management has increased dramatically in recent years. Researchers have looked into how AI improves operational efficiencies, customer relationships, marketing strategies, and decision-making in a variety of industries.

Velasco et al. (2025) highlight the use of intelligent information systems to optimize business decision-making. They offer a quantitative strategy that makes use of AI to lower uncertainty and boost managerial responsiveness. Their results demonstrate the increasing use of data-driven technologies in the development of business strategies.

Prorok and Takacs (2024) investigate how Artificial Intelligence (AI) is revolutionizing business management, specifically in the areas of automation and adaptive decision-making. Their research demonstrates how AI transforms organizational processes, promoting flexible and robust management styles.

Using data-driven tactics, Perumal et al. (2024) explain how AI and machine learning support company expansion. Their research shows that AI-powered predictive analytics can boost competitiveness in dynamic markets, find growth prospects, and optimize workflows.

AI research has also placed a lot of emphasis on marketing. The effectiveness of AI in marketing decision-making is examined by Jhaveri et al. (2023), who show how machine learning models enhance campaign performance, customer segmentation, and targeting accuracy. In a similar vein Almahairah (2023) shows how AI applications in CRM promote increased customer loyalty, engagement, and individualized service. Olena et al. (2024) further elucidate the role of AI in strategic marketing by exploring its application in developing enterprise marketing strategies. They highlight how AI makes it easier to integrate data across platforms to create customer-centric strategies, which promotes innovation and responsiveness to the market.

Pardeshi et al. (2023) examine how AI and machine learning can be integrated in e-commerce, emphasizing uses like recommendation engines, dynamic pricing, and customized shopping experience. Their results show how AI promotes operational scalability and customer satisfaction.

Abouzakhar (2024) provides a case study of AI application in entrepreneurship and real estate, demonstrating how intelligent modelling can expedite customer acquisition, operational planning, and property valuation.

Studies conducted in a particular region, like that conducted by Jala et al. (2024), provide important insights into the real-world difficulties and constraints of AI in Southeast Asian business operations. In order to fill these gaps, their research outlines future research directions and identifies obstacles like infrastructure, skill shortages, and ethical issues.

When taken as a whole, these studies highlight how AI can revolutionize a wide range of business

operations. They highlight the practical difficulties as well as the strategic importance of implementing AI technologies in a global and industry-specific setting. This expanding corpus of work offers a solid starting point for additional research into how AI will influence business management in the future.

3. Methodology

The study focuses on "artificial intelligence" in business management. Data were collected from Scopus database from May 3, 2025 using artificial intelligence, business analytics and decision making as keywords. The study period is 15 years (2010-2025). The analysis covered every article published up until the data extraction date of May 3, 2025. 1,385 documents were found in the Scopus database after the first search with pertinent keywords. The number was lowered to 1,376 after the results were filtered by the year of publication (2010–2025). The count was reduced to 477 by further filtering by document type (articles), and to 437 by restricting the language to English. Applying the publication stage filter (final) produced 413 documents, while limiting the source type to journals increased the total to 433. A final dataset of 164 articles for analysis was obtained by concentrating on the particular keywords artificial intelligence, business analytics, and decision making. The Bibliometrix R-package was used in the analysis, which was carried out with RStudio. Annual scientific production, author productivity over time, corresponding authors' countries, country-wise publication trends, most cited countries, thematic mapping, and keyword co-occurrence network analysis were among the dimensions of the bibliometric evaluation.

4. Results

4.1 Sample characteristics

The sample contain 164 articles which have been produced by 129 journals and written by 627 authors from 50 different countries during 2010-2025. There are only 22 single authored articles, while 605 authors wrote in collaboration.

4.2 Performance analysis

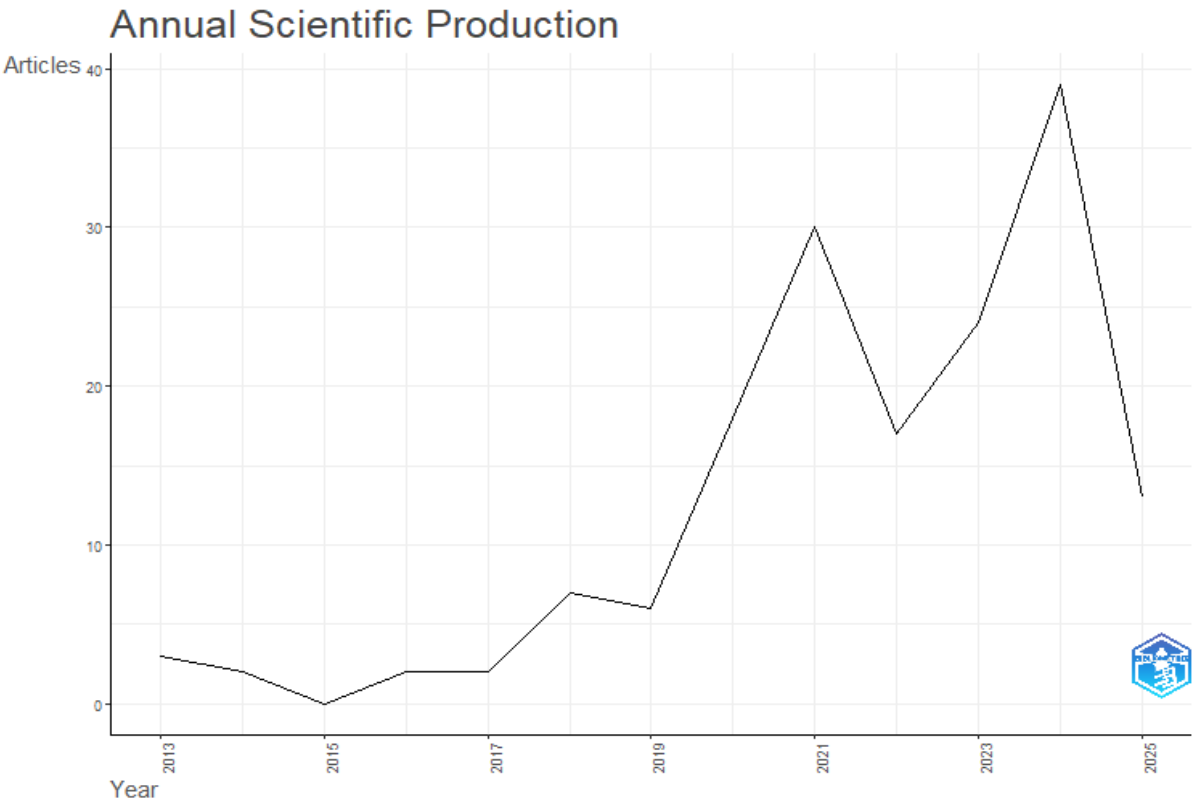
4.2.1 Publication trends

The total number of papers plotted against each year of publication in Figure 1 shows the publishing trend of the role of AI in business management.

Filtering criteria	Excluded	Included
Database: Scopus		
Date of search: 03 May 2025		
Keywords: "artificial intelligence" OR "ai" OR "machine learning" OR "deep learning" AND "business management" OR "business administration" OR "management" OR "corporate governance" AND "decision making" OR "strategy" OR "operations" OR "performance" AND "automation" OR "optimization" OR "efficiency" OR "analytics" AND "customer relationship" OR "marketing" OR "sales" OR "service" AND "data analysis" OR "big data" OR "predictive analytics" OR "business intelligence" in the Article title, abstract and keyword		
Document type: include only "articles"		477
Language: English only	40	437

Source type: journal	4	433
Limit to: publication stage as “final”	20	413
Keywords: AI, Decision making and Business Analytics	249	164

Figure 1

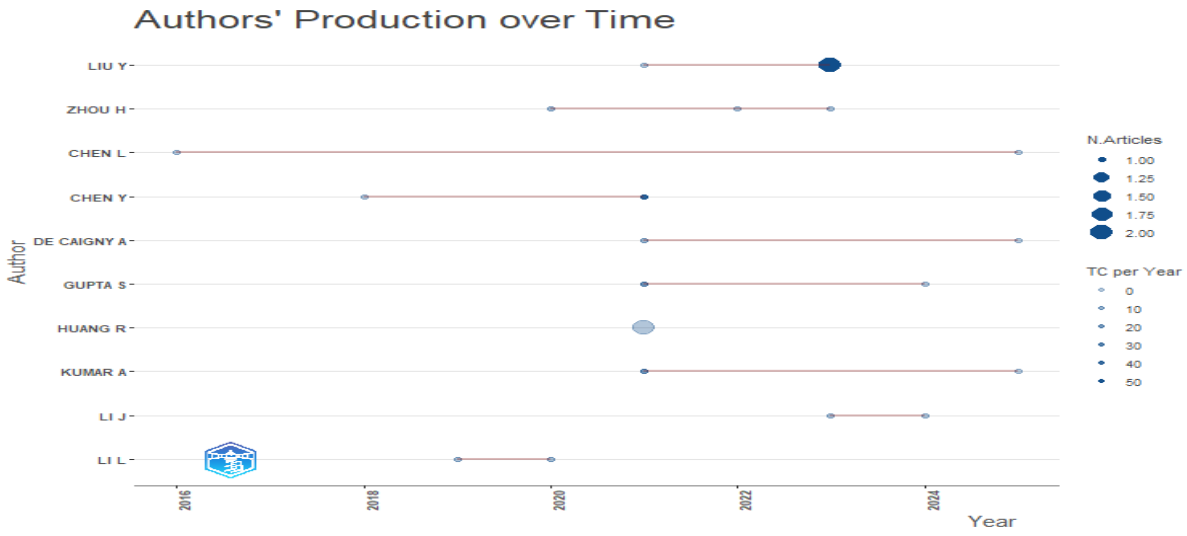


The anticipated publication trends from 2013 to 2025 indicates a gradual increase in AI publications which initially were very low, ranging from 0 to 3 annually. There was a notable spike in 2020 and 2021, going as far as 18 and then 30 articles respectively. While there was a slight drop during 2022, falling to 17, the upward trend continued peaking in 2024 reaching 39 publications. As of early May of 2025, 13 were published for the year, suggesting a steady and growing interest in advancing research regarding AI and business management.

4.2.2 Authors Production over time

As highlighted by the publication data, there is a sharp focus on computing tracks of AI, data analytics, and business management technologies emerging in the past five years, as Liu Y and Zhou H along with Gupta S have published multiple times. Their collective work demonstrates maintained and growing research engagement. Furthermore, 2023 serves to be an outlier year for research achievement and contribution with Liu Y’s work alone in 2023 commanding 149 citations, nearly 50 citations per year. Moreover, Chen Y’s article published in 2021 in Neurocomputing had 224 citations, averaging over 44 citations every year. Supportively, the authors have bolstered the relevance and impact AI and data analytics have on business, suggesting the domains as areas of interest moving forward.

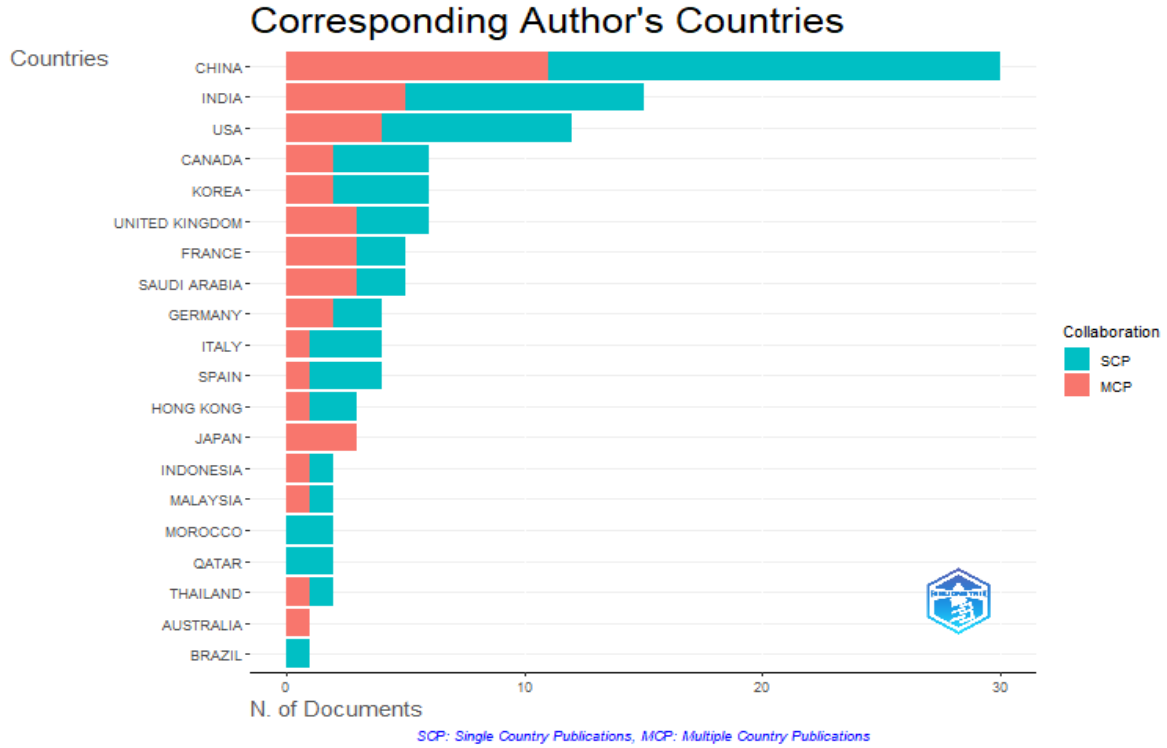
Figure 2



4.2.3 Corresponding Author's Countries

The statistics showcase China as primary contributor in the field with 30 publications and modest international cooperation of 37%. Following next is India and United States with 15 and 12 publications with a collaboration rate of 33.3%. Interestingly, lower publication output countries such as UK, France and Saudi Arabia have high international collaboration rates surpassing 50%. It is notable that Japan's output is fully internationally collaborative, while Morocco and Qatar have turned their eyes towards domestically-driven research without the international co-authors. This gives us a glimpse of how different countries focus on building cooperative research relations as opposed to independently initiated research.

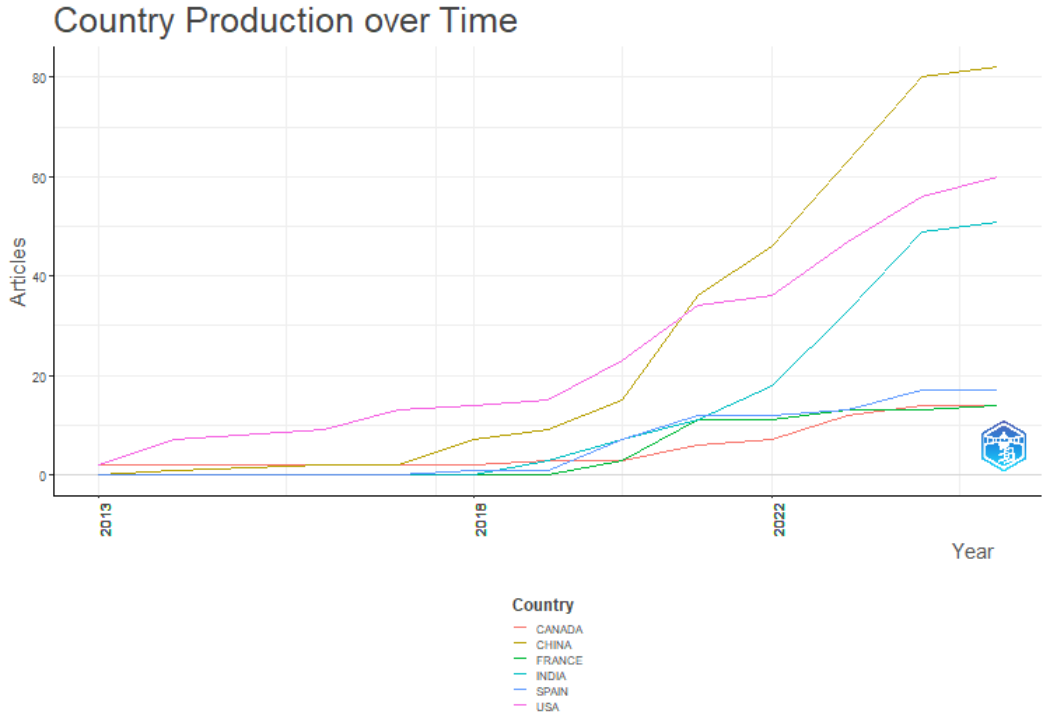
Figure 3



4.2.4 Country production over time

The research output has shown how different countries have contributed over time. China's contribution has significantly increased with their publications surging from 0 in 2013 to 82 by 2025. The United States has also had a strong and steady presence, increasing their output from 2 articles in 2013 to 60 in 2025. India also demonstrated rapid growth, having published their first article in 2019 and reaching 51 articles by 2025. Spanning Canada, Spain, and France, these countries have shown a gradual increase with Spain and France having significant growth since 2020. This depicts the increased activity in carrying out further research around the globe with developed and developing countries supporting the advancement.

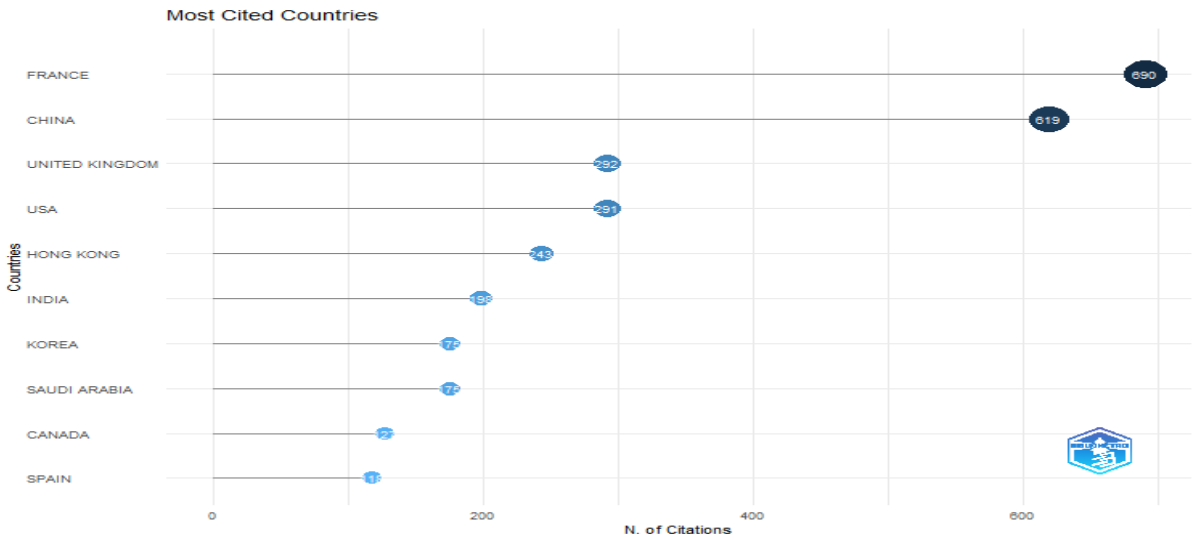
Figure 4



4.2.5 Most Cited countries

The citation numbers show big differences in how much research from different countries affects others. France is at the top with 690 total citations and 138 average citations per article. This means their research has a big impact even though they don't publish as much. China publishes the most, but comes second in total citations (619) and has a lower average of 20.6 citations per article. This suggests they contribute a lot, but it might not be as influential. The UK, Hong Kong, and Saudi Arabia stand out with high average citations (48.7, 81, and 35), showing their research is high-quality and influential. The US has a good balance with 291 citations and an average of 24.2 showing they are both productive and impactful. On the other hand, countries like India, Korea, and Spain contribute well but have more average citation numbers. Countries such as Germany, Italy, and Indonesia have lower citation numbers. Some countries, including Brazil, Russia, and Thailand, don't have any citations yet. This might be because they have just started researching or don't do much of it. Looking at these citation numbers gives us good insights into how good and far-reaching research is, beyond just counting how many papers are published.

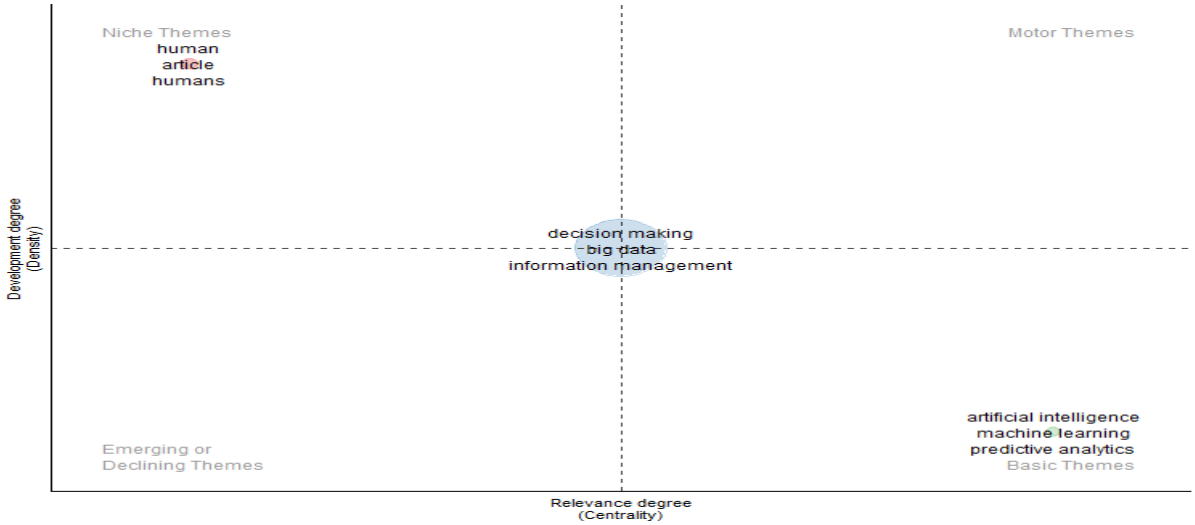
Figure 5



4.2.6 Thematic Map

This thematic map sheds light on how research topics within a particular field are organized and develop. The map's central and moderately developed themes include information management, big data, and decision-making. These themes are central to the field's research, suggesting consistent advancement and a fundamental place in its conceptual framework. The fundamental themes of artificial intelligence, machine learning, and predictive analytics appear in the lower-right quadrant; these subjects are highly pertinent but still in the early stages of development, indicating that they are extensively interconnected throughout the literature and have a great deal of room for further study. Human, article, and humans are examples of niche themes found in the upper-left quadrant. These themes are well-developed, but they have little bearing on the field as a whole; they may represent specialized or isolated fields of study. Remarkably, neither the emerging/declining themes quadrant nor the motor themes (central and highly developed) quadrant contain any themes, suggesting that either dominant driving forces or out-of-date topics are lacking. Overall, the map indicates a research area that is based on fundamental ideas, has limited fragmentation, and shows promise for growth in technology driven themes.

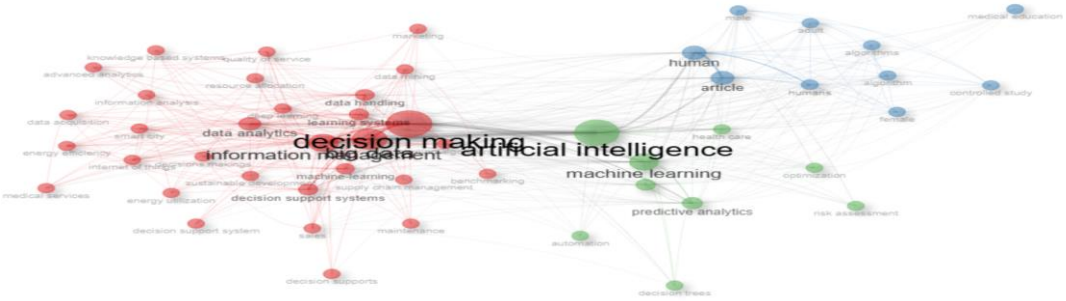
Figure 6



4.2.7 Co-occurrence Network

The analysis shows that "decision-making", "big data", and "artificial intelligence" are the most influential terms, serving as key connectors in the network. Cluster 1 focus on data driven decision support, while Cluster 3 spotlights AI-related topics such as "machine learning" and "predictive analytics". Cluster 2 contains human related words pointing to connections across disciplines. In general, the network underscores how AI and decision-making play a central part in this research area.

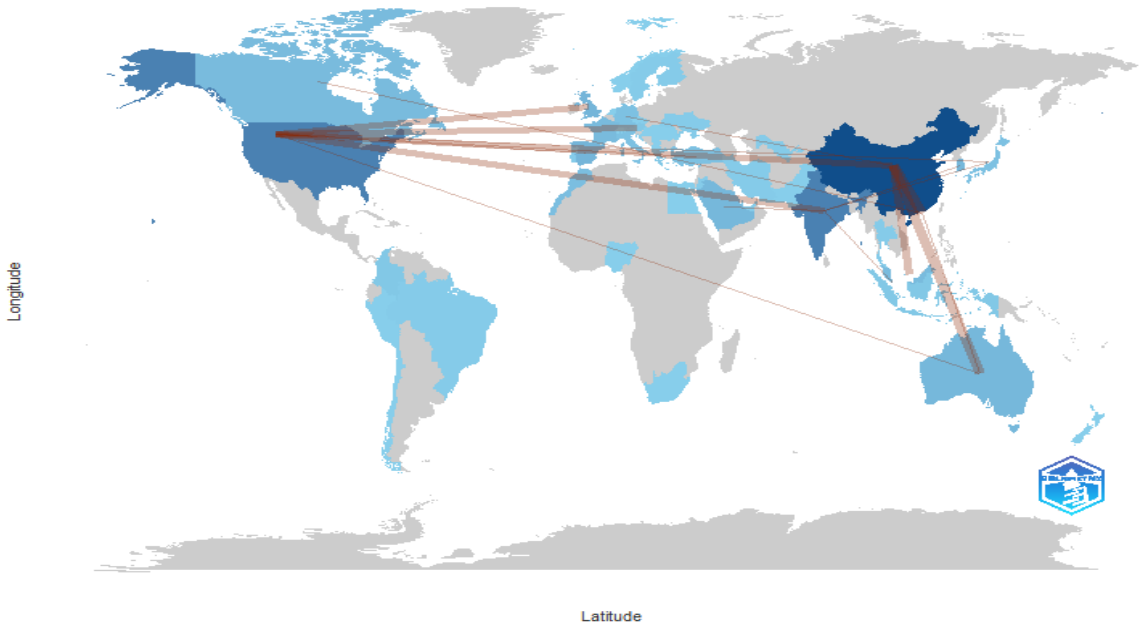
Figure 7



4.2.8 Countries Collaboration World Map

The study shows a common pattern of worldwide research teamwork, with China, India, and the USA leading the way. China's strong ties with countries like Australia, Hong Kong, and the USA highlight its key role in global research. India works together with many nations Japan, Korea, and Saudi Arabia showing its growing influence around the world. The USA's many partnerships with Australia, India, and the UK, confirm its position as a top collaborator in the global research community. In general, the network reveals increasing global teamwork in tech and data-focused research areas.

Figure 8



5. Discussions and Conclusions

The analysis of AI research trends from 2013 to 2025 reveals a consistent rise in publications, especially following a notable surge in 2020 and 2021. This upward trend reached its peak in 2024, showcasing an increasing interest in AI within the realm of business management. Key authors like Liu Y, Zhou H, and Gupta S have played a significant role in this growth, making impactful contributions and earning numerous citations, particularly in 2023. When it comes to international collaboration, China, India, and the United States stand out as the top contributors, with China leading the pack in terms of output. Other nations, such as Japan, Qatar, and Morocco, exhibit diverse collaboration patterns; some prioritize domestic research, while others actively pursue international partnership. Citations shed light on the influence of research from countries like France, China, and the UK. France, despite having fewer publications, tops the list in citations per article, whereas China's high volume of output results in a lower citation rate per article. These citation trends offer valuable insights into the global impact of AI research, with countries like India and Spain experiencing rapid growth, albeit with lower average citations. The thematic map highlights three main clusters-human decision making, AI, and data driven decision support. These clusters illustrate how AI is being woven into decision making processes, particularly in human centric areas. The co-occurrence network further emphasizes the significance of AI, decision making, and big data as essential links in this research landscape. Lastly, the global collaboration map showcases the rising tide of international cooperation, with China, India, and the USA forging strong research partnerships with countries worldwide, especially in technology and data driven sectors. In summary, the increasing number of publications, contributions from authors, citation trends, and international collaborations all indicate a vibrant and evolving field of AI research, particularly in business management and decision-making applications.

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