

Artificial Intelligence and Management Decision Making: a Bibliometric Analysis

Dr. Revenio C. Jalagat, Jr.¹

¹Al Zahra College for Women, Managerial and Financial Sciences Department,
PC 111, P.O Box: 3365, Madinat AL-Irfan, Muscat, Sultanate of Oman

doi.org/10.51505/IJEBMR.2024.8404

URL: <https://doi.org/10.51505/IJEBMR.2024.8404>

Received: Mar 23, 2024

Accepted: Apr 1, 2024

Online Published: Apr 7, 2024

Abstract

The main thrust of this paper is to explore global trends in the topic of AI integration in management decision-making. Bibliometric data and information were carried mainly from 2000-2023 to determine the extent of studies performed during these years. Data was collected from the Lens database and 1,770 publications from different platforms were analyzed using VOSviewer. Findings revealed that; the highest number of publications were found in 2023 and mostly from journals. The most active author was Bingzhen Sun with 6 documents and the most topics of investigation are artificial intelligence and knowledge management respectively. In the aspect of top journals in the field, the Journal of Business Ethics topped the list and most of the Top 10 journals are found in notable publishers such as Springer, Talor and Francis, and Science Direct. The top three productive countries in the field include the United States, China, and the United Kingdom. Most publications were seen at the height of the COVID-19 pandemic, and the distribution of countries contributing to the field includes developed and emerging countries. While there is growing interest by scholars in publishing papers in 2019-2023 the researcher has found that there are still scarcities of diversity in co-authorship and bibliometric coupling involving different nations and regions. 2016-2019 accounted for more cases of bibliometric coupling than any other years from 1988-2023. Therefore, it is recommended that more studies be undertaken to address the scarcity of co-authorship and bibliometric coupling involving a diversity of countries like the Arabian and African regions. More studies can also be conducted in emerging countries to keep up with the trends in developed countries and more opportunities for collaboration.

Keywords: artificial intelligence, management, decision-making, bibliometric analysis, knowledge management

1. Introduction

1.1 Introduction and the Problem

In today's world of business, fundamental means of operating a business have been altered by disruptive technology often called artificial intelligence (Choi & Ozkan, 2019). Artificial intelligence (AI) is commonly described as a technology that assists machines in duplicating numerous complicated human skills (Sheikh et al., 2023). It is also structured, machine-assisted, human-produced, and organized information. Prasanth et al. (2023) stressed that one of the

strengths of AI is that it can perform decisions that save cost and time in areas, for example trend analysis, forecasting, data collection, and others. Prior to the emergence of AI, traditional decision-makers decided daily activities manually and without technological interference. This has gradually changed with technological changes, wherein AI is considered the latest technology introduced nowadays. The availability of AI software helps businesses streamline daily operations, minimize costs, improve productivity, and accelerate decisions and workloads. As reiterated, Prasanth et al. (2023) opined that, as technological advancement is inevitable, businesses that adopt AI software will deliver a remarkable edge in the next few years.

The incorporation of AI in business decision-making has the probability of transforming how companies function and plan. By augmenting, for instance, innovation, efficiency, and accuracy, AI enables companies to exploit the use of data and information for a well-informed decision at a vibrant and competitive pace. But its utilization comes with responsibility and ethical implications which include the impact of using AI on the workforce, security, and data privacy as companies continue to encompass AI technologies thus, directing their future through many sectors. Organizations are inclined to adopt AI with positivity taking into consideration the ethical aspects attached to it as the expansion of AI grows. With the continuous development of AI, decisions are shaped and influenced by technologies that explain why humans are no longer sole agents in management and decision-making (Raisch & Krakowski, 2020). AI-assisted decisions include but are not limited to different fields such as hiring, predicting credit risk, purchasing, criminal sentencing, surgery allocation, and immigration, etc.

In the study of Gumusay et al. (2023), AI has the potential to change the decision-making processes and they have identified the different types of decisions that are fitted for AI assistance. There are three basic decision types that AI can effectively assist in, including unstructured decisions, semi-structured decisions, and structured decisions. Recently, the most used type of decision is related to a highly structured decision that focuses on a machine learning model to perform recurring, tactical, frequent, and requiring large amounts of numerical data. Though most utilization emanates from structured decisions, it cannot undermine the other two decision types as they are also used in organizations in shaping their management decision dispositions.

Many studies have been undertaken in the field of AI which started to gain attention in 2018 till date but few studies focused on integrating AI into decision-making (Patra et al., 2024). Studies were conducted on business intelligence and data analytics but most of the research that emerged in 2018 was considered relatively new topics (Liang & Liu, 2018). Furthermore, authors have utilized bibliometrics to deliver quantitative insights and be updated on the trends in a particular field for a specified time as well as develop recurring research gaps and research directions (Leung et al., 2017). Built on the lack of studies focusing on the association of AI in decision-making, this study endeavors to determine the extent of the application of AI in organizations' decision-making. The increasing attention about AI as the focal point of investigations encouraged the researcher to investigate the growth academically with a preference for the future implications of AI in decision-making. Performance analysis and science mapping were used to explore the research gap previously identified. Anchored on the problem, the objectives of the study were established starting with the first objective: (1) To conduct a performance analysis on the association between AI and management decision-making in terms of research production

over the years, publication types, most active authors, the top field of the study, top journals performing the research in the field, and most active countries conducting the study in the field. (2) To analyze bibliometric data to provide scientific maps on co-occurrences and keywords, co-authorship, and bibliometric coupling (3) What is the research gap and future direction of the study.

The content of the study is organized according to the following format: Introduction; followed by a detailed literature review; research methodology highlighting the use of bibliometric analysis, data analysis, and interpretation; findings, conclusion, and recommendations; limitations of the study and future research directions.

1.2 Previous Studies

The existence of AI technology has become a strong partner for organizations in the aspects of business support for operations and in enhancing the core businesses' efficiency. It supports for example informed decision-making; economic activities for trading operations; e-commerce; fraud detection processes; and text evaluation for financial information (Cavalcante, 2016; Ince & Aktan, 2009; Karimova, 2016; Shravan Kumar, & Ravi, 2016). Authors and scholars have also demonstrated how AI technologies like natural language and machine learning help companies lessen repetitive jobs and rationalize decisions by leveraging AI algorithms. Moreover, AI can perform operations with enormous amounts of information speedily thus, reducing time spent on analysis and allowing real-time decision-making; searching for new potentials for businesses; discovering untapped market openings; developing advanced approaches, and others (Lee et al., 2020; Li et al., 2017; Maknickiene & Maknickas, 2013).

Further, the role of AI has become crucial in many fields including stock management, customer management, marketing, product development and launching, after-sale services industry 4.0 undertakings, and the likes (Chopra, 2019; Lee & Park, 2018; Marinchak et al., 2018; Ramakrishna et al., 2020; Sheta et al., 2015). Using AI in organizations significantly increased due to the availability of enormous levels of information essential to business or the so-called "Big Data" and these encompass substantial databases of information which are both unstructured and structured facts that demonstrate velocity, volume, diversity, value, and variability (Ebner et al., 2014).

The expanding role of AI in the modern digital age becomes evident in the marketing and advertising sector as it is useful for many purposes such as classing information trends in improving customer service, lessening market risks, and analyzing voluminous files kept in different servers within companies to ensure compliance. The demand for artificial intelligence modeling is also increasing to fill the decision-making gaps and at the same time meet customer requirements. Evidence of AI's benefits is that it paves the way in performing a particular decision-making that saves time and money in which the system can collect, forecast, and analyze information trends. Trunk et al. (2020) undertook a study that investigates the relationship between AI and decision-making in the changing corporate business conditions through content analysis from publications and the outcome outlines how humans might utilize AI in decision-making in dynamic situations amid challenges and implications of AI-aided decisions.

Duan et al. (2019) also demonstrated in their study how AI influences decision-making as they established a strong position that AI builds general judgments to assist or replace human beings in areas like AI's integration and participation. In relation to this investigation, the study examines the extent of the association of AI in management decision-making by systematically performing scientific mapping of the trends and previous studies conducted in the field. And determining the scientific significance of AI as applied in businesses to determine future trends and at the same continuously identify the research gaps.

2. Method

Out of many research methodologies that used quantitative research techniques, bibliometric analysis employing the VOSviewer is considered the most recently utilized. VOSviewer enables researchers to develop a scientific mapping of the collected data verify the knowledge formation and link it with the various disciplines, institutions, countries, scholars, publications, and others (Zupic & Carter, 2015). Furthermore, previous studies and literature can be shown through a virtual platform by performing bibliometric analysis that helps scholars determine for example research gaps and future research directions (Paul & Criado, 2020). Jadil et al. (2021) opined that advanced meta-analyses can be enhanced by undertaking bibliometrics to provide visualization which is a good complement to systematic literature reviews.

In relation to this study, the quantitative method was utilized with bibliometric analysis as its main statistical tool to analyze literature from journals, books, chapters, and other sources. The VOSviewer software was used to implement a bibliometric analysis on the topic titled, "Artificial Intelligence and Management Decision Making: A bibliometric analysis". The use of this method was endeavored for two justifiable reasons: (1) readers are guided to analyze data and information in visual maps or scientific mapping, and (2) it creates a knowledge map that facilitates readers in obtaining information from different sources. The analysis is divided into two parts and the first part consists of performance analysis of the collected journals, books, book chapters, etc. These include research production over the years, publication types, most active authors, the top field of the study, top journals performing the research in the field, and most active countries conducting the study in the field. The second part is scientific mapping with bibliometrics such as keyword occurrence, co-authorship, and bibliometric coupling. The term co-occurrences are utilized to identify the primary trend of the document as the subject of the study. It contains the main aspects of co-occurrences in information sciences which include co-link, co-citation, and co-word (Leydesdorff & Vaughan, 2006). On the other hand, co-authorship measures scholarly collaboration and linkage among countries, institutions, networks, and teams, as joint publications between companies and in different countries through representations participating in the research activity (Ullah et al., 2022). Bibliometric coupling measures compatibility involving two texts by utilizing common or related references (Taşkın & Aydinoglu, 2015).

Specifically in this study, data was collected in the Lens database focused on the topic "Artificial intelligence and management decision making". Search also identified the title, abstract, and keywords with the timeframe from 2000-2023. Keywords and research string emphasized the title, ("Artificial Intelligence" OR "AI") AND ("Management Decision Making" OR "Business

Decision”) resulting in 1,770 publications after the screening, scope determination, and eligibility. These publications were then entered into the VOSviewer for bibliometric analysis.

3. Results

3.1 Introduction

The data collected is analyzed in this section. The first part contains a performance analysis of the data, including research production over the years, publication types, most active authors, top field of the study, top journals performing the research in the field, and most active countries conducting the study in the field. The second part is scientific mapping with bibliometrics such as keyword occurrence, co-authorship, and bibliometric coupling. Diagrams and maps are provided for visual presentations accompanied by descriptive discussions that emphasize AI and management decision-making. In Figure 1, the diagram depicts the studies conducted from 2000 to 2023 related to AI and decision-making, as shown.



Figure 1. Research conducted over the years.

The findings displayed that the year 2023 accounted for the greatest number of publications, with 283 documents, followed by 2022 (167 documents). Third in rank are 2021 (162 documents); 2020 (126 documents); 2019 (66 documents); and 2018 (80 documents). It can be noticed that the volume of publications was found at the height of COVID-19 when digitalization has been at the forefront of business operations at all levels. However, prior to these years, businesses have utilized the Internet of Things, and digitalized systems to help them achieve fast and accurate decisions.

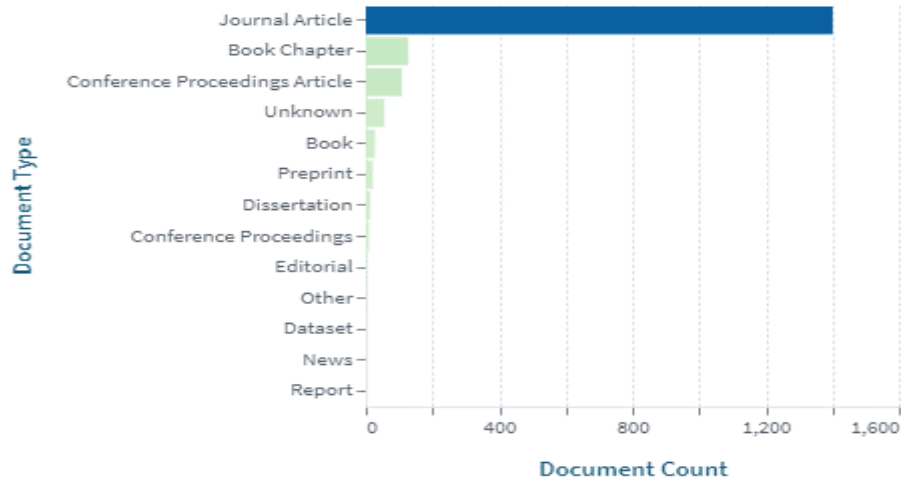


Figure 2. Types of Publication

The data in Figure 2 reflects the sources of information related to the topic of AI and management decision-making. The top three sources include journals (1,401 documents), book chapters (127 documents), and conference proceedings articles (108 documents). The results reflect the reliability of the searched information, wherein most of the papers published were preferred in journal publications.

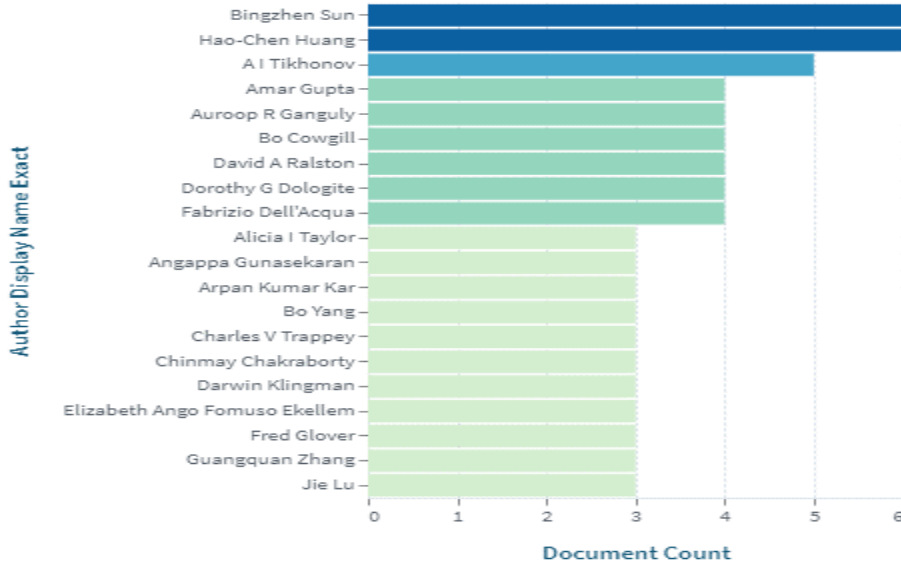


Figure 3. Most active authors in the field.

When analyzed according to the most active authors, the top 10 scholars sequenced from top 1 to 10 consist of Bingzhen Sun (6 documents); Hao-Chen Huang (6 documents); Al Tikhonov (5 documents); and Amar Gupta (4 documents). All other researchers who produced 4 documents are: Auroop Ganguly; Bo Cowgill; David Ralston; Dorothy Dologite; and Fabrizio Dell'Aqua. In the top 10 is Alicia Taylor, along with other researchers in the top 11–20 with 3 documents each.

These authors have distributed to nations such as the USA, China, UK, India, Australia, Canada, Germany, Spain, Taiwan, and Italy. Interestingly, the distribution of authors was found in both developed and developing countries, citing, for example, China and India from Southeast Asian countries as developing and emerging economies.



Figure 4. Top field of study.

Since the emergence of AI, as shown in Figure 4, it has become a subject of interest for many scholars and academicians. Out of other fields of specialization, AI has topped the list with 429 publications, followed by knowledge management (326). Further, vast publications were extracted from the Engineering field (325 publications); then data science (230 publications); economics (240 publications); data mining (220 publications); Mathematics (191 publications), etc. Artificial intelligence has a crucial role in knowledge management and is evident in the close interlinks between AI and knowledge management. It can further be observed that the topic dealt most with data and information analysis, utilizing quantitative methods to arrive at well-informed decision-making. The application of AI has increased significantly, especially from 2019-2023.

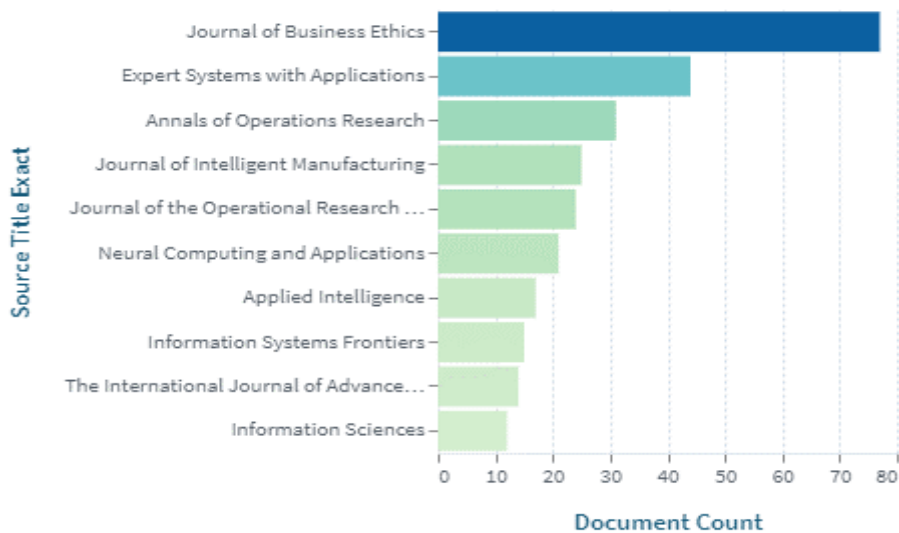


Figure 5. Top journals in the field.

Extending the analysis to the top journals in the field, Figure 5 shows the Top 10 journals. The number 1 in the list is the Journal of Business Ethics (77 documents); Expert Systems with Applications (44 documents); Annals of Operations Research (31 documents); Journal of Intelligent Manufacturing (25); Journal of the Operational Research Society (24 documents); Neural Computing and Applications (21 documents); Applied Intelligence (17 documents); Information Systems Frontiers (15 documents); The International Journal of Advanced Manufacturing Technology (14 documents); and Information Sciences (12 documents). In addition, these journals are highly reputable with most of the publishers obtained from Springer, Taylor & Francis, and Science Direct with Scopus classification of quartile (Q1). This indicates that the use of AI is very important in handling decision-making activities in this modern management of business. The growing interest by the publishers to undertake studies in AI and decision-making becomes inevitable.

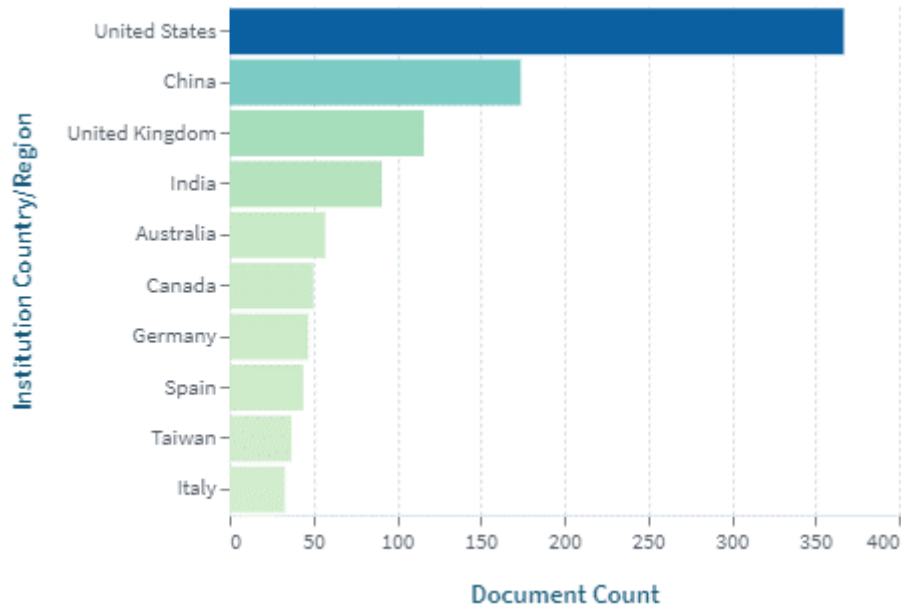


Figure 6. Most active countries in the field of research.

Figure 6 depicts the top 10 countries that performed studies related to AI and management decision-making. United States (367 documents) remains in the top list followed by China (174 documents). Completing the Top 10 list are the United Kingdom (116 documents), India (91 documents), Australia (57 documents), Canada (50 documents), Germany (47 documents), Spain (44 documents), Taiwan (37 documents), and Italy (33 documents). While developed countries like the USA and Europe excel in AI technologies, emerging economies compete in the field such as China and India.

3.2 Bibliometric Analysis

The analysis started with keyword co-occurrences analysis with a minimum occurrence of 1 which extracted 263 documents. The data was further analyzed to determine 200 connected items resulting in 18 clusters and with a Total Link Strength (TLS) of 1,215 (Table 1, Fig 7). In the

table, it can be clearly identified that the keyword “Artificial Intelligence” has the most occurrences although it only placed second in terms of TLS. The keyword “Humans” has taken the top spot in terms of TLS. Related keywords are evident such as “Machine Learning”, “Algorithms”, “Neural Networks, Computer”, “Artificial Neural Networks”, “Deep Learning”, “Deep Learning”, “Deep Learning”, “Computer Simulation”, “Decision-Making”, and “Data Science”. Some keywords not directly related to the topic also exist such as “Female”, “Prognosis”, “Male”, “Female”, “Covid-19”, “Forecasting”, “Adult”, etc. These results showcase the significance of integrating AI into the decision-making processes of organizations to facilitate easy, fast, and well-informed decisions. It can also be noted that humans are still in control of decision-making and AI serves as a complement or aid in decision-making and, the most utilization of AI happens during the COVID-19 pandemic.

Table 1. Co-occurrences and Keywords on AI and Management Decision-Making.

Seq. No.	Keyword	Occurrences	(TLS)
1	Humans	15	145
2	Artificial Intelligence	17	130
3	Machine Learning	7	65
4	Female	3	36
5	Algorithms	4	30
6	Neural Networks, Computer	2	28
7	Prognosis	2	28
8	Artificial Neural Network	2	27
9	Covid-19	4	27
10	Sensitivity and Specificity	2	27
11	Male	2	25
12	Forecasting	3	24
13	Models, Theoretical	3	24
14	Decision Making	4	23
15	Deep Learning	4	23
16	Risk Assessment	2	22
17	Computer Simulation	2	18
18	Data Science	3	18
19	Adult	1	17
20	Aged	1	17

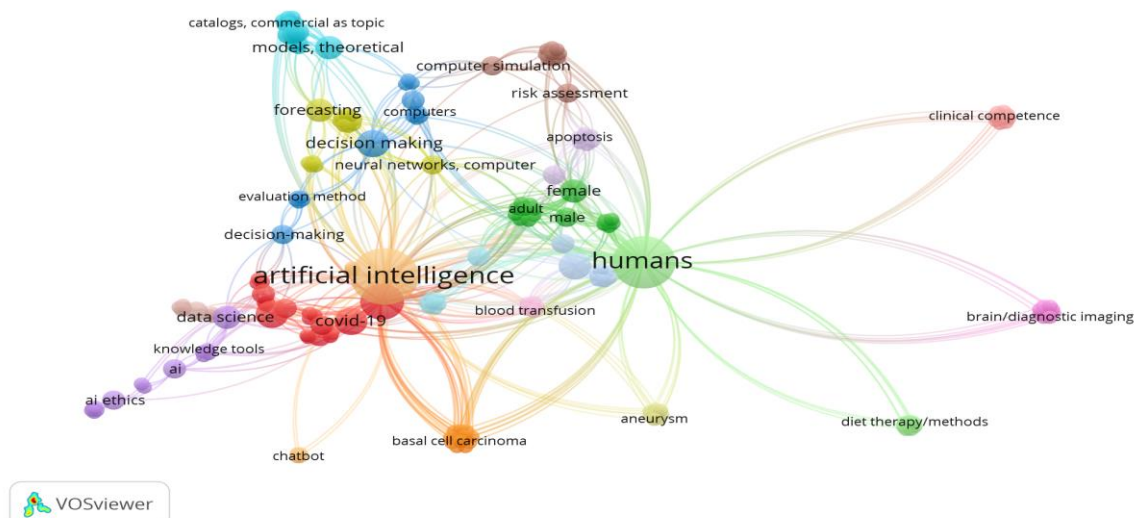


Figure 7. Bibliometric map of co-occurrences and keywords (Network Visualization).

The second bibliometric analysis was performed to determine the trends in co-authorship. The VOSviewer was performed with a minimum number of documents of an author is 1 and a minimum number of citations of an author of 1 resulting in 1,601 items however connected items of 14, 3 clusters, and TLS of 49. Top 10 co-authors ranked by TLS consist of Bingzhen Sun (TLS=18); Xiaoli Chu (TLS=14); David Castineira (TLS=13); Hamed Darabi (TLS=13); Xiang Zhai (TLS=13); Zheren Ma (TLS=13); Yanyan Xu (TLS=11); Yaohui Jin (TLS=11); Angappa Gunasekaran (TLS=10); and Benjamin Muller (TLS=10). Considering the TLS, it can be explained that there is still a scarcity of co-authorship in the field of study as the highest TLS is only 18, and slight difference in the TLS which means there are not many changes in the degree of co-authorships for the period 2000 to 2023 (Table 2, Figure 8). Of the 10 co-authors in the field, 60% were from China and 40% from the USA. Further observation led to the realization that some countries need to undertake studies such as the Gulf region, African region, and Southeast Asia.

Table 2. Co-authorship and Author related to AI and Management Decision-Making

Seq. No.	Author	Documents	Citations	(TLS)
1	Bingzhen Sun	5	39	18
2	Xiaoli Chu	3	20	14
3	David Castineira	2	3	13
4	Hamed Darabi	2	3	13
5	Xiang Zhai	2	3	13
6	Zheren Ma	2	3	13
7	Yanyan Xu	3	4	11
8	Yaohui Jin	3	4	11
9	Angappa Gunasekaran	3	97	10
10	Benjamin Muller	1	27	10
11	Bernhard Thalheim	1	27	10
12	Daniel Schnurr	2	27	10
13	David Avison	1	27	10
14	Dirk Hovorka	1	27	10
15	Jan Kramer	1	27	10
16	Julien Malaurent	1	27	10
17	Leena Suhl	1	27	10
18	Martin Bichler	1	27	10
19	Peter Fettke	1	27	10
20	Ulrich Frank	1	27	10

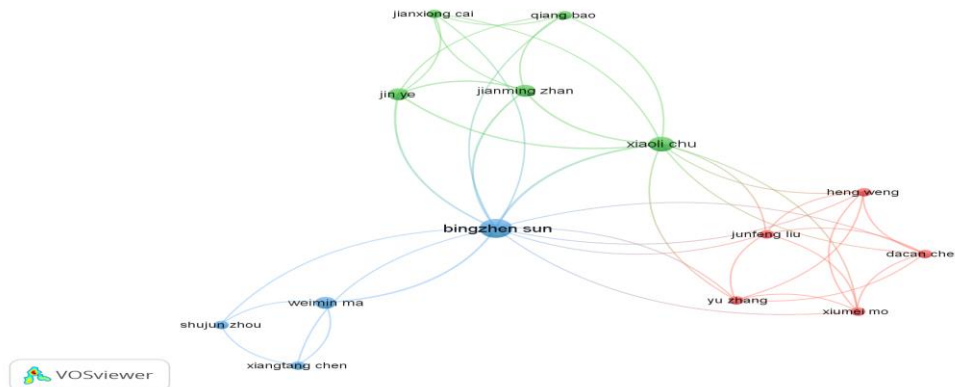


Figure 8. Bibliometric map of Co-authorship (Network Visualization)

Finally, the bibliometric data was further analyzed using bibliometric coupling (Table 3, Fig. 9). Analysis was done with the minimum number of citations of a document of 3 resulting in 404 documents and connected items of 279. Based on the TLS, the research of Mahak Gambhir (2016) has the highest TLS of 18 and second in terms of citation followed by the study of Reihaneh Hariri (2019) with a TLS equal to 14. The documents of Anhai Doan (2003), Atefeh Heydari (2015), Feiyu Xu (2019), and Sean Eom (1998) each shared with TLS=13. Followed by Alydas Beleentis (2012) and Melody Kiang (2003) with TLS=11 each. Completing the Top 10

are Yafeng Ren (2017) and Ting-peng Liang (2018). The results indicate that bibliometric coupling like co-authorship needed to be improved as the TLS outcome revealed that fewer instances of bibliometric coupling are observed. The years 2016 and 2019 tallied the first and second-highest cases of bibliometric coupling. It can also be interpreted that researchers still need to understand the importance of bibliometric coupling, so they learn to collaborate instead of upholding single authorships.

Table 3. Bibliometric coupling according to TLS.

Seq. No.	Document	Citations	(TLS)
1	Mahak Gambhir (2016)	39	18
2	Reihaneh Hariri (2019)	20	14
3	Anhai Doan (2003)	3	13
4	Atefeh Heydari (2015)	3	13
5	Feiyu Xu (2019)	3	13
6	Sean Eom (1998)	3	13
7	Alydas Beleentis (2012)	4	11
8	Melody Kiang (2003)	4	11
9	Yafeng Ren (2017)	97	10
10	Ting-peng Liang (2018)	27	10
11	Panos Antsaklis (1989)	27	10
12	Shaofeng Liu (2009)	27	10
13	Bruno Melo Brentan (2017)	27	10
14	Nigel Cross (1993)	27	10
15	Jose Merigo (2011b)	27	10
16	Ron Kohavi (2001)	27	10
17	Fred Glover (1988)	27	10
18	Sung Ho Ha (1998)	27	10
19	Vasant Dhar (1996)	27	10
20	Robert Qalliers (1994)	27	10

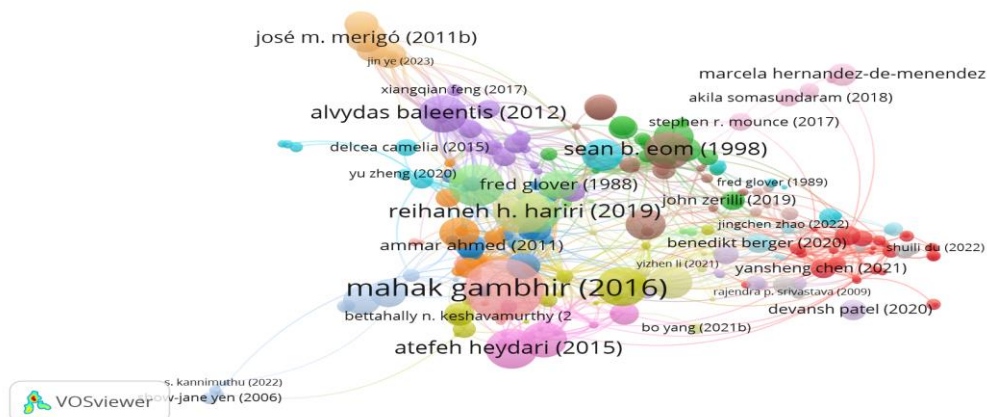


Figure 9. Bibliometric map of bibliometric coupling (Network Visualization).

4. Discussion & Conclusion

This study investigates the integration of AI in management decision-making employing bibliometric analysis. The examination was performed to evaluate the performance of data collected in terms of research production over the years, publication types, most active authors, the top field of the study, top journals performing the research in the field, and most active countries conducting the study in the field. The second part is scientific mapping with bibliometrics such as keyword occurrence, co-authorship, and bibliometric coupling. Findings can be summarized that; the highest number of publications were found in 2023 and mostly from journals. The most active author was Bingzhen Sun with 6 documents and the most topics of investigation are artificial intelligence and knowledge management respectively. In the aspect of top journals in the field, the Journal of Business Ethics topped the list and most of the Top 10 journals are found in notable publishers such as Springer, Talor and Francis, and Science Direct. The top three productive countries in the field include the United States, China, and the United Kingdom.

With reference to bibliometric mapping, results showed that most publications were seen at the height of the COVID-19 pandemic, and the distribution of countries productively contributing to the field not only includes developed countries but also emerging economies. While there is growing interest by scholars in publishing papers in 2019-2023 the researcher has found that there are still scarcities of diversity in co-authorship and bibliometric coupling involving different nations and regions. Investigations showed that the years 2016-2019 have seen to have more cases of bibliometric coupling than any other years from 1988-2023. Based on these findings and to the best of the researcher's knowledge it can be recommended that more studies be undertaken to address the scarcity of co-authorship and bibliometric coupling involving a diversity of countries like the Arabian and African region. More studies can also be conducted in emerging countries to keep up with the trends in developed countries and more opportunities for collaboration.

4.1 Research Limitation and Future Directions

One of the valuable contributions of this paper is that the findings help researchers and academicians to enhance collaborative research in diverse settings and to different stakeholders like managers and all other decision-makers at varying levels. Even though AI is becoming a hot topic, only a small amount of literature is dedicated to bibliometric methods in analyzing management data and information for decision-making. Many studies have been conducted using a variety of research databases; nonetheless, it is necessary to compare the various parameters throughout databases. There is a hidden demand to determine the eminent financing organizations that support business and related management research on artificial intelligence.

For future studies, it can be mapped out that extensive studies be done integrating AI in management decision-making like exploring and maximizing the use of AI in different management scenarios in companies whether SMEs or large organizations. However, one of the limitations of this paper is the lack of access to Scopus and Web of Science data, and the use of AI is matched only to decision-making. For future research, expansion of the studies can be extended on AI use in management performance evaluations both financial and non-financial and

increase collaborative studies focusing on diverse fields like health sector, financial sector, tourism, and others.

References

- Cavalcante, R., Brasileiro, R. C., Souza, V. L. F., Nobrega, J. P., & Oliveira, A. L. I. (2016). Computational intelligence and financial markets: A survey and future directions. *Expert Systems with Applications*, 55, 194–211. <https://doi.org/10.1016/j.eswa.2016.02.006>.
- Choi, J. J., & Ozkan, B. (2019). Innovation and disruption: Industry practices and conceptual bases. In J. J. Choi & B. Ozkan (Eds.), *Disruptive innovation in business and finance in the digital world* (Vol. 20, pp. 3–13). Emerald Publishing Limited.
- Chopra, K. (2019). Indian shopper motivation to use artificial intelligence: Generating Vroom's expectancy theory of motivation using grounded theory approach. *International Journal of Retail & Distribution Management*, 47(3), 331–347. <https://doi.org/10.1108/IJRDM-11-2018-0251>.
- 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.
- Ebner, K., Bühnen, T. & Urbach, N. (2014). Think Big with Big Data: Identifying Suitable Big Data Strategies in Corporate Environments. In 2014 47th Hawaii International Conference on System Sciences (pp. 3748–3757). IEEE.
- Gumusay, A.A., Bohne, T., & Davenport, T.H. (2023). AI and the future of making management decisions. *Management and Business Review*, 3(3), 7-14.
- Ince, H., & Aktan, B. (2009). A comparison of data mining techniques for credit scoring in banking: A managerial perspective. *Journal of Business Economics and Management*, 10(3), 233–240. <https://doi.org/10.3846/1611-1699.2009.10.233-240>.
- Jadil, Y., Rana, N.P., & Dwivedi, Y.K. (2021). A meta-analysis of the UTAUT model in the mobile banking literature: The moderating role of sample size and culture. *Journal of Business Research*, 132, 354-372. <https://doi.org/10.1016/j.jbusres.2021.04.052>
- Karimova, F. (2016). A survey of e-commerce recommender systems. *European Scientific Journal*, 12(34), 75–89. <https://doi.org/10.19044/esj.2016.v12n34p75>
- Lee, L. W., Dabirian, A., McCarthy, I. P., & Kietzmann, J. (2020). Making sense of text: Artificial intelligence-enabled content analysis. *European Journal of Marketing*, 54(3), 615–644. <https://doi.org/10.1108/EJM-02-2019-0219>.
- Lee, Y. K., & Park, D. W. (2018). Design of internet of things business model with deep learning artificial intelligence. *International Journal of Grid and Distributed Computing*, 11(7), 11–22. <https://doi.org/10.14257/ijgdc.2018.11.7.02>.
- Leung, X.Y., Sun, J. and Bai, B., 2017. Bibliometrics of social media research: A co-citation and co-word analysis. *International Journal of Hospitality Management*, 66, 35-45.

- Leydesdorff, L., & Vaughan, L. (2006). Co-occurrence matrices and their applications in information science: Extending ACA to the Web environment. *Journal of American Society of Information Science & Technology*, 57(2006), 1616–1628.
- Li, B., Hou, B., Yu, W., Lu, X., & Yang, C. (2017). Applications of artificial intelligence in intelligent manufacturing: A review. *Frontiers of Information Technology & Electronic Engineering*, 18(1), 86–96. <https://doi.org/10.1631/FITEE.1601885>.
- Liang, T.P., & Liu, Y.H. (2018). Research landscape of business intelligence and big data analytics: A bibliometrics study. *Expert Systems with Applications*, 111, 2-10.
- Maknickiene, N., & Maknickas, A. (2013). Financial market prediction system with Evolino neural network and Delphi method. *Journal of Business Economics and Management*, 14(2), 403–413. <https://doi.org/10.3846/16111699.2012.729532>.
- Marinchak, C. L. M., Forrest, E., & Hoanca, B. (2018). The impact of artificial intelligence and virtual personal assistants on marketing. In D. B. A. M. Khosrow-Pour (Ed.), *Encyclopedia of information science and technology* (pp. 5748–5756). IGI Global. <https://doi.org/10.4018/978-1-5225-2255-3.ch499>.
- Patra, A.K., Praharaj, A., Sudarshan, D., & Chhatoi, B.P. (2024). AI and business management: Tracking future research agenda through bibliometric network analysis, *Heliyon*, 10, (1), e23902. <https://doi.org/10.1016/j.heliyon.2023.e23902>.
- Paul, J., & Criado, A.R. (2020). The art of writing literature review: What do we know and what do we need to know?. *International Business Review*, 29(4), <https://doi.org/10.1016/j.ibusrev.2020.101717>
- Prasanth, A., Vadakkan, D.J., Surendvan, P., & Thomas, B. (2023). Role of Artificial Intelligence and Business Decision Making. *International Journal of Advanced Computer Science and Applications*, 14(6), 965-969.
- Raisch, S., & Krakowski, S. (2020). Artificial Intelligence and Management: The Automation-Augmentation Paradox. *Academy of Management Review* 46(1). <https://doi:10.5465/2018.0072>.
- Ramakrishna, S., Ngowi, A., De Jager, H., & Awuzie, B. O. (2020). Emerging industrial revolution: Symbiosis of Industry 4.0 and circular economy: The role of universities. *Science Technology and Society*, 25(3), 505–525. <https://doi.org/10.1177/0971721820912918>.
- Shravan Kumar, B., & Ravi, V. (2016). A survey of the applications of text mining in financial domain. *Knowledge-Based Systems*, 114, 128–147. <https://doi.org/10.1016/j.knosys.2016.10.003>.
- Sheikh, H., Prins, C., & Schrijvers, E. (2023). Artificial Intelligence: Definition and Background. In: Mission AI. Research for Policy. Springer, Cham. https://doi.org/10.1007/978-3-031-21448-6_2
- Sheta, F. A., Ahmed, S. E. M., & Faris, H. (2015). A comparison between regression, artificial neural networks and support vector machines for predicting stock market index.

International Journal of Advanced Research in Artificial Intelligence, 4(7).
<https://doi.org/10.14569/IJARAI.2015.040710>.

Taşkın, Z., & Aydinoglu, A. U. (2015). Collaborative interdisciplinary astrobiology research: a bibliometric study of the NASA Astrobiology Institute. *Scientometrics*, 103(3), 1003-1022.

Trunk, A., Birkel, H., & Hartmann, E. (2020). On the current state of combining human and artificial intelligence for strategic organizational decision making. *Bus. Res.* 2020, in press.

Ullah, M., Shahid, A., Din, I.U., Roman, M., Assam, M., Fayaz, M., Ghadi, Y., & Aljuaid, H. (2022). Analyzing Interdisciplinary Research Using Co-Authorship Networks. *Complexity*, 2022, 1-13. <https://doi.org/10.1155/2022/2524491>

Zupic, I., & Cater, T. (2015). Bibliometric Methods in Management and Organization. *Organizational Research Methods*, 18, 429-472.
<https://doi.org/10.1177/1094428114562629>