**Migration Letters**

Volume: 20, No: S4(2023), pp. 1138-1148

ISSN: 1741-8984 (Print) ISSN: 1741-8992 (Online)
www.migrationletters.com

# Integrating Artificial Intelligence into Business Decision-Making: A Case Study with ChatGPT

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**Abstract**

*A documentary review was carried out on the production and publication of research papers related to the study of the variable Artificial Intelligence, Business Administration and Decision Making. The purpose of the bibliometric analysis proposed in this document was to know the main characteristics of the volume of publications registered in the Scopus database during the period 2017-2022, achieving the identification of 25 publications. The information provided by this platform was organized through graphs and figures, categorizing the information by Year of Publication, Country of Origin, Area of Knowledge and Type of Publication. Once these characteristics have been described, the position of different authors on the proposed topic is referenced through a qualitative analysis. Among the main findings made through this research, it is found that Australia, India, Poland, Russia and the United States with 3 publications were the countries with the highest scientific production registered in the name of authors affiliated with institutions of these nations. The Area of Knowledge that made the greatest contribution to the construction of bibliographic material related to the study of the variable Artificial Intelligence, Business Administration and Decision Making was Computer Science with 13 published documents, and the most used Publication Type during the period indicated above were Journal Articles with 48% of the total scientific production.*

***Keywords:*** *Business Administration, Artificial Intelligence, Innovation, Decision Making.*

## 1. Introduction

In the vast business landscape with a highly evolved competitive environment, the integration of artificial intelligence has emerged as a transformative technology that restructures the way business organizations make critical decisions. The arrival of AI has not projected and accelerated the commercial operational models of companies, but has also marked a before and after in traditional decision-making, this new decision-making model which is based on the data provided by artificial intelligence takes advantage of algorithms, machine learning systems and predictive statistical analytics are essential to promote efficiency, improve productivity and offer the business branch new business and knowledge strategies. It is worth mentioning that the integration of these technologies in

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business decision-making is revolutionizing and transforming traditional management paradigms, allowing business organizations to respond effectively and timely to future challenges and opportunities with unprecedented precision, agility and control.

Artificial intelligence, once a cutting-edge and futuristic idea at the turn of the century, has now become the mainstay and integral linchpin of various corporate strategies across industry models, ranging from finance and healthcare to manufacturing and e-commerce. Enterprise environments are exploiting artificial intelligence to gain a competitive advantage in markets by extracting insights from vast data sets supplied by AI algorithms, automating and optimizing companies' business operations. Whether implementing Chatbot services which have served to improve customer service, analyzing business trends, streamlining supply chains and improving risk management in commercial and production plants. This new integration of AI is proving to be a central pillar in the way business decisions have been formulated and executed.

This integration isn't simply about adopting AI as a buzzword or implementing siloed solutions; It is a change in the fundamental decision-making process. AI enables organizations to analyze historical data and insights in real-time, uncover hidden patterns, and make predictions that were previously impossible. However, with great power comes the responsibility to implement ethical and transparent AI, as well as address the challenges associated with data privacy, algorithmic biases, and workforce adaptation.

This article explores the multifaceted role of artificial intelligence in business decision-making, delving into its benefits, challenges, and ethical considerations. It will shed light on the profound impact AI has on various aspects of decision-making, from strategic planning to day-to-day operations, and provide insights into the future direction of this dynamic and ever-evolving field. As AI continues to mature, understanding its integration into business decision-making is not only a competitive advantage, but a strategic imperative for organizations looking to thrive in the 21st century. For this reason, this article seeks to describe the main characteristics of the compendium of publications indexed in the Scopus database related to the variables Artificial Intelligence, Business Administration and Decision Making, as well. Such as the description of the position of certain authors affiliated with institutions, during the period between 2017 and 2022.

## 2. General Objective

To analyze, from a bibliometric and bibliographic perspective, the preparation and publication of research papers in high-impact journals indexed in the Scopus database on the variables Artificial Intelligence, Business Administration and Decision Making during the period 2017-2022.

## 3. Methodology

This article is carried out through a research with a mixed orientation that combines the quantitative and qualitative method.

On the one hand, a quantitative analysis of the information selected in Scopus is carried out under a bibliometric approach of the scientific production corresponding to the study of Artificial Intelligence, Business Administration and Decision Making. On the other hand, examples of some research works published in the area of study mentioned above are analyzed from a qualitative perspective, based on a bibliographic approach that allows describing the position of different authors on the proposed topic. It is important to note that the entire search was carried out through Scopus, managing to establish the parameters referenced in Figure 1.

3.1. Methodological design


Figure 1. Methodological design

Source: Authors' own creation

3.1.1 Phase 1: Data collection

Data collection was carried out from the Search tool on the Scopus website, where 25 publications were obtained from the following filters:

TITLE-ABS-KEY ( artificial AND intelligence, AND business AND administration, AND decision AND making ) AND PUBYEAR > 2016 AND PUBYEAR < 2023

- Published documents whose study variables are related to the study of variables, Artificial Intelligence, Business Administration and Decision Making.
- Limited to the years 2017-2022.
- Without distinction of country of origin.
- Without distinction of area of knowledge.
- No distinction of type of publication.

3.1.2 Phase 2: Construction of analytical material

The information collected in Scopus during the previous phase is organized and then classified by graphs, figures and tables as follows:

- Co-occurrence of words.
- Year of publication.
- Country of origin of the publication.
- Area of knowledge.
- Type of publication.

3.1.3 Phase 3: Drafting of conclusions and outcome document

In this phase, the results of the previous results are analysed, resulting in the determination of conclusions and, consequently, the obtaining of the final document.

## 4. Results

4.1 Co-occurrence of words

Figure 2 shows the co-occurrence of keywords found in the publications identified in the Scopus database.

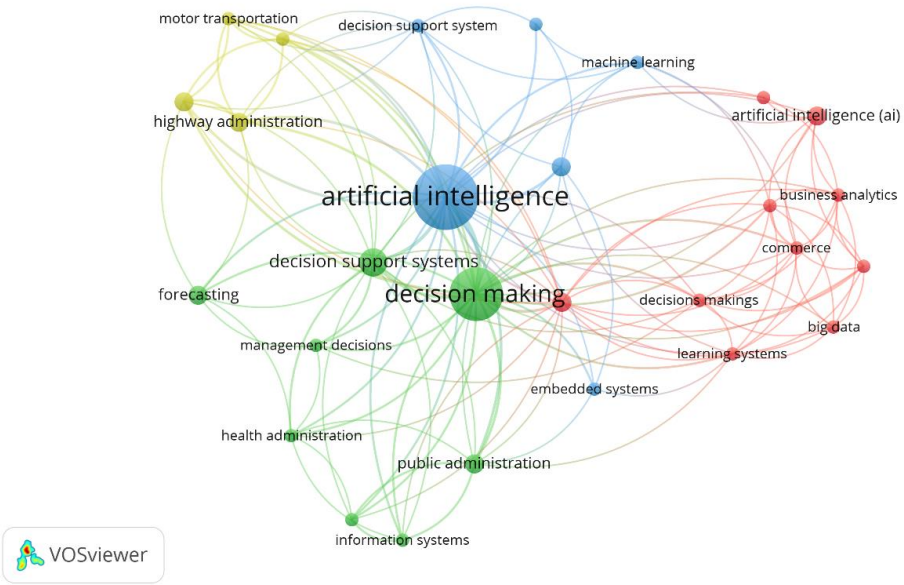


Figure 2. Co-occurrence of words

Source: Authors' own elaboration (2023); based on data exported from Scopus.

Decision-making was the most frequently used keyword within the studies identified through the execution of Phase 1 of the Methodological Design proposed for the development of this article. Artificial Intelligence is among the most frequently used variables, associated with variables such as Information Systems, Decision Support Systems, Business Analysis, Public Administration, Business Decisions, Digital Technology. From the above, it is striking, the integration of AI in business decision-making is an ongoing journey, with countless possibilities pending exploration. As AI technologies mature and organizations become increasingly adept at leveraging their capabilities, we can anticipate a future where AI is not simply a tool but a trusted partner in critical decision-making processes. By continually pushing the boundaries of AI integration, businesses can navigate the complexities of an ever-evolving global marketplace with greater agility and insights. The integration of artificial intelligence into business decision-making is a revolutionary transformation that promises to redefine the dynamics of modern commerce. Its evolution, its various applications and the challenges it poses underline the importance of this integration. As organizations strive to remain competitive and resilient, embracing AI is not simply a choice but an imperative, as it holds the key to unlocking unprecedented potential in the pursuit of ethical, informed, and data-driven decision-making.

4.2 Distribution of scientific production by year of publication

Figure 3 shows how scientific production is distributed according to the year of publication.

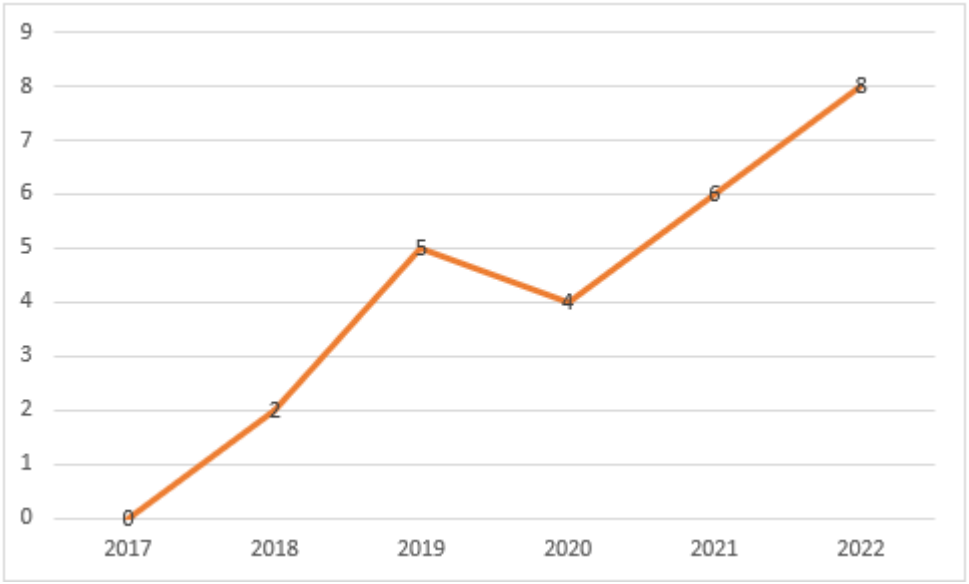


Figure 3. Distribution of scientific production by year of publication.

Source: Authors' own elaboration (2023); based on data exported from Scopus

Among the main characteristics evidenced through the distribution of scientific production by year of publication, the number of publications registered in Scopus was in 2022, reaching a total of 8 documents published in journals indexed on this platform. This can be explained by articles such as the one entitled "The Role of Artificial Intelligence in Improving Administrative Decision Support Systems by Relying on Knowledge Management" This study illustrates the role of artificial intelligence in improving administrative decision support systems depending on knowledge management. As new technologies evolve and workflow needs a more conscious implementation approach, the role of artificial intelligence evolves in supporting decision-making. The study takes the administration of private universities as a variable on which the results are based. Improvements in innovation have improved most of the techniques for leading business tasks that further develop organizations and administrative management. Companies in this area need to move towards the digitalization of all industrial cycles, business sequences related to administration, and the most essential services in educational institutes over time. The need for adequate decision-making support through knowledge management still creates a large gap in the basis of an effective and efficient education system for good governance and the improvement of the image of some institute. The interaction of the review was intended to follow an iterative disclosure methodology chosen for the review. Using the logical instrument of the statistical package for social sciences (IBM-SPSS), version 23, the illustrative research was completed with information on the profile of the respondents' segment. Hayes' v3.3 process macro with SPSS was used to analyze the intercession effect.(Alshadoodee, 2022)

4.3 Distribution of scientific output by country of origin

Figure 4 shows how scientific production is distributed according to the country of origin of the institutions to which the authors are affiliated.

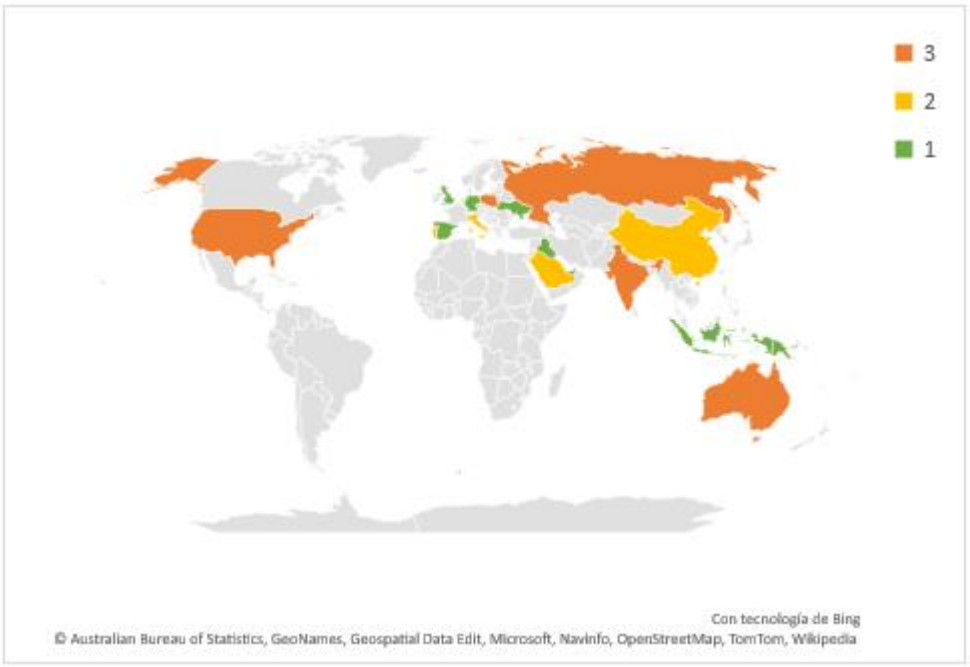


Figure 4. Distribution of scientific production by country of origin.

Source: Authors' own elaboration (2023); based on data provided by Scopus.

Within the distribution of scientific production by country of origin, the registrations from institutions were taken into account, establishing Australia, India, Poland, Russia and the United States, as the country of this community, with the highest number of publications indexed in Scopus during the period 2017-2022, with a total of 3 publications in total. In second place, Saudi Arabia, Portugal and Italy with 2 scientific papers, and the United Kingdom, Ukraine and Spain occupying the third place presenting to the scientific community, with a total of 1 documents among which is the article entitled "Forecasting the behavior of target segments to activate advertising tools: the case of the mobile operator Vodafone Ukraine" The aim of the study is to develop a scoring model that predicts the behavior of the target segments, i.e. updating their activity to activate advertising tools. To achieve the objective of the work, a set of research methods was used: dialectical-to reveal the theoretical foundations of the models and types of forecasting models; analytical-in the study of the functioning of the environment SAS, Anaconda; Optimization methods: to choose the best model and generate features. The scientific novelty and theoretical importance lie in the development of a scoring model to predict the activity of subscribers of the telecommunications company "VF Ukraine", from which marketing campaigns are conducted. With the help of the built-in scoring model, the company "VF Ukraine" can target its campaigns to retain subscribers. The company's marketing management can choose the TOP-20 or TOP-30 subscribers most likely not to resume activity, i.e., they tend to switch to other mobile operators and run promotions for them, providing them with additional freebies and bonuses. money to the mobile account.(Zatonatska, 2022)

4.4 Distribution of scientific production by area of knowledge

Figure 5 shows the distribution of the  elaboration of scientific publications based on the area of knowledge through which the different research methodologies are implemented.

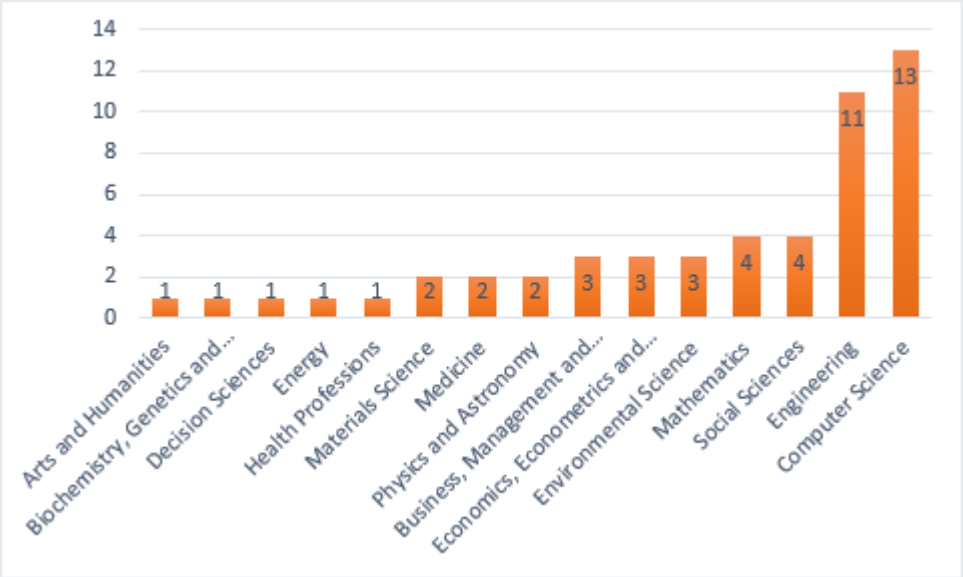


Figure 5. Distribution of scientific production by area of knowledge.

Source: Authors' own elaboration (2023); based on data provided by Scopus

Computer Science was the area of knowledge with the highest number of publications registered in Scopus with a total of 13 documents that have been based on its variable methodologies Artificial Intelligence, Business Administration and Decision Making. In second place, Engineering with 11 articles and Social Sciences in third place with 4. The above can be explained thanks to the contribution and study of different branches, the article with the greatest impact was registered by the area of Computer Science entitled "Perspective of decision makers in information technology on the factors that influence the adoption and implementation of artificial intelligence technologies in 40 German hospitals: descriptive analysis" This study aimed to investigate the factors influencing AI readiness, as well as potential barriers to AI adoption and implementation in German hospitals. We also assess the status quo regarding the spread of AI tools in hospitals. We focus on IT decision-makers, an understudied but highly relevant group. Methods: We created a web-based survey based on recent literature on AI readiness and implementation. Participants were identified through a publicly accessible database and contacted by e-mail or mailed invitation leaflets, in some cases accompanied by prior telephone notification. Survey responses were analyzed using descriptive statistics. Results: We contacted 609 potential participants and our database recorded 40 completed surveys. Most participants agreed or rather agreed with the statement that AI would be relevant in the future, both in Germany (37/40, 93%) and in their own hospital (36/40, 90%). Participants were asked if their hospitals used or planned to use artificial intelligence technologies. Of the 40 participants, 26 (65%) answered "yes". The majority of AI technologies were used or planned for patient care, followed by biomedical research, administration and logistics, and central purchasing. The most significant barriers to AI were a lack of resources (personnel, knowledge, and financial).(Weinert, 2022)

4.5 Type of publication

In the following graph, you will see the distribution of the bibliographic finding according to the type of publication made by each of the authors found in Scopus.


Figure 6. Type of publication.

Source: Authors' own elaboration (2023); based on data provided by Scopus.

The type of publication most frequently used by the researchers referenced in the body of this document was the one entitled Journal Articles with 48% of the total production identified for analysis, followed by Session Paper with 20%. Chapter of the Book are part of this classification, representing 12% of the research papers published during the period 2017-2022, in journals indexed in Scopus. In the latter category, the one entitled "SOA-based information integration platform for the educational management decision support system" stands out. This paper proposes an SOA-based information integration platform, which integrates various enterprise application systems into a unified platform through the use of a flexible coupling structure, It enables information sharing between application systems and meets the needs of enterprise businesses across departments. As a new architecture idea, service-oriented architecture can package existing assets and reuse existing assets. You can also minimize the impact of changes in demand because your implementation is loosely coupled. When users need to add or modify a feature, they only need to make a few modifications to the presentation layer or the business process layer.(Wang, 2022)

## 5. Conclusions

Through the bibliometric analysis carried out in this research work, it was possible to establish that Australia, India, Poland, Russia and the United States were the countries with the highest number of published records for the variables Artificial Intelligence, Business Administration and Decision Making. with a total of 3 publications in the Scopus database. In the same way, it was established that the application of theories framed in the area of Computer Science, were used more frequently in the integration of artificial intelligence in business decision-making since it has marked the beginning of a transformative era in the business world. Artificial intelligence technologies, powered by machine learning, natural language processing, and data analytics, have enabled organizations to make more informed, timely, and data-driven decisions. The benefits of this integration are manifold. In addition, AI enables greater efficiency and productivity. Automating routine and repetitive tasks, data analysis, and predictive modeling not only frees up human resources, but also minimizes the chances of human bias impacting decisions. This, in turn, translates into cost savings and better resource allocation. AI-powered decision-making also facilitates a more personalized and responsive approach to

customers. Through recommendation engines and chatbots, businesses can deliver personalized experiences and quick responses, improving customer satisfaction and loyalty. In addition, insights gleaned from AI-powered data analytics enable businesses to adapt to market changes more effectively and proactively identify opportunities and risks. It can be a competitive advantage in a rapidly evolving business landscape. Despite the numerous advantages, it is essential to consider the ethical and regulatory implications of AI integration. Companies must ensure that their AI systems meet ethical standards, respect privacy, and comply with relevant laws and regulations. Transparency and accountability are key factors in building trust with customers, partners, and stakeholders.

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