



Strategic management approaches in the era of artificial intelligence and big data

^{1*} Abdulathim Ahmed , ² Fatima younes mohamed 

¹ Faculty of Management, Bright star university, Libya, Yesadim@gmail.com

² Faculty of Economics, University of Benghazi, Libya, fatmt314@gmail.com

*Corresponding Author: Yesadim@gmail.com

| Information of Article | ABSTRACT |
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| <p><i>Article history:</i> Received: Feb 2023 Revised: Mar 2023 Accepted: May 2023 Available online: Feb 2024</p> <p>Keywords: Artificial Intelligence Big Data Strategic Management Governance Decision-Making Corporate Governance Data Privacy</p> | <p>This study investigates the influence of artificial intelligence (AI) and big data on strategic management approaches in the era of technological advancement. It emphasizes the significant impact of AI and big data in enhancing governance quality, improving decision-making, corporate governance, administrative performance, and achieving strategic flexibility. The research adopts an analytical and descriptive approach, critically analyzing literature across various sectors, including government services, education, pharmaceuticals, and marketing. It identifies the potential of AI and big data to revolutionize strategic management, highlighting the necessity for strategic and responsible adoption to maximize their benefits. The study also addresses the associated challenges, including data privacy and ethical considerations.</p> |

1. Introduction

In an era of rapid technological development, strategic management is emerging as a critical element in the success of companies and institutions. Perhaps the most prominent manifestation of this development is the revolution in the field of artificial intelligence (AI) and big data technology, which is reshaping the competitive landscape in various sectors. This research paper examines how artificial intelligence and big data are impacting strategic management approaches, exploring how companies can exploit these technologies to enhance their competitive advantage and improve their operations. The study's theoretical framework provides an in-depth analysis of the impact of artificial intelligence and big data, drawing on a range of leading research studies in this field. We review how artificial intelligence enhances the quality of governance and government services, its role in corporate governance and improving administrative performance in the educational sector. We also look at how pharmaceutical companies and other sectors can benefit from big data analysis to achieve strategic flexibility and sustainable knowledge management. In the research methodology section, we follow an analytical and descriptive approach to explore this effect, relying on the analysis and interpretation of previous and recent research and studies. Our methodology includes the use of quantitative and qualitative analyzes to understand the profound impacts of these technologies on strategic management.

Our goal is to provide a comprehensive vision that contributes to understanding the way advanced technologies such as artificial intelligence and big data shape the strategic future of companies and institutions. Through this study, we review the challenges and opportunities presented by these technologies, emphasizing their importance in enhancing efficiency and innovation in administrative processes. This paper also aims to provide a comprehensive vision that

helps leaders and decision makers understand how to adapt their strategies to adapt to this new era, in order to achieve their goals efficiently. And effectiveness in a business environment characterized by dynamism and constant change

2. Theoretical framework

Amid the accelerating pace of technological development, it becomes essential to understand how artificial intelligence and big data can stimulate change in strategic management practices. This theoretical framework aims to provide a comprehensive and in-depth view of this effect, relying on a group of important research studies in this field.

Artificial intelligence and quality of governance

Abu Zeid and Ahmed Al-Shura (2022) emphasize the importance of artificial intelligence in enhancing the quality of governance, pointing out how this technology can be used to improve decision-making and manage resources efficiently in various sectors.

Artificial intelligence and the quality of government services

Ali Hilal Al-Araimi et al.'s (2023) study examines the impact of artificial intelligence on the quality of government services, especially in the context of the Sultanate of Oman, highlighting the potential benefits of applying these technologies in public administration.

Artificial intelligence in corporate governance

Michel and George (2023) discuss the role of artificial intelligence in corporate governance, emphasizing the potential it offers to enhance transparency and efficiency in administrative processes.

Artificial intelligence and administrative performance in schools

Researcher Mashael bint Hazza Al-Muraikhi (2023) explores how artificial intelligence can improve the administrative performance of secondary school principals, with a focus on Hafar Al-Batin Governorate, explaining the positive impact of this technology in the educational environment.

Big data analysis and strategic flexibility

Mahmoud Mohamed Al-Naqira and Ahmed (2019) examine how big data analysis affects strategic flexibility in pharmaceutical companies in Egypt, stressing the importance of these technologies in achieving rapid response to market changes.

Big data and sustainable knowledge management

Al-Halim Al-Ashi and Badi (2021) study big data analysis from social networks as an enabler for sustainable knowledge management, with a focus on marketing applications.

Strategic management and competitive advantage

Dabbabi Hanan and Mahjoub Bushra (2019) discuss how strategic management contributes to achieving competitive advantage for economic institutions, emphasizing the role of data-based strategies in enhancing the position of companies in the market.

Strategic management and human resources formation

Djahmi Soufiane (2020) reviews the role of strategic management in the formation of human resources, with a case study on the Sonelgaz Foundation in the state of Guelma, stressing the importance of integrating artificial intelligence in developing the workforce.

Big data and human resource management

Mohamed Mahmoud Hammad and Mohamed (2021) investigate how big data applications impact improving human resource management practices, especially in international IT companies in Egypt.

Big data and the telecommunications sector

Al-Biladi and Ahmed Othman (2023) explore the effective role of big data in supporting the telecommunications sector, analyzing a study on this sector, pointing to the enormous potential of these technologies in improving services and operations.

Big data and sustainable development

Maqani and Shabila (2019) study the role of big data in supporting sustainable development in Arab countries, emphasizing its ability to enhance economic and social performance.

Artificial intelligence and digital marketing methods

Al-Bembawy and Hani Ibrahim (2023) address the role of artificial intelligence and big data technologies in enhancing the efficiency of digital marketing methods, from the point of view of marketing experts, explaining the positive impact of these technologies in advertising and promotion. These references provide

a comprehensive overview of how artificial intelligence and big data are impacting strategic management in various sectors, with a focus on quality, strategic flexibility, corporate governance, marketing, and sustainable development.

3. Research Methodology

In our endeavor to understand the increasing impact of modern technologies such as artificial intelligence and big data on strategic management approaches, in this study we follow a multidimensional research methodology. This methodology focuses on integrating analytical and descriptive approaches, and relies heavily on a careful and comprehensive review of previous literature and recent studies related to this topic. This section includes details about data collection and analysis methods, including a review of the most prominent studies relied upon. We will highlight the research conducted by leading thinkers in this field, such as the works of Abu Zaid, Ahmed Al-Shura, Ali Hilal Al-Araimi and others, which are considered the cornerstone of our analysis. Our methodology also includes the use of qualitative and quantitative analytical tools to derive findings and explore patterns and influences in the field of strategic management.

Through this section, we aim to provide a strong and solid foundation that supports our conclusions and recommendations, through a careful critical analysis of the selected sources and literature related to this topic which provides a deep understanding of the role that artificial intelligence and big data can play in shaping the strategic future of companies and institutions

Research approach 3.1

An analytical and descriptive research approach was adopted to explore how modern technologies such as artificial intelligence and big data influence strategic management approaches. This approach is based on the analysis and interpretation of previous research and current studies related to the topic.

Literature review 3.2

A comprehensive literature review was conducted to collect data from reliable sources including a range of academic studies and published articles. The mentioned quotes were used as a basis for analyzing current trends and influences in the field of strategic management.

Analysis of studies

- **Abu Zaid and Ahmed Al-Shura (2022)** : This study was analyzed to understand the impact of artificial intelligence on the quality of governance and decision-making.
- **Ali Hilal Al-Araimi et al (2023)** : Exploring the impact of artificial intelligence on the quality of government services in the Sultanate of Oman.

- **Michel and George(2023)** : Analysis of the role of artificial intelligence in corporate governance and how it enhances operational efficiency.
- **Researcher Mashaal Bint Hazza Al-Muraikhi(2023)** : A study on improving administrative performance in schools in Hafr Al-Batin Governorate through artificial intelligence.
- **Mahmoud Mohamed Al-Naqira and Ahmed(2019)** : Focus on how big data analysis affects strategic flexibility in companies.

Qualitative and quantitative methodology

.The study used quantitative and qualitative methodologies to analyze data and results drawn from various sources. Quantitative data was analyzed to identify trends and patterns, while qualitative analysis was used to understand the contexts and profound implications of AI and Big Data on strategic management.

Current studies

Existing studies such as those of Djahmi Soufiane (2020) and Mohamed Mahmoud Hammad and Mohamed (2021) were also considered to determine how AI and big data can be applied in different contexts, such as human resource formation and improving human resource management practices.

Critical analysis

A critical analysis of previous research was conducted to identify gaps and opportunities in current research, in addition to providing recommendations for future research in this area.

Conclusions and recommendations

Based on the aforementioned analyses, conclusions will be presented about the crucial role played by artificial intelligence and big data in shaping modern strategic management approaches, as well as recommendations for . effectively applying these technologies in various sectors

4. Analysis and results

Here we provide a detailed analysis of the research findings, focusing on the impact of artificial intelligence and big data on strategic management. These technologies are seen as key drivers of change and innovation in many sectors, including business and government services. By analyzing the literature and previous studies, we seek to .explore the implications of these technologies and identify the challenges and opportunities associated with them. We will also discuss how organizations can effectively leverage these technologies to enhance their strategic . capabilities and resilience in the face of changing market challenges

The impact of artificial intelligence on decision-making processes

Artificial intelligence, as highlighted by the study by Abu Zaid and Ahmed Al-Shura (2022), has a significant impact on enhancing the accuracy and efficiency of decision-making processes in strategic management. This is clearly evident in its ability to analyze large amounts of data, enabling departments to have a deeper understanding of and forecast market variables. Artificial Intelligence not only contributes to making more accurate decisions, but also helps reduce human errors and improve the speed of response to administrative and business challenges .

Significant improvements have also been recorded in the quality and speed of decision-making in companies and institutions that have adopted artificial intelligence. Prediction accuracy increased and error rates decreased It should be noted that AI integration requires advanced infrastructure and analytical capabilities, which means investment in information technologies and employee training is necessary. There are also challenges related to privacy and data security, which must be addressed effectively to ensure successful and sustainable adoption of this technology.

Artificial intelligence and improving government services

The study conducted by Ali Hilal Al-Araimi et al. (2023) indicates a significant positive impact of artificial intelligence on government services. This includes improving the efficiency of procedures, reducing costs, and improving the user experience. Artificial intelligence gives governments the ability to process requests faster and more accurately, which contributes to increased citizen satisfaction and trust in government systems . The data also showed an increase in administrative efficiency thanks to artificial intelligence technologies, which led to improving cash flows and resources and reducing operational expenses . A tangible improvement has been observed in the quality of government services, especially with regard to efficiency, speed of response, and customization of services to citizens' needs . However, adopting AI in the public sector requires changes in policy and regulatory frameworks. Governments must balance the need for innovation with the need to protect citizens' privacy and ensure the ethical use of technology .

Artificial intelligence in corporate governance

As discussed in the study by Michel and George (2023), AI is a valuable tool in enhancing corporate governance. It contributes to improving transparency and accountability, which enhances trust between shareholders and management. Moreover, artificial intelligence can improve internal control and risk management processes . Adopting artificial intelligence in companies has contributed to improving transparency and accountability, which has led to enhanced trust between shareholders and management and improved relationships with stakeholders However, Improvements were observed in organizational development and human resources development, as these technologies helped train employees and develop their skills to meet advanced work requirements . Companies must be aware of the challenges arising from the use of artificial intelligence, including the need to

modernize technological systems and ensure data security. Ethics and compliance with data-related laws and regulations must also be taken into account .

Big data analysis and strategic flexibility

The study conducted by Mahmoud Muhammad Al-Naqira and Ahmed (2019) indicates the importance of big data analysis in enhancing the strategic flexibility of companies. By leveraging big data, companies can better understand market trends and quickly adapt to environmental and competitive changes . Big data analysis has contributed to enabling companies to quickly adapt to changes, which has increased their ability to face challenges and exploit opportunities effectively. Achieving this strategic flexibility requires significant investment in technology and human resources. Companies must also develop their analytical capabilities to effectively interpret data and turn it into valuable business insights. This also requires an organizational culture that supports continuous learning and innovation.

Conclusions

The analysis reveals a significant and positive impact of artificial intelligence and big data in enhancing strategic management approaches. These technologies not only improve efficiency and performance, but also contribute to enhancing strategic flexibility, improving governance, and supporting organizational development. It is essential for companies and organizations to embrace these technologies to stay ahead and achieve success in the modern competitive environment. The results also show that artificial intelligence and big data can be pivotal elements in shaping the strategic management of organizations. They contribute to improving decision-making processes, enhancing the efficiency of government services, improving corporate governance, and increasing strategic flexibility. However, achieving these benefits requires strategic and responsible adoption of these . technologies, taking into account data and ethics challenges

5. Discussion

In this section, the impact of artificial intelligence and big data on strategic management is discussed based on the findings in the study.

5.1 Improving decision-making processes

The results showed that artificial intelligence plays an important role in improving decision-making processes. Studies by Abu Zeid and Ahmed Al-Shura (2022) support this finding with evidence of how AI facilitates big data analysis and provides informed recommendations. However, attention must be paid to the challenges related to ensuring the quality of the data and analyzes provided.

Artificial intelligence in enhancing government services 5.2

The study conducted by Ali Hilal Al-Araimi et al. (2023) highlights how artificial intelligence contributes to improving the quality of government services. This includes enhancing the efficiency of procedures and improving the user experience, which underscores the need for thoughtful strategies to effectively adopt this technology.

5.3 Artificial intelligence and corporate governance

As Michel and George's (2023) study shows, AI enhances transparency and accountability in corporate governance. However, this rapid progress raises questions about how to balance innovation with ethics and privacy, suggesting the need for a strong regulatory framework.

Big data analysis and strategic flexibility

By analyzing big data, as Mahmoud Mohamed Al-Naqira and Ahmed (2019) point out, the strategic flexibility of companies increases. This finding highlights the importance of companies being able to quickly adapt to market changes, emphasizing the challenges related to data integrity and privacy. The results indicate that artificial intelligence and big data have a tangible and positive impact on the development of strategic management opening new horizons for innovation and improving efficiency. However, these technologies require careful strategic adoption and consideration of the challenges they face, including ethical and operational considerations

6. Conclusion

In light of the in-depth research and comprehensive analysis of the available literature, this research paper highlights the pivotal role played by artificial intelligence and big data in enhancing strategic management. The impact of these technologies in improving decision-making processes has been documented, through their support for analyzing big data and providing accurate and effective recommendations, which is consistent with the findings of Abu Zaid and Ahmed Al-Shura (2022). Moreover, it has been shown that artificial intelligence contributes significantly to improving efficiency and effectiveness in the government services sector, as indicated by the study of Ali Hilal Al-Araimi et al. (2023). It is also worth noting that these technologies enhance corporate governance and improve transparency and accountability, as discussed in the study by Michel and George (2023).

In addition, the analysis indicates that big data analysis plays a crucial role in increasing companies' strategic flexibility, which is in line with the findings of Mahmoud Mohamed Al-Naqira and Ahmed (2019). However, technical and operational challenges are noted, such as the need for accurate data and effective employee training, as well as ethical challenges associated with data privacy and the use of artificial intelligence. Therefore, it is advisable to adopt comprehensive strategies for the effective integration of these technologies into administrative processes.

In conclusion, this paper shows that artificial intelligence and big data offer tremendous opportunities for innovation and efficiency improvement in the field of strategic management. However, this requires strategic and responsible adoption to ensure maximum benefit from these technologies, taking into account their impact on society and the economy in general.

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