Artificial Intelligence Technologies and Their Role in Enhancing Financial Decision-Making and Administrative Efficiency

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Received (date) : 19/12/2025 Accepted (date): 20/05/2026 Published (date) 01/06/2026

Abstract:

This article aims to highlight the vital role of artificial intelligence (AI) technologies in supporting financial decision-making and improving administrative efficiency within institutions. It focuses on how Al tools such as predictive analytics, machine learning, and intelligent automation can enhance decision accuracy, detect fraud, and manage investment portfolios, in addition to streamlining routine administrative tasks. The study also addresses the ethical challenges associated with Al use, including issues of privacy and algorithmic bias. The findings indicate that Al effectively improves institutional performance, provided a balanced governance framework is adopted-one that combines technical capabilities with human oversight to ensure transparency. The study recommends investing in digital infrastructure, developing ethical policies, and training human capital to ensure the responsible use of these technologies

Key words: Artificial Intelligence; Financial Decision-Making; Administrative Efficiency. Governance; Digital Ethics.

Jel Classification Codes: O30, G29.

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Introduction:

Artificial intelligence is no longer just a future vision, but has become a driving force for transformation in the fields of finance and management, as the world today witnesses an acceleration in the adoption of its applications within various organizational processes. In the financial sector, artificial intelligence technologies, especially machine learning and natural language processing, contribute to improving decision-making through real-time analytics, automation, and predictive insights. This has proven effective in several areas such as algorithmic trading, fraud detection, and providing customized financial advice (Biloslavo & et al, 2024)

At the administrative level, artificial intelligence is employed to automate routine tasks such as scheduling meetings, managing data, and generating reports, which leads to raising the efficiency of operations and reducing the rate of human errors, which enhances the performance of organizations of all sizes. Integrating artificial intelligence into decision-making processes is also a strategic option for organizations wishing to enhance their competitiveness, thanks to the ability it provides to analyze data and recognize patterns and make informed decisions based on accurate data (Letourneau-Guillon, 2020).

Despite these advantages, adopting AI poses serious ethical and legal challenges, most notably data privacy and the need for clear regulatory frameworks. In the financial sector, protecting sensitive data is crucial, while AI decisions in the administrative sphere raise questions about transparency, oversight, and the issue. It then becomes necessary to strike a balance between leveraging AI's capabilities and ensuring its implementation within a framework of good governance and the issue (Huang, 2020).

Despite the significant expansion in AI adoption within the financial and administrative fields, there is a clear research gap in understanding the overall impact of this adoption, both in terms of systemic benefits and organizational and ethical challenges. Most current studies focus on specific applications, without in-depth analysis of the overall impacts or addressing the legal and security aspects associated with AI-powered decision-making. Hence, this paper aims to provide a comprehensive analysis of the role of artificial intelligence in enhancing financial decision-making and raising administrative efficiency, with a focus on issues of privacy, responsibility and governance to contribute to enriching academic debate and formulating balanced visions about employing this technology in modern work environments. In light of the above, the following problem can be raised:

What is the role of artificial intelligence technologies in enhancing financial decision-making and administrative efficiency?

Research Sub-Questions :To answer the previous problem, we ask the following questions:

- What is artificial intelligence?
- What are the most prominent applications of artificial intelligence in the financial field ?
- What is the impact of artificial intelligence on administrative efficiency ?
- How does artificial intelligence contribute to supporting decision-making within organizations ?
- How can artificial intelligence be employed responsibly within organizations?
- What are the most important ethical considerations for adopting the use of artificial intelligence in management and financial decision-making?
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Research methodology:

This study relies on a descriptive methodology to examine the role of artificial intelligence technologies in enhancing financial decision-making and administrative efficiency, through a review of relevant literature and scholarly articles. Key concepts such as machine learning, natural language processing, and data analytics are analyzed, with a focus on the ethical dimension of Al and its impact on transparency and data protection. The study aims to provide a comprehensive understanding of the theoretical foundations of Al applications and highlight their effect on organizational efficiency and responsible decision-making.

Research Objectives :The objectives of the study are manifested in the following elements:

- Analyzing the role of artificial intelligence in supporting the financial decision-making process within institutions;
- Determine the impact of artificial intelligence applications on improving administrative efficiency;
- Explore the contribution of artificial intelligence to enhancing transparency and accuracy;
- Analyzing the role of artificial intelligence in supporting the principles of good governance;
- Propose mechanisms and procedures to promote the responsible use of artificial intelligence.

Importance of the Research: The importance of this study lies in highlighting the role of artificial intelligence in improving the financial and administrative decision-making process, by enhancing accuracy, efficiency, and reducing human errors. It also highlights the contribution of artificial intelligence in supporting the principles of good governance by enhancing transparency and accountability, which helps organizations adapt to the changing work environment and achieve sustainable performance.

Previous studies: The studies preceding this study are:

Table 1: Previous literature on the subject of the study

Source	Study content	Comment
(Akaileh, Shaker , & Abdallah , 2025)	The study reviews the role of artificial intelligence in improving decision-making in financial risk management, by analyzing field data collected from 100 specialists using a questionnaire based on the five-point Likert scale. The results showed that artificial intelligence contributes to raising operational efficiency, enhancing predictive ability, and reducing human biases, which supports making more accurate and effective financial decisions. The study also recommends providing training programs and ensuring data privacy to activate the use of artificial intelligence safely and effectively	The study effectively reflects the great potential of artificial intelligence in enhancing the quality of financial decisions and developing risk management efficiency. However, the success of implementing these technologies depends largely on the readiness of organizations in terms of digital infrastructure and the awareness of human competencies. Commitment to data governance, highlighting the need for integrated strategies that consider both technical and ethical dimensions.
(Al-E'mari & et al, 2025)	This study examines the growing role of artificial intelligence in improving financial decision-making and enhancing administrative efficiency within organizations. It focuses on AI applications such as predictive analytics, machine	Although the study provides a comprehensive and up-to-date review of the impact of artificial intelligence, it relied heavily on secondary sources without supporting the results with quantitative evidence or field studies.

	learning, and intelligent automation. It also demonstrates how these tools contribute to improving risk assessment, fraud detection, and portfolio management, as well as accelerating administrative processes and reducing their costs. The study also discussed the challenges associated with the use of artificial intelligence	However, the study represents an important reference for researchers and decision-makers, especially in highlighting the strategic dimension of artificial intelligence in improving the quality and efficiency of administrative and financial decisions.
(Koçar, 2024)	The study examined the transformative role of artificial intelligence technologies in the financial sector, focusing on its applications in risk assessment. It demonstrated that technologies such as machine learning, natural language processing, and predictive analytics enable financial institutions to process massive amounts of data and transform it into accurate, bias-free decisions. The study also discussed challenges related to transparency, ethics, and regulatory compliance, and presented proposals for effectively and ethically integrating artificial intelligence into financial operations	The study provides a comprehensive view of the advantages of artificial intelligence in the financial sector, and a balance between innovation and responsibility. However, we note the absence of supportive field or statistical analysis, which makes the recommendations more theoretical than practical and calls for future applied studies
(Li, Zhong, & Tong, 2024)	The study examines the relationship between AI adoption and financial asset allocation efficiency in listed companies in China between 2008 and 2022, using data from more than 25,000 annual observations. The results show that adopting artificial intelligence significantly improves the efficiency of financial asset allocation decisions, especially in companies with strong dynamic organizational capabilities. Absorptive capacity showed the greatest impact, followed by innovative and adaptive capabilities. The study also provides a methodological framework for measuring the practical impact of artificial intelligence technologies on institutional finances, and highlights the need for a flexible organizational structure to make the most of these technologies	The study is a valuable contribution to bridging the gap between theoretical frameworks and the actual application of artificial intelligence in financial decisions through the use of broad data and accurate methodology. However, the reliance on indirect indicators to determine the extent of AI use, such as word frequency in annual reports and number of patents, remains questionable in terms of the accuracy of representing the actual application in daily operations. Focusing on a single market (China) also limits global generalizability, calling for comparative studies across different regulatory and economic environments.

Source: Prepared by researchers based on the sources mentioned in the table

1. Artificial Intelligence:

In the age of modern technology, digital innovations are racing to achieve massive breakthroughs in computing and intelligent thinking. Artificial intelligence is emerging as a crucial turning point that makes us live in a technological age in which our lives are filled with intelligent systems and innovative applications. Artificial intelligence reflects a popular concept that allows machines to perform intelligent tasks that resemble or in some cases exceed the capabilities of the human mind**.**

1.1 The concept of artificial intelligence

The term artificial intelligence was first mentioned in 1956 by (John Mccarthy), who organized a workshop that brought together researchers interested in artificial neural networks, and although this workshop did not lead to new innovations, it brought together the founders of the science of (artificial intelligence) and contributed to laying the foundation for future research related to it. (mennad, 2023, p. 60), where John McCarthy (John McCarthy) defined artificial intelligence as: the development of machines so that they behave as if they have intelligence (Ertel, 2016, p. 1) It is a field of computer science concerned with designing intelligent computer systems that display the characteristics of intelligence in human behavior. (djabari, 2017, p. 112)

The goals of artificial intelligence did not stop there, but rather it began to aim not to simulate human mental processes and try to computerize and understand them, but rather to make computers acquire the quality of intelligence and have the ability to do things that until recently were exclusive to humans, such as thinking, learning, creativity, communication, and others**.** (Mezkour, 2021, p. 138)

Artificial intelligence can be considered a technology that reproduces (copies) human intelligence and develops many of the capabilities that result from computer software called Deep Learning, which refers to machine learning from the machine itself. The American Oracle Foundation defines it as deep learning, where the machine tries to understand quantities more accurately by analyzing data at the highest level of abstraction through linear understanding (mammeri & bouchagoura, 2023, p. 84)

Artificial intelligence is defined as a system concerned with the design and implementation of algorithms capable of analyzing data, learning from it, and interpreting it. It works by coordinating and organizing a set of techniques related to learning, pattern recognition, logic, and probability theories. It also focuses on exploring ways to develop computer technologies so that they can perform behaviors that simulate those of human beings, with the ability to learn, carry out physical tasks, simulate human expertise, and support decision-making processes .(Elleter & et al, 2018, p. 202)

From a theoretical perspective, artificial intelligence is based on the integration of two main concepts that complement each other and develop within an environment aimed at adapting behavior. These concepts are:

- **Memory**: which represents the system's ability to store data and information;
- **Reasoning**: which refers to the machine's capacity to analyze and perceive the relationships between objects and concepts in order to understand facts and derive conclusions.

This is accomplished through the utilization of memory and logic, along with other tools and techniques derived from the mathematical sciences. To be considered an artificial intelligence system, a device or system must exhibit three essential characteristics, foremost among them the ability to collect and ...analyze data and information, analyze them, and identify relationships among them; the ability to make decisions based on the analysis of the collected information; and the capability to learn and acquire new knowledge continuously. (awadh, 2023, p. 113)

Accordingly, artificial intelligence is considered one of the branches of computer science that relies on employing techniques and software to build technological systems capable of simulating human cognitive abilities. This field focuses on enabling machines to learn autonomously and continuously improve their performance, and it is used in various areas such as machine learning, natural language processing, and big data analysis. Thus, artificial intelligence has become a central element in driving technological advancement and fostering innovation.

2.2 Artificial Intelligence Fields:

Artificial intelligence (Al) is considered one of the most prominent contemporary technological phenomena. reflecting rapid development across various domains. It enables systems and devices to understand, learn, and make decisions in ways that mimic human capabilities, thereby opening new horizons for technological advancement and innovation. In this context, Al applications are diverse and can be classified into the following main fields (simoud, 2022, p. 92):

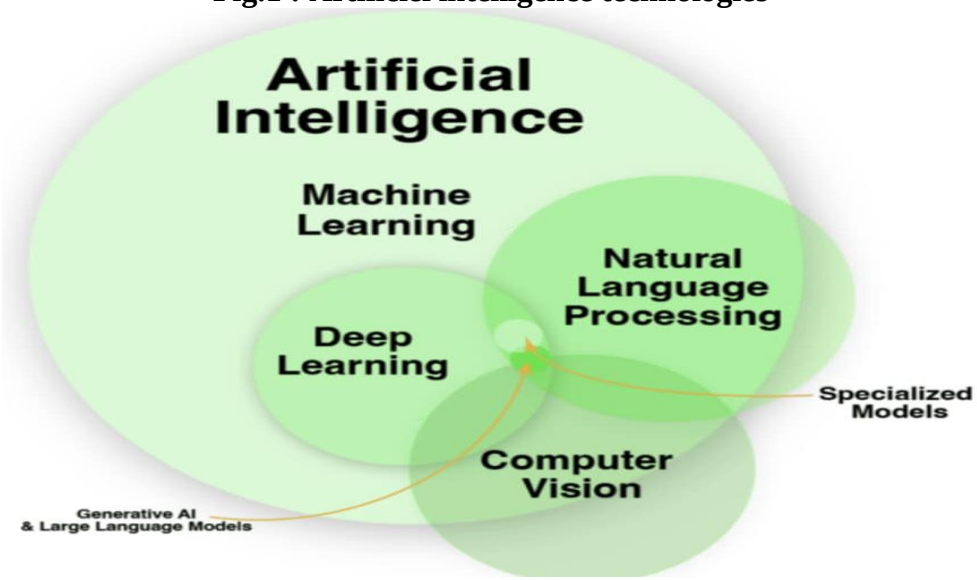
- **Al and Other Scientific Fields**: This includes communications, time management, health, and safety.
- **Al in Education**: Related to setting educational goals, meeting informational needs, as well as applications in games, entertainment, and learning activities.
- **Al in Infrastructure**: Covering sectors such as transportation, business decision-making, agriculture, engineering, architecture, energy, and resource preservation.
- **Al in Science**: Encompassing automated discovery, experiment design, resource optimization, data interpretation, and applications in biology, chemistry, medicine, and climate sciences.
- **Al in Consumer Applications**: Focused on enhancing human-computer interaction, sensing technologies, logic, learning, personalized intelligent applications, products and services, along with challenges and opportunities related to data and privacy.
- **Al in Applied Fields**: Including natural language processing, computer vision, speech and sound recognition technologies, expert systems, and computer-based intelligent learning and education systems.

1.3. Artificial intelligence technologies:

Artificial intelligence (Al) is a field of technology that aims to develop systems that mimic human capabilities such as learning, thinking, and decision-making. This field relies on a set of technologies that enable machines to manipulate data and make intelligent decisions based on it. These technologies play a pivotal role in improving performance and providing innovative solutions in various fields.

In this context, he will review the most prominent technologies that contribute to enabling systems to interact with and analyse information effectively:

Fig.1 : Artificiel intelligence technologies



source :(Goswami, Thakur, & Singh, 2024, p. 3)

- **Machine Learning (ML):**

Machine learning is a technology that enables computers to gain knowledge directly from data, by analysing examples and past experiences. Unlike traditional programming, which relies on pre-programmed instructions and steps to solve problems, machine learning systems are designed to perform specific tasks using large amounts of data that represent learnable examples or patterns. Through this process, the system learns the best ways to achieve the desired results. Machine learning is a form of narrow artificial intelligence that contributes to the development of intelligent systems capable of performing specific functions based on available data. Machine learning is also considered one of the basic components of artificial intelligence, as it focuses on studying and developing algorithms that enable machines to learn and continuously improve their performance. A wide range of machine learning techniques have been developed over the years, such as linear regression, clustering algorithm, and decision trees (Decision Trees), which are essential tools in analyzing data and extracting patterns from it (Tiwari & et al, 2018, p. 1).

- **Deep Learning (DL):**

Deep learning is a branch of machine learning, and relies on advanced models based on multi-layer neural networks (Multilayer Perceptron). These networks work in a similar way to the way the human brain processes information, as they are trained on huge data to extract complex patterns. Deep learning is based on the idea that increasing the number of layers of a neural network contributes to improving its ability to process data and extract information with greater accuracy and efficiency Deep learning is characterized by its ability to process unstructured data such as text, images, and sounds, allowing systems to understand and learn from this data to improve their performance, and as the depth of neural networks increases, systems become able to detect complex patterns that are difficult for traditional methods to recognize. (Zhao & Zequn, 2021, p. 3)

- **Natural language processing (NLP)**

Natural language processing is a branch of computer science, information engineering, and artificial intelligence that focuses on enabling machines to process and understand human language. Natural language processing began in the 1950s as a meeting point between artificial intelligence and linguistic studies, and has evolved into an interdisciplinary field. With the increasing amount of texts produced daily via social media platforms and Internet applications, it has become difficult to analyze these texts and extract the knowledge inherent in them within a limited period of time. To meet this challenge, there is an urgent need to develop artificial intelligence technologies that automate the processes of text analysis and information extraction, so that they mimic human capabilities but with higher efficiency and process huge amounts of data. Natural language processing also aims to enable machines to interact with humans using natural language, which contributes to the development of advanced user interfaces based on text or audio, thus enhancing the experience of interaction between humans and technology (Pillai & Tedesco, 2023, p. 3)

2.The role of artificial intelligence technologies in supporting financial decision-making, improving administrative efficiency, and its ethical challenges

Artificial intelligence technologies are among the most prominent modern tools that have transformed the field of financial decision-making, as they allow the analysis of huge amounts of data quickly and accurately, which helps institutions make more effective decisions. They also contribute to improving financial efficiency by predicting risks and reducing costs. In this section, we will learn about the most prominent of these technologies and the challenges of adopting them in this field.

2.1 The role of artificial intelligence technologies in supporting financial decisions:

Artificial intelligence has become an essential tool in transforming financial decision-making processes, by enabling more accurate and efficient strategies and as markets and processes

become more complex and based on financial data, artificial intelligence technologies such as predictive analytics, machine learning, and natural language processing are used to improve years, investment decisions, risk management, fraud detection, and regulatory compliance. These innovations allow financial institutions to better anticipate market changes, assess risks, detect fraudulent activities, and ensure compliance with regulations, contributing to the definition of overall performance (Owolabi, 2024)

- **Predictive analytics in predicting market trends and investment decisions:**

Predictive analytics is one of the most powerful applications of artificial intelligence in the financial sector, as it relies on historical data, machine learning algorithms, and statistical models to predict future market trends and guide investment decisions d) Financial institutions use predictive analytics to analyze huge amounts of structured and unstructured data, such as stock prices, economic indicators, news reports, and public sentiment on social media, with the aim of predicting market movement and identifying investment opportunities (Machireddy, 2021)

For example, machine learning models can analyze historical price patterns to predict stock market fluctuations with high accuracy, and artificial intelligence tools can collect and analyze data in real time to provide real-time insights into changing market conditions, and this enables investors to make informed decisions faster than traditional methods. This contributes to reducing reliance on human intuition and manual analysis, which may be subject to error and bias. (Elufioye, 2024)

AI also enhances algorithmic trading strategies, where investment decisions are made based on pre-defined criteria, improving efficiency and profitability. Predictive analytics are also essential in portfolio management, as AI helps improve asset allocation, identify distressed assets, and rebalance portfolios to maximize returns and minimize risk. AI models also consider economic trends, geopolitical events, and general market jokes to build dynamic and adaptable investment strategies. This level of predictive accuracy provides competitive agility for institutional investors, hedge funds, and even individual traders seeking to keep pace with financial market volatility (Klepac, 2022)

- **Artificial intelligence in risk management, fraud detection and regulatory compliance**:

Risk management is a critical aspect of financial decision-making, and artificial intelligence plays a crucial role in enhancing organizations' ability to identify, assess, and mitigate risks. Traditional risk management methods often rely on manual processes and lack the ability to process massive amounts of data. In contrast, artificial intelligence enables financial institutions to quickly analyze massive amounts of data, providing deeper insights into potential risks. For example, machine learning models can recognize patterns in market data and predict risks associated with certain investments or financial transactions, and these models are constantly learning from new data, enhancing their predictive accuracy over time. (Rahmani, 2023)

In addition to managing market and investment risks, AI is highly effective in detecting and preventing fraud. Financial fraud, such as credit card fraud, identity theft, and illegal insider trading, poses a significant threat to businesses and consumers. AI-powered systems can analyze transaction data in real time to detect anomalies that may indicate fraudulent activity. These systems use machine learning techniques to detect suspicious behavior patterns that traditional rule-based systems may not notice. For example, an AI system can detect unusual account activities, such as executing large financial transactions from unfamiliar locations, and issue instant alerts to verify them. The ability of artificial intelligence to continuously learn from advanced fraud methods also ensures that detection mechanisms remain effective even as fraudsters' methods change (Paesano, 2023)

Moreover, regulatory compliance represents an increasing challenge for financial institutions, with increasing requirements for transparency and accountability by governments and regulatory bodies. AI can help organizations manage this compliance by automating the monitoring of transactions and activities to ensure compliance with legal and regulatory standards. AI-powered compliance tools can track changes in laws, automatically update compliance protocols, and even predict potential regulatory risks based on emerging trends in the regulatory environment. For example, natural language processing (NLP) algorithms can be used to analyze legal documents, allowing any inconsistencies or non-compliance to be monitored in real time (Yao, 2023)

AI also supports the implementation of anti-money laundering and customer knowledge protocols, which are essential for achieving regulatory compliance. Artificial intelligence can process customer data to ensure that registrations comply with regulatory standards, and identify suspicious financial activities that may indicate money laundering. By automating these processes, AI reduces administrative burden, lowers costs and improves accuracy (Egan, 2023)

2.2 The role of artificial intelligence technologies in improving administrative efficiency

Artificial intelligence plays an increasingly important role in enhancing administrative functions by automating routine tasks, improving data management, and streamlining reporting processes. These developments enable organizations to improve efficiency, reduce operational costs, and free up human resources to focus on strategic activities. Among the most prominent applications of artificial intelligence in management are: automating repetitive tasks using robotic process automation and using AI-powered tools to improve data management and reporting (Gupta, 2023).

- **Automate routine tasks using robots**

Robotic process automation (RPA) is one of the most common applications of artificial intelligence in administrative jobs. This technology involves using AI-powered software robots that can simulate human behavior to perform routine and repetitive tasks. These tasks include data entry, invoice processing, meeting scheduling, email management, and other time-consuming administrative tasks. By automating these functions, organizations can reduce manual effort, reduce human error, and improve operational efficiency (Wewerka, 2023)

For example, in human resources departments, RPA can be used to automate the process of hiring new employees, including preparing contracts, verifying documents, and creating access permissions for systems. In finance departments, RPA robots can automatically verify accounts, create invoices, and process payments, reducing the burden on administrative staff. In customer services, chatbots and AI-powered virtual assistants can be used to process routine inquiries, allowing employees to focus on more complex issues (Yakovenko, 2023)

One of the most notable advantages of RPA is its ability to scale. Unlike manual processes that require hiring additional employees as the organization grows, RPA robots can handle increased workloads without requiring additional resources. These robots also operate around the clock without stopping, allowing tasks to be carried out continuously without delay. This improves overall productivity and enables management teams to focus on higher-level tasks such as strategy development, process improvement, and decision making.

- **AI-powered data and reporting management for efficiency**:

Data management is a fundamental aspect of administrative functions, and artificial intelligence technologies have changed the way organizations collect, process, and leverage data. Traditional data management systems often struggle to handle the increasing volume, diversity, and complexity of data produced by modern organizations. AI-powered tools can

efficiently manage large data sets, discover patterns, and generate insights that contribute to improved decision-making and operational efficiency (Bao, 2022)

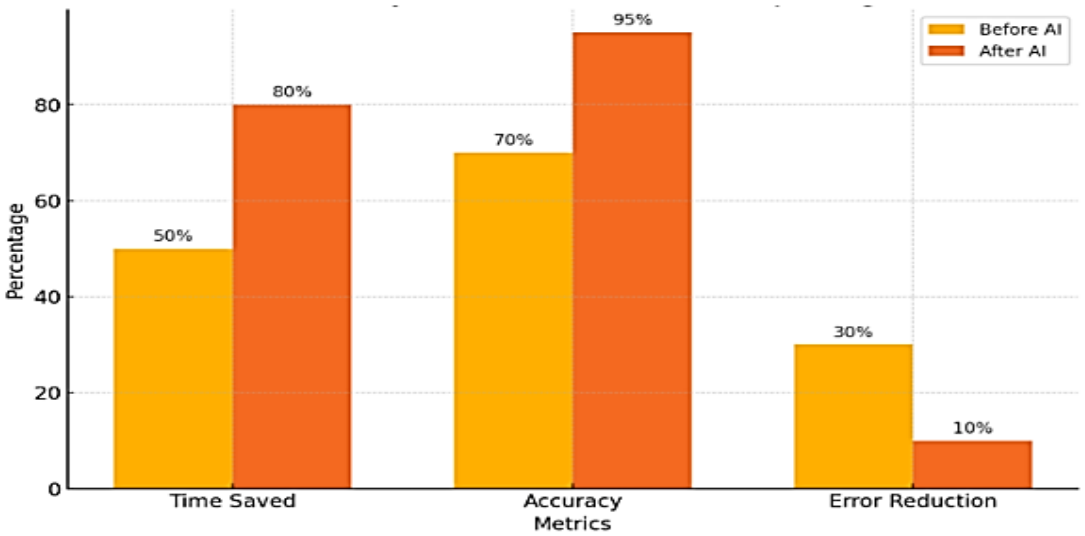
AI-powered tools simplify data collection through technologies such as natural language processing (NLP) and optical character recognition (OCR). For example, financial institutions use AI-powered systems to extract information from unstructured documents such as invoices, contracts, and email This significantly reduces manual effort. These systems also integrate real-time data from multiple sources such as Internet of Things (IoT) devices, application programming interfaces (APIS), and social media platforms, to provide comprehensive datasets for analysis (Farooq, 2021)

Furthermore, AI improves data storage using technologies such as deduplication, compression, and intelligent indexing. For example, AI-powered cloud systems can automatically organize and classify data, making it easier to retrieve and analyze. AI-powered storage solutions also integrate predictive algorithms to recognize and access data usage patterns, contributing to improved resource utilization and reduced costs This is particularly valuable in finance and management where large amounts of data must be stored securely while ensuring easy access to meet compliance and operational requirements. (Makhija, 2020)

AI-powered data management involves automating the processes of collecting, cleaning, and organizing data, which significantly reduces the time spent on manual processing. For example, AI tools can automatically extract data from various sources such as email, spreadsheets, and databases and compile it into a single central system. This automation reduces the risk of errors resulting from manual data entry and ensures that the organization receives accurate and up-to-date information at all times. (Abdullah, 2023)

AI-powered analysis and reporting tools also enable administrators to generate real-time reports containing actionable insights. These tools analyze historical data to discover trends, predict future outcomes, and provide process improvement recommendations. For example, in financial management, AI can be used to create detailed financial reports and forecast budgets Monitoring key performance indicators (KPIs) with limited human intervention the following figure shows the efficiency gains achieved through AI-enhanced data and reporting management, indicating improvements in key indicators such as time saved, reporting accuracy, and error reduction. (Saragih, 2023)

Fig.2: Comparative analysis of management reporting performance before and after the adoption of artificial intelligence

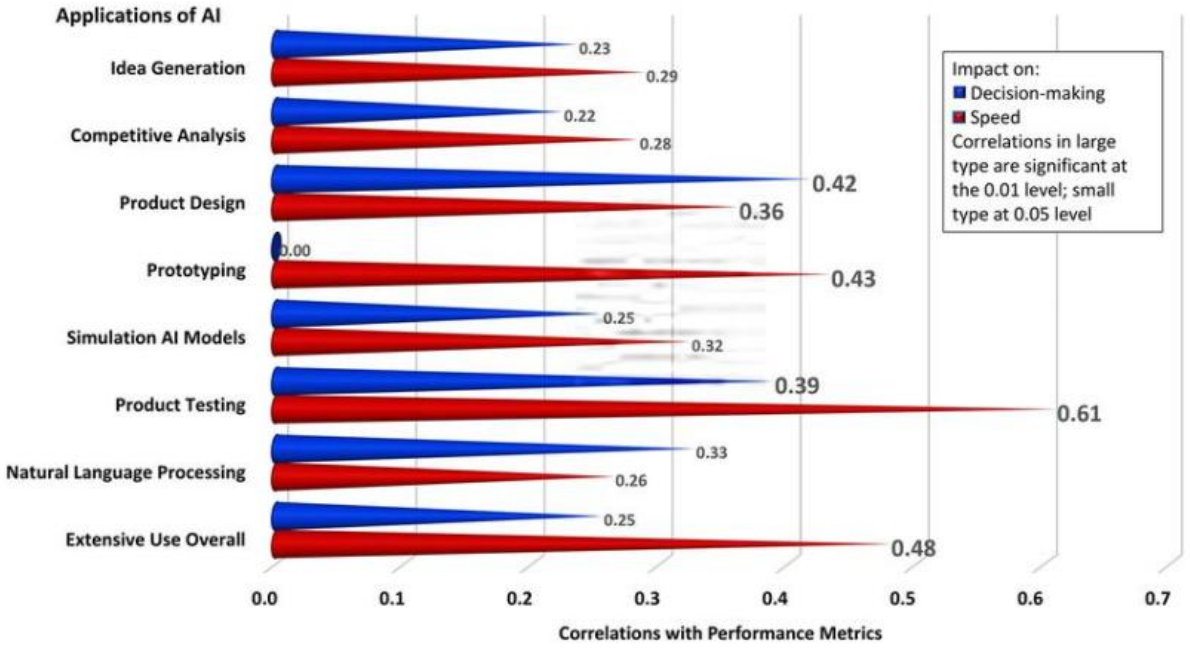


Source : (Al-E'mari & et al, 2025, p. 9)

The graph illustrates the impact of AI adoption on management reporting efficiency by comparing three key indicators before and after implementing AI techniques: time savings, accuracy of results, and error reduction.

- In terms of time savings, the percentage increased from 50% before using artificial intelligence to 80% after using it, which reflects a significant increase in the completion of administrative tasks thanks to automation.
- Accuracy has witnessed a clear improvement from 70% to 95%, which indicates the ability of artificial intelligence to reduce errors and improve the quality of reports thanks to intelligent analysis and accurate data processing.
- On the other hand, the error rate decreased from 30% to 10% after using artificial intelligence, which confirms the effective role of smart technologies in reducing repetition and human errors in administrative tasks.

Fig.3: The impact of artificial intelligence applications on improving the decision-making process



Source : (Al-E'mari & et al, 2025, p. 11)

The figure above visually illustrates the impact of different AI applications on two key performance indicators: speed of completion (in red) and improvement of decision-making (in blue). The figure also clearly reflects that the widespread use of AI in general is one of the most influential factors, showing a relatively strong correlation with both speed (0.48) and decision-making(0.25)

Among the most prominent applications that greatly affect speed of completion are:

- Product testing (Product Testing) with a very strong correlation (0.61) indicating that AI effectively speeds up screening and evaluation processes.
- Simulated models (Simulation Al Models) and prototyping (Prototyping) also contribute to speeding up processes (0.32) and (0.43), respectively.

- At the level of decision improvement, the following applications are justified:
- Competition analysis (0.22) and product design (0.36) showing that AI helps companies reach more accurate decisions through advanced analysis.
- Natural language processing (NLP) also contributes significantly to decision improvement (0.26), which reflects its role in understanding and analysing complex textual data.

2.3 Ethical challenges and considerations:

As AI continues to transform financial and administrative functions, a range of ethical challenges and considerations emerge, most notably data privacy and security issues, as well as the ethical implications of decision-making using AI systems. Organizations need to overcome these challenges to ensure the responsible use of AI technologies in line with legal and regulatory frameworks, while considering the broader societal impact of their decisions

- **Data privacy and security issues when using artificial intelligence:**

Ensuring the privacy and security of sensitive data is one of the most prominent challenges associated with adopting artificial intelligence, especially in the fields of finance and management. Artificial intelligence systems typically rely on large amounts of data for learning and decision-making, and often deal with personally identifiable information (PII), financial data, and confidential business information This heavy reliance on data raises concerns about how this information is collected, stored, processed, and protected from unauthorized access or security breaches (Jyothi, 2024).

Regulatory frameworks such as the European Union's General Data Protection Regulation (GDPR) have set strict requirements for the management of personal data and have significantly impacted AI implementation mechanisms. The regulation requires transparency and explicit consent for data use, and guarantees individuals' rights to access, correct, or delete their data. Failure to comply with these regulations exposes organizations to serious financial penalties, damages their reputation, and leads to a loss of customer trust For example, financial institutions that use artificial intelligence to detect fraud are required to comply with GDPR principles, such as reducing data to the minimum required for processing (Addis, 2019)

The General Regulations also enforce the principle of "privacy by design," which entails incorporating data protection measures-such as anonymization, encryption, and differential privacy-into Al systems. from the initial design stage. Compliance strategies include periodic audits, impact breakdowns, and documentation of data handling processes. AI systems increase the risk of inferring sensitive information outside their original scope, requiring careful governance policies and periodic reviews to ensure compliance. AI systems, especially in the financial sector, are an attractive target for cyber-attacks due to the high value of the data they process. For example, financial institutions collect sensitive information such as credit card details, account balances, and transaction records, and if these systems are hacked, the consequences may include identity theft, financial fraud, and damage to the institution's reputation (Torre, 2020).

In addition to security, data privacy is a critical ethical issue. Administrative AI jobs often require processing employee records, customer data, and operating metrics, which may include sensitive personal information. Laws such as GDPR honor organizations with transparency, prior consent, and provide mechanisms for individuals to access or request deletion of their data (Sartor, 2020)

- **Ethical considerations for AI-based decision making:**

The use of artificial intelligence in decision-making, whether in financial or administrative fields, points to many ethical challenges, most notably bias, lack of transparency, and accountability, which we present as follows:

- **Bias**: AI systems rely on the data they are trained on, making them vulnerable to replicating biases found in the original data. This can lead to unfair decisions, such as discrimination against social or ethnic groups in granting loans or in hiring and job division processes (Amoo, 2024)
- **Lack of transparency**: Some AI algorithms, especially complex models such as deep learning, are difficult to interpret, which is known as the "black box" problem. This ambiguity complicates the issue of clarifying the reasons for the union of certain decisions, which negatively affects the trust of users and regulators (Ehsan, 2021).
- **Accountability**: As organizations increasingly rely on artificial intelligence in their decisions, a central question arises about who bears responsibility in the event of an error or damage: Do developers? Or the institution? Or users? This ambiguity poses a challenge (Nassar, 2021).

To address these ethical challenges, organizations must adopt regulatory frameworks to use AI responsibly within fairness, transparency and accountability while respecting individual rights and minimizing potential negative impacts.

Conclusion

This presentation demonstrates that AI technologies represent a real opportunity to enhance the efficiency of governance structures within organizations by supporting data-driven decision-making and improving oversight and compliance mechanisms. However, this development carries with it real challenges related to excessive reliance on intelligent systems, lack of transparency, and the possibility of algorithmic biases that threaten the principles of fairness and responsibility Therefore, the use of artificial intelligence in governance must take place within a responsible institutional framework that combines the capabilities of intelligent systems with good human governance.

- ✓ **Results**: The study concluded:
- Artificial intelligence contributes to supporting financial and administrative decision-making by providing accurate analyses and future forecasts.
- AI can enhance oversight and compliance by predicting regulatory risks and analysing relevant data.
- Total reliance on artificial intelligence without human oversight exposes organizations to ethical risks and hidden biases.
- Transparency and accountability remain among the most prominent challenges facing the integration of artificial intelligence into governance processes.
- ✓ **Recommendations:** In light of the above, the study recommends the following points:
- The need to develop clear internal governance frameworks that govern the use of artificial intelligence and ensure that its decisions are integrated with conscious human supervision.
- Enhancing institutional awareness of the importance of digital ethics and algorithmic justice in building artificial intelligence systems.
- Emphasizing the adoption of the principle of transparency in the design and interpretation of artificial intelligence outputs, ensuring a clear understanding of United Nations decisions.
- Supporting applied research and studies aimed at improving the interaction between artificial intelligence and human governance in various administrative contexts.

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