

The Impact of Artificial Intelligence on the Quality of Administrative Decision-Making: A Systematic Literature Review.

Sulaiman Mohammed Al Jebreen¹

¹ Ph.D. Researcher, Mid-Ocean University, Comoros

Corresponding Author:

Sulaiman Mohammed Al Jebreen

Abstract:

This research studies the role and application of artificial intelligence (AI) in the administrative decision-making. It particularly focuses on improving the efficiency, accuracy, and responsiveness. AI significantly decreases the time to conduct tasks which humans do traditionally, minimizes errors, and operates with no interruptions. Also, AI's predictive abilities and its role in cost optimization show its importance in contemporary governance.

Reviews case studies where AI enhanced decision quality and efficiency. The research also found that the most important popular techniques and algorithms of artificial intelligence that can be used to improve the quality of decision making. The research topic was encapsulated in the primary question: Does the utilization of artificial intelligence Applications influence the quality of administrative decisions evaluating its assumptions. According to this research, AI is a significant opportunity for the revolutionization of public Administration by improving efficiency and improving decision-making processes. However, it is significant to shows challenges, such as Accountability, social transparency, and, most notably, ethical practices..

Keywords: Artificial Intelligence, Automated Administrative Decisions, Enforceability of Administrative Decisions Electronic..

INTRODUCTION

Artificial Intelligence refers to computer systems capable of performing tasks that typically require human intelligence. In administrative decision-making, AI supports or automates processes such as data analysis, forecasting, and resource allocation to improve efficiency and accuracy.

Artificial intelligence significantly improves the speed and accuracy of administrative decisions by analyzing massive amounts of data in real time. Organizations use AI tools to process complex information, spot hidden patterns, and predict future trends. This technological shift changes how leaders plan, solve problems, and manage daily operations.

In light of the rapid technological developments, artificial intelligence has become one of the main drivers of digital transformation in institutions. Administrative decision-making is among the areas that have been significantly affected by artificial intelligence technologies, as these technologies contribute to enhancing the accuracy and efficiency of administrative decisions. This research aims to analyze the impact of artificial intelligence on improving the quality of administrative decisions by studying its various applications and dimensions.

Research Problem:

Problem Statement While AI has the potential to revolutionize administrative decision-making; its adoption in smart organizations faces challenges such as data quality, algorithmic transparency, and employee skepticism.

There is a lack of comprehensive studies exploring AI's impact on decision-making in smart organizations, particularly through empirical case studies. This research addresses this gap by analyzing use of AI, evaluating its benefits, limitations, and strategic implications.

Importance of the Research:

Organizations implementing AI for administrative decision-making should:

Start with high-impact, low-risk use cases to build organizational confidence

Maintain human oversight through "human-in-the-loop" systems

Invest in data infrastructure and governance before deploying AI

Foster AI literacy across the organization

Establish clear accountability and audit trails

Monitor continuously for performance, bias, and impact

Research Objectives:

1. To evaluate the impact of AI on the speed and accuracy of administrative decision-making.

2. To assess how AI-driven insights improve strategic planning and resource allocation.

3. To analyze the effect of AI on employee satisfaction with decision-making processes.

4. To identify challenges in AI adoption and propose strategies for effective integration.

His purpose of this research is to examine the impact of AI on the efficiency of administrative decision making

Research Questions :

What is the effect of AI adoption on the accuracy of administrative decisions?

What are the main challenges of integrating AI into administrative decision-making?

Does AI adoption significantly improve administrative decision quality?

How can organizations address ethical concerns related to AI decision-making?

Can AI fully replace human decision-makers in administrative roles?

What is the effect of AI adoption on decision-making speed?

Research Methodology:

This study will employ Comparative analysis of AI integration in administrative procedures, descriptive research design, which aims to provide a picture of a situation as it naturally happens, was adopted for this study. Also, the deductive approach, called the "top-down" approach, develops hypotheses based on existing theories and focuses on verifying theories.

Previous Study:

Abdel-Ati study: The study found that AI readiness in Jordanian government agencies is moderate overall, with high levels in data sets and legislation, and that AI significantly influences government innovation, explaining 62% of its variance. It recommended continuous development of AI requirements and stronger public-private partnerships. VOLUME 14, 2026 N. B. S. Al-Mutlaq, N. M. Malkawi: Impact of AI on the Quality of Strategic Decisions to enhance innovation and integrates AI into strategic government priorities.

Almazrouei and Khan Study: The study aimed to identify the impact of artificial intelligence dimensions on the quality of decision-making in the healthcare sector in Cairo and Giza Governorates.

The study found a statistically significant effect of artificial intelligence dimensions on the quality of decision-making in the healthcare sector in these regions. It recommended that the healthcare sector should pay greater attention to the concept of artificial intelligence, as well as to user experience, training, and development.

The study further advised adopting policies and procedures that enhance employees' awareness of the importance of artificial intelligence through training programs, and updating and.

Al Makramy et al: Study "AI and Strategic Decision Making in Government: A Comparative Study in the GCC Region", this study assesses the role of AI in strategic decision-making across government organizations in the Gulf Cooperation Council (GCC) countries, with a focus on Saudi Arabia. It finds that AI enhances decision quality by enabling real-time data analysis and forecasting, although organizational

The Impact of Artificial Intelligence on the Quality of Administrative Decision-Making: A Systematic Literature Review..

challenges such as resistance to change and inadequate data infrastructure remain significant barriers. Malkawi study Study "Evaluating the Impact of AI on Decision Quality in Saudi Government Hospitals", this study investigates the use of AI in decision-making within Saudi government hospitals. It concludes that AI technologies, especially machine learning and expert systems, improve decision quality, particularly in healthcare management. However, the study emphasizes that data readiness and integration are crucial for realizing the full benefits of AI.

Alharkan and AlGhamdi study: "The Role of Organizational Data Readiness in AI Adoption: Evidence from Saudi Public organizations", Alharkan and AlGhamdi's research explores the impact of organizational data readiness on AI adoption in the Saudi public sector. Their findings indicate that robust data management and governance frameworks are essential for leveraging AI to enhance decision-making. Entities with high data maturity report better AI outcomes.

DalleMule and Davenport study: The study conducted at King Abdullah First Hospital in Jordan found a strong and statistically significant relationship between Decision Support Systems (DSS), Business Intelligence (BI), and the decision-making process. It recommended enhancing the use of DSS and BI tools while fostering managerial and employee awareness of their critical role in improving decision quality across all decision-making phases

Research Philosophy:

The Role of Artificial Intelligence in Administrative Decision-Making The general principle dictates that administrative decisions are made by public employees within the public administration. However, the introduction of AI systems has significantly reduced both effort and time in the decision-making process. AI has become an essential component in the development and enhancement of administrative practices, with the advent of vast databases and long-term processors capable of performing complex calculations and algorithms similar to human intelligence [2].

The growing role of AI in public administration, particularly in the issuance of administrative decisions, has been further accelerated by the transition to electronic governance. Under this model, the process of decision-making is no longer confined to individual judgment but is increasingly carried out by expert, efficient systems that analyze data, verify its accuracy, and subsequently issue administrative decisions. This shift is considered one of the emerging and pressing

Issues in the legal domain within the administrative field [3].

Common Problems Information Gaps: Decisions rely on delayed or weak data instead of timely, reliable facts. Bureaucratic Delay: Heavy rules and rigid reporting structures slow down implementation. Misalignment: Leaders make choices far from frontline realities, creating frustration for staff who must execute them. Poor Risk Handling: Failing to analyze uncertainty leads to crisis mismanagement and reactive choices.

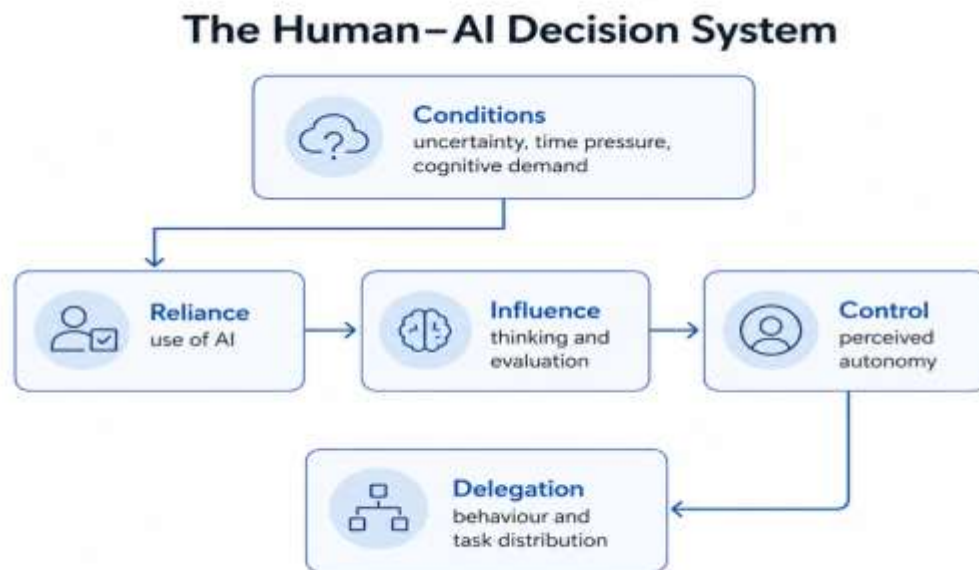
Understand how AI technologies influence administrative decisions.

Analyze the benefits and limitations of AI in organizational contexts.

Evaluate ethical and practical implications of AI-driven decision-making.

Develop critical thinking through case studies and activities. [4].

Figure:1 AI Changes Decision-Making [2].



Responsibility for AI Managerial Decisions Responsibility is a key protection in administrative decisions made by public authorities. If a decision is flawed or violates legal rules, the administration is accountable for the mistake. This also comprises ensuring that AI systems is operational, as they now act as public services and run with no interruptions for maintaining consistent and reliable service. The administration is has to allocate all necessary resources for keeping these technologies functioning smoothly [6]. In addition, public administration is in charge of the outcomes of AI based decisions: accountability for any software errors, from faulty programming or physical damage to the AI system. The administration is required to safeguard sensitive information from leaks and protect against breaches in the data networks feeding the AI. Avoiding errors and cyber attacks compromising the system is also critical responsibility [4]. Technical failures are the sources of the public administration's responsibility for AI systems causing incorrect administrative decisions. If an administrative decision is issued incorrectly due to a technical malfunction in the system, it can be considered invalid. In cases where technical issues—such as errors in the electronic system, computer program malfunctions, or security breaches in information networks—

result in administrative decisions, those decisions may be regarded as non-existent and unfounded [7]. Defective administrative decisions, or those deemed illegal, can be categorized into two forms: invalid decisions and null decisions. An invalid decision is one where a defect seriously impacts the decision materially, but it still retains legal effects unless cancelled or withdrawn. In contrast, a null decision is one with such a significant defect that it undermines the core characteristics of the administrative decision itself [5]. A decision issued by an AI system that has been hacked or suffers from a technical defect can be considered invalid or null depending on the severity of the defect. If such a decision is made by an AI system that is not competent to issue it, it is similar to a decision made by a non competent human employee. In this case, the decision is considered non-existent, with no legal or material effects. Consequently, the situation must revert to the state before the defective decision was issued, and it may be subject to amendment, cancellation, or withdrawal by the relevant authority [6].

In this section, the researcher addresses a set of fundamental concepts.

Key Concepts :

a. Administrative Decision-Making

The process by which organizational leaders and managers make choices related to planning, organizing, staffing, directing, and controlling resources to achieve business objectives.

b. Artificial Intelligence (AI)

A branch of computer science focused on creating systems that can perform tasks involving learning,

reasoning, and self-correction.

c. Machine Learning (ML)

A subset of AI where algorithms learn from data patterns to make predictions or decisions without being explicitly programmed for each task.

d. Natural Language Processing (NLP)

AI technology that enables machines to understand, interpret, and generate human language, useful in automating communication and document processing.

e. Predictive Analytics

Using AI and statistical techniques to analyze historical data and predict future outcomes, aiding proactive decision-making.

f. Automation

The use of AI to perform repetitive or routine administrative tasks without human intervention, increasing speed and reducing errors. [3].

AI's Role in Decision-Making: Impact on Administrative Decision-Making Quality in Organizations:

Artificial Intelligence (AI) has transformed administrative decision-making processes across various organizational contexts. By leveraging data-driven insights, automation, and predictive analytics, AI enhances the quality, speed, and consistency of decisions. This overview explores the key benefits, challenges, and real-world examples illustrating AI's impact on administrative decision-making. [6].

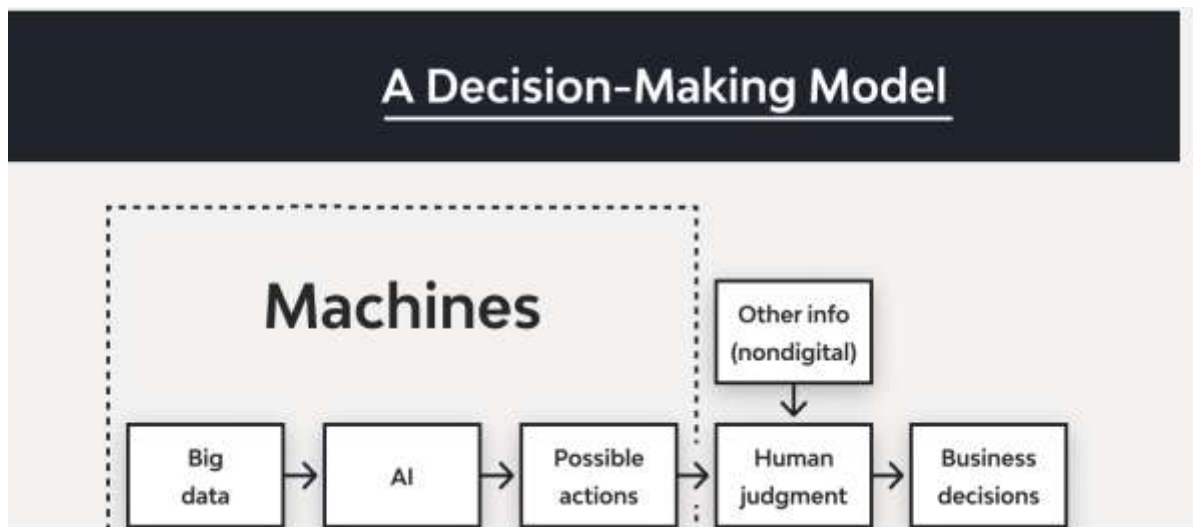


Figure:2 Decision-Making Model

Key Benefits of AI in Administrative Decision-Making:

Enhanced Data Analysis and Insight Generation:

AI algorithms can process vast amounts of structured and unstructured data rapidly, analyzing millions of data points in seconds compared to weeks or months for human analysts.

Enables identification of patterns, trends, and anomalies that humans might overlook, such as subtle correlations between employee performance metrics and organizational outcomes.

Supports evidence-based decisions rather than intuition or guesswork, reducing decision-making errors by up to 40% according to recent studies.

Detailed Example: A multinational corporation implemented AI-driven analytics to examine employee turnover patterns across 50 global offices. The AI system analyzed over 200 variables including compensation, work hours, management styles, project types, and even weather patterns. It discovered that employees in offices with limited natural light and rigid work schedules had 35% higher turnover rates. This insight, which would have taken human analysts months to uncover, led to policy changes that reduced turnover by 22% within one year.

Technical Capabilities: Modern AI systems utilize natural language processing (NLP) to analyze unstructured data such as employee feedback, customer reviews, and email communications, extracting sentiment and identifying emerging issues before they become critical problems.

Improved Decision Speed and Efficiency¹ :

Automation of routine tasks and data processing accelerates decision cycles, reducing decision-making time from days or weeks to hours or minutes in many administrative contexts.

Reduces administrative bottlenecks and frees human resources for strategic tasks, with studies showing that AI automation can free up 30-50% of administrative staff time for higher-value activities.

Real-Time Decision Support: AI systems provide instant recommendations during critical decision moments, such as budget allocation meetings or emergency response situations.

Detailed Example: The Singapore government implemented an AI-powered system for processing business license applications. Previously, the manual review process took 14-21 days as administrators checked compliance across multiple regulatory frameworks. The AI system cross-references applications against hundreds of regulatory requirements simultaneously, flagging potential issues and auto-approving straightforward cases. Processing time dropped to 2-3 days for complex cases and same-day approval for 60% of applications. The system processes over 50,000 applications annually, saving approximately 15,000 administrative hours.

Cascading Benefits: Faster decisions enable organizations to respond more quickly to market changes, competitive threats, and operational challenges, creating significant competitive advantages.

Increased Consistency and Objectivity:

AI systems apply uniform criteria, minimizing human biases and errors that often arise from fatigue, mood, personal preferences, or unconscious prejudices.

Ensures standardized decision-making across departments and timeframes, eliminating inconsistencies that occur when different administrators interpret policies differently. [8].

Bias Reduction: While AI can perpetuate existing biases if not carefully designed, properly trained systems can significantly reduce common human biases such as regency bias, confirmation bias, and affinity bias.

Detailed Example: A large insurance company implemented AI to assist in claims processing decisions. Prior to AI implementation, approval rates varied significantly between adjusters (ranging from 45% to 78% approval rates for similar claims) and even varied for the same adjuster depending on time of day and day of week. Studies showed Monday morning claims were rejected 15% more often than Thursday afternoon claims by the same adjusters. After implementing AI-assisted decision-making with standardized criteria, approval rate variance dropped to less than 5%, and customer satisfaction scores increased by 28%. The AI system evaluates each claim against the same comprehensive criteria regardless of when it's processed or who initiates the review.

Audit Trail Benefits: AI systems create detailed, reviewable decision logs that document exactly which factors influenced each decision, enhancing accountability and enabling continuous improvement of decision criteria.

Predictive and Prescriptive Capabilities:

Predictive analytics forecast future trends, risks, and opportunities with increasing accuracy, often achieving 80-95% accuracy in well-defined domains.

Prescriptive models recommend optimal courses of action based on data, simulating thousands of potential scenarios to identify the best path forward.

Scenario Modeling: Advanced AI systems can model complex "what-if" scenarios, helping administrators understand the potential consequences of different decisions before implementation. [7].

Detailed Example: The Los Angeles Unified School District implemented an AI-powered early warning system to predict student dropout risk. The system analyzes attendance patterns, grade trends, behavioral incidents, socioeconomic factors, and even participation in extracurricular activities to identify

students at risk of dropping out up to two years in advance. The AI assigns risk scores and prescribes specific interventions tailored to each student's situation—such as mentorship programs, tutoring, family counseling, or schedule adjustments. Since implementation, the district has increased its graduation rate by 12%, with 85% of identified at-risk students successfully completing high school when prescribed interventions are implemented. The system processes data for over 600,000 students annually, something impossible for human administrators to do comprehensively. [4].

Proactive vs. Reactive: AI shifts administrative decision-making from reactive problem-solving to proactive opportunity identification and risk mitigation.

Cost Reduction and Resource Optimization:

Streamlines workflows, reducing operational costs by 20-40% in many administrative functions through automation and improved efficiency.

Enhances resource allocation by prioritizing decisions with the highest impact, ensuring that limited resources are deployed where they will generate maximum value. [2].

ROI Demonstration: Organizations typically see return on investment within 12-18 months of implementing AI-driven administrative decision systems.

Detailed Example: Cleveland Clinic, one of America's largest healthcare systems, implemented AI for administrative resource allocation across its network of hospitals. The system optimizes staff scheduling, operating room allocation, equipment maintenance timing, and supply chain management simultaneously. By analyzing historical patterns, seasonal variations, local events, and even weather forecasts, the AI predicts demand surges and allocates resources proactively. For instance, it identified that orthopedic surgery demand increases 18% in the two weeks following major snowstorms (due to slip-and-fall injuries) and automatically adjusts staffing and OR schedules accordingly. The system has reduced overtime costs by \$12 million annually, decreased equipment downtime by 35%, and improved patient wait times by 22%.

The AI also identified that consolidating certain specialized equipment at specific locations rather than distributing it across all facilities would save \$4.5 million annually while maintaining service quality. [5].

Hidden Cost Savings: Beyond direct operational savings, AI reduces costs associated with poor decisions, such as regulatory fines, legal disputes, and missed opportunities.

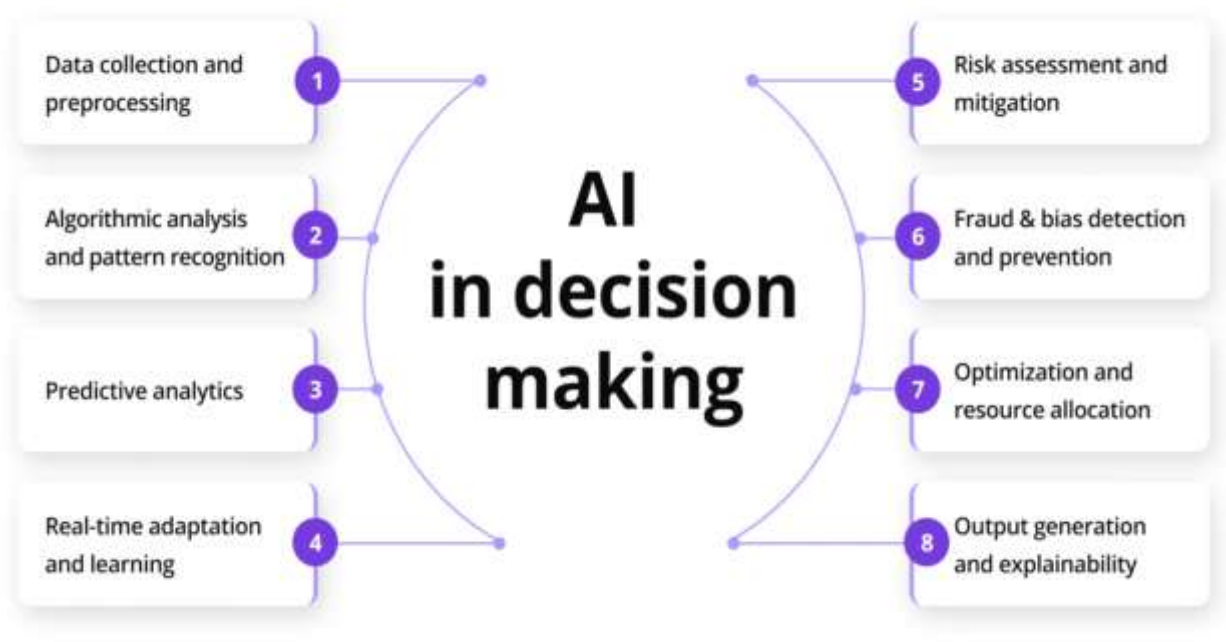


Figure:3 AI in Decision-Making [2].

Literature Review / Discussion:

Challenges in Implementing AI for Administrative Decisions

8. 1. Data Quality and Availability:

- AI systems require large volumes of high-quality, relevant data to function effectively—a resource not all organizations possess.

- Data Silos: Many organizations struggle with fragmented data stored across incompatible systems, making comprehensive analysis difficult.

- Historical Bias in Data: Training data may reflect past discriminatory practices or outdated policies, causing AI to perpetuate these problems.

- Detailed Challenge: A regional hospital network attempted to implement AI for patient readmission prediction but discovered that their data quality was insufficient. Patient records used inconsistent coding systems across five hospitals, 30% of records had missing critical information, and data entry errors were common. The AI system initially produced unreliable predictions with only 62% accuracy. The organization had to invest 18 months and \$2.3 million in data cleaning, standardization, and system integration before the AI could function effectively. This "data preparation tax" is a hidden cost many organizations underestimate.

- Ongoing Data Governance: Maintaining data quality requires continuous investment in governance processes, training, and technology infrastructure.

8. 2. Ethical and Bias Concerns:

AI systems may perpetuate existing biases present in training data, potentially amplifying discrimination and unfair treatment.

Raises questions about fairness, transparency, and accountability, particularly when AI decisions significantly impact people's lives.

Algorithmic Discrimination: Even well-intentioned AI systems can produce discriminatory outcomes if training data reflects historical inequalities.

Detailed Challenge: Amazon famously scrapped its AI recruiting tool in 2018 after discovering it was biased against women. The system was trained on resumes submitted over a 10-year period, during which male candidates dominated the applicant pool, particularly for technical positions. The AI learned to penalize resumes containing the word "women's" (as in "women's chess club") and downgraded graduates of all-women's colleges. Despite attempts to make the system neutral, engineers couldn't guarantee the AI wouldn't develop other discriminatory patterns. This example illustrates how AI can encode and amplify existing workplace inequalities even when developers actively try to prevent bias.

Ethical Dilemmas: Organizations must grapple with questions like: Should AI prioritize efficiency over equity? How much weight should be given to factors that correlate with protected characteristics? Who is responsible when AI makes a harmful decision?

Transparency Requirements: Growing regulatory pressure demands that organizations be able to explain how AI systems reach decisions, particularly in high-stakes contexts like hiring, lending, and healthcare.

8. 3. Resistance to Change and Human Trust:

Employees may distrust AI recommendations or fear job displacement, leading to resistance, sabotage, or workarounds that undermine system effectiveness.

Requires change management and training to foster acceptance, with successful implementations typically investing 30-40% of project budgets on human factors.

The Trust Paradox: Studies show that users either over-trust AI (accepting recommendations without critical thinking) or under-trust it (ignoring valuable insights), with both extremes producing poor outcomes.

Detailed Challenge: A European bank implemented AI-powered loan approval systems to assist loan officers. Initial adoption rates were below 30% because officers felt the AI undermined their expertise and feared they would be replaced. Many officers deliberately ignored AI recommendations or found ways to circumvent the system. The bank responded with a comprehensive change management program that reframed AI as a "decision support partner" rather than a replacement. They involved loan officers in system refinement, showed how AI handled routine cases while escalating complex situations to human judgment, and demonstrated that AI adoption correlated with higher officer performance ratings (not job elimination).

After 12 months of change management, adoption rates increased to 87%, and loan default rates decreased by 31%. The bank also committed to retraining rather than layoffs, redeploying staff to relationship management and complex case handling.

Cultural Transformation: Successful AI integration requires shifting organizational culture from "AI vs. humans" to "AI + humans," emphasizing augmentation rather than replacement.

CONCLUSION AND RECOMMENDATIONS:

9.1 Conclusion:

AI significantly improves the quality of administrative decision-making by enabling faster, data-driven, and more consistent decisions. However, organizations must address challenges related to data quality, ethics, trust, and regulatory compliance to fully realize AI's potential. Through thoughtful integration and governance, AI can become a powerful tool for enhancing organizational effectiveness.

Expectations, substantial change management investment, robust data infrastructure, and ongoing monitoring with continuous improvement.

Looking forward, AI's role in administrative decision-making will continue to expand as technology advances and organizations gain experience. The future lies not in AI replacing human administrators but in sophisticated human-AI collaboration where each contributes unique strengths. AI excels at processing vast data, identifying patterns, and maintaining consistency, while humans provide contextual understanding, ethical judgment, creativity, and accountability.

Through thoughtful integration, strong governance frameworks, and commitment to responsible deployment, AI can become a powerful tool for enhancing organizational effectiveness while maintaining human judgment and accountability at the center of consequential decisions. The organizations that thrive will be those that view AI as an augmentation tool that empowers better human decision-making rather than a replacement for human judgment.

9.2 Recommendations:

Based on the data, AI has positively influenced administrative decision-making at GlobalTech Solutions by increasing efficiency and accuracy while reducing costs. To maximize these benefits, the following recommendations are proposed:

Enhance Training Programs: Expand training to ensure all administrative staff can effectively interpret AI outputs and maintain critical thinking skills alongside AI use.

Implement Hybrid Decision Models: Encourage a balanced approach where AI supports but does not replace human judgment, addressing concerns about over-reliance.

Continuous Monitoring and Evaluation: Establish ongoing performance monitoring to identify potential biases or errors in AI algorithms and adjust systems accordingly.

Invest in User-Friendly Interfaces: Improve AI tool interfaces to increase accessibility and reduce resistance among less tech-savvy employees.

REFERENCES

- Damar, M, Aydın, Ö, Nihal Cagle, M, Özoğuz, E, Ömer Köse, H, & Özen, A. Navigating the digital frontier: transformative technologies reshaping public administration. *EDPACS*. 2024;69(9):41-69.doi: <https://doi.org/10.1080/07366981.2024.2376792>
- Hassan, KI, Olufemi, FJ, & Oladimeji, A. Assessment of artificial intelligence in public administration: implications for service delivery in lagos state public servic. *From The Editor's Desk*. 2024;15(2) <https://www.researchgate.net/publication/380851239>
- Mahmeed, SK. Artificial intelligence: a person within the law! *Multi Knowledge Electronic Comprehensive Journal For Education & Science Publications (MECSJ)*. 2024;1(76) <https://real.mtak.hu/id/eprint/209432>
- Appio, FP, Torre, DL, Lazzeri, F, Masri, H, & Schiavone, F. *The Societal Impact of Artificial Intelligence. Impact of Artificial Intelligence in Business and Society*. 1st ed: Routledge; 2023. p. 169-269. <http://dx.doi.org/10.4324/9781003304616-11>
- Alasmri, N, & Basahel, S. Linking Artificial Intelligence Use to Improved Decision-Making, Individual and Organizational Outcomes. *International Business Research*. 2022;15(10):1.doi: <https://doi.org/10.5539/ibr.v15n10p1>

Goralski, MA, & Tan, TK. Artificial intelligence and sustainable development. *The International Journal of Management Education*. 2020;18(1):100330.doi: <https://doi.org/10.1016/j.ijme.2019.100330>

Alufaisan, Y, Marusich, LR, Bakdash, JZ, Zhou, Y, & Kantarcioglu, M, editors. Does Explainable Artificial Intelligence Improve Human Decision-Making? Proceedings of the AAAI Conference on Artificial Intelligence; 2020 2020/06/18: Center for Open Science. <http://dx.doi.org/10.31234/osf.io/d4r9t>

Chesterman, S. Artificial intelligence and the limits of legal personality. *International and Comparative Law Quarterly*. 2020;69(4):819-844.doi: <https://doi.org/10.1017/s00>

Solum, LB. Legal Personhood for Artificial Intelligences. *Machine Ethics and Robot Ethics*: Routledge; 2020. p. 415-471. <http://dx.doi.org/10.4324/9781003074991-37>

Tambe, P, Cappelli, P, & Yakubovich, V. Artificial Intelligence in Human Resources Management: Challenges and a Path Forward. *California Management Review*. 2019;61(4):15-42.doi: <https://doi.org/10.1177/0008125619867910>.