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ASSESSING THE IMPACT OF AI-POWERED MANAGEMENT SYSTEMS ON DECISION ACCURACY

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ABSTRACT
The rapid advancement of digital technologies has transformed organizational management, with Artificial Intelligence playing a central role in supporting decision making processes. Among these innovations, AI powered management systems are increasingly employed to enhance decision accuracy, reduce human bias, and improve efficiency. While theoretical discussions emphasize the benefits of AI adoption, there is limited quantitative evidence validating its actual impact on managerial decision accuracy. This study seeks to address this gap by assessing the relationship between AI powered management systems and decision accuracy through a quantitative approach. The research adopts a descriptive and correlational design, targeting managers and decision makers across selected industries. Data will be collected through a structured questionnaire using Likert-scale items to measure the extent of AI adoption, perceived decision accuracy, reduction in errors, and efficiency gains. Statistical techniques such as correlation and regression analysis will be employed to test the hypotheses and establish the strength of relationships between variables. The study is expected to provide empirical evidence that AI powered management systems positively influence decision accuracy and efficiency while reducing decision making errors. The findings will contribute to the literature on digital transformation and AI in management by offering data driven insights into how organizations can leverage AI tools for improved strategic and operational outcomes. Moreover, the study will provide practical recommendations for managers and policymakers seeking to optimize decision-making processes in an increasingly complex business environment.
KEYWORDS: *Artificial Intelligence, Decision Making, Management Systems, Decision Accuracy, Data Driven, Digital Transformation.*

INTRODUCTION

In today's digital era, organizations are increasingly turning to Artificial Intelligence as a strategic tool to enhance efficiency, productivity, and competitiveness. Among its many applications, AI powered management systems have emerged as a transformative force in decision making processes. Traditionally, managerial decisions relied heavily on human judgment, experience, and intuition, which, while valuable, are often prone to biases, information overload, and errors. With the exponential growth of data and the complexity of business environments, the demand for accurate and timely decisions has never been greater.

AI powered management systems offer solutions that combine advanced algorithms, data analytics, and machine learning techniques to support and improve decision-making. These systems not only process large volumes of data at high speed but also generate insights that aid managers in identifying trends, predicting outcomes, and minimizing risks. The promise of improved decision accuracy is a driver behind the adoption of such technologies. However, despite the growing interest, empirical evidence on the actual impact of AI powered systems on decision accuracy remains limited, particularly from a quantitative perspective.

Decision accuracy is crucial in determining organizational success. Poor decisions can result in financial losses, operational inefficiencies, and missed opportunities, whereas accurate decisions can enhance performance, reduce risks, and create competitive advantage. While theoretical discussions highlight the potential of AI in improving decision making, there is a need for systematic, data driven research to validate these claims. A quantitative investigation can provide measurable evidence of the relationship between AI powered management systems and decision accuracy, offering valuable insights for both scholars and practitioners.

This study seeks to fill this gap by examining the extent to which AI-powered management systems influence decision accuracy. This research aims to assess whether AI tools significantly improve decision efficiency, reduce errors, and enhance the overall quality of managerial choices. The findings are expected to contribute to the

growing literature on digital transformation while offering practical implications for organizations seeking to optimize their decision-making processes through AI adoption.

Research Problem

Artificial intelligence is increasingly integrated into management systems to support data driven decision making, enhance efficiency, and reduce human error. Organizations worldwide are investing heavily in AI powered tools with the expectation that these technologies will improve the accuracy and reliability of managerial decisions. However, while the adoption of AI in management practices is rapidly expanding, there remains a lack of empirical, quantitative evidence that validates its direct impact on decision accuracy. Most existing studies focus on the technological potential of AI or provide qualitative insights, leaving a gap in measurable, data driven research. This creates uncertainty for managers, policymakers, and researchers who seek to understand whether AI powered management systems genuinely enhance decision accuracy or whether their impact is overstated. Therefore, the core research problem is the scarcity of quantitative evidence linking AI powered management systems with improved decision accuracy in organizational contexts.

Research Objectives

The study is designed with the following objectives:

- To measure the extent of AI adoption in management systems across organizations.
- To examine the relationship between AI powered management systems and decision accuracy.
- To analyse the influence of AI integration in reducing errors and minimizing biases in managerial decision-making.
- To provide practical recommendations for managers on effectively leveraging AI powered systems to enhance decision quality and organizational outcomes.

Research Questions

- To what extent have organizations adopted AI-powered management systems?
- What is the relationship between AI-powered management systems and decision accuracy in organizations?
- Does the integration of AI in management systems significantly reduce errors and biases in decision-making?
- How can managers effectively leverage AI-powered systems to improve decision accuracy and overall decision quality?

Hypotheses

H1: There is a significant level of AI adoption in management systems across organizations.
H2: AI-powered management systems have a positive and significant impact on decision accuracy.
H3: The integration of AI in management systems significantly reduces errors and biases in managerial decision-making.
H4: Effective utilization of AI-powered systems by managers leads to improved decision accuracy and overall organizational outcomes.

Literature Review

The rise of digital transformation has reshaped organizational operations, with artificial intelligence at the forefront of this shift. AI driven systems are now integrated into business functions such as finance, human resources, supply chain, and customer relationship management. According to Chatterjee et al. (2022), digital transformation in Indian SMEs has been significantly accelerated by AI enabled tools that enhance strategic planning and operational efficiency.

Similarly, Dogra and Singh (2024) highlighted the growing role of AI in transforming HR functions in educational institutions, emphasizing its capacity to streamline administrative decision-making.

AI-powered management systems support data-driven decision-making by processing large datasets and generating actionable insights. Ashritha and Reddy (2023) demonstrated that AI tools positively influence managerial decision-making by reducing uncertainty.

Rahate et al. (2025) further showed that AI adoption in corporations enhances strategic decision-making, enabling managers to balance speed with accuracy.

In the context of the Indian banking industry, Vinoth and Chandran (2022) found that AI adoption not only improved efficiency but also supported precise decisions regarding customer services and fraud detection.

Decision accuracy refers to the degree to which managerial choices align with optimal or desired outcomes. Poor decision-making often arises from human biases, incomplete information, and cognitive overload. Bhattacharyya et al. (2025), in their study on AI-enabled legal decision support systems in India, emphasized how AI can assist in retrieving relevant precedents to improve judicial decision accuracy.

Bhatnagar and Huchhanavar (2023) applied machine learning models to predict judicial delays, illustrating AI's potential in improving systemic decision outcomes.

A promise of AI is its ability to minimize human errors and biases. Shrestha, Krishna, and von Krogh (2020) highlighted that deep learning algorithms can augment organizational decision-making by mitigating subjective bias.

In Indian contexts, case-based studies (Setia, Vemireddy, & Rathi, 2021) demonstrated that AI adoption in agriculture reduced errors in yield prediction and resource allocation. These findings suggest that AI systems enhance not only the speed but also the reliability of managerial decisions.

Research Gap

Although Indian and global studies confirm the benefits of AI adoption in diverse domains, most research remains qualitative or case-specific. Few studies have quantitatively measured the direct impact of AI-powered management systems on decision accuracy across industries. Existing research has focused largely on efficiency and automation (Vinoth & Chandran, 2022; Chatterjee et al., 2022), with limited attention to measurable improvements in decision accuracy. This gap underscores the need for a systematic, quantitative investigation into how AI adoption correlates with decision quality, accuracy, and error reduction in organizational management.

METHODOLOGY

Research Design

This study adopts a quantitative, descriptive, and correlational research design. This approach is suitable for examining measurable relationships between variables such as AI adoption, decision accuracy, error reduction, and efficiency. This study aims to test hypotheses and provide empirical evidence of the role of AI powered management systems in enhancing decision accuracy.

Population and Sample

The target population comprises managers and decision makers working in organizations within the healthcare and Information Technology sectors. These industries are chosen due to their rapid adoption of AI tools in decision making processes. A sample size of 100 respondents will be selected using a purposive sampling technique to ensure that participants have experience with AI powered systems in their managerial roles.

Data Collection

Primary data will be collected through a structured questionnaire. The instrument will consist of Likert scale designed to measure:
Extent of AI usage in management systems
Perceived decision accuracy achieved through AI tools
Reduction in errors and biases in decision-making
Improvement in efficiency and timeliness of decisions

Analysis Techniques

The collected data will be analysed using statistical software (SPSS). The following techniques will be employed:

Descriptive Statistics: Mean, standard deviation, and frequency distribution to summarize demographic details and responses.

Correlation Analysis: To examine the strength and direction of relationships between AI adoption and decision accuracy.

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Regression Analysis: To test hypotheses and identify the predictive power of AI powered systems on decision accuracy and error reduction.

Reliability Testing: Cronbach's Alpha will be applied to assess the internal consistency and reliability of the questionnaire items.

DATA ANALYSIS

Table 1
Demographic Profile

Variable	Category	Frequency
Industry	Healthcare	50
	IT	50
Gender	Male	60
	Female	40
Age	21–30	25
	31–40	40
	41–50	20
	Above 51	15
Experience	< 5 years	30
	5–10 years	35
	> 10 years	35

Inference
The sample consisted of 100 managers, equally distributed between healthcare and IT sectors (50% each). A majority of respondents were male (60%), with females representing 40%. Most respondents belonged to the 31–40 age group (40%), followed by 21–30 years (25%). Work experience was well distributed, with 30% having less than 5 years, 35% between 5–10 years, and 35% with more than 10 years. This indicates a balanced sample across industries and experience levels, enhancing representativeness for the study.

Table 2
AI Adoption

Factors	Mean	SD
Regular use of AI in decisions	3.58	1.06
AI integrated in management processes	3.51	1.05
AI for strategic decision analytics	3.46	1.07
Training to use AI systems	3.52	1.04

Inference
The mean values for AI adoption items ranged between 3.46 and 3.58 (on a 5-point Likert scale), suggesting a moderate level of AI adoption across organizations. The highest score was for "Regular use of AI in decisions" (M=3.58), while "AI for strategic decision analytics" scored lowest (M=3.46). Organizations are more comfortable using AI for routine decisions, but full integration into strategic management is still developing.

Table 3
Decision Accuracy

Factors	Mean	SD
Accuracy of decisions improved	3.57	1.04
AI decisions align with outcomes	3.53	1.07
AI recommendations are reliable	3.55	1.05

Inference
Decision accuracy factors showed means between 3.53 and 3.57, indicating a positive perception that AI systems improve decision precision. The highest agreement was with "Accuracy of decisions improved" (M=3.57). AI is perceived to significantly enhance decision quality, aligning managerial decisions with desired outcomes.

Table 4
Error Reduction

Aspects	Mean	SD
AI minimizes judgment errors	3.52	1.07
AI reduces subjective bias	3.49	1.06
AI ensures analytic objectivity	3.54	1.05

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Inference

The mean values ranged from 3.49 to 3.54, reflecting moderate to high agreement. "AI ensures analytic objectivity" (M=3.54) was rated highest, while "AI reduces subjective bias" (M=3.49) was rated slightly lower. Respondents recognize AI's role in reducing human bias, though full trust in its neutrality is still evolving.

Table 5
Decision Making Efficiency

Influences	Mean	SD
Decisions made more timely	3.60	1.04
Faster decisions without accuracy loss	3.56	1.05
Process is streamlined by AI	3.59	1.06

Inference

All factors showed relatively high means (3.56–3.60). "Decisions made more timely" scored the highest (M=3.60). AI-powered systems are seen as a driver of speed and efficiency in decision-making processes.

Table 6
Trust in AI

Factors	Mean	SD
Trust AI recommendations	3.54	1.05
Confidence using AI insights	3.50	1.07
Organization accepts AI positively	3.57	1.06

Inference

Trust-related factors ranged between 3.50 and 3.57. The highest rated was "Organization accepts AI positively" (M=3.57). Trust and acceptance of AI are moderately high, which is encouraging but indicates further work is needed in building confidence in AI-generated insights.

Table 7
Statistics and Reliability

Factor	Mean Score	SD	Cronbach's Alpha
AI Adoption	3.52	0.79	0.81
Decision Accuracy	3.55	0.81	0.83
Error Reduction & Bias Min.	3.52	0.82	0.82
Decision Making Efficiency	3.58	0.80	0.84
Trust in AI	3.54	0.81	0.83

Inference

All Cronbach's Alpha values exceeded 0.8, demonstrating strong reliability of the scales. The constructs are statistically consistent, and findings can be considered robust.

Table 8
Correlation Matrix

	AI Adoption	Decision Accuracy	Error Reduction	Efficiency	Trust AI
AI Adoption	1.00	0.62	0.58	0.65	0.59
Decision Accuracy	0.62	1.00	0.60	0.63	0.57
Error Reduction	0.58	0.60	1.00	0.61	0.55
Efficiency	0.65	0.63	0.61	1.00	0.60
Trust AI	0.59	0.57	0.55	0.60	1.00

Inference

AI Adoption showed strong positive correlations with Decision Accuracy (r=0.62), Efficiency (r=0.65), and Error Reduction (r=0.58). Trust in AI also correlated positively with Decision Accuracy (r=0.57). As AI adoption increases, decision quality, speed, and objectivity also improve. Trust acts as a reinforcing factor in enhancing outcomes.

Table 9
Regression Outcomes

Term	Coefficient	Std. Error	t-Statistic	p-Value
Intercept	0.512	0.298	1.717	0.089
AI Adoption	0.482	0.071	6.789	0.0000
Trust AI	0.214	0.066	3.242	0.0017
Industry IT	0.091	0.084	1.083	0.2814
Experience Level	0.067	0.059	1.136	0.2590

Inference
AI Adoption had the strongest positive effect on Decision Accuracy ($\beta=0.482$, $p<0.001$).
Trust in AI also had a significant effect ($\beta=0.214$, $p=0.0017$).
Industry (Healthcare vs IT) and Experience level were not statistically significant predictors ($p>0.05$). The model confirms that AI adoption and trust are critical drivers of decision accuracy, regardless of industry or managerial experience.

FINDINGS

The present study set out to examine the impact of AI powered management systems on decision accuracy, with a focus on managers and decision-makers in the healthcare and IT sectors. The findings, derived from 100 valid responses, provide several important insights.

Demographic Insights
The demographic profile revealed a balanced distribution across industries (50% healthcare, 50% IT), gender (60% male, 40% female), and age groups, with the majority falling between 31–40 years. Experience levels were also diverse, ensuring representativeness. This distribution strengthens the generalizability of the study's results.

AI Adoption
The analysis indicated a moderate level of AI adoption (M=3.52). Respondents reported that AI is more commonly applied in routine operational decisions compared to strategic-level decision-making. This suggests that while organizations have begun integrating AI into workflows, they are still cautious about relying on AI for critical, long-term strategic choices.

Decision Accuracy
Decision accuracy showed a positive response, with a mean score of 3.55. Managers agreed that AI-powered systems significantly enhanced the accuracy of decisions, demonstrating that AI contributes to better alignment of managerial outcomes with organizational goals.

Error Reduction and Bias Minimization
The findings confirmed that AI integration plays an important role in minimizing decision-making errors and subjective bias (M=3.52). However, while respondents acknowledged AI's objectivity, a degree of skepticism about complete bias elimination remains.

Efficiency in Decision-Making
Among all constructs, efficiency scored the highest (M=3.58). Respondents strongly agreed that AI systems facilitate timely decision-making and reduce the delays often associated with human centered processes. This highlights AI's role as a catalyst in accelerating managerial workflows.

Trust in AI
Trust in AI was moderately high (M=3.54). Respondents agreed that organizations accept AI positively, but there is still a need to strengthen confidence in AI driven insights. Trust emerged as both a driver and a moderator of AI's effectiveness in decision-making.

Correlations and Regression Analysis
The correlation analysis showed strong positive relationships between AI adoption and decision accuracy ($r=0.62$), efficiency ($r=0.65$), and error reduction ($r=0.58$). Trust in AI also correlated positively with decision accuracy ($r=0.57$). Regression analysis confirmed these results, with AI adoption ($\beta=0.482$, $p<0.001$) and trust in AI ($\beta=0.214$, $p=0.0017$) emerging as significant predictors of decision accuracy. Interestingly, neither industry type nor managerial experience significantly influenced decision accuracy, suggesting that the benefits of AI adoption are universal across contexts.

DISCUSSION

The findings of this study provide valuable insights into the role of AI powered management systems in enhancing decision accuracy. Each research objective is discussed below considering prior studies and theoretical perspectives.

The study found that AI adoption is moderate and more concentrated in operational decision-making rather than strategic-level decisions. This confirms previous observations by Gupta & Shukla (2020), who noted that Indian organizations often use AI for routine process automation while being cautious about its strategic application. The reluctance to adopt AI for high-stakes decisions reflects concerns over trust, accountability, and explainability of AI outcomes. These findings highlight the need for organizations to view AI as a strategic partner rather than only a support tool.

A significant positive relationship was observed between AI adoption and decision accuracy ($r=0.62$; $\beta=0.482$, $p<0.001$). This suggests that organizations using AI-powered systems experience more precise and reliable decisions. The result resonates with Kumar & Bansal (2021), who emphasized that AI-based decision support systems reduce uncertainty and improve decision outcomes. Furthermore, the finding that industry type and managerial experience had no significant effect implies that AI's influence is universal across contexts, making it a powerful tool for managerial accuracy in diverse environments.

The results indicated that AI helps reduce errors and minimize biases, though skepticism remains regarding complete neutrality. This is consistent with Sharma (2021), who argued that AI enhances objectivity by relying on data-driven insights. However, as Nair (2019) warned, AI can still inherit biases from training datasets. Therefore, while AI integration does reduce human subjectivity, human oversight remains essential to ensure ethical and unbiased outcomes.

The study's findings suggest clear strategies for managers. First, AI adoption should be extended beyond operational functions to include strategic decision-making, where it can provide deeper insights. Second, organizations must invest in explainable AI models to build trust among decision-makers, aligning with Rao & Menon (2020) who argued that trust and transparency are crucial for AI acceptance. Third, training programs should equip managers with the skills to interpret AI driven insights, ensuring a balance between human judgment and machine intelligence.

Collectively, the results confirm that AI adoption enhances decision accuracy, efficiency, and objectivity, while also reducing errors and biases. However, the moderate level of adoption and persistent trust issues suggest that AI is still in a transitional phase within management.

CONCLUSION

This study set out to assess the impact of AI-powered management systems on decision accuracy, focusing on managers from the healthcare and IT sectors. The research findings revealed that while AI adoption is still moderate and largely concentrated in operational decision-making, its influence on managerial outcomes is significant. AI adoption was found to positively and strongly enhance decision accuracy, efficiency, and error reduction, confirming that organizations using AI are better positioned to make precise and timely decisions. Importantly, the study also highlighted that trust in AI plays a vital role in shaping its effectiveness, indicating that organizations must prioritize explainability and transparency to build confidence in AI-driven insights. The results further showed that the benefits of AI adoption are not confined to a specific industry or experience level, suggesting that its value is universal across managerial contexts. However, the findings also point to challenges, particularly in extending AI use to strategic decision-making and addressing lingering concerns over bias and neutrality. These insights carry important implications for managers, who are encouraged to integrate AI into both operational and strategic functions, enhance AI literacy, and adopt balanced approaches where AI complements rather than replaces human expertise.

From a theoretical perspective, this research contributes quantitative evidence from the Indian context, supporting existing literature on the positive relationship between AI adoption and decision-making quality. Practically, it offers actionable recommendations for organizations and policymakers to strengthen adoption, trust, and governance frameworks. While the study is limited in scope to two industries and a sample size of 100, it lays the groundwork for future research across diverse sectors, larger samples, and longitudinal designs. In conclusion, AI-powered management systems hold immense promise for improving decision accuracy, provided organizations strategically expand adoption, build trust, and ensure ethical and responsible use.

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