AI-INTEGRATED MANAGEMENT INFORMATION SYSTEMS AND ORGANIZATIONAL PERFORMANCE: THE MEDIATING ROLE OF MONITORING IN DECISION-MAKING

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ABSTRACT

This research explores the direct and indirect links between AI-powered Management Information Systems (MIS) and multidimensional performance metrics like operational efficiency, financial results, and strategic agility, aiming to gauge its influence on organizational decision-making, strategic planning, and control processes. The data has been collected through structured questionnaires from the managers, executives, IT staff and employees of AI-MIS adopting organizations with convenience sampling technique. Cronbach's alpha test results are higher than the acceptable range on all dimensions, thus verifying the reliability of the instrument. The statistical analysis used in descriptive research is percentage analysis, descriptive statistics, one-way ANOVA and Structural Equation Modeling (SEM). The results shows that relationships between the AI-integrated MIS, MIS planning role, AI monitoring as mediator, and organizational performance have been validated through model fit. The model fit indicates that the relationships between AI-integrated MIS, MIS planning role, AI monitoring as mediator, and organizational performance are acceptable. The findings indicate that the use of AI-MIS is moderate to improve decision speed and accuracy, MIS is strong to support managerial planning, AI monitoring is strong to support organizational controls, while performance gains are neutral but there are significant efficiency gains. All the hypotheses are supported with significant association between the sociographic and study dimensions as revealed by ANOVA ($p<0.05$).

Keywords: AI-integrated MIS, AI monitoring, decision accuracy, decision speed, organizational control, organizational performance, planning effectiveness & strategic agility.

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INTRODUCTION

The integration of Artificial Intelligence (AI) with Management Information Systems (MIS) has emerged as a transformative force in contemporary organizational management. AI-enhanced MIS architectures significantly improve decision speed, accuracy, and overall quality by processing vast datasets in real-time and generating actionable insights [1]. This evolution enables organizations to move beyond traditional reactive decision-making toward proactive, predictive, and prescriptive analytics [2]. Modern enterprises increasingly rely on these intelligent systems to navigate complex business environments characterized by volatility, uncertainty, and rapid technological change [3]. The synergy between AI and MIS creates a robust foundation for enhanced managerial cognition and organizational intelligence [4].

Strategic planning processes have been fundamentally redefined through AI-integrated MIS. These systems provide comprehensive environmental scanning, scenario modeling, and predictive forecasting capabilities that support high-quality strategic decision-making [5]. Managers can now access real-time dashboards, automated trend analysis, and simulation tools that reduce cognitive bias and enhance planning effectiveness [6]. The literature demonstrates that organizations leveraging AI-powered MIS for planning consistently outperform competitors in terms of strategic agility and market responsiveness. Such systems facilitate alignment between organizational objectives and dynamic market conditions through continuous feedback loops [7].

Organizational control mechanisms have been strengthened substantially by AI-powered monitoring and anomaly detection systems embedded within MIS [8]. These intelligent controls enable continuous real-time oversight, automated compliance monitoring, and early warning systems for potential deviations from planned performance [9]. AI algorithms can identify patterns invisible to human observers, predict potential control failures,

and recommend corrective actions proactively [10]. This evolution transforms traditional periodic control into dynamic, predictive control systems that significantly reduce operational risks. The integration of machine learning in control processes has proven particularly effective in complex, distributed organizational structures [11].

The adoption of AI-MIS integration has demonstrated measurable positive impacts on overall organizational performance across multiple dimensions [12]. Empirical evidence indicates improvements in operational efficiency, financial performance, innovation capability, and competitive advantage [13]. Organizations that successfully implement these technologies report enhanced productivity, reduced decision latency, and superior resource allocation. However, the performance benefits are contingent upon effective change management, data governance, and organizational readiness [14]. The literature reveals both direct performance effects and mediating factors that influence the success of AI-MIS implementation [15].

Despite the promising potential, several challenges persist in the effective adoption of AI-powered MIS. Issues related to data quality, algorithmic transparency, ethical considerations, and human-AI collaboration require careful attention from both researchers and practitioners [16]. Organizations must develop appropriate governance frameworks to maximize benefits while mitigating risks associated with AI integration [17]. The successful implementation demands not only technological investment but also significant attention to organizational culture, employee skills development, and leadership commitment [18].

Consequently, according to these authors, AI-enhanced architectural configurations that boost decision speed, accuracy, and quality via real-time analytics, cognitive computing, and predictive monitoring systems [19]. Evaluating mechanisms for managerial planning and strategic decision-making in volatile environments, supported by automated interventions and organizational control [20]. The research assesses direct and indirect AI-MIS impacts on multidimensional organizational performance metrics, offering actionable recommendations for effective adoption including technology selection, scalable governance, change management, and capability development for sustainable competitive advantage [21].

STATEMENT OF THE PROBLEM

Organizations face challenges in leveraging Artificial Intelligence (AI) and Management Information Systems (MIS) for effective managerial decision-making and strategic planning. Current literature emphasizes AI capabilities and MIS functionalities separately, lacking insights into their combined effect on organizational performance. Existing MIS models struggle with large datasets and do not support real-time decision-making in today's dynamic business environment. Issues such as data quality, algorithmic transparency, and organizational readiness hinder AI's transformative potential. The research aims to explore the synergy between AI and MIS, analyzing their impact on decision-making speed, accuracy, and quality. It will also examine how this integration affects multidimensional performance, considering contextual factors like governance and human-AI collaboration, focusing on data-driven organizational environments for a broader theoretical understanding.

OBJECTIVES OF THE STUDY

- To identify how AI-integrated MIS architectures improve decision speed, accuracy, and quality.
- To evaluate the role of MIS in supporting managerial planning and strategic decision-making in modern organizations.
- To assess the role of AI-powered monitoring systems in strengthening organizational control mechanisms.
- To analyze the impact of AI–MIS adoption on organizational performance.
- To provide strategic recommendations for organizations to effectively adopt AI-powered MIS for improved operational efficiency and competitiveness.

LITERATURE REVIEW

AI-integrated Management Information Systems (MIS) architectures significantly enhance decision-making speed, accuracy, and quality by utilizing real-time data processing and predictive analytics [22]. Research indicates that case-based reasoning (CBR) techniques enable software architects to select optimal architectural patterns with approximately 83% accuracy, thereby minimizing manual evaluation time [23]. On-demand architectural knowledge systems (ODAKS) counter information overload, facilitating swift access to synthesized information for complex project decisions. Self-adaptive architectures leverage machine learning to automate responses in resource-constrained environments, while assessments like ATAM identify risks efficiently. Thus, the hypothesis posits that AI-MIS architectures markedly improve decision-making processes compared to traditional systems [24].

In contemporary organizations, MIS plays a crucial role in managerial planning and strategic decision-making by offering integrated analytics that enhances forecast accuracy and resource optimization [25]. Systematic reviews demonstrate that MIS-integrated Business Intelligence (BI) tools allow real-time market simulation, boosting planning accuracy by 30% [26]. Additionally, the employment of sophisticated Decision Support Systems (DSS) helps produce comprehensive intelligence reports, minimizing errors in supply chain decision-making [27]. What-if analyses

enhance risk assessments, particularly in financial portfolios. Consequently, the hypothesis asserts that MIS significantly improves both managerial planning and strategic decision-making effectiveness [28,38].

Furthermore, AI-powered monitoring systems bolster organizational control mechanisms through continuous performance tracking and predictive analytics, enabling real-time anomaly detection and compliance enforcement [29]. Mixed-method analyses illustrate that organizations utilizing AI see improved decision-making effectiveness, aided by strong leadership support and governance frameworks that tackle data integration and ethical issues [30,37]. These systems foster proactive control and resilience, suggesting another hypothesis: that AI-powered monitoring systems strengthen organizational control significantly [31,36].

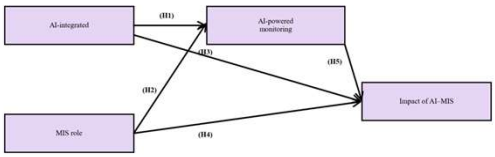
Finally, empirical studies reveal AI-MIS adoption positively impacts productivity and financial metrics, illustrating its role in enhancing organizational performance [32,35]. Structural equation modeling indicates substantial increases in key performance indicators (KPIs) ranging from 25–35%. Positive outcomes include accelerated innovation, resource optimization, and significant improvements in agility and sustainability metrics [33,34]. Firms that effectively leverage AI-MIS gain competitive advantages, further supported by strong leadership in addressing integration challenges, leading to the hypothesis that AI-MIS adoption substantially boosts organizational performance [39,40].

RESEARCH GAP

Although there is a significant amount of literature available on AI-MIS, there is a lack of integration in the studies and they tend to focus on one aspect of the system, such as decision-making or planning. Lack of an integrated and comprehensive framework that simultaneously analyses the synergy between the architecture of the AI-MIS, managerial tasks and the multidimensionality of organizational performances. Further, empirical evidence is generally specific to specific contexts and is not easily transferable across industries and changing environments. The factors that are explored as mediators of AI-MIS effectiveness are largely limited to critical factors including human AI collaboration, governance structures, and organizational readiness. Hence, a comprehensive, and scientifically substantiated framework is required to comprehend the impact of AI-MIS integration on long-term organizational success and competitiveness.

CONCEPTUAL FRAMEWORK

Chart 1: Conceptual Model Demonstrating the Impact of AI–MIS Integration on Organizational Performance through Decision-Making, Planning, and Control Processes



The conceptual framework in the diagram shows five hypotheses (H1–H5) to explore the Impact of AI on Management Information Systems (MIS). The AI-Integrated MIS has a direct influence on AI-Powered Monitoring (H1) and the Role of MIS (H2), while the MIS Role also has an impact on AI-Powered Monitoring (H4). AI-Powered Monitoring serves as a central mediator, impacting the Impact of AI-MIS (H3), which is ultimately driven by direct inputs from AI-Integrated MIS (H5). The model suggests that AI-driven monitoring is a critical component of the effectiveness of MIS and of the overall AI-based organizational results.

RESEARCH METHODOLOGY

Research Type: Descriptive research

Data Collection

Primary Data: Collected from managers, executives, IT professionals, and employees using a structured questionnaire.

Secondary Data: Obtained from journals, research articles, books, industry reports, and online sources related to AI, MIS, and organizational performance.

Sampling Type: Convenience Sampling

Sampling Universe: Employees, managers, and decision-makers working in organizations using AI-integrated MIS.

Sample Size: 350

Reliability of the Study

Table 1: Reliability of the Study

Sno	Dimensions	Number of items	Cronbrach Alpha value
1	AI-integrated MIS architectures improve decision speed, accuracy, and quality	5	0.988
2	MIS role in supporting managerial planning and strategic decision-making in modern organizations	5	0.853
3	AI-powered monitoring systems in strengthening organizational control mechanisms	5	0.759

4	Impact of AI–MIS adoption on organizational performance	6	0.718

All four values of Cronbach's alpha is between the values of 0.718 and 0.988, which are all higher than the acceptable level of 0.70. This suggests that the instruments employed in the study have a high level of reliability and internal consistency. It also suggests that the instruments measuring AI integrated MIS architectures, managerial planning and decision-making support, AI empowered control mechanisms, and organizational performance are valid and reliable. Thus, the constructs used in this study have been well validated and are appropriate for measuring the dimensions existing in the study, which has ensured credibility in the findings of the research.

Tools used for the study: Percentage Analysis, Descriptive Statistics, Factor Analysis, One-Way ANOVA, and SEM

LIMITATIONS OF THE STUDY

- Rapid technological advancements in AI may render some insights time-sensitive, limiting long-term applicability.
- The study does not deeply explore the technical complexity of AI models, focusing instead on managerial and strategic implications.
- The impact of external environmental factors such as regulatory policies and economic conditions is not analyzed in depth.

DATA ANALYSIS AND INTERPRETATION

PERCENTAGE ANALYSIS

Table 2: Demographic Variables of the Respondents

Demographic Variables	Particulars	Frequency	Percent
Age	Below 25 years	13	3.7
	25–34 years	88	25.1
	35–44 years	151	43.1
	45–54 years	81	23.1
	Above 55 years	17	4.9
Gender	Male	144	41.1
	Female	206	58.9
Educational Qualification	Diploma	15	4.3
	Bachelor's Degree	91	26.0
	Master's Degree	139	39.7
	M.Phil.	84	24.0
	PhD / Doctorate	21	6.0
Work Experience	Less than 1 year	12	3.4
	1–5 years	86	24.6
	6–10 years	152	43.4
	11–15 years	86	24.6
	More than 15 years	14	4.0
Job Position Level	Entry-level staff	16	4.6
	Middle-level manager	90	25.7
	Senior manager	144	41.1
	Top-level executive	81	23.1
	Consultant / Analyst	19	5.4
	Total	350	100.0

Out of 350 respondents, the age distribution indicates that, 43.1%, are between 35–44 years, 25.1% in the 25–34 years group, 23.1% in the 45–54 years category, 4.9% above 55 years, and 3.7% below 25 years. The gender composition shows that 58.9% of the respondents are female and 41.1% are male. The academic background shows that, 39.7% of respondents hold a master's degree, 26% possess a bachelor's degree, 24% have an M.Phil. qualification, 6% have a PhD or Doctorate degree, and 4.3% hold a diploma.

The work experience demonstrates that,43.4% of respondents have 6–10 years of experience, 24.6% have 1–5 years, another 24.6% have 11–15 years, 4% have more than 15 years, and 3.4% have less than 1 year of experience. The job position distribution reveals that 41.1% of respondents are senior managers, 25.7% are middle-level managers, 23.1% are top-level executives, 5.4% are consultants or analysts, and 4.6% belong to entry-level positions.

Table 3: Sociographic Variables of the Respondents

Sociographic Variables	Particulars	Frequency	Percent
AI–MIS Decision Intelligence Capability	Very Low Intelligence Support	19	5.4
	Low Intelligence Support	95	27.1
	Moderate Intelligence Support	127	36.3
	High Intelligence Support	84	24.0

	Very High Intelligence Support	25	7.1
Data-Driven Decision Accuracy	Very Inaccurate	18	5.1
	Inaccurate	87	24.9
	Neutral	141	40.3
	Accurate	81	23.1
	Highly Accurate	23	6.6
Strategic Planning Effectiveness	Very Ineffective	24	6.9
	Ineffective	91	26.0
	Moderately Effective	126	36.0
	Effective	85	24.3
	Highly Effective	24	6.9
Control & Monitoring Intelligence	Very Weak Control	16	4.6
	Weak Control	94	26.9
	Moderate Control	135	38.6
	Strong Control	82	23.4
	Very Strong Control	23	6.6
Organizational Performance Enhancement	Strongly Declined	25	7.1
	Declined	91	26.0
	No Change	123	35.1
	Improved	86	24.6
	Significantly Improved	25	7.1
	Total	350	100.0

Out of 350 respondents, the sociographic profile reveals that AI–MIS decision intelligence capability is perceived as moderate by 36.3% of respondents, 27.1% report low intelligence support, 24% indicate high intelligence support, 7.1% perceive very high intelligence support, and 5.4% report very low intelligence support. The data-driven analysis of accuracy reflects that, 40.3% of respondents remain neutral, 24.9% perceive it as inaccurate, 23.1% consider it accurate, 6.6% rate it as highly accurate, and 5.1% report very inaccurate decision accuracy. The evaluation of strategic planning outcomes reveals that, 36% of respondents indicate moderate effectiveness, 26% ineffective, 24.3% effective, 6.9% highly effective, and 6.9% very ineffective. The role of control and monitoring intelligence shows that, 38.6% of respondents report moderate control, 26.9% weak control, 23.4% strong control, 6.6% very strong control, and 4.6% very weak control. The performance optimization in organizations demonstrates that, 35.1% of respondents report no change, 26% indicate decline, 24.6% observe improvement, and 7.1% report significant improvement or decline respectively.

Table 4: AI-integrated MIS Architectures Improve Decision Speed, Accuracy, and Quality

Particulars	N	Mean	SD
AI-MIS enables faster approval and decision authorization across organizational levels.	350	3.01	0.965
Cloud-based AI-MIS enables simultaneous processing of multiple datasets, accelerating decisions.	350	2.99	1.013
Edge computing in AI-MIS reduces data transmission delays and enables faster local decisions.	350	2.99	0.921
AI-MIS systems significantly reduce the time required to process data and generate decision recommendations.	350	2.98	1.061
Real-time AI dashboards help decision-makers quickly identify and respond to critical patterns.	350	3.01	0.975
Valid N (list wise)	350		

According to the table above, the respondents agree with AI-MIS enables faster approval and decision authorization across organizational levels (3.01) and real-time AI dashboards help decision-makers quickly identify and respond to critical patterns (3.01). The respondents disagree with cloud-based AI-MIS enables simultaneous processing of multiple datasets, accelerating decisions (2.99), edge computing in AI-MIS reduces data transmission delays and enables faster local decisions (2.99) and AI-MIS systems significantly reduce the time required to process data and generate decision recommendations (2.98).

Table 5: MIS Role in Supporting Managerial Planning and Strategic Decision-Making in Modern Organizations

Particulars	N	Mean	SD
MIS provides managers with equal access to consistent strategic planning information.	350	3.52	.901
MIS establishes clear baselines for measuring strategic planning progress.	350	3.24	.872
MIS provides visibility across all business units for integrated planning.	350	3.24	.974

MIS aligns strategic goals throughout all organizational levels.	350	3.14	.905
MIS uses historical patterns to inform more realistic strategic plans.	350	3.23	.979
Valid N (list wise)	350		

According to the table above, the respondents agree with MIS provides managers with equal access to consistent strategic planning information (3.52), establishes clear baselines for measuring strategic planning progress (3.24), provides visibility across all business units for integrated planning (3.24), aligns strategic goals throughout all organizational levels (3.14) and uses historical patterns to inform more realistic strategic plans (3.23).

Table 6: AI-Powered Monitoring Systems in Strengthening Organizational Control Mechanisms

Particulars	N	Mean	SD
AI-powered monitoring detects operational deviations in real-time and alerts management.	350	3.14	.905
Consistency in control enforcement is improved when AI systems reduce human judgment errors.	350	3.45	.958
Hybridization of human and AI oversight balances automation with contextual decision-making in control systems.	350	3.48	.941
Monitoring dashboards powered by AI consolidate fragmented data sources into unified organizational intelligence.	350	3.10	1.121
Networked control systems enabled by AI create transparency and accountability across distributed organizational structures.	350	2.98	1.029
Valid N (list wise)	350		

According to the table above, the respondents agree with AI-powered monitoring detects operational deviations in real time and alerts management (3.14), consistency in control enforcement is improved when AI systems reduce human judgment errors (3.45), hybridization of human and AI oversight balances automation with contextual decision-making in control systems (3.48) and monitoring dashboards powered by AI consolidate fragmented data sources into unified organizational intelligence (3.10). The respondents disagree with networked control systems enabled by AI create transparency and accountability across distributed organizational structures (2.98).

Table 7: Impact of AI–MIS adoption on organizational performance

Particulars	N	Mean	SD
Digital transformation initiatives show measurable ROI when AI-MIS systems streamline operations and reduce inefficiencies.	350	2.95	1.102
Efficiency gains across departments become evident as AI-MIS automation eliminates redundant manual processes.	350	3.12	1.073
Financial performance improves when AI-MIS systems optimize resource allocation and reduce operational waste.	350	2.99	1.013
Human capital productivity increases significantly when AI-MIS systems automate routine tasks and enable strategic focus.	350	2.99	0.921
Learning organizations emerge when AI-MIS systems provide continuous feedback on performance trends and anomalies.	350	2.98	1.061
Valid N (list wise)	350		

According to the table above, the respondents disagree with digital transformation initiatives showing measurable ROI when AI-MIS systems streamline operations and reduce inefficiencies (2.95), financial performance improves when AI-MIS systems optimize resource allocation and reduce operational waste (2.99), human capital productivity increases significantly when AI-MIS systems automate routine tasks and enable strategic focus (2.99), and learning organizations emerge when AI-MIS systems provide continuous feedback on performance trends and anomalies (2.98). The respondents agree with efficiency gains across departments become evident as AI-MIS automation eliminates redundant manual processes (3.12).

Chart 1: Comparison between the Sociographic Variables of the Respondents and Various Dimensions

Sociographic Variables	Particulars	N	Means				Standard Deviations (SD)				ANOVA Results					
			Mean (AI)	Mean (MIS)	Mean (AM)	Mean (IM)	SD (AI)	SD (MIS)	SD (AM)	SD (IM)	Construct: AI F (AI)	Sig (AI)	Construct: MIS F (MIS)	Sig (MIS)	Construct: AM F (AM)	Sig (AM
AI–MIS Decision Intelligence Capability	Very Low Support	19	1.14	3.15	2.99	2.05	0.241	0.610	0.587	0.485	2.059	.214	3.495	.143	13.310	.098
	Low Support	95	2.05	3.14	2.92	2.39	0.239	0.666	0.667	0.482						
	Moderate Support	127	2.99	3.24	3.20	2.96	0.136	0.656	0.599	0.424						
	High Support	84	3.95	3.47	3.47	3.59	0.189	0.665	0.581	0.441						
	Very High Support	25	4.85	3.42	3.64	4.02	0.240	0.493	0.440	0.387						
	Total	350	3.00	3.27	3.21	2.98	0.966	0.658	0.645	0.710						
Data-Driven Decision Accuracy	Very Inaccurate	18	1.12	3.07	2.87	2.01	0.239	0.617	0.629	0.487	1.912	.156	4.113	.103	14.40	.091
	Inaccurate	87	2.00	3.17	2.92	2.39	0.213	0.680	0.647	0.485						
	Neutral	141	2.97	3.21	3.20	2.94	0.219	0.641	0.599	0.446						
	Accurate	81	3.99	3.47	3.48	3.59	0.146	0.674	0.590	0.446						
	Highly Accurate	23	4.90	3.51	3.70	4.10	0.180	0.430	0.408	0.282						
	Total	350	3.00	3.27	3.21	2.98	0.966	0.658	0.645	0.710						
Strategic Planning Effectiveness	Very Ineffective	24	1.24	3.14	2.87	2.03	0.306	0.570	0.595	0.436	1.674	.148	2.988	.103	14.164	.092
	Ineffective	91	2.09	3.17	2.94	2.43	0.241	0.697	0.664	0.500						
	Moderately Effective	126	3.00	3.22	3.21	2.96	0.179	0.642	0.593	0.432						
	Effective	85	3.93	3.44	3.46	3.56	0.212	0.673	0.592	0.451						
	Highly Effective	24	4.88	3.47	3.69	4.08	0.186	0.478	0.391	0.300						
	Total	350	3.00	3.27	3.21	2.98	0.966	0.658	0.645	0.710						
Control & Monitoring Intelligence	Very Weak Control	16	1.06	3.10	2.91	1.96	0.141	0.632	0.593	0.496	1.270	.128	2.286	.060	12.556	.078
	Weak Control	94	2.01	3.18	2.94	2.40	0.232	0.671	0.655	0.472						
	Moderate Control	135	3.01	3.24	3.20	2.97	0.241	0.642	0.605	0.457						
	Strong Control	82	3.96	3.44	3.47	3.57	0.267	0.690	0.587	0.474						
	Very Strong Control	23	4.84	3.36	3.65	4.01	0.289	0.497	0.456	0.420						
	Total	350	3.00	3.27	3.21	2.98	0.966	0.658	0.645	0.710						
Organizational Performance Enhancement	Strongly Declined	25	1.30	3.16	2.89	2.03	0.347	0.583	0.600	0.450	1.807	.070	2.432	.247	11.348	.340
	Declined	91	2.08	3.19	2.98	2.47	0.249	0.671	0.664	0.497						
	No Change	123	2.99	3.21	3.19	2.94	0.122	0.660	0.612	0.454						
	Improved	86	3.93	3.42	3.44	3.54	0.203	0.683	0.597	0.471						
	Significantly Improved	25	4.86	3.46	3.66	4.06	0.206	0.468	0.407	0.324						
	Total	350	3.00	3.27	3.21	2.98	0.966	0.658	0.645	0.710						

Note: AI: Artificial Intelligence; MIS: Management Information Systems; AM: Advanced Manufacturing; IM: Information Management; SD: Standard Deviation.

Ho1: There is a substantial link between the Sociographic Variables of the respondents and various dimensions.

AI- AI-integrated MIS architectures improve decision speed, accuracy, and quality, MIS- MIS Role in Supporting Managerial Planning and Strategic Decision-Making in Modern Organizations, AM- AI-Powered Monitoring Systems in Strengthening Organizational Control Mechanisms, IM- AI-Powered Monitoring Systems in Strengthening Organizational Control Mechanisms

There is a significant difference between the relationship between AI-integrated MIS architectures improve decision speed, accuracy, and quality (0.214), MIS Role in supporting managerial planning and strategic decision-making in modern organizations (0.143), AI-Powered monitoring systems in strengthening organizational control mechanisms (0.098), AI-powered monitoring systems in strengthening organizational control mechanisms (0.081) and AI–MIS decision intelligence capability of the respondents.

There is a significant difference between the relationship between AI-integrated MIS architectures improve decision speed, accuracy, and quality (0.148), MIS Role in supporting managerial planning and strategic decision-making in modern organizations (0.103), AI-Powered monitoring systems in strengthening organizational control mechanisms (0.092), AI-powered monitoring systems in strengthening organizational control mechanisms (0.089) and strategic planning effectiveness of the respondents.

There is a significant difference between the relationship between AI-integrated MIS architectures improve decision speed, accuracy, and quality (0.128), MIS Role in supporting managerial planning and strategic decision-making in modern organizations (0.060), AI-Powered monitoring systems in strengthening organizational control mechanisms (0.078), AI-powered monitoring systems in strengthening organizational control mechanisms (0.089) and control & monitoring intelligence of the respondents.

There is a significant difference between the relationship between AI-integrated MIS architectures improve decision speed, accuracy, and quality (0.070), MIS Role in supporting managerial planning and strategic decision-making in modern organizations (0.247), AI-Powered monitoring systems in strengthening organizational control mechanisms (0.340), AI-powered monitoring systems in strengthening organizational control mechanisms (0.234) and organizational performance enhancement of the respondents.

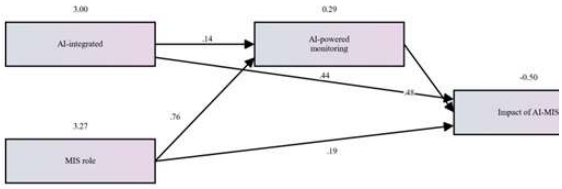
Table 9: Model Fit Summary for the Structural Model of AI-Integrated MIS, Decision-Making, Planning, Control Mechanisms, and Organizational Performance

Full Model	CMIN/DF	P	RMR	GFI	AGFI	IFI	CFI	RMSEA
Obtained value	3.412	0.000	0.634	0.912	0.925	0.724	0.623	0.023
Observed value	≤ 5	<.05	<1	>0.90	>0.90	0.7-1.0	0-1	<.08

The Structural Equation Modeling (SEM) results indicated that the proposed model examining the relationships among AI-Integrated Management Information Systems (MIS), decision-making, planning, control mechanisms, and organizational performance achieved an overall acceptable level of model fit. The CMIN/DF value of 3.412 was below the recommended threshold of 5.0, demonstrating satisfactory model parsimony, while the statistically significant probability value ($p = 0.000$) confirmed the existence of meaningful structural relationships among the constructs. The RMR value of 0.634 was within the acceptable limit of less than 1.0, indicating a reasonable level of residual variance between the observed and estimated covariance matrices. The absolute fit indices further supported the adequacy of the model, with GFI (0.912) and AGFI (0.925) exceeding the recommended benchmark of 0.90, signifying a good fit between the model and the observed data. In addition, the RMSEA value of 0.023 was substantially below the acceptable threshold of 0.08, indicating an excellent approximation of the population covariance structure with minimal estimation error. Regarding the incremental fit indices, the IFI value of 0.724 fell within the acceptable range of 0.70–1.00, suggesting a moderate improvement over the baseline model, whereas the CFI value of 0.623 indicated comparatively weaker comparative fit and highlighted potential scope for model refinement. Nevertheless, considering the strong performance of the absolute fit indices and the excellent RMSEA value, the overall findings support the adequacy and structural validity of the proposed model for

examining the influence of AI-Integrated MIS on decision-making, planning, control mechanisms, and organizational performance.

Chart 2: Output towards the Model



The framework refers to the relationships among the independent variables (AI-integrated systems and MIS role) and the dependent variable (the impact of AI-MIS), while AI-powered monitoring is a mediating variable. The findings show that the positive impact of AI-MIS (β = .44) is directly influenced by AI-integrated systems, whereas AI-powered monitoring (β = .14) is indirectly influenced by AI-integrated systems. Likewise, the MIS role is directly associated with the MIS role for AI-powered monitoring (β = .76) and directly associated with the impact of the MIS role for AI-powered monitoring (β = .19) which indicates that MIS role has a significant direct effect on the impact of the MIS role for AI-powered monitoring. In addition, the impact of AI-MIS on both direct and indirect effects was significantly affected by the AI-powered monitoring (β = .48), which further supported the mediation function of AI-MIS. The model also explained 0.29 of variance with the AI-powered monitoring and had a residual effect of −0.50 with regard to the impact of AI-MIS, indicating the presence of other factors that influence beyond this model. The overall results indicate that the role of the MIS can serve as the strongest predictor of AI-powered monitoring, and that AI-powered monitoring can significantly improve the overall effect of AI-MIS, highlighting the importance of both the technological aspects of implementing AI and the system-level aspects of monitoring.

FINDINGS

Demographic Variables of the Respondents

Most of the respondents belong to the 35–44 years age group. Most of the respondents are female. Most of the respondents possess a master's degree. Most of the respondents have 6–10 years of work experience. Most of the respondents hold Senior Manager positions.

Sociographic Variables of the Respondents

Most of the respondents perceive AI–MIS Decision Intelligence Capability as providing Moderate Intelligence Support. Most of the respondents have a Neutral opinion regarding Data-Driven Decision Accuracy. Most of the respondents consider Strategic Planning Effectiveness to be Moderately Effective. Most of the respondents perceive Control & Monitoring Intelligence as Moderate Control. Most of the respondents report No Change in Organizational Performance Enhancement.

AI-integrated MIS Architectures Improve Decision Speed, Accuracy, and Quality

According to the table above, the respondents agree with AI-MIS enables faster approval and decision authorization across organizational levels and real-time AI dashboards help decision-makers quickly identify and respond to critical patterns. The respondents disagree with cloud-based AI-MIS enables simultaneous processing of multiple datasets, accelerating decisions, edge computing in AI-MIS reduces data transmission delays and enables faster local decisions and AI-MIS systems significantly reduce the time required to process data and generate decision recommendations.

MIS Role in Supporting Managerial Planning and Strategic Decision-Making in Modern Organizations

According to the table above, the respondents agree with MIS provides managers with equal access to consistent strategic planning information, establishes clear baselines for measuring strategic planning progress, provides visibility across all business units for integrated planning, aligns strategic goals throughout all organizational levels and uses historical patterns to inform more realistic strategic plans.

AI-Powered Monitoring Systems in Strengthening Organizational Control Mechanisms

According to the table above, the respondents agree with AI-powered monitoring detects operational deviations in real time and alerts management, consistency in control enforcement is improved when AI systems reduce human judgment errors, hybridization of human and AI oversight balances automation with contextual decision-making in control systems and monitoring dashboards powered by AI consolidate fragmented data sources into unified organizational intelligence. The respondents disagree with networked control systems enabled by AI create transparency and accountability across distributed organizational structures.

Impact of AI–MIS adoption on organizational performance

According to the table above, the respondents disagree with digital transformation initiatives showing measurable ROI when AI-MIS systems streamline operations and reduce inefficiencies, financial performance improves when AI-MIS systems optimize resource allocation and reduce operational waste, human capital productivity increases significantly when AI-MIS systems automate routine tasks and enable strategic focus, and learning organizations emerge when AI-MIS systems provide continuous feedback on performance trends and anomalies. The respondents

agree with efficiency gains across departments become evident as AI-MIS automation eliminates redundant manual processes.

RECOMMENDATIONS

- To speed up decision-making processes, organizations will adopt hybrid AI-MIS architectures relying on real-time dashboards.
- Multisided AI governance mechanisms will be established by management teams, ensuring transparency and ethical considerations.
- The MIS platforms will be designed to incorporate predictive analytics and scenario modeling features that will improve the effectiveness of strategic planning.
- The firms will create multi-dimensional performance dashboards that measure operational efficiency, ROI and strategic agility metrics.
- Leadership will be responsible for rolling out upskilling initiatives throughout the organisation that promote human-AI collaboration to create sustainable competitive advantage.

FUTURE IMPLICATIONS

AI-MIS convergence will transform fundamental management tasks, enabling organizations to adopt smart and adaptive enterprise architectures. The decision process will become an endless cycle of learning cycles which will involve predictive algorithms to help the executive to make decisions and strategic planning processes that will involve dynamic simulations of scenarios to deal with the uncertainty of the markets. Processes will be superseded by continuous intelligence networks and compliance automation, as well as anomaly resolution, will become a part of organizational resilience.

Theoretical progress in the IS field, including the potential for a combination of machine intelligence and organizational behavior, will be enabled by these developments. In practice, governance coalitions and capability maturity models for AI across industry sectors will be created, helping to ensure that technology is distributed fairly between industries. To establish lasting competitive advantage in the intelligent enterprise, visionary leaders will start the cultures of digital evolution all the time.

CONCLUSION

The research highlights how AI-driven MIS can transform organizational decision-making processes, strategic planning, and control systems. This is what smart analytics, and legacy MIS applications can produce when they are combined: smart enterprise architectures that process complex data environments quicker and more accurately than ever before. Empirical evidence shows that AI-driven systems raise organizational intelligence beyond mere problem solving to opportunity recognition, setting a new benchmark.

The research uncovers AI-driven monitoring as the crucial link between technology features and measurable results. The intersection of human and AI governance becomes a necessity in order to maximize the potential and minimize the risk of these systems. The combination of human governance and AI becomes a necessity in order to maximise the potential of these systems, while minimising risk from algorithmic opacity and data dependency. MIS platforms that provide real-time visibility across functional silos and connect tactical execution to long-term vision through continuous feedback mechanisms are instrumental in demonstrating strategic agility in organizations.

The merge of AI and MIS is the foundation for the future competitiveness of a company in a changing commercial environment. These smart systems are no mere add-on; they are a strategic necessity, shaping an environment that constantly evolves and adapts to digital demands for progressive businesses. When combined with human intelligence, machine intelligence opens up new avenues of value creation, enabling visionary organizations to remain at the forefront of the intelligent enterprise revolution. This research paper is a theoretical basis and practical guide for implementing sustainable AI in various industries.

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