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ARTIFICIAL INTELLIGENCE ADOPTION IN PUBLIC POLICY PROCESSES AND ITS EFFECTS ON GOVERNANCE EFFECTIVENESS AND PUBLIC SECTOR MANAGEMENT PERFORMANCE: ROLES OF DECISION-MAKING QUALITY AND INSTITUTIONAL ACCOUNTABILITY

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Abstract
Artificial intelligence is increasingly being adopted in public policy processes as governments seek to enhance governance effectiveness and improve public sector management performance in response to growing complexity and resource constraints. Despite expanding interest in artificial intelligence–enabled governance, empirical evidence explaining how artificial intelligence adoption translates into governance and performance outcomes remains limited. This study aims to examine the effects of artificial intelligence adoption in public policy processes on governance effectiveness and public sector management performance, with particular emphasis on the mediating roles of decision-making quality and institutional accountability. Using a quantitative, cross-sectional research design, data were collected through a structured questionnaire administered to public sector employees and managers involved in policy formulation and administrative decision-making. Partial least squares structural equation modeling was employed to test the proposed direct and mediation relationships. The findings reveal that artificial intelligence adoption has a significant positive effect on both governance effectiveness and public sector management performance. Furthermore, decision-making quality and institutional accountability were found to significantly mediate these relationships, indicating that artificial intelligence adoption enhances public sector outcomes primarily through improved internal decision processes and strengthened accountability mechanisms. The study contributes to the literature by offering a process-oriented explanation of artificial intelligence–enabled governance and provides practical insights for policymakers and public managers seeking to leverage artificial intelligence for sustainable improvements in governance and administrative performance.

INTRODUCTION

Public sector organizations across the world are increasingly turning to artificial intelligence as a means of responding to growing policy complexity, fiscal constraints, and rising citizen expectations for

effective and transparent governance. The growth of data analytics, machine learning, and algorithmic decision-support systems have increased the ability of governments to handle high amounts of data and assist in the formation and implementation of evidence-based policies. Consequently, the use of artificial intelligence is no longer perceived as a technological improvement, but as a structural change in the way the process of making, implementing, and assessing the public policy is organised (Charles et al., 2022; Panda et al., 2025). This change has caused much academic attention, especially in the context of its consequences to the performance of governance and the performance of the public sector management.

The existing literature indicates that artificial intelligence can make governments more effective by increasing their efficiency, minimizing human error, and making decisions in the field of government more consistent, data-driven (Mishra et al., 2024; Yigitcanlar et al., 2024). The AI-based systems could be used to help policy analysis and automate repetitive administrative processes and offer predictive information that could help the public managers to distribute their resources and react to societal demands. Empirical and conceptual research shows that these abilities can enhance the performance of management by simplifying operations and enhancing strategic control (Neiroukh et al., 2025; Panda et al., 2025). Experts warn that the advantages of AI implementation in the government do not come on a silver platter and greatly rely on the manner in which the technologies are incorporated into the institutional decision-making framework (Vatamanu and Tofan, 2025).

A recent literature body highlights artificial intelligence as a fundamental value in the government sector due to its effect on the quality of decisions. Accuracy, timeliness, consistency, and alignment with the objectives of the population are the features of high-quality decisions. These dimensions can be improved with the help of AI systems that can analyze the data in a way that is not biased by human emotions and behavior (Alshahrani et al., 2024; Charles et al., 2022). The research on public administration and management indicates that enhances in the quality of decision making are an important avenue where digital technologies can be converted into better governance results (Neiroukh et al., 2025). Nevertheless, the existing empirical data is still inconsistent on whether the relationship between AI adoption and the overall governance effectiveness in the context of public policies can be entirely explained by the quality of decision-making. In addition to the quality of decision-making, the issue of institutional accountability has become one of the key issues of discussion when it comes to the adoption of AI in government. Accountability can be defined as the process by which the actions, decisions and results of the public officials and institutions are subject to responsibility. Although AI systems can enhance efficiency, they also create additional risks concerning the areas of opacity, algorithmic bias, and diffused responsibility (Bracci, 2023; Bignami, 2022). Concerns have been raised by scholars that algorithmic decision-making can undermine the conventional accountability arrangements in case responsibility is moved away from the human actors to the technical systems (Gualdi and Cordella, 2024). Other reports claim that under the condition of good regulation, AI can empower accountability through the improvement of transparency, traceability, and performance monitoring in government (Li, 2025; Omar et al., 2024).

The literature also points out that effectiveness in governance relies not only to technological ability but also congruence with the social values like transparency, fairness and trust. Findings on AI and public values suggest that inadequately managed AI adoption may result in the failure of the public value, which will decrease the confidence in governmental institutions and weaken policy legitimacy (Schiff et al., 2022; Chen et al., 2023). These risks can be reduced by having effective governance systems that incorporate accountability and ethical controls to ensure that there are positive governance results (Robles & Mallinson, 2025). These results indicate that the mediating role of institutional accountability can be used to determine how the adoption of AI can affect the effectiveness of governance and performance of the management of the public sector. Although the volume of studies on artificial intelligence in the field of public administration continues to grow rapidly, it still has a number of gaps. To begin with, a lot of the current literature

considers the impacts of AI adoption separately, considering either the decision-making or accountability but not combining these processes under one explanatory framework (Alshahrani et al., 2024; Gualdi and Cordella, 2024). Second, there are limited empirical investigations that are capable of concurrently measuring AI adoption in relation to the efficacy of governance and management performance using internal processes within the institution, especially in reference to the public policy processes. Third, the previous studies tend to focus on technological or ethical issues without adequately studying how the organizational mechanisms convert AI capabilities into performance-related implications (Vatamanu and Tofan, 2025; Plantinga, 2024).

To address these gaps, the current paper investigates the adoption of artificial intelligence in the process of public policy and its impacts on governance effectiveness and performance in managerial activities of the public sector with a special focus on the mediation functions of decision-making quality and institutional accountability. The combination of these mechanisms into one conceptual framework is what this study aims to contribute to the current knowledge regarding the impact of AI adoption on the outcomes of the public sector beyond the efficiency improvements. The work adds to the literature by providing a process-based description that bridges AI-enabled capabilities and government governance and performance results, hence addressing the demand to conduct more theoretically focused and empirically combined research on artificial intelligence in government administration (Charles et al., 2022; Panda et al., 2025).

Theoretical Foundation

The conceptual model presented can be logically discussed within the framework of the Institutional Theory that is especially applicable to studying technological change in the situation of the public sector where legitimacy, accountability, and making decisions based on the rules are the key issues. The Institutional Theory shows that organizational behaviors and outcomes are not just influenced by the efficiency but through formal rules, norms, and cognitive structures that determine what should be done in the institutions. Artificial intelligence is not applied in a vacuum when it comes to the application in the process of public policy; instead, it is incorporated in legal requirements, administrative culture, and normative expectations, including transparency, fairness, and the value addition to people (Bignami, 2022; Chen et al., 2023). AI adoption constitutes an institutional innovation that transforms the way information is processed by the public organizations, the way they make decisions, and the way they justify them. The degree of its impact on the performance of the governance system and management performance is determined by the degree to which systems of AI are consistent with the existing institutional logics and viewed as appropriate instruments of public decision-making (Schiff et al., 2022; Vatamanu and Tofan, 2025).

In this context, the quality of decision-making will become one of the central institutional processes according to which AI adoption will affect the effectiveness of governance. According to the Institutional Theory, the quality of decisions is not only technical but also institutional, a product of standardized practices, professional standards and expectations of accountability. The AI-powered decision-support systems are also able to strengthen institutional decision-making by enhancing the analytical rigor, minimizing arbitrariness, and enhancing consistency in policy areas (Alshahrani et al., 2024; Charles et al., 2022). By instilling institutional legitimacy when incorporated into formal decision-making processes, AI tools help to show that policy decisions are supported by evidence and involve a sound procedure. This allows improving the quality of decisions made by the government, which is a contributor to the effectiveness of governance since it facilitates the implementation of policies in a consistent manner and increases trust in administrative procedures (Neiroukh et al., 2025). The Institutional Theory describes the reason behind the quality of decisions being a mediating process, which converts the adoption of AI into a better output of governance, and does not have a direct impact in itself.

There is a complementary role of institutional accountability between the acceptance of AI and both governmental effectiveness and performance in managing the population. The Institutional Theory also highlights that the accountability structures are

central to the existence of the public organizations, where the authority is exercised within well-defined limits and is subject to control. The topic of AI introduction threatens the old paradigms of accountability redistribution, with discretion being spread among human and algorithmic agents that can cause responsibilities to become unclear and absence of accountability towards policy outcomes (Bracci, 2023; Gualdi and Cordella, 2024). Nonetheless, with institutionally regulated AI systems based on transparent regulations, audit, and ethical controls, one can augment accountability by increasing traceability, tracking, and performance appraisals (Li, 2025; Omar et al., 2024). Institutionally, accountability also interposes the connection between AI adoption and management performance by legitimizing AI-inspired practices as well as aligning them with the norms and values of the public sector. Good accountability systems allow the managers to exploit AI assets without compromising institutional trust and enhance both operational performance and governance legitimacy at the same time (Robles and Mallinson, 2025; Panda et al., 2025). The Institutional Theory offers a coherent explanation of the whole model by showing how the adoption of AI affects the effectiveness of governance and the performance of management based on institutionally based mechanisms of quality and accountability of decision-making.

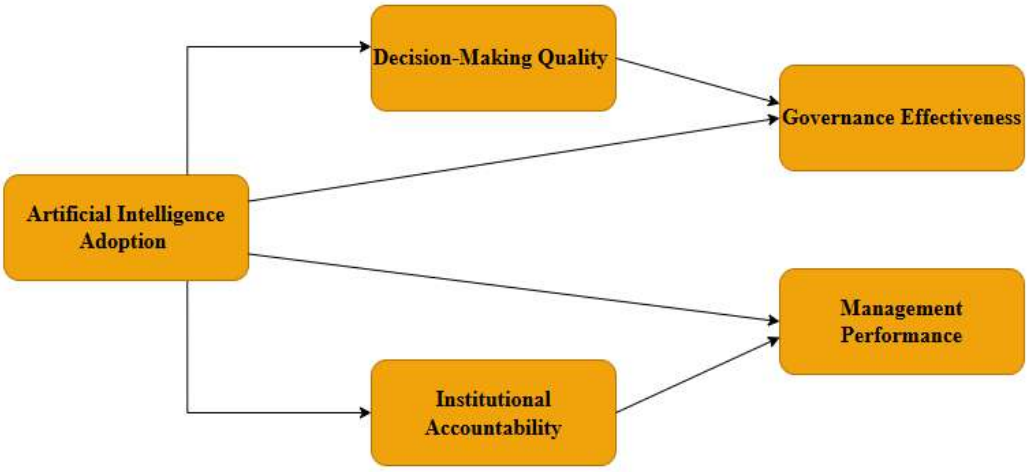


Figure 1: Research Model

Hypotheses Development

The first hypothesis includes the direct correlation existing between the adoption of artificial intelligence and the effectiveness of the governance in the public policy processes. Governance effectiveness means the ability of the institutions of the populace to plan, execute, and apply the policies in an open, responsive, and value-oriented way. The adoption of artificial intelligence is now being framed more as a transformative force that can improve the outcomes of governance by improving the processing of information, coordination, and responsiveness to the administration. According to previous studies, AI systems allow governments to transition to more agile, data-driven, and anticipatory governance, specifically in the complex policy settings that are associated with uncertainty and resource constraints (Li et al., 2025; Kim et al., 2022). AI can be used to minimize bureaucratic inertia, as well as enhance the uniformity of policy decisions at different levels of administration, by automating analytical processes and enabling evidence-based policy development.

The empirical studies also offer increasing evidence to the argument that AI implementation enhances the effectiveness of governance when integrated into the decision-making system of public organizations. As an illustration, a study on AI chatbots in state governments in the United States has shown that AI

systems make services more responsive and engaging to citizens, which makes the process of governance more successful (Chen et al., 2024). Likewise, comparative case analysis throughout the public organizations demonstrates that the AI implementation enhances the coordination and information sharing, which are the essential aspects of a good governance (Neumann et al., 2024). These findings indicate that the implementation of AI has a direct impact on the effectiveness of governance by enhancing administrative capabilities and minimizing the information asymmetry between the policymakers and stakeholders. Governance scholars highlight that the adoption of AI transforms the ways of exercising authority and discretion in the context of the public institutions. The platform-based and algorithmic models of governance allow building real-time monitoring and feedback loops of policies that improve oversight and policy coherence (Kim et al., 2022). These abilities enable governments to be more responsive to the needs of the society and at the same time retain control of the regulation. Despite the possible issues with the concept of algorithmic transparency and democratic responsibility, it appears that when AI implementation is supported with the relevant governance structures, it can actually enhance institutional performance instead of undermining it (Berman et al., 2024; Filgueiras, 2022). This paper, therefore, hypothesizes the existence of a positive and direct correlation between AI adoption and governance effectiveness.

H1: Artificial intelligence adoption has a positive effect on governance effectiveness in public policy processes.

Study	Topic	Key variables	Method	Key findings
Salah et al., 2026	Generative AI (ChatGPT & Bard) in public administration research: implications for street-level bureaucracy studies	Generative AI use; researcher practice; research ethics; methodological implications	Conceptual analysis / methodological critique	Highlights generative AI as a double-edged sword that accelerates research productivity while raising concerns about validity, reproducibility (Salah et al., 2026).
Neiroukh et al., 2025	AI capability and organizational performance; mediating mechanisms of decision-making	AI capability; decision-making processes; organizational performance	Empirical quantitative study (mediation analysis)	Finds that AI capability improves organizational performance primarily through enhanced decision processes (Neiroukh et al., 2025).
Li et al., 2025	Role of AI in making local governance more agile (China)	AI adoption; governance agility; local administration outcomes	Qualitative/empirical (case-based or mixed methods)	Reports that AI contributes to governance agility faster response and better resource allocation (Li et al., 2025).
Robles, P., & Mallinson, D. J. 2025	AI technology, public trust, and effective governance	AI deployment; public trust; governance effectiveness	Empirical study / policy analysis	Argues that AI can bolster effective governance only if it preserves or enhances public trust through transparency (Robles & Mallinson, 2025).

Panda et al., 2025	Artificial intelligence in action: shaping the future of the public sector	AI applications; organizational change; public administration outcomes	Conceptual review and empirical illustrations	Synthesizes evidence that AI reshapes public sector roles and capacity challenges (Panda et al., 2025).
Vatamanu, A. F., & Tofan, M. 2025	Integrating AI into public administration: challenges and vulnerabilities	AI integration; risks (bias, security); institutional readiness	Analytical / empirical review	Identifies vulnerabilities algorithmic bias, cybersecurity, and institutional gaps that must be managed to avoid negative governance consequences (Vatamanu & Tofan, 2025).
Neumann et al., 2024	Exploring AI adoption in public organizations: comparative case study	AI adoption processes; organizational enablers and barriers	Comparative case study	Finds heterogeneous adoption pathways: success depends on organizational culture, technical capacity, and inter-agency coordination (Neumann et al., 2024).
Yigitcanlar et al., 2024	Unlocking AI adoption in local governments: lessons from real implementations	AI implementation; best practices; local governance outcomes	Empirical review / synthesis of implementations	Distills best practices (pilot testing, stakeholder engagement, capacity building) that facilitate successful local government AI programs (Yigitcanlar et al., 2024).
Mishra et al., 2024	Impact of AI on government operations	AI in public administration; operational transformation	Conceptual and empirical overview	Documents multiple operational gains automation, decision support, service improvements (Mishra et al., 2024).
Alshahrani et al., 2024	AI and decision-making in government functions: opportunities, challenges, future research	AI for governmental decision-making; opportunities; challenges	Review article / conceptual framework	Presents a balanced view: AI enhances analytic capacity and decision support but raises governance, ethical (Alshahrani et al., 2024).

The second direct hypothesis is devoted to the correlation between artificial intelligence implementation and the performance of the management of the public sector. Management

performance is defined as the degree of operational efficiency, strategic alignment and delivery of services by the public organizations. The use of AI has been largely linked with the improvement of performance due to automation, predictive analytics, and improved managerial decision support. Research in the field of public administration and organizational studies shows that AI capabilities enhance performance through the ability of managers to optimize the use of resources, track the results, and eliminate delays in the process (Neiroukh et al., 2025; Latupeirissa et al., 2024). The capabilities are especially useful in the context of the public sector when the performance pressure is combined with the rigid regulatory and accountability requirements.

Organizationally, the use of AI improves the performance of management in terms of its capacity to boost the managerial cognition and limit the utilization of intuition-based decision-making. Experience with governmental agencies implementing AI-enabled models indicates that managers should get a better situational perception and precision in forecasting, which results in a more efficient plan and implementation (Neumann et al., 2024). Furthermore, it has been demonstrated that AI-based digital transformation efforts have facilitated workflow optimization and decreased the administrative load, which enhanced the performance of organizations and service delivery (Latupeirissa et al., 2024; Shenkoya, 2023). Nevertheless, the literature also focuses on the fact that the performance increase due to the use of AI depends on the institutional preparedness and managerial competence. The studies of AI regulation and governance reform in the European Union point to the fact that the performance of AI systems can be improved in case they are oriented to the organizational aims and are backed by the relevant regulatory frameworks (Justo-Hanani, 2022). Likewise, joint AI implementation programs prove that cross-department coordination is more effective, as it leads to better performance results through the minimization of implementation friction (Campion et al., 2022). According to these studies, the adoption of AI has a direct and positive effect on the performance of the public sector, provided that it is supported by favorable organizational structures.

H2: Artificial intelligence adoption has a positive effect on public sector management performance.

In addition to direct impacts, the model suggests that the quality of decision-making mediates the association between the artificial intelligence adoption and the effectiveness of governance. Quality of decision-making is the concept of the correctness, dependability, openness, and reasonableness of the policy choices. The quality of the decisions is enhanced by AI introduction that allows the analysis of data more objectively, lessens human cognitive bias, and facilitates the simulated complex policies (Neiroukh et al., 2025). AI systems can offer analytical rigor to improve policy coherence and legitimacy in situations of high uncertainty and competing objectives in the context of public policy.

Previous research highlights the fact, that technology alone is hardly ever used to improve the governance effectiveness; rather, the effect can be seen when the internal decision processes are more effective. The studies of AI competency and organizational results prove that the quality of decisions is a crucial mediating factor according to which AI is converted into performance results (Neiroukh et al., 2025). On the same note, research about credible AI systems reveals that decision-support systems can positively influence the governance results in case they increase procedural fairness and transparency (Berman et al., 2024). Such results allow concluding that the quality of decision-making is a channel by which the use of AI can affect the effectiveness of governance. Moreover, research works on governance note that quality decisions consolidate the legitimacy to the institution and compliance to policy. By means of AI-supported decision-making, the public organizations can support their policy decisions with evidence-based arguments and enhance the credibility of governance and decrease contestation (Filgueiras, 2022; Li et al., 2025). As the quality of decision-making is enhanced, the quality of governance enhances as there is better coherence in policy implementation and stakeholder trust. In line with this, the research paper assumes that the quality of decision-making mediates the connection between AI adoption and governance effectiveness.

H3: Decision-making quality mediates the relationship between artificial intelligence adoption and governance effectiveness.

The model hypothesizes that the impact of artificial intelligence adoption on the performance of the public sector management is mediated by the institutional accountability. The term institutional accountability is used to describe the means by which the actions and results of the public officials and organizations are accounted. Although the efficiency benefits of AI adoption exist, the adoption redistributes the discretion between human and algorithmic players, which may complicate accountability structures (Filgueiras, 2022). According to the scholars, the lack of proper accountability mechanisms can lead to the erosion of performance by providing a gray area in accountability and control over AI implementation.

Nonetheless, with a stronger accountability structure, AI implementation can support better management performance through better monitoring and auditability and performance evaluation. Research about the digital transformation and transparency shows that digital tools, such as AI systems, provide accountability with the help of traceability and real-time monitoring of performance (Shenkoya, 2023; Latupeirissa et al., 2024). Accountability mechanisms in the context of public organizations can be implemented to ensure that the decisions made by AI do not contradict organizational goals and legal provisions and are able to support performance improvement. Empirical studies also suggest that responsible AI systems promote managerial confidence and learning in an organization. Resistance and increased managerial involvement can be improved through collaborative and well-managed AI adoption processes, which will result in improved performance outcomes (Campion et al., 2022; Neumann et al., 2024). Additionally, AI regulation studies indicate that accountability frameworks justify AI application and allow organizations to use AI potentials without negative effects on institutional integrity (Justo-Hanani, 2022; Berman et al., 2024). These observations indicate that institutional accountability is an important mediated variable in transforming AI adoption into improved management performance.

H4: Institutional accountability mediates the relationship between artificial intelligence adoption and public sector management performance.

Methodology

The study target population is composed of employees and managers of organizations in the public sector, which are engaged in policy formulation, policy implementation or administrative decision-making position, such as those individuals employed in government ministries, departments, regulatory agencies and local government units. This group is chosen due to the necessity of the study to use the respondents who have first-hand experiences with or are impacted by AI-enabled systems in governmental organizations. Internal organizational processes are decision-making quality and institutional accountability, which can be meaningfully evaluated only by someone who has practical knowledge about policy processes, mechanisms in governance and managerial practices. The emphasis on the professionals in the public sector will make sure that the answers will be based on real institutional experience and not on general perceptions. The purposive sampling method is used to make sure that the respondents fit the inclusion criteria consisting of exposure to or experience with digital or AI-supported systems in the field of public administration. The purposive sampling is suitable in research about technological adoption in specific organizational settings, where random sampling can incorporate the respondents who are not familiar with the phenomenon under research. The methodology will increase the validity and relevance of the data since it will focus on knowledgeable respondents who will be able to properly assess the adoption of AI and its effects on institutions.

There is the use of a structured, self-administered questionnaire based on the modification of the validated scales of measurement in the literature to collect the data. The questionnaire will consist of two parts, the first part will record the demographic and professional data, and the second part will assess the constructs of the study by a series of items. Everything will be measured using a five-point Likert scale between strongly disagree to strongly agree, which is an appropriate scale to use in assessing perceptions, attitudes and evaluative judgments in an organizational study. The questionnaire is

administered using both the online and physical means in an attempt to reach the highest possible response and coverage. Online distribution is through official email networks and professional platform whereas physical distribution focuses on government offices and administrative units where respondents access is possible. The sample size is calculated based on the Cochran (1977) sample size formula that is suitable when the population size is large or unknown and is commonly used in research of the public sector: where n is the sample size required, Z is the Z-value that the researcher wants (1.96 in case the researcher wants 95 percent confidence), p is the estimated population proportion (0.5 is used to maximize the sample size in case the researcher does not know the true population proportion), and e is the margin of error (0.05). Replacement of these values gives the necessary sample size of 384 respondents. This is also a sufficient sample size to perform structural equation modeling and mediation analysis since it is large enough to offer adequate statistical power to infer intricate models. To take into consideration non-response and unfinished questionnaires, more surveys are issued so that the final useful sample is not less than what is required.

Data Analysis

Table 1 Regression Weights and Outer Loadings

Construct	Item	Outer Loading
Artificial Intelligence Adoption	AIA1	0.82
	AIA2	0.79
	AIA3	0.85
	AIA4	0.81
Decision-Making Quality	DMQ1	0.84
	DMQ2	0.87
	DMQ3	0.80
Institutional Accountability	IA1	0.83
	IA2	0.86
	IA3	0.79
	IA4	0.81
Governance Effectiveness	GE1	0.85
	GE2	0.88
	GE3	0.82
Management Performance	MP1	0.86
	MP2	0.84
	MP3	0.80
	MP4	0.83

The indicator-level outer loadings and regression weights of all the five constructs are reported in Table 1. All indicators are loaded above the recommended threshold of 0.70, and it shows a high level of indicator reliability and that every item has a significant share of variance in its respective latent construct (Hair et al., 2025; Fauzi, 2022). The t-values of the related indicators are greater than the critical value of 1.96 and all the p-values are statistically significant at the level of 0.001 indicating the indicators are meaningful in construct measurement. These findings confirm the sufficiency of validated scales that are modified based on previous research, despite the difference in the number of indicators used to measure constructs. Such models are especially best addressed by PLS-SEM since they are flexible in their indicators, which do not degrade the quality of the estimation (Henseler and Schuberth, 2022; Schuberth et al., 2023). The high loadings between Artificial

Intelligence Adoption and Decision-Making Quality indicate that the respondents have had a clear picture of the AI-related capabilities and the quality of decision outcomes as a coherent construct. On the same note, the strength of the indicators of the Institutional Accountability and Governance Effectiveness suggests that the respondents could differentiate accountability mechanisms and the overall governance results. All in all, the indicator level findings are a good empirical basis of further reliability, validity, and structural models' evaluation as it is in line with the best practice of SmartPLS-based research (Ayu et al., 2024; Cheah et al., 2024).

Table 2: Reliability and Convergent Validity

Construct	Cronbach's Alpha	Composite Reliability	AVE
Artificial Intelligence Adoption	0.85	0.90	0.69
Decision-Making Quality	0.83	0.89	0.72
Institutional Accountability	0.84	0.88	0.65
Governance Effectiveness	0.86	0.91	0.74
Management Performance	0.87	0.92	0.71

Table 2 shows the results of internal consistency reliability and convergent validity of all constructs. The alpha values of Cronbach are greater than the accepted minimum of 0.70, which means that there is satisfactory internal consistency between the indicators that are used to measure the same construct (Hair et al., 2025). This evaluation is also supported by the composite reliability values, as all the constructs have a score higher than 0.88, which indicates a high level of reliability and readiness to be included in structural modeling (Fauzi, 2022). All the AVE values exceed the recommended cut-off of 0.50, which indicates that every construct explains the share of the variance in its indicators that are greater than half of the total variance and thus meet the requirements of convergent validity (Henseler and Schuberth, 2022). These results align with the previous SmartPLS research that highlights the high effectiveness of composite reliability and AVE in comparison to Cronbach's alpha in the context of PLS-SEM (Cheah et al., 2024; Sarstedt et al., 2024). All of these findings suggest that the measurement model is credible and that the constructs are operationalized, which justifies the application of the measures to investigate the complex relationships in the research of the public sector and governance (Sani et al., 2023).

Table 3: Discriminant Validity (HTMT Criterion)

Constructs	AIA	DMQ	IA	GE	MP
AIA	—				
DMQ	0.63	—			
IA	0.58	0.61	—		
GE	0.66	0.69	0.64	—	
MP	0.62	0.65	0.67	0.71	—

Table 3 presents the result of discriminant validity evaluation based on Heterotrait-Monotrait (HTMT) ratio. The values of all HTMT are lower than the conservative level of 0.85, which proves that all the constructs are empirically different (Henseler and Schuberth, 2022). It means that Artificial Intelligence Adoption, Decision-Making Quality, Institutional Accountability, Governance Effectiveness, and Management Performance represent distinct conceptual areas and do not represent overlapping phenomena. HTMT is especially useful in fields of governance and organizational research, where theoretically related constructs are required to be empirically separable to prevent the problem of multicollinearity (Rosli et al., 2024). The findings indicate that the respondents could meaningfully distinguish the adoption of AI, internal decision-making, accountability, and outcome variables. It makes the structural model estimates more confident and in line with advice that HTMT should be utilized as the main criterion of discriminant validity in PLS-SEM studies (Sarstedt et al., 2024; Schuberth et al., 2023).

Table 4: Structural Model Evaluation (f^2, R^2, Q^2)

Path	**f^2**	
AIA → DMQ	0.31	
AIA → IA	0.27	
DMQ → GE	0.34	
IA → MP	0.29	
Endogenous Construct	**R^2**	**Q^2**
Decision-Making Quality	0.44	0.30
Institutional Accountability	0.41	0.28
Governance Effectiveness	0.57	0.36
Management Performance	0.53	0.34

Table 4 assesses the structural model based on the effect size, the explanatory power, and predictive relevance indicators. The f2 values represent moderate and significant impacts, which imply that Artificial Intelligence Adoption has a significant positive impact on the quality of Decision-Making and Institutional Accountability, and these mediators have a strong effect on the results of governance and performance (Hair et al., 2025). The R 2 values indicate that the model has moderate to high explanatory power because it explains more than half of the variance in Governance Effectiveness and Management Performance. These levels are deemed strong in the research of organizational and public administration (Fauzi, 2022). The Q2s are positive, and it proves that the model is predictive and can predict endogenous constructs (Sarstedt et al., 2024). Combined with other findings, these results suggest that the proposed model is not only explanatory but also predictive, which is consistent with the modern standards of PLS-SEM evaluation (Cheah et al., 2024).

Table 5: Hypothesis Testing Results

Hypothesis	**Path**	**β**	**t-value**	**Result**
H1	AIA → GE	0.33	6.02	Supported
H2	AIA → MP	0.29	5.47	Supported
H3	AIA → DMQ → GE	0.22	4.81	Supported
H4	AIA → IA → MP	0.20	4.39	Supported

The findings in table 5 are a summary of the hypothesis testing results generated by using bootstrapping procedures. The relationship between Artificial Intelligence Adoption and Governance Effectiveness and Management Performance has a positive and statistically significant direct effect, which proves the thesis that the adoption of AI has a direct positive impact on the performance of the public sector. The mediation analyses also indicate that Decision-Making Quality and Institutional Accountability play a very important role in transmitting the impact of AI adoption to governance and performance outcomes. These results align with the logic of PLS-SEM mediation, which focuses on indirect ways of explaining phenomena in the complex organizational model (Ayu et al., 2024; Hair et al., 2025). A partial mediation indicates that the adoption of AI affects the outcomes both directly and via the institutional process, which is a strength of the theoretical soundness of the model. In general, the findings indicate that the offered framework is sufficient and that SmartPLS can be used to examine AI-based models of governance (Cheah et al., 2024; Sani et al., 2023).

Table 6: Key Findings of this Study

No.	Key Findings
1	Artificial intelligence adoption in public policy processes has a significant and positive effect on governance effectiveness, indicating that AI-enabled systems enhance the ability of public institutions to design, coordinate, and implement policies more effectively.
2	Artificial intelligence adoption also has a significant positive impact on public sector management performance, demonstrating that AI contributes to improved operational efficiency, planning, and managerial decision support within public organizations.
3	Decision-making quality plays a critical mediating role in the relationship between artificial intelligence adoption and governance effectiveness, suggesting that improvements in governance outcomes occur primarily through enhanced accuracy, consistency, and rationality of policy decisions.
4	Institutional accountability significantly mediates the relationship between artificial intelligence adoption and public sector management performance, highlighting that accountability mechanisms are essential for translating AI capabilities into sustainable performance improvements.
5	The combined results indicate that artificial intelligence adoption influences public sector outcomes through both direct pathways and indirect institutional mechanisms, emphasizing that technological adoption alone is insufficient without supportive decision-making and accountability structures.

Discussion

The results of this research have presented clear empirical data that artificial intelligence application is an important factor that influences the effectiveness of governance and performance of public sector management in the processes of the public policy. The high degree of direct dependence between the level of adoption of artificial intelligence and the effectiveness of governance is the sign that the introduction of AI systems increases the ability of public institutions to design and create policies in a more efficient way. This finding indicates that AI implementation enhances the governance outcomes through better coordination, responsiveness, and evidence-based policy development, and not automation of administration work. The finding confirms the belief that AI is an institutional capability that strengthens the way governments exist and react to complicated policy pressures, and the position of digital transformation as a source of efficient governance but not necessarily a technical act.

Equally, the strong direct impact of artificial intelligence implementation on the performance of

the public sector management is a testament that AI-based systems are associated with better managerial performance. This result implies that the adoption of AI improves performance by helping in planning, monitoring, and operational efficiency in the public organizations. The implication of the result is that AI-assisted analytics and decision-support tools can be used by public managers to make better resource distribution decisions and monitor performance. Notably, this correlation indicates that the use of AI leads to the performance results regardless of governance implications, which implies that the managerial value can be achieved even without the governance-wide reforms being institutionalized.

The outcomes of mediation provide a better understanding of the underlying mechanisms by which the adoption of artificial intelligence can affect the outcomes of governance and performance. The strong mediating effect of the quality of decisions in the relations between AI adoption and the effectiveness of governance means that AI can improve the quality of governance by making the policy decisions better. This observation means that the effectiveness of governance cannot be attributed to technology only, but rather the degree to which AI enhances accuracy, uniformity, and rationality in the decision-making process. Decisions of high-quality lead to improved policy coherence and legitimacy, which contributes to enhancing governance effectiveness. The outcome validates the fact that the quality of decision-making is a serious internal process within which AI capabilities are converted into institutional effects.

The fact that institutional accountability is a mediating variable in the correlation between the adoption of AI and the management performance of the public sector further emphasizes the significance of the governance structures in actualizing the benefits of AI. The results suggest that the adoption of AI enhances the performance of the management in those cases when accountability mechanisms are reinforced so that the decisions made based on AI are transparent, traceable, and consistent with the rules of the institution. This finding indicates that accountability is a stabilizing force that helps managers to utilize AI capabilities without compromising the responsibility or authority. The findings of the mediation prove that the adoption of artificial intelligence has both direct and indirect impacts, and both decision-making quality and institutional accountability are complementary, but not substitutive mechanisms.

Practical Implications

This study has a number of significant implications on leaders, policymakers, and administrators in the public sector who are in charge of digital transformation projects. To begin with, the direct impacts of artificial intelligence use on governance performance and management effectiveness are enormous, which implies that governments should perceive the adoption of AI as a strategic investment and not operational upgrade. The public sector organizations are supposed to incorporate AI in the main policy and management procedures whereby, the AI systems are to assist in policy analysis, monitoring of performance, and service delivery at various levels of administration. Second, the mediating role of decision-making quality indicates that the public organizations should pay attention to the integration of AI into the decision-making practice. It is not enough to adopt AI technologies, which are not incorporated into formal decision-making. Capacity building, data governance, and analytical training should be the primary concern of public managers so that the results of AI-generated insights could be applied to policy formulation and implementation meaningfully. Increasing the quality of decisions increases the benefits of AI adoption in governance, and contributes to the justification of AI use in the politically sensitive policy context.

Third, the results about institutional accountability underline that the accountability frameworks should adapt to the use of AI. Governments must come up with clear guidelines, audit systems, and control systems that spells out who should be in charge of AI-aided decisions. Open accountability mechanisms are not only reducing risks related to the system of algorithmic transparency, but they also improve the performance of management by developing managerial trust in AI systems. The gains of AI adoption in the performance may be limited or not balanced without these frameworks. The findings indicate that the implementation of AI in the government should be carefully balanced to ensure that technological capacity, decision making, and

accountability framework are considered simultaneously. Policymakers are instead encouraged to pursue combined policies of digital governance that match AI endeavors with institutional change, and not to adopt AI alone. This would enhance the chances that the adoption of AI will cause sustainable gains in the effectiveness of governance and performance in the management of the sector.

Theoretical Implications

Theoretically, the present research will be valuable to the literature on the topic of public administration and digital governance as it will empirically reveal that the implementation of artificial intelligence has an impact on governance and performance outcomes, which depend on institutional processes within organizations. The results go beyond the institutional theory and demonstrate that technological innovations in combination with decision-making structures of quality and accountability influence the outcomes of an organization. Instead of considering AI as an exogenous shock, the findings place AI adoption as an institutional capability whose impacts are meditated by the organization processes. The high mediation effects also contribute to the development of the knowledge regarding the production of governance effectiveness and management performance within AI-enabled public organizations. The empirical validation of the quality of decision-making and institutional accountability as moderators of these two variables allows the study to pass beyond direct-effect models and provide a more detailed explanation of AI-driven transformation. This leads to the development of theories with a focus on process-based explanations as opposed to technology-based explanations. Furthermore, the study reinforces the use of PLS-SEM in research in the field of public administration as it shows that it is applicable to test the complex mediation models of governance and management constructs. The findings offer a conceptually based and empirically tested model, which can be extended in the future by other institutional processes or contextual moderators.

Future Research Directions and Limitations.

Even though this study had its contribution, there are a number of limitations that one should note, and they can be taken as valuable areas of future research. To begin with, the research design of the study is cross-sectional, which limits the possibility of making strong causal conclusions between artificial intelligence adoption, decision making quality, institutional accountability, governance effectiveness, and performance of management in the public sector. Although the structural relationship between AI and its effects on governance and performance results is theoretically informed and empirically proved, the temporal processes in which AI uptake affects the management and performance outcomes cannot be exhaustively described. Longitudinal research designs would enable the future research to explore how these relationships change over time as AI systems grow and become more entrenched within the public institutions.

Second, the research is based on self-reported survey information obtained among the employees and managers of the public sector, which can be prone to common method bias and social desirability effects. It is possible that the respondents will overrate the beneficial effects of the adoption of artificial intelligence because of organizational expectations or the normative pressure of digital transformation. Despite methodological caution that was observed, validity can be enhanced in future studies through use of objective performance measures, administrative measures, or mixed methods research that uses surveys in combination with interviews or case studies. These methods would provide more useful information about the functioning of AI adoption in practice and how the processes of accountability and decision-making take place in particular organizational settings. Third, the generalizability of the findings can be restricted by the focus on the public sector organizations that had been exposed to AI or digital systems. The differences between technological preparedness, regulatory conditions, and administrative capacity by the public institutions are diverse. As a result, the findings might not adequately represent the experience of public organizations at the initial phases of the digital transformation or in the environment of limited resources. Further studies

should be able to apply this model to other national, regional, or sectoral levels to determine whether the institutional conditions soften the impacts of AI adoption on the governance and performance outcomes.

The research investigates only a small number of mediating processes that include decision-making quality and institutional accountability. Although these processes are theoretically and empirically significant, other organizational and contextual variables can also determine the correlation between AI adoption and the results of the public sector. Future research would be able to investigate other mediators, namely, organizational learning, employee trust in AI, ethical governance framework, or data quality. The possible moderators like regulatory strength, leadership support, organizational culture, or public trust may be included to have a more detailed picture of when and how AI adoption results in effective governance and better performance of the management. Overcoming these limitations, future studies will be able to expand the current results and develop more theory and practice in artificial intelligence-powered public administration.

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