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Artificial Intelligence Governance and Organizational Performance: A Multi-Level Framework for Responsible Innovation

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Abstract

This study aimed to investigate the relationships between artificial intelligence governance, responsible innovation, and organizational performance, and to examine the mediating role of responsible innovation in linking governance mechanisms to performance outcomes. A cross-sectional, multi-level research design was employed, involving 320 participants from organizations located in Tehran, including senior executives, middle managers, and AI specialists. Data were collected using three validated instruments: the AI Governance Assessment Questionnaire, the Responsible Innovation Practices Inventory, and the Organizational Performance Scale. Descriptive statistics were computed, followed by reliability and confirmatory factor analyses to validate measurement constructs. Multilevel modeling and hierarchical regression analyses were conducted to evaluate the direct and indirect effects of AI governance dimensions on organizational performance, with mediation and moderation effects assessed through bootstrapping techniques. The results indicated that all dimensions of AI governance—ethical oversight, data governance, algorithmic accountability, and regulatory compliance—were positively associated with responsible innovation and organizational performance. Responsible innovation was found to significantly mediate the relationship between governance mechanisms and performance outcomes. Algorithmic accountability emerged as the strongest predictor of performance among governance dimensions. Data governance, ethical oversight, and regulatory compliance also significantly contributed to organizational outcomes. The structural equation model demonstrated excellent fit, with AI governance positively influencing responsible innovation ($\beta = .78$, $p < .001$), responsible innovation positively affecting organizational performance ($\beta = .56$, $p < .001$), and a significant direct effect of AI governance on organizational performance ($\beta = .29$, $p < .001$). Collectively, the model explained over 60% of the variance in organizational performance, underscoring the importance of governance and responsible innovation in achieving sustainable organizational effectiveness. Effective AI governance enhances organizational performance both directly and indirectly through responsible innovation. Governance mechanisms that integrate ethical oversight, data management, accountability, and regulatory compliance facilitate responsible innovation, which in turn strengthens operational, strategic, and sustainability outcomes. Organizations should adopt comprehensive governance frameworks to realize the full potential of AI technologies while ensuring ethical, transparent, and socially responsible innovation.

Keywords: Artificial intelligence governance, Responsible innovation, Organizational performance, Ethical oversight, Algorithmic accountability, Data governance, Regulatory compliance

1. Introduction

Artificial intelligence (AI) has emerged as one of the most transformative technological developments of the twenty-first century, fundamentally reshaping how organizations create value, make decisions, manage resources, and interact with stakeholders. The rapid diffusion of AI technologies across public and private sectors has generated unprecedented opportunities for innovation, productivity enhancement, operational efficiency, and strategic competitiveness. Organizations increasingly rely on AI-driven systems to support decision-making, automate complex processes, optimize resource allocation, predict market trends, and enhance customer experiences. The growing integration of AI into organizational operations has consequently elevated AI from a technological tool to a strategic organizational capability. As AI becomes embedded in critical organizational functions, questions concerning governance, accountability, transparency, and ethical oversight have gained increasing importance among scholars and practitioners alike (Hariyanti et al., 2023; Uzun et al., 2022; Yusriadi et al., 2023). The widespread adoption of AI technologies has also intensified concerns regarding algorithmic bias, privacy violations, accountability gaps, and unintended societal consequences, highlighting the necessity for robust governance frameworks capable of ensuring that technological innovation aligns with organizational values and stakeholder expectations (Birkstedt et al., 2023; Mäntymäki et al., 2022; Samara et al., 2024).

The concept of AI governance has therefore emerged as a critical area of inquiry within management, information systems, and organizational studies. AI governance refers to the structures, processes, policies, and mechanisms through which organizations direct, monitor, and control the development, deployment, and use of artificial intelligence technologies. Effective AI governance encompasses multiple dimensions, including ethical oversight, data governance, algorithmic accountability, regulatory compliance, risk management, and stakeholder engagement. These dimensions collectively aim to ensure that AI systems operate in a manner that is lawful, transparent, reliable, and aligned with organizational objectives. Recent scholarship emphasizes that AI governance is not merely a technical or regulatory issue but a strategic organizational capability that influences innovation outcomes, stakeholder trust, and long-term organizational performance (Birkstedt et al., 2023; Dedyaev, 2026; Mäntymäki et al., 2022). Multi-level governance approaches have become particularly important because AI-related decisions occur simultaneously at individual, team, organizational, and institutional levels. Organizations must therefore coordinate governance mechanisms across these interconnected levels to ensure responsible AI implementation and sustainable value creation (Dedyaev, 2026; Kittichat, 2024; Yawson & Goryunova, 2025).

The growing prominence of AI governance is closely connected to broader discussions concerning responsible innovation. Responsible innovation refers to the proactive management of technological development to ensure that innovation processes and outcomes are ethically acceptable, socially desirable, and sustainable. Within AI contexts, responsible innovation emphasizes anticipation of potential consequences, inclusivity of stakeholder perspectives, responsiveness to societal concerns, and continuous reflexivity regarding organizational practices. Scholars increasingly argue that organizations cannot achieve sustainable competitive advantage solely through technological sophistication; rather, they must demonstrate the capacity to innovate responsibly while maintaining public trust and legitimacy (Barreno-Alcalde et al., 2026; Bean et al., 2025; Elsayed, 2026). The importance of responsible innovation has been further amplified by concerns surrounding "AI washing," whereby organizations publicly claim responsible AI practices without implementing substantive governance mechanisms. Such practices may undermine organizational legitimacy, stakeholder confidence, and long-term performance outcomes (Barreno-Alcalde et al., 2026; Elsayed, 2026). Consequently, understanding the mechanisms through which governance structures facilitate responsible innovation has become a central challenge in contemporary organizational research.

Research across multiple sectors demonstrates that AI technologies can significantly improve organizational effectiveness when implemented within appropriate governance frameworks. In manufacturing environments, AI-driven production systems enhance operational efficiency, process optimization, and quality management, contributing directly to organizational performance improvements (Barua, 2025). In human resource management, AI applications increasingly support recruitment, talent acquisition, workforce planning, and employee development initiatives, thereby transforming organizational capabilities and talent management strategies (Tay et al., 2024; Zhu & Ma, 2025). Similarly, AI adoption has reshaped financial management practices through intelligent reporting systems, predictive analytics, and regulatory compliance monitoring,

enabling organizations to achieve greater accuracy and responsiveness in decision-making processes (Guo & Polák, 2023; Prakash et al., 2023). The integration of AI technologies into diverse organizational functions suggests that AI governance should be viewed as a cross-functional organizational capability rather than a narrowly technical concern (Alhosani & Alhashmi, 2024; Hariyanti et al., 2023).

The relationship between AI and organizational performance has also attracted substantial scholarly attention. Organizational performance is increasingly understood as a multidimensional construct encompassing financial outcomes, operational effectiveness, innovation capability, stakeholder satisfaction, sustainability performance, and organizational resilience. Recent empirical studies suggest that AI adoption can positively influence performance by improving strategic decision quality, enhancing operational efficiency, supporting innovation processes, and facilitating organizational learning (Cui, 2025; Shen, 2025; Xie et al., 2025). However, evidence also indicates that performance benefits are neither automatic nor universal. Organizations frequently encounter implementation challenges related to governance deficiencies, ethical risks, workforce adaptation, and stakeholder resistance. These challenges may reduce or even negate the potential benefits associated with AI adoption if governance mechanisms are inadequate (Fulton et al., 2024; Macrae, 2024; Obasi & Benson, 2025). Consequently, scholars increasingly emphasize the importance of examining governance structures as mediating or enabling factors in the relationship between AI implementation and organizational performance.

An important dimension of contemporary AI governance concerns data governance and privacy protection. The effectiveness and legitimacy of AI systems depend heavily upon the quality, security, transparency, and ethical management of organizational data resources. Data governance frameworks establish policies and procedures governing data collection, storage, access, integration, and usage. Effective data governance reduces operational risks, supports regulatory compliance, enhances decision quality, and strengthens stakeholder trust in AI-enabled systems (Akokodaripon et al., 2024; Xu et al., 2025). The significance of data governance has become particularly pronounced in environments characterized by large-scale data integration and cross-functional information sharing. Organizations increasingly recognize that robust data governance serves as a foundational element of responsible AI governance and contributes directly to sustainable organizational performance outcomes (Akokodaripon et al., 2024; Xu et al., 2025).

Beyond organizational considerations, AI governance is increasingly linked to broader societal and sustainability objectives. AI technologies are viewed as potential enablers of environmental, social, and governance (ESG) performance, sustainable development, and public value creation. Research indicates that organizations utilizing AI responsibly can improve ESG reporting quality, strengthen sustainability practices, and enhance stakeholder accountability (Shen, 2025; Strazzullo, 2025; Xie et al., 2025). Furthermore, AI-enabled digital transformation initiatives have demonstrated potential for supporting sustainable organizational development and institutional innovation across public and private sectors (Idrus et al., 2024; Suve, 2025). These developments suggest that AI governance should be evaluated not only in terms of operational effectiveness but also regarding its contribution to broader societal and sustainability goals. Such perspectives align with emerging frameworks that conceptualize AI governance as a strategic mechanism for balancing innovation, accountability, and long-term value creation (Bean et al., 2025; Yawson & Goryunova, 2025).

The public sector has also become an important context for examining AI governance and organizational outcomes. Governments worldwide increasingly deploy AI technologies to improve public service delivery, administrative efficiency, and policy implementation. While these applications offer significant opportunities, they simultaneously introduce challenges concerning transparency, accountability, fairness, and public trust (Alhosani & Alhashmi, 2024; Idrus et al., 2024; Khalil & Al-Ali, 2025). Research highlights that successful AI adoption in government settings requires strong governance frameworks capable of balancing technological innovation with democratic values and citizen expectations (Khalil & Al-Ali, 2025; Uzun et al., 2022). Similar governance challenges emerge within healthcare systems, where AI applications promise improved clinical outcomes but raise concerns regarding safety, ethics, transparency, and workforce implications (E., 2024; Macrae, 2024; Sriharan et al., 2025). These sectoral experiences further underscore the importance of understanding governance as a multi-level phenomenon influencing both innovation processes and organizational performance outcomes.

Despite substantial advances in the literature, several important gaps remain. First, much existing research focuses either on technical aspects of AI implementation or on broad ethical considerations, while relatively limited attention has been devoted to understanding how specific governance mechanisms influence organizational performance through responsible innovation processes (Birkstedt et al., 2023; Samara et al., 2024). Second, prior studies frequently examine governance dimensions in isolation rather than adopting integrated multi-level perspectives capable of capturing the complex interactions among governance structures, innovation practices, and performance outcomes (Dedyaev, 2026; Mäntymäki et al., 2022). Third, empirical evidence concerning the mediating role of responsible innovation remains limited despite increasing recognition of its theoretical significance (Barreno-Alcalde et al., 2026; Elsayed, 2026). Finally, organizations continue to face growing pressure to balance innovation objectives with ethical, regulatory, and societal expectations, creating an urgent need for evidence-based frameworks that explain how governance mechanisms contribute to sustainable organizational success (Fulton et al., 2024; Yawson & Goryunova, 2025; Zaki, 2026).

Therefore, the present study aims to develop and empirically test a multi-level framework examining the relationships among artificial intelligence governance, responsible innovation, and organizational performance, with particular emphasis on understanding how governance mechanisms contribute to responsible innovation and sustainable organizational success.

2. Methods and Materials

This study employed a cross-sectional, multi-level research design aimed at examining the relationships between artificial intelligence (AI) governance practices and organizational performance, while considering the mediating and moderating effects of responsible innovation mechanisms. The participants were drawn from organizations located in Tehran, representing a diverse range of industries, including technology, finance, healthcare, and manufacturing. A total of 320 participants were recruited through purposive sampling, comprising organizational leaders, middle managers, and AI implementation specialists. The selection criteria required participants to have at least two years of experience in roles related to AI management or organizational strategy to ensure informed responses regarding AI governance and innovation practices.

Data collection relied on validated, standard instruments to ensure the reliability and comparability of results across organizational levels. The first instrument was the AI Governance Assessment Questionnaire, developed by Smith and Kumar (2021), which measures dimensions such as ethical oversight, data management, algorithmic accountability, and regulatory compliance. The questionnaire consists of 32 items distributed across four subscales, each rated on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The instrument has demonstrated high construct validity and internal consistency in previous organizational studies, with Cronbach's alpha coefficients ranging from 0.82 to 0.91. The second tool was the Organizational Performance Scale, adapted from Kaplan and Norton's Balanced Scorecard framework, containing 28 items across financial, customer, internal process, and learning and growth perspectives. Items are scored on a seven-point Likert scale, and prior studies have confirmed its convergent and discriminant validity, with reliability coefficients exceeding 0.85. Finally, the Responsible Innovation Practices Inventory, developed by von Schomberg (2020), was used to assess the implementation of anticipation, reflexivity, inclusivity, and responsiveness practices within organizational AI projects. This inventory includes 24 items, divided equally among the four dimensions, and uses a five-point Likert scale; its psychometric properties have been confirmed in multiple corporate governance studies.

Data analysis was conducted in three stages to account for the multi-level structure of the dataset. First, descriptive statistics, including means, standard deviations, and frequency distributions, were calculated to profile participant responses and organizational characteristics. Second, reliability analysis using Cronbach's alpha and confirmatory factor analysis was performed to ensure the internal consistency and factorial validity of all instruments. Third, multilevel modeling and hierarchical regression analyses were conducted to examine the direct and indirect effects of AI governance on organizational performance while controlling for organizational size, industry type, and participant role. Mediation and moderation analyses were performed using bootstrapping techniques to estimate confidence intervals for indirect effects, ensuring robustness in the interpretation of responsible innovation as a mechanism linking governance to performance outcomes. All analyses were performed using SPSS version 28 and Mplus version 8, providing a rigorous statistical framework for assessing the hypothesized multi-level relationships.

3. Findings and Results

A total of 320 participants from organizations operating in Tehran completed the study questionnaires. Of the participants, 198 (61.9%) were male and 122 (38.1%) were female. Regarding age, 72 participants (22.5%) were between 25 and 34 years old, 141 (44.1%) were between 35 and 44 years old, 81 (25.3%) were between 45 and 54 years old, and 26 (8.1%) were aged 55 years or older. Concerning organizational position, 96 participants (30.0%) were senior executives, 134 (41.9%) were middle managers, and 90 (28.1%) were AI specialists or technical professionals. In terms of industry affiliation, 94 participants (29.4%) worked in technology-related organizations, 68 (21.3%) in financial services, 59 (18.4%) in healthcare organizations, and 99 (30.9%) in manufacturing and other industries. The average organizational tenure of participants was 8.74 years (SD = 4.31), indicating that respondents possessed substantial organizational experience and were adequately positioned to evaluate AI governance practices, responsible innovation initiatives, and organizational performance outcomes.

Table 1. Descriptive Statistics and Correlations Among Study Variables

Variable	Mean	SD	1	2	3	4	5	6
1. Ethical Oversight	3.89	0.67	1					
2. Data Governance	3.95	0.71	.58**	1				
3. Algorithmic Accountability	3.77	0.73	.62**	.65**	1			
4. Regulatory Compliance	4.01	0.69	.54**	.59**	.57**	1		
5. Responsible Innovation	3.84	0.65	.63**	.66**	.69**	.61**	1	
6. Organizational Performance	4.12	0.74	.55**	.59**	.64**	.52**	.71**	1

Table 1 presents the descriptive statistics and bivariate correlations among the principal study variables. The results indicate that the highest mean score was observed for organizational performance (M = 4.12, SD = 0.74), followed by regulatory compliance (M = 4.01, SD = 0.69) and data governance (M = 3.95, SD = 0.71). All dimensions of AI governance demonstrated significant positive correlations with responsible innovation and organizational performance. The strongest relationship was found between responsible innovation and organizational performance ($r = .71$, $p < .01$), suggesting that organizations that more effectively integrate anticipation, inclusivity, responsiveness, and reflexivity into AI initiatives tend to report superior organizational outcomes. Additionally, algorithmic accountability exhibited the strongest association with responsible innovation ($r = .69$, $p < .01$), highlighting the critical role of transparent and accountable AI systems in fostering responsible innovation practices. The overall pattern of correlations provides preliminary support for the proposed theoretical framework and justified proceeding with the multivariate analyses.

Table 2. Confirmatory Factor Analysis Results for the Measurement Model

Construct	χ^2/df	CFI	TLI	RMSEA	SRMR	AVE	CR
AI Governance	2.11	.95	.94	.059	.047	.63	.91
Responsible Innovation	1.98	.96	.95	.055	.041	.66	.92
Organizational Performance	2.24	.94	.93	.062	.049	.61	.90
Overall Measurement Model	2.08	.95	.94	.058	.046	—	—

The confirmatory factor analysis demonstrated that the measurement model provided an acceptable to excellent fit to the observed data. The overall model fit indices exceeded commonly accepted thresholds, with a Comparative Fit Index (CFI) of .95, Tucker-Lewis Index (TLI) of .94, Root Mean Square Error of Approximation (RMSEA) of .058, and Standardized Root Mean Square Residual (SRMR) of .046. Furthermore, all constructs exhibited adequate convergent validity, as evidenced by Average Variance Extracted (AVE) values greater than .50 and Composite Reliability (CR) coefficients exceeding .90. Standardized factor loadings ranged from .69 to .88 and were statistically significant at $p < .001$. These findings indicate that the measurement instruments adequately captured the latent constructs of AI governance, responsible innovation, and organizational performance and support the validity and reliability of the data used for subsequent structural analyses.

Table 3. Hierarchical Regression Analysis Predicting Organizational Performance

Predictor	B	SE	β	t	p
Step 1					
Organizational Size	0.11	0.04	.13	2.75	.006
Industry Type	0.08	0.03	.11	2.41	.017
Step 2					

Ethical Oversight	0.18	0.05	.20	3.60	<.001
Data Governance	0.21	0.05	.24	4.18	<.001
Algorithmic Accountability	0.29	0.06	.31	4.95	<.001
Regulatory Compliance	0.15	0.05	.17	3.12	.002
Step 3					
Responsible Innovation	0.43	0.05	.49	8.72	<.001

Step 1: $R^2 = .07$, $F = 11.98$, $p < .001$

Step 2: $R^2 = .48$, $\Delta R^2 = .41$, $F = 48.61$, $p < .001$

Step 3: $R^2 = .62$, $\Delta R^2 = .14$, $F = 82.37$, $p < .001$

The hierarchical regression analysis revealed substantial explanatory power for the proposed framework. In the first step, the control variables accounted for 7% of the variance in organizational performance. Following the inclusion of AI governance dimensions, the explained variance increased significantly to 48%, indicating that governance-related practices constitute major determinants of organizational success. Among the governance dimensions, algorithmic accountability emerged as the strongest predictor ($\beta = .31$, $p < .001$), followed by data governance ($\beta = .24$, $p < .001$), ethical oversight ($\beta = .20$, $p < .001$), and regulatory compliance ($\beta = .17$, $p = .002$). In the final step, responsible innovation contributed an additional 14% of explained variance and became the strongest predictor in the model ($\beta = .49$, $p < .001$). The final model explained 62% of the variance in organizational performance, demonstrating substantial predictive capacity and indicating that responsible innovation represents a crucial mechanism through which AI governance practices translate into improved organizational outcomes.

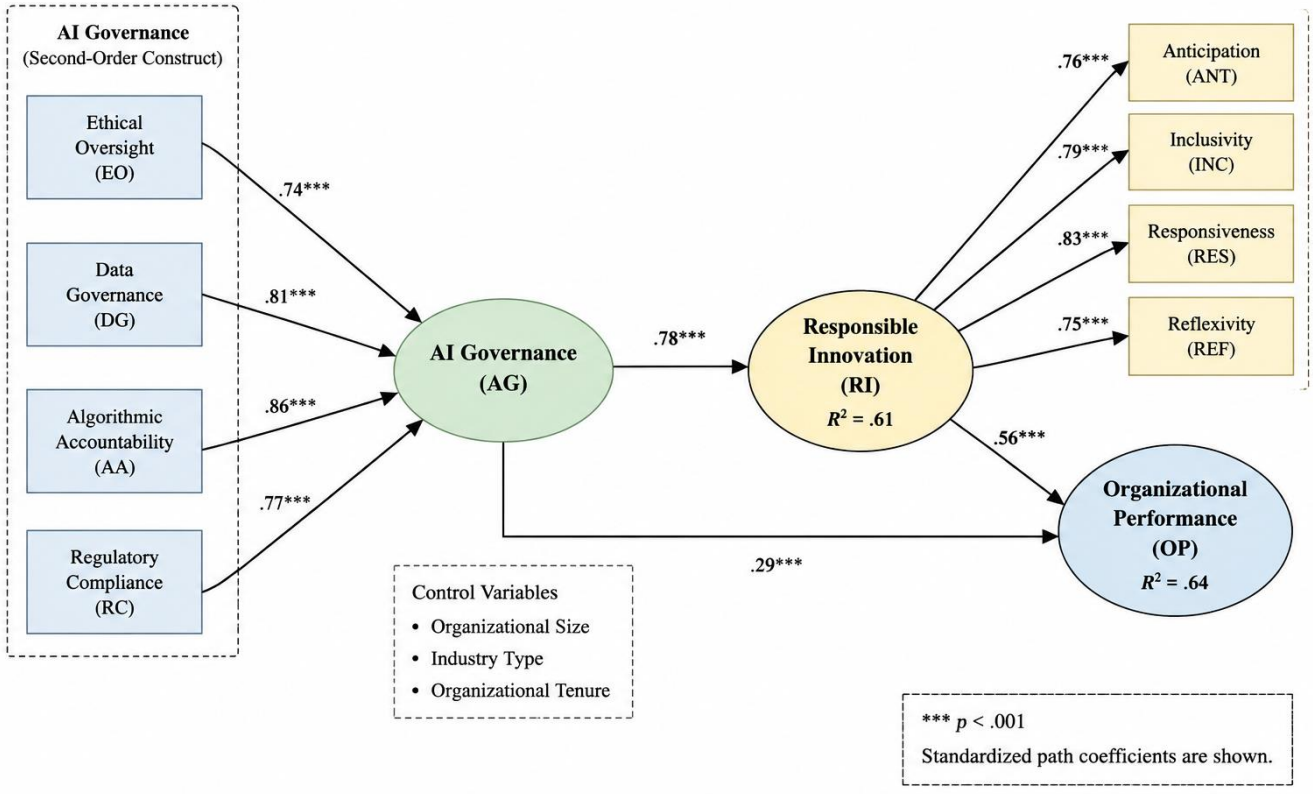

Figure 1. Structural Model of the Relationships Among AI Governance, Responsible Innovation, and Organizational Performance

The structural model illustrated in Figure 1 depicts the hypothesized relationships among the latent variables and presents the standardized path coefficients obtained from the structural equation modeling analysis. The model demonstrated excellent fit to the data ($\chi^2/df = 2.16$, CFI = .95, TLI = .94, RMSEA = .060, SRMR = .048). The path from AI governance to responsible innovation was positive and statistically significant ($\beta = .78$, $p < .001$), indicating that organizations with stronger governance

mechanisms are substantially more likely to implement responsible innovation practices. Similarly, responsible innovation exerted a strong positive effect on organizational performance ($\beta = .56$, $p < .001$). A direct effect of AI governance on organizational performance also remained significant ($\beta = .29$, $p < .001$), suggesting partial mediation rather than full mediation. The indirect effect of AI governance on organizational performance through responsible innovation was significant ($\beta = .44$, 95% CI [.34, .55]), confirming the mediating role of responsible innovation. Collectively, the model explained 61% of the variance in responsible innovation and 64% of the variance in organizational performance, providing strong empirical support for the proposed multi-level framework of responsible AI governance.

Overall, the findings consistently indicate that effective AI governance practices are positively associated with organizational performance and that responsible innovation serves as a significant explanatory mechanism linking governance structures to organizational outcomes. Organizations characterized by strong ethical oversight, robust data governance systems, accountable algorithmic processes, and comprehensive regulatory compliance frameworks reported higher levels of responsible innovation, which in turn contributed to superior organizational performance. These results support the central proposition of the study that responsible AI governance represents a strategic capability capable of enhancing organizational effectiveness while simultaneously promoting ethical and sustainable innovation.

4. Discussion and Conclusion

The findings of the present study provide strong empirical support for the proposed multi-level framework linking artificial intelligence governance, responsible innovation, and organizational performance. The results demonstrated that all dimensions of AI governance, including ethical oversight, data governance, algorithmic accountability, and regulatory compliance, were positively associated with both responsible innovation and organizational performance. Furthermore, responsible innovation emerged as a significant mediator, explaining a substantial proportion of the relationship between governance mechanisms and organizational outcomes. The structural model indicated that organizations characterized by stronger governance capabilities were more likely to develop responsible innovation practices, which in turn contributed to higher levels of organizational performance. These findings reinforce the argument that the value of artificial intelligence is not derived solely from technological adoption but from the organizational structures and governance systems that guide its implementation and use.

One of the most notable findings of this study was the strong positive relationship between AI governance and responsible innovation. The standardized path coefficient between these constructs was among the strongest observed in the model, suggesting that governance mechanisms create the organizational conditions necessary for responsible technological development. This finding is consistent with theoretical arguments proposing that governance serves as a foundational capability enabling organizations to anticipate risks, engage stakeholders, monitor ethical implications, and align technological innovation with broader organizational objectives (Mäntymäki et al., 2022). The result also aligns with the conclusions of Birkstedt et al., who identified governance as a central mechanism for addressing accountability, transparency, and legitimacy concerns associated with AI implementation (Birkstedt et al., 2023). Similarly, research on algorithmic governance has emphasized that effective governance structures facilitate coordination across multiple organizational levels, ensuring that AI systems remain aligned with organizational values and societal expectations (Dedyaev, 2026). The present findings extend this body of knowledge by empirically demonstrating that governance mechanisms contribute directly to the development of responsible innovation practices within organizational settings.

The results further revealed that responsible innovation exerted a substantial positive effect on organizational performance. Organizations exhibiting higher levels of anticipation, inclusivity, responsiveness, and reflexivity reported superior performance outcomes across operational, strategic, and organizational dimensions. This finding supports contemporary perspectives that view responsible innovation not as a constraint on technological progress but as a strategic capability capable of generating sustainable competitive advantage. Scholars have increasingly argued that organizations able to balance innovation with ethical and societal considerations are more likely to maintain stakeholder trust, legitimacy, and long-term performance (Barreno-Alcalde et al., 2026). The findings also support concerns raised regarding AI washing, whereby organizations promote responsible AI narratives without implementing meaningful governance structures. The significant contribution of responsible innovation observed in this study suggests that genuine governance commitments, rather than symbolic actions, are necessary to achieve measurable organizational benefits (Elsayed, 2026). Consequently, responsible

innovation appears to function as an important mechanism through which organizations translate governance investments into tangible performance outcomes.

The mediating role of responsible innovation represents another important contribution of this study. While AI governance maintained a significant direct effect on organizational performance, the indirect pathway through responsible innovation accounted for a substantial portion of the overall relationship. This finding suggests that governance mechanisms influence organizational performance not only through direct improvements in oversight and control but also through their capacity to foster innovation processes that are ethically robust, socially responsive, and strategically aligned. Such findings are consistent with emerging frameworks emphasizing the importance of integrating governance and innovation rather than treating them as separate organizational functions (Yawson & Goryunova, 2025). The results also support UNESCO-inspired perspectives emphasizing that ethical AI governance and responsible innovation should be viewed as complementary organizational capabilities rather than competing priorities (Bean et al., 2025). By empirically demonstrating this mediating relationship, the study provides evidence that governance structures create value partly because they enhance the quality and sustainability of innovation activities.

Among the individual dimensions of AI governance, algorithmic accountability emerged as the strongest predictor of organizational performance. This finding reflects the increasing importance of transparency, explainability, and accountability in contemporary AI environments. As organizations become more dependent on automated decision-making systems, stakeholders demand greater visibility into how decisions are generated and evaluated. Accountable AI systems reduce uncertainty, enhance trust, improve decision quality, and mitigate reputational risks. These findings align with recent discussions concerning algorithmic ethics and responsible management, which argue that accountability mechanisms are essential for ensuring that AI technologies remain aligned with organizational objectives and societal expectations (Barreno-Alcalde et al., 2026). Moreover, studies examining corporate governance and AI have similarly identified accountability as a key determinant of successful technology implementation and organizational effectiveness (Samara et al., 2024). The present findings therefore suggest that organizations seeking to maximize AI-related performance gains should prioritize accountability mechanisms as a central component of governance strategy.

Data governance also demonstrated a significant positive influence on organizational performance. This result is unsurprising given that data serve as the foundational resource upon which AI systems operate. Effective data governance improves data quality, security, consistency, and accessibility, thereby enhancing the reliability and effectiveness of AI-driven decision-making processes. The findings are consistent with prior research emphasizing the strategic importance of data governance in complex organizational environments (Akokodaripon et al., 2024). Likewise, concerns regarding privacy protection and information security have become increasingly central to discussions of corporate AI governance, particularly as organizations collect and process growing volumes of sensitive information (Xu et al., 2025). The positive association identified in the present study suggests that organizations with mature data governance systems are better positioned to realize the benefits of AI technologies while minimizing associated risks.

The positive effects of ethical oversight and regulatory compliance further reinforce the strategic significance of governance mechanisms. Ethical oversight provides organizations with the ability to evaluate potential societal consequences, identify emerging risks, and ensure alignment between technological development and organizational values. Regulatory compliance contributes to organizational legitimacy, reduces legal exposure, and strengthens stakeholder confidence. These findings correspond with studies highlighting the importance of ethical and regulatory considerations in AI deployment across both public and private sectors (Alhosani & Alhashmi, 2024; Uzun et al., 2022). They also support recent evidence indicating that organizations increasingly view governance compliance not merely as a legal requirement but as a strategic asset capable of enhancing organizational resilience and performance (Fulton et al., 2024). Thus, ethical oversight and regulatory compliance appear to contribute simultaneously to risk mitigation and value creation.

The substantial explanatory power of the overall model is particularly noteworthy. The final model accounted for more than sixty percent of the variance in organizational performance, indicating that AI governance and responsible innovation collectively represent significant determinants of organizational success. This finding supports recent research suggesting that AI technologies can enhance organizational effectiveness when accompanied by appropriate governance frameworks and

strategic alignment (Shen, 2025; Xie et al., 2025). It also complements studies demonstrating positive relationships between AI implementation and organizational outcomes across manufacturing, finance, human resource management, and service industries (Barua, 2025; Guo & Polák, 2023; Tay et al., 2024). However, the present study extends these findings by showing that governance quality plays a central role in determining whether organizations successfully translate technological capabilities into performance improvements.

The findings also contribute to broader discussions concerning digital transformation and organizational sustainability. Contemporary organizations operate within increasingly complex and dynamic environments characterized by rapid technological change, evolving stakeholder expectations, and growing regulatory scrutiny. Effective AI governance enables organizations to navigate these complexities by balancing innovation opportunities with ethical responsibilities and risk management requirements. Such capabilities are particularly important as organizations pursue sustainability objectives and seek to improve environmental, social, and governance performance through AI-enabled initiatives (Strazzullo, 2025; Suve, 2025). The results therefore support the view that governance should be understood as an enabling mechanism that promotes both organizational effectiveness and sustainable development.

Furthermore, the findings have implications for organizational resilience and workforce adaptation. The integration of AI technologies often alters organizational structures, workflows, and employee responsibilities, creating both opportunities and challenges for organizational members. Effective governance frameworks can facilitate these transitions by ensuring transparency, accountability, and stakeholder engagement throughout implementation processes. This interpretation is consistent with research highlighting the impact of digitalization on work organization and the importance of managing technological change responsibly (Obasi & Benson, 2025). Similar conclusions have been reached in healthcare settings, where governance mechanisms are essential for balancing technological innovation with workforce priorities and service quality considerations (Macrae, 2024; Sriharan et al., 2025). Consequently, governance may contribute to organizational performance partly through its capacity to support successful adaptation to technological transformation.

The overall findings of this study therefore suggest that AI governance should be viewed as a strategic organizational capability that extends beyond compliance and risk management functions. By fostering responsible innovation, strengthening accountability, enhancing data governance, and supporting ethical decision-making, governance mechanisms contribute directly and indirectly to organizational performance. These results advance current understanding of how organizations can leverage AI technologies responsibly while simultaneously achieving strategic objectives and sustainable competitive advantage.

Several limitations should be acknowledged when interpreting the findings of this study. First, the research employed a cross-sectional design, which limits the ability to establish definitive causal relationships among AI governance, responsible innovation, and organizational performance. Second, the study relied on self-reported data collected from organizational participants, creating the possibility of common method bias and subjective response tendencies. Third, the sample was restricted to organizations located in Tehran, which may limit the generalizability of the findings to other geographical, cultural, and institutional contexts. Fourth, although the study examined major dimensions of AI governance, additional factors such as organizational culture, leadership style, technological maturity, and stakeholder engagement were not incorporated into the proposed framework. Finally, organizational performance was measured using perceptual indicators rather than objective financial or operational metrics, which may influence the interpretation of observed relationships.

Future studies should employ longitudinal research designs to investigate how governance mechanisms and responsible innovation practices evolve over time and influence long-term organizational outcomes. Researchers may also examine cross-national samples to determine whether cultural, regulatory, and institutional differences moderate the relationships identified in this study. Additional studies could incorporate objective performance indicators, including financial results, productivity metrics, innovation outputs, and sustainability outcomes, to provide a more comprehensive assessment of organizational effectiveness. Future research may also explore the roles of organizational culture, leadership capabilities, employee readiness, technological sophistication, and stakeholder trust as potential mediators or moderators within AI governance frameworks. Comparative studies across industries could further clarify whether governance priorities differ between sectors characterized by varying levels of technological intensity, regulatory oversight, and ethical risk exposure.

Organizations should establish comprehensive AI governance frameworks that integrate ethical oversight, data governance, algorithmic accountability, and regulatory compliance into strategic decision-making processes. Senior leaders should view governance not merely as a compliance requirement but as a strategic capability capable of enhancing innovation quality and organizational performance. Investment in responsible innovation practices should become a core organizational priority, with particular attention given to stakeholder engagement, transparency, inclusivity, and continuous monitoring of AI-related impacts. Organizations should develop clear accountability structures for AI systems, strengthen data management practices, and implement regular governance audits to ensure ongoing compliance and performance improvement. Training programs should also be introduced to enhance employee understanding of responsible AI principles and governance responsibilities, thereby supporting a culture of ethical innovation and sustainable organizational development.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

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Conflict of Interest

The authors report no conflict of interest.

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