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KEYWORDS	ABSTRACT
AI Governance, Healthcare Management Performance, Organizational Readiness, Digital Leadership, Pakistan Healthcare	The aim of this study is to explore the association between Artificial Intelligence (AI) Governance and Healthcare Management Performance in the healthcare sector of Pakistan. In particular, it explores the mediating effect of Organizational Readiness between this relationship and the moderating effect of Digital Leadership to strengthen this relationship. Quantitative approach with cross sectional survey design was used. A structured questionnaire was used to gather data from the health care professionals and health management staff. The data collected was analyzed by hierarchical regression analysis for direct, mediating and moderating effects. Based on the results, it is found that the use of AI governance positively and significantly influences the performance of healthcare management. As a mediator, organizational readiness suggests that readiness plays a significant role between AI governance practices and improved management performance. Moreover, there is a positive moderation effect of digital leadership between AI governance and healthcare management performance. The findings highlight the importance of building the capacity of AI governance systems and preparing organizations to face new challenges arising from AI use in healthcare administration. To support the responsible use of AI, healthcare leaders and policymakers in Pakistan should take steps to bolster institutional oversight, build capacity, and cultivate leadership for AI. The study offers empirical knowledge in a context specific manner that can be used to feed into future studies to influence responsible AI governance and management in healthcare institutions in developing country contexts.
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Introduction and Background

Artificial Intelligence (AI) has shown swift growth and has opened up a world of possibilities to revolutionize healthcare management, organizational decision-making, resource allocation, and service provision. The growing adoption of AI-powered technologies in healthcare organizations has spurred a growing interest in using these tools to optimize operations, aid in evidence-based decision-making, streamline healthcare administration, and boost organizational effectiveness (Elechi et al., 2025). The benefits of AI, however, don't just fall into place when it comes to organizational benefits. Governance of AI technologies, readiness to technological shifts and leadership in digital transformation are all explicitly needed to realize the benefits. AI governance is one of the most critical capabilities an organization can have when it comes to the responsible, transparent, and consistent use of AI technologies. Six ethical principles for AI in health are highlighted by the World Health Organization (WHO, 2021), including: protecting human autonomy, promoting human well-being and safety, ensuring transparency and explainability, fostering responsibility and accountability, ensuring inclusiveness and equity, and promoting responsive and sustainable AI. These principles demonstrate that AI governance is more than just technology and compliance. AI governance has the potential to shape performance in healthcare management in a number of ways. Well-designed governance structures can enhance the trustworthiness of managerial information, hold managers accountable for decisions using technology, help to ensure that data is used responsibly, and help align AI investments with organizational priorities. In exploring how to institute organizational AI governance, Kim et al. (2025) highlight the need to embed people, processes, technology, and operational arrangements into governance. Wang et al. (2026) scoping review found them to be significantly different across studies and identified gaps in their use and oversight.

Healthcare management performance is the degree to which a healthcare organization is able to meet its managerial and operational goals by effectively coordinating, utilizing resources, operating efficiently, providing quality services, and being effective (Alsaqqa, 2023; Ahmad et al., 2022). The performance of the healthcare management is not the same as the performance of individual employees or the effectiveness of the clinical practices because it is mainly focused on organizational and managerial outcomes. Healthcare management involves a combination of operational, financial, human resource, technological and service activities. Therefore, AI governance could be a significant organizational tool to enhance managerial performance, but it requires additional organizational capacities to be effective. In this research, organizational readiness is suggested as a mediator. Organizational readiness is the sense of communal commitment and shared capability to change shared among the associates of the organization to implement a specific change. In terms of change readiness, Weiner (2009) has identified two important factors. Change commitment is a group's willingness to move toward change, while change efficacy is the group's assurance in its capacity to effect change. Organizational readiness comprises of managerial support, worker readiness, technological capability, availability of resources, organizational commitment, and group confidence in the implementation of AI-related changes in the setting of AI governance (Kumar et al., 2026). In hospitals, in which governance

structures are in place, there may be a greater capacity to develop implementation plans, clarify roles, coordinate stakeholders, identify organizational capabilities and mobilize resources. These governance structures can enhance readiness through risk reduction and creating an organizational culture and environment that is conducive to AI implementation. The organizational readiness can then manifest as better performance in the management of healthcare, which could include better coordination, implementation, less resistance, and more efficient use of technological resources (Hussein et al., 2026).

Digital leadership is defined as leadership skills that enable effective integration of digital technology, technological innovation, organizational learning and lead others through digital transformation. From Vial (2019) perspective, digital renovation is a progression that involves digital technologies making a major impact that demands strategic responses and organisation structural changes. Digital leadership, from this point of view, is not so much a technological competency. It entails creating a common understanding of tech vision, enabling joint working, assisting organizational agility, and ensuring tech innovation fits organizational goals. Although the field of healthcare AI is growing, there are still numerous conceptual and empirical gaps. Existing literature is largely centered on clinical use, algorithmic performance, diagnostic accuracy, ethical considerations and patient acceptance of AI, but not organizational management performance (Elechi et al., 2025). Although the role of AI governance as a normative or regulatory condition has also been discussed, its potential as an organizational antecedent of performance has received a relatively small amount of empirical research (Madanchian & Taherdoost, 2025). The pathways by which governance arrangements can lead to performance gains need to be explored, especially the intervening role of organizational readiness (Hussein et al., 2026). Leadership's impact on the link between AI governance and organizational outcomes is an open issue that is particularly significant in healthcare settings with limited resources and varying institutional frameworks. Lastly, there is a need to have evidence from tertiary hospitals in Pakistan to see if these relationships are similar in an emerging healthcare system.

In light of this, the current study explores the interdependence between AI governance and healthcare management performance of the tertiary care hospitals in Pakistan. It tests organizational readiness as a mediating construct and digital leadership as a moderating construct between the relationship of AI governance to healthcare management performance. The study aim is to add to the literature on governance, readiness, and leadership in healthcare management and the digital transformation field through a comprehensive explanation. It also aims to provide practical insights for hospital administrators, policymakers, and healthcare professionals responsible for developing and implementing responsible AI initiatives.

Literature Review

Theoretical Foundation

The theoretical insights underlying this study are mainly drawn from the resource-based view (RBV), organizational readiness theory and technology-organization-environment (TOE). The RBV approach views organizational resources and capabilities as the potential sources of continued competitive advantage when they are valued, inimitable, and organized (Barney, 1991). AI governance could be considered a capacity within an organization that facilitates the coordination of technology, the management of risks, and ensures that AI applications are in line with the goals of the organization/hospital. Organizational readiness theory is an explanation of the role collective commitment and implementation efficacy play in organizational change processes (Weiner, 2009). The TOE model provides an alternative view by focusing on the organizational, technological and environmental factors influencing the espousal and enactment of technology (Tomatzky & Fleischer, 1990). These theoretical frameworks together help to provide an understanding of why governance systems, organizational readiness and leadership skills can work together to affect healthcare management performance.

AI Governance and Healthcare Management Performance

AI governance is defined as the governance frameworks, principles, policies, procedures and accountability mechanisms to lead the growth, acquisition, disposition and use of AI technologies (Ribeiro et al., 2025). AI governance should consider technical performance as well as ethical, legal, clinical, organizational, and operational issues in healthcare. The emphasis of guidance by WHO (2021) is on human autonomy, safety, transparency, accountability, inclusiveness, and sustainability. European Commission High-Level Expert Group on Artificial Intelligence (2019), also highlights the need for technical robustness, human intervention and oversight, transparency, privacy and data governance, societal well-being and accountability, diversity and fairness. While these frameworks offer helpful normative guidance, the implications of these for the organisation of the health system are shaped by how broad principles are translated into management arrangements. AI systems can enhance governance by providing mechanisms to ensure the accuracy of information provided by the AI system, to track the performance of the system, and to clarify roles of decision makers (Hiremath et al., 2025). Forecasting and Analytical tools using AI can aid in planning and resource allocation, however, when the data quality is not high, the model is unsuitable, or the assumptions are incorrect, the output from these tools may be misleading (Ahmad et al., 2024; Saraboji et al., 2026). Governance can facilitate mechanisms of validation, monitoring and human review.

AI governance could enhance operational coordination. Hospitals are dependent on interlinked departments and intricate administrative activities. Fragmentation and coordination between technical and managerial units might be mitigated through governance policies that make clear data access, decision rights, who owns the system and escalation processes. These arguments are supported by recent empirical and conceptual studies and identified important limitations. Kim

et al. (2025) share their observations of creating AI governance at a large health care organization from a people, process, technology, and operations lens. Wang et al. (2026) explored governance structures for benign and accountable AI applications in health care institutions. They identified 77 frameworks in their scoping review and noted that there is a lot of variation in the elements and applicability in the real world. Very few had all of the elements of the reviewed frameworks; and organizational oversight mechanisms were relatively rare. The connection can also be contingent. Governance can also introduce administrative conditions and requirements, establish extra review processes, and delay decision making when it is over-bureaucratic (Mark & Morison, 2025). The role of governance in terms of performance thus relies on the relationship between accountability and operational flexibility. In addition, formal policies for the governance of hospitals could be created to show their compliance to some extent, while not equipping them with the necessary capacities for effective practice (Hussein et al., 2026). This opens up a gap between formal governance espousal and governance effectiveness. In light of these arguments, the following hypothesis is projected:

H1: AI governance is positively related with healthcare management performance in tertiary care hospitals in Pakistan.

The Mediating Role of Organizational Readiness

Organizational readiness is the sum total of the commitment and perceived ability of organizational associates to enact a change plan. This is especially pertinent to the digital transformation, since technological initiatives typically involve significant changes in organizational routines, responsibilities, skills and decision-making procedures (Tomažević et al., 2026). From the standpoint of AI governance, organizational readiness involves employees' readiness to engage with AI-related changes, confidence in the capacity of the organization to implement AI, the availability of relevant resources, organizational management and support for AI, and the institutional capacity to coordinate technological initiatives (Kumar et al., 2026). The suggested mediation mechanism assumes that the governance arrangements could enhance organizational readiness and organizational readiness could then aid to increase the performance of healthcare management. AI Governance can boost readiness in multiple ways. Fewer ambiguities surrounding the goals and consequences of AI use can be eliminated with clear policies and accountability structures. Clear job descriptions can facilitate the coordination efforts of management, information technology, clinicians and administrative staff. These activities can help to boost the sense of commitment to change, which can be established by showcasing buy-in from the organizations and highlighting the organizational value of AI projects. They can also enhance change effectiveness by offering implementation strategies, technical support, training programs, and addressing implementation challenges (Nair et al., 2025). Once implemented, organizational readiness can help to support effective implementation of governance policies and organizational change as part of the AI journey, which in turn can support healthcare management performance. Employees who are aware of the institutional priorities, and feel their institution can make a difference may be more inclined to embrace new

processes, be willing to collaborate with colleagues from other departments, and be keen to use technology effectively (Tomažević et al., 2026; Nair et al., 2025). Based on these considerations, it is prudent to view readiness as a theoretically meaningful intermediate mechanism, as opposed to a direct effect of AI governance on performance. Basing on these arguments, the subsequent hypotheses are developed:

H2: AI governance is positively associated with organizational readiness.

H3: Organizational readiness is positively associated with healthcare management performance.

H4: Organizational readiness mediates the association amid AI governance and healthcare management performance.

The Moderating Role of Digital Leadership

Digital leadership refers to the skills and competencies required to develop a digital strategy, promote technological innovation, support organizational learning, and lead others through technological change in the organization (Malik et al., 2025). Digital leaders have a strategic vision, they are technologically aware, change facilitators, collaborators and they are able to map digital investments to institutional objectives. According to Vial (2019), digital transformation is a course that involves the disruptions caused by the digital technologies and which make it necessary for organizations to be involved in strategic changes in their value creation, organization and processes. This view suggests that leadership is a crucial aspect in shaping the outcomes of organizations' digital opportunities and challenges. The implementation of technology in healthcare institutions is especially significant as it impacts various professional groups, each having different responsibilities, priorities, and expertise (Tsekouropoulos et al., 2025). This proposed moderation effect of digital leadership follows research finding that the performance outcomes of AI governance partially rely on leadership skills. Governance sets rules, responsibilities and oversight. The effectiveness of these structures in being communicated, coordinated, supported and integrated into management activities will be determined by digital leadership (Cyfert et al, 2025). With strong digital leadership, the arrangements for governance can become more closely linked with those for strategic planning, staff development, resource planning and performance monitoring. Leaders can help employees make good use of the governance structure, foster inter-departmental working between technical and non-technical areas, and encourage experimentation within ethical and operational constraints (Tsekouropoulos et al., 2025). Therein lies the relevance of the evidence emanating from the public healthcare institutions in Pakistan. The study conducted by Khan et al. (2025) involved 334 public healthcare institution workers to explore the empowerment, digital leadership, techno-work engagement, and sustainability performance of employees. The results reported by it show favorable relations among digital leadership, employee empowerment, and associated organizational relevant outcomes. Digital leadership should thus be defined as strategic alignment and facilitation of implementation, not just as the degree of control in leadership. The following hypothesis is thus proposed:

H5: Digital leadership positively moderates the association amid AI governance and healthcare management performance.

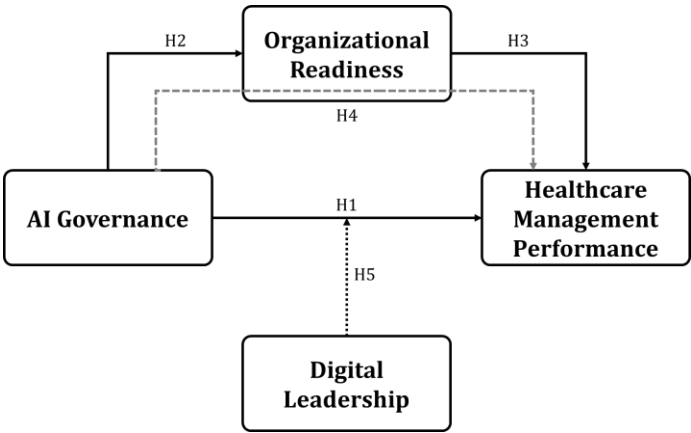


Figure 1: Conceptual Model

Methods

Methodology and Procedures

The research design for this study is quantitative, mono-method, survey approach to explore the relationship among AI governance, healthcare management performance, organizational readiness, and digital leadership. The research is deductive in nature. The conceptual framework and hypotheses are developed based on existing theories and empirical literature. The data gathered through the structured questionnaire are analyzed to empirically evaluate the hypothesized relationships. The design used is a cross-sectional survey design, where responses are taken at one time. The study is based on tertiary care hospitals of Pakistan. Participants are recruited by making use of convenience sampling.

Population and Sample

The target population is healthcare professionals, managers and administrators working in tertiary level hospitals in Pakistan. These participants are deemed relevant due to their careers, which could involve them with institutional policies, management systems, digital transformation processes, and organizational decisions involving AI. Convenience sampling is used and the reported sample size is 314. Multiple regressions with the four main constructs can be performed with this size of sample. The sample is made up of respondents from various professional and administrative positions. This diversity is key, as AI governance and digital transformation requires collaboration across clinical, technical, managerial and administrative processes. Table 1 presents sample demographics distribution.

Table 1: Sample demographic characteristics

Demographic variable	Category	Frequency	Percentage
Gender	Male	185	58.9
	Female	129	41.1
Age	20-30 years	54	17.2
	31-40 years	126	40.1
	41-50 years	92	29.3
	Above 50 years	42	13.4
Education	Bachelor's degree	91	29.0
	Master's degree	167	53.2
	Doctoral/professional degree	56	17.8
Professional role	Healthcare professionals	169	53.8
	Managers	89	28.3
	Administrators	56	17.8
Experience	Below 5 years	61	19.4
	5-10 years	108	34.4
	11-15 years	83	26.4
	Above 15 years	62	19.7

Note: n=314

Measurement Scales

All the constructs of the study were measured by multi-items scales derived from the existing literature and relevant governance guidance. The six items used to assess AI governance were created based on the guidelines provided in the WHO (2021) direction on ethics and governance of AI for healthcare and the European Commission High-Level Expert Group on AI (2019) guidelines for responsible AI. The items were designed to identify institutional practices around accountability, transparency, ethical oversight, responsible data use, risk management and human oversight. Six items conceptually derived from Delaney and Huselid's (1996) study of perceptions of organizational performance and linkage to human resource management were selected as indicators for healthcare management performance. The instrument measured perceived administrative efficiency, coordination, resources used, managerial effectiveness, service-related performance and organizational goals. To assess organizational readiness, 12 items adapted from Shea et al., (2014). The collective change commitment and change efficacy were measured. Six adapted items based on Vial (2019) were used as indicators for digital leadership. They included: digital vision, leadership support of technological innovation, digital communication, employee development, digital strategy alignment, and leadership facilitation of digital transformation. The items were pretested by a few health care workers and experts in the field before applying the questionnaire.

Data Analysis and Results

The data were analyzed by means of AMOS, PROCESS macro and IBM SPSS. All analyses were carried out sequentially to explore the associations amid the focal constructs. Descriptive Statistics and preliminary data screening was conducted first. Then CFA was carried out to test the measurement model and check the reliability and validity of the measurement constructs used in the study. A hierarchical multiple regression analysis was subsequently employed to investigate the relationship amid AI governance and healthcare management performance, and the incremental explanatory value of organizational readiness, digital leadership and their interaction. To examine the indirect relationship amid AI governance and the healthcare management performance through organizational readiness, mediation analysis was conducted. Finally, moderation analysis was used to examine if the association amid AI governance and the performance of healthcare management was stronger with digital leadership.

Table 2: Descriptive statistics and correlation matrix

Variable	Min	Max	Mean	SD	1	2	3
1. AI governance	150	5.00	3.62	0.72			
2. Healthcare management performance	167	5.00	3.71	0.68	0.48*		
3. Organizational readiness	158	5.00	3.55	0.75	0.55*	0.52*	
4. Digital leadership	150	5.00	3.68	0.70	0.42*	0.46*	0.49*
*p<0.01							

Descriptive Statistics and Correlations

Table 2 shows the descriptive statistics and correlation coefficients for the four constructs of the study. The mean scores ranged from 3.55 to 3.71, with healthcare management performance showing the highest mean (M=3.71, SD=0.68), followed by digital leadership (M=3.68, SD=0.70), AI governance (M=3.62, SD=0.72), and organizational readiness (M=3.55, SD=0.75). The correlation analysis showed that all four constructs were positively and significantly related with each other. There was a positive correlation between AI governance and healthcare management performance (r=0.48), organizational readiness (r=0.55), and digital leadership (r=0.42). In the same way, the performance of healthcare management was significantly linked to organizational readiness (r=0.52) and digital leadership (r=0.46). Also, there was a positive correlation between organizational readiness and digital leadership (r=0.49). The overall results show that there was a significant positive association between higher scores for AI governance, organizational readiness, and digital leadership with higher scores for healthcare management performance.

Table 3: CFA results

Construct	Items	Standardized loading	CA	CR	AVE
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AI governance	6	0.68–0.84	0.88	0.89	0.57
Healthcare management performance	6	0.65–0.83	0.86	0.87	0.53
Organizational readiness	12	0.64–0.86	0.92	0.93	0.57
Digital leadership	6	0.67–0.85	0.89	0.90	0.60

Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) was conducted using IBM AMOS to assess the measurement model comprising four latent constructs: AI governance, healthcare management performance, organizational readiness, and digital leadership. The measurement model consisted of 30 observed items distributed across the four constructs. The overall model-fit indices indicated an acceptable fit between the proposed measurement model and the observed data, with a chi-square to degrees of freedom ratio (χ^2/df) of 2.14, a comparative fit index (CFI) of 0.95, a Tucker–Lewis index (TLI) of 0.94, a root mean square error of approximation (RMSEA) of .060, and a standardized root mean square residual (SRMR) of 0.045. As reported in Table 3, the standardized factor loadings ranged from 0.68 to 0.84 for AI governance, 0.65 to 0.83 for healthcare management performance, 0.64 to 0.86 for organizational readiness, and 0.67 to 0.85 for digital leadership. The Cronbach's alpha coefficients ranged from 0.86 to 0.92, while composite reliability (CR) values ranged from 0.87 to 0.93, exceeding the commonly accepted threshold of 0.70 and indicating satisfactory internal consistency across the four constructs. Furthermore, the average variance extracted (AVE) values ranged from 0.53 to 0.60, exceeding the recommended threshold of .50 and providing evidence of convergent validity. Taken together, the model-fit indices, factor loadings, reliability estimates, and AVE values provide support for the adequacy of the proposed measurement model and the convergent validity and internal consistency of the study constructs.

Table 4: Hierarchical regression results

Predictor	Model 1 β	Model 2 β	Model 3 β	Model 4 β
Age	0.04	0.03	0.02	0.02
Education	0.08	0.06	0.05	0.04
Professional experience	0.09	0.07	0.05	0.05
AI governance	–	0.48*	0.27*	0.25*
Organizational readiness	–	–	0.37*	0.35*
Digital leadership	–	–	–	0.21*
AI governance $\times$ Digital leadership	–	–	–	0.13*
R ²	0.03	0.23	0.35	0.46
Adjusted R ²	0.02	0.22	0.34	0.45
ΔR^2	–	0.20	0.12	0.11
F change	–	78.5*	57.6*	25.9*

Note: Entries for predictors are standardized coefficients (β).
* $p < 0.01$.

Results of Regression Analysis

Hierarchical multiple regression analysis was conducted to examine the relationship between AI governance and healthcare management performance and to assess the incremental explanatory contribution of organizational readiness and digital leadership. As presented in Table 4, four sequential regression models were estimated, with age, education, and professional experience included as control variables. Model 1, which included only the control variables, explained 3% of the variance in healthcare management performance ($R^2=0.03$, adjusted $R^2=0.02$). The inclusion of AI governance in Model 2 increased the explained variance to 23% ($R^2=0.23$, adjusted $R^2=0.22$), representing an increase of 0.20 in R^2 . AI governance was positively associated with healthcare management performance ($\beta=0.48$, $p<.01$). In Model 3, organizational readiness was added to the regression model. The explained variance increased to 35% ($R^2=0.35$, adjusted $R^2=0.34$), with an additional 12% of variance explained. Organizational readiness was positively associated with healthcare management performance ($\beta=0.37$, $p<.01$). The coefficient for AI governance decreased from 0.48 in Model 2 to 0.27 in Model 3 but remained positive and statistically significant ($\beta=0.27$, $p<0.01$). Finally, Model 4 incorporated digital leadership and the interaction between AI governance and digital leadership. The model explained 46% of the variance in healthcare management performance ($R^2=0.46$, adjusted $R^2=0.45$), representing a further increase of 0.11 in explained variance. Digital leadership was positively associated with healthcare management performance ($\beta=0.21$, $p <0.01$). The interaction coefficient was also positive ($\beta=0.13$), indicating a positive conditional association between AI governance and healthcare management performance as digital leadership increases.

Table 5: Mediation analysis results

Relationship	Estimate	SE	95% CI lower	95% CI upper
AI governance → Organizational readiness (a)	0.57	0.05	0.47	0.67
Organizational readiness → Performance (b)	0.37	0.06	0.24	0.48
Total effect (c)	0.48	0.05	0.38	0.58
Direct effect (c')	0.27	0.06	0.15	0.39
Indirect effect (a × b)	0.21	0.05	0.12	0.32

Mediation Analysis

To examine the indirect association between AI governance and healthcare management performance through organizational readiness, mediation analysis was performed. The analysis estimated the direct, indirect, and total effects. As reported in Table 5, AI governance was positively associated with organizational readiness (path $a=0.57$, $SE=0.05$, 95% CI [0.47, 0.67]). Organizational readiness was also positively connected with healthcare management performance after accounting for AI governance (path $b=0.36$, $SE=0.06$, 95% CI [0.24, 0.48]). The total effect of AI governance on healthcare management performance was positive ($c=0.48$,

SE=0.05, 95% CI [0.38, 0.58]). After the inclusion of organizational readiness in the model, the direct effect persisted to be positive ($c'=0.27$, SE=0.06, 95% CI [0.15, 0.39]). The estimated indirect outcome of AI governance on healthcare management performance through organizational readiness was 0.21 ($ab=0.21$, SE=0.05, 95% CI [0.12, 0.32]). Since the bootstrapped confidence interval excluded zero, the indirect influence was significant statistically. The positive indirect effect, together with the positive direct effect that remained after accounting for organizational readiness, was consistent with partial statistical mediation.

Moderation Analysis

Moderation analysis was performed to inspect whether digital leadership moderates the connection amid AI governance and healthcare management performance. The interaction between AI governance and digital leadership was calculated using mean-centered scores. As described in Table 4, the interaction term among AI governance and digital leadership had a positive regression coefficient ($\beta=0.13$). This positive coefficient indicates that the association between AI governance and healthcare management performance increases as digital leadership increases. Figure 2 presents the simple slope illustrating the moderating association amid AI governance and healthcare management performance across levels of digital leadership.

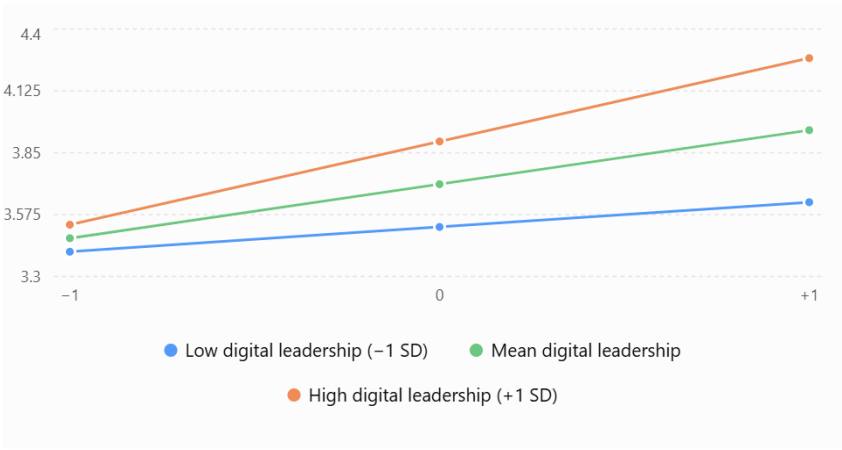


Figure 2: Simple Slope

Table 6. Hypothesis testing summary

Hypotheses	Proposed relationship	Result	Decision
H1	AI governance → Healthcare management performance	$\beta=0.48$	Supported
H2	AI governance → Organizational	$\beta=0.57$	Supported

H3	readiness Organizational readiness → Healthcare management performance	$\beta=0.36$	Supported
H4	AI governance → Organizational readiness → Healthcare management performance	$\alpha\beta=0.21$	Supported
H5	Digital leadership moderates the association amid AI governance and healthcare management performance	β interaction = 0.13	Supported

The outcomes of the hypothesis testing are summarized in Table 6. The discoveries specify that AI governance is favourably linked with healthcare management performance and organizational readiness. Organizational readiness is also positively related with healthcare management performance. Organizational readiness partially mediates the relationship among AI governance and healthcare management performance. In addition, the interaction between AI governance and digital leadership has a positive coefficient, suggesting a potential moderating effect.

Discussion of Results

This study aimed at exploring the association among AI governance and healthcare management performance in tertiary care hospitals in Pakistan, with digital leadership as a moderator and organizational readiness as a mediator. The findings show a positive connotation amid AI governance and healthcare management performance. It can be interpreted using the resource-based view. AI governance is an organizational capacity that could enhance the efficiency of technology-related resources. While AI's complexity is critical, it is not the sole determinant of its performance. It also relies on the processes of institutional selection, monitoring, integration, and utilization of the technological resources (Nair et al., 2025). This guidance relates to the WHO (2021) guidance on Accountability, Transparency, Safety, Human Oversight, Equity, and Sustainability in the responsible use of AI in health, which is relevant to this interpretation. The results are also found to be consistent conceptually with Kim et al. (2025), whose case study of the Canadian healthcare industry showed the value of aligning people technology, operations and processes in the creation of organizational AI governance. Wang et al. (2026) also highlight the disconnect between governance frameworks and their implementation on the ground. They find that there are gaps in framework applicability and organizational oversight. The present conceptual model further proposes that there is a possible link between governance effectiveness and performance via organizational implementation mechanisms. The conclusions specified a positive association amid AI governance and the readiness of the organization. This connection is similar to organizational readiness theory which states that conditions for organizational change include collective commitment and implementation efficacy. Governance arrangements can also enhance readiness if there is clarity, the message, institutional priorities, and coordination mechanisms of changes related to AI (Hussein et al., 2026). A clearer understanding of how AI systems will be assessed, deployed, tracked, and managed can help employees feel less

overwhelmed by the changes brought about by AI. The argument is consistent with that of Weiner (2009), who has theorized about the difference between change commitment and change efficacy. Commitment can be fostered via AI governance, by making people understand why the changes in technology are important for the organisation. It can facilitate the efficacy aspect by establishing procedures and responsibilities which make the perceived implementation capacity more favourable. The TOE perspective also complements the relationship. Organizational readiness is a state of readiness within the internal organization which could enable the exploitation of technological opportunities into activities of implementation. Governance can be seen as one of the organizational arrangements which can contribute to the development of this condition (Tomažević et al., 2026). Hospitals with robust technological capacities and management practices, digital leadership, and positive digital organizational cultures are likely to be more capable of creating a comprehensive governance structure (Cyfert et al., 2025). The outcomes indicated that organizational readiness has a positive correlation with the performance of healthcare management. The finding mirrors the idea that organizations are probable to achieve advantages of technological change in case of the employee's higher commitment to change complemented by the feeling of realizing the change (Caci et al., 2025). Organizational readiness may positively impact performance through its ability to coordinate, mitigate implementation resistance, and enhance new procedure adoption. There may be a need for a team effort between clinicians and administrators, technical staff and senior management at tertiary care facilities (Lim et al., 2025). The interpretation is consistent with the basic approach of Weiner (2009), who views readiness as a state experienced collectively, and applicable to the initiation and implementation of organizational change. The mediation results indicate that a certain proportion of the positive relationship between AI governance and healthcare management performance is mediated by organizational readiness. Indirect effect is that governance could be related to higher organizational readiness which is related to higher management performance. This is in line with the two theoretical frameworks. The resource-based view provides insights into the potential of AI governance as an organizational capability, while the organizational readiness theory proposes models for how institutional commitment and perceived implementation capacity can be transformed into organizational arrangements (Hussein et al., 2026). The mechanism of mediation is very important considering governance policies alone do not necessarily ensure organizational benefits (Saladdin & Handayani, 2025). When employees don't know their role, have little resources for managers to coalesce around or lack organizational units that are willing to transform their current ways of performing tasks, written rules, accountability systems, and oversight committees can be less impactful in the real world (Caci et al., 2025). The conceptual argument is also consistent with Kim et al. (2025), who focus on organizational arrangements other than formal governance principles. It also reflects challenges in framework implementation identified in Wang et al. (2026) which include two challenges of completeness of the framework and its applicability in practice. The results of the moderation show that the digital leadership enhances the positive relation between AI governance and healthcare management performance. This linkage suggests that the governance's organisational benefits can vary based on the leaders' capacity to drive digital transformation. The interpretation here is in line with Vial's (2019) definition of the concept, which is quite broad and refers to a

process requiring a strategic organizational response to technological disruption. Digital leadership can support the embedding of governance in strategic planning, operational processes and organisational learning (Kludacz-Alessandri et al., 2025). Digital leaders can enhance digital priorities, foster inter-functional collaboration, invest in digital skills, and promote responsible adoption of AI-generated information, driving the performance of AI governance (Hague, 2025). These leadership behaviours may assist staff to appreciate governance needs and link this to operational goals.

Theoretical Implications and Contributions

This study make contribution to the literature in several ways. First, it positions the resource-based view in healthcare governance with regard to AI. Earlier conversations about AI have tended to focus on technological resources, algorithmic competence or the access to digital infrastructure. The proposed framework focuses on the ability of the organization to govern, which can shape how technology is coordinated and deployed. Second, the study integrates organizational readiness theory into the AI governance-performance relationship. Organizational readiness is frequently studied when it comes to the process of implementing organizational change and healthcare innovations. In this study, it is proposed that governance arrangements can be linked to management performance via two mechanisms: collective commitment and perceived effectiveness of implementation. Thirdly, the study suggests the concept of digital leadership as a contextual condition that could influence how AI governance relates to healthcare management performance. This view goes beyond a digital leadership being directly related to the innovation or employee results. Fourth, the study integrates theoretical standpoints related to various aspects of technology-related organizational change. The resource-based view emphasizes on organizational capabilities, the theory of organizational readiness on collective change processes, and the TOE on technological and institutional conditions. This integration offers a more comprehensive theoretical grounding for the implementation of AI in complex healthcare contexts.

Practical and Managerial Implications

From the practical point of view, the conclusions have a several of implications for hospital administrators, healthcare policy makers, and institutional leaders. All stakeholders involved in the governance of AI systems in healthcare institutions should establish clear governance arrangements regarding the institutional responsibilities, decision rights, oversight mechanisms, and monitoring procedures. Governance needs to address every phase of the AI lifecycle, from procurement, to development (where relevant), justification, deployment, modification, monitoring, and even retirement. To launch any significant AI-driven project, healthcare companies should evaluate their capabilities. Such evaluations can look at the capacity of the workforce, organizational commitment, technological infrastructure, financial resources, management support, and the capacity to coordinate change. It's also crucial for managers to differentiate between the willingness of their staff to use AI and the organization's ability to do so.

Both dimensions are vital and only one of them may not lead to complete preparedness of the organization. Hospital leaders should enhance their capacity to develop digital strategies, to articulate the technological agenda and to enable organizational learning. Leadership development programs can feature training on data-driven decision-making, digital strategy, leadership, change management, and interdisciplinary collaboration. The governance structures should be linked to the measurable organizational objectives. Performance indicators can be used to assess AI-related initiatives, depending on the priorities of the hospital, ranging from administrative processing time to resource utilization to scheduling efficiency to coordination to information quality to relevant service outcomes. Appropriate safeguards should be in place when using performance indicators. The framework emphasizes the need for institutional capacity building as well as technological investment for healthcare policymakers and administrators in Pakistan. Governance capability, workforce development, interoperability, information security, and organizational readiness are some of the areas that may be included in policies to support digital transformation. There is potential for sharing of experiences and governance arrangements with tertiary care hospitals via professional networks and institutional partnerships. These could help minimize duplication, promote organizational learning and enable the formation of contextually relevant governance practices of AI.

Limitations and Future Research Directions

The study has some limitations of methodology, conceptual nature and context that need to be noted. The study design is cross-sectional as all principal variables are being measured at a single time. This design cannot determine the temporal precedence or strong causal relationships. Time-ordered relationships need to be confirmed by longitudinal research. Convenience sampling has the potential to introduce selection bias. Thus, the results of the research should be extrapolated with caution to other institutions and respondents in the study. The research is dependent on the perceptions of respondents regarding the constructs. These constructs can be shaped by individual experience, work roles, organizational relationships and individual expectations. Self-rated performance measures are especially constrained because respondents might not have access to actual information. Common method bias may also be a problem because a single questionnaire is used to assess all of the key variables. Instruments and conceptual frameworks used in the study are adapted from other studies. The WHO (2021) and European Commission (2019) documents offer governance principles and do not offer validated measurement scales. Vial (2019) provides a conceptual analysis of digital transformation and is not a validated digital leadership instrument. Delaney and Huselid (1996) created a measure of perceived organizational performance in another organizational context. Such adaptation of these sources is thus a notable limitation in measuring. The study has been conducted in tertiary care hospitals in Pakistan. They exist in an institutional, regulatory, economic and technological context. The relationships found in this context may be different in other primary healthcare settings, specialized hospitals, private medical institutions or health systems.

Future Research Directions

Longitudinal studies are recommended for future research to capture the changes in the AI governance and organizational readiness over time. A study could gather data prior to the introduction of AI governance initiatives, during the implementation phase, and once the AI governance systems are in place for a specific period. Such a strategy would aid in temporally ordering and understanding if changes in organizational readiness occurred before or after governance initiatives and if governance initiatives lead to changes in management outcomes. Future studies could compare the tertiary hospitals of various regions in Pakistan and other countries having diverse health care systems and levels of digital maturity. International governance mechanisms could also be assessed with respect to their different modes of implementation in the emerging healthcare systems across the countries. Future studies should add organizational indicators to the self-reported management performance, where possible. A synthesis of survey and administrative data might lead to less reliance on one type of measurement and might enhance the usefulness of the results. One potential pathway to connect AI governance to healthcare management performance is through the lens of organizational readiness. Other organizational aspects that could be explored in future research are employee trust in the use of AI for decision making, digital competence and workforce development, interdepartmental coordination, and data governance maturity. In the same way, one of the contextual conditions that influences the nature of the performance implications of AI governance is digital leadership. Other factors that may be studied in future research are organizational culture, digital maturity, institutional ownership, resource availability, regulatory pressure and organizational size. This study could be replicated in the future using structural equation modeling to investigate the relationships between the latent constructs while controlling for measurement error. If there are adequate observations and adequate sampling mechanisms, multilevel modeling may be used to explore individual perceptions within hospitals.

Conclusion

The present study aimed to develop an integrated framework of AI governance and healthcare management performance in tertiary care hospitals in Pakistan. It identifies organizational readiness as a mediator and digital leadership as a moderator in the relationship between AI governance and the performance of healthcare management. The concepts are based on three theoretical constructs: resource-based view, organizational readiness theory, and the technology-organization-environment framework. It posits that the relationship between responsible AI governance and healthcare management performance might be mediated by the strength of the organization's preparedness, and that digital leadership could affect the strength of the governance-performance association. While the clinical application, ethical concerns and technical aspects are a focus of discussion for AI in healthcare, this research approach focuses on governance implementation, organizational change, leadership and management outcomes. The research can provide theoretical and practical implications as it elucidates the relationship among AI governance-related capabilities and organizational and leadership conditions.

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