



<b>Volume 2</b>	<b>Issue 1</b>	<b>JAN – MAR 2026</b>
<b>Received</b>	<b>Accepted</b>	<b>Published</b>
<b>14 January 2026</b>	<b>21 March 2026</b>	<b>31 March 2026</b>

## **Digital leadership and AI readiness in healthcare organizations: Implications for service quality**

**Ali Akbar Hozhabri**

*Department of Economics and Management, Islamic Azad University, Shiraz Branch, Iran, 71466-1311*

**Corresponding Author:** Ali Akbar Hozhabri    **Email:** [Aliakbar.hozhabri@gmail.com](mailto:Aliakbar.hozhabri@gmail.com)

### **ABSTRACT**

This study examines how digital leadership shapes organizational readiness for artificial intelligence (AI) adoption in healthcare organizations and how this readiness influences perceived service quality. Using a mixed-methods design, the research combines a cross-sectional survey of healthcare professionals in Canada across public hospitals, private hospitals and outpatient care organizations with semi-structured interviews conducted with senior managers and clinical leaders in 2025. Quantitative data from 312 respondents were analyzed using partial least squares structural equation modelling to test hypothesized relationships and mediation effects, while qualitative data from 18 interviews were analyzed thematically to explore leadership practices and governance mechanisms influencing AI implementation. The findings reveal that digital leadership has a strong positive effect on organizational AI readiness, which in turn is positively associated with service quality outcomes such as responsiveness, reliability and patient-centred care. Mediation analysis shows that AI readiness partially mediates the relationship between digital leadership and service quality, indicating that readiness functions as a key organizational capability translating leadership practices into performance outcomes. The study provides practical guidance for healthcare managers by presenting an actionable framework for strengthening AI readiness through leadership development, workforce upskilling and the establishment of governance and ethical oversight structures. The proposed AI Leadership Readiness Framework and AI Readiness Maturity Matrix support alignment between digital strategy, service quality and regulatory requirements. By conceptualizing digital leadership as a higher-order capability that develops organizational AI readiness across technological, human and governance dimensions, this research extends leadership and digital transformation theory in healthcare and offers new insights into how AI-enabled transformation can enhance healthcare service quality.

**Keywords:** Health leadership competencies; Public health; Decision making; Leaders.



---

## **INTRODUCTION**

Healthcare systems worldwide are undergoing an accelerated digital transformation driven by the increasing availability of artificial intelligence (AI) technologies that support clinical decision-making, administrative efficiency and patient engagement (Binsar, Abdurachman, Sutoto, & Abdurohman, 2025). Applications such as predictive analytics for diagnostics, automated triage systems and intelligent scheduling platforms are becoming embedded within the operational and strategic infrastructures of contemporary health services. Despite this rapid diffusion, healthcare organizations continue to experience uneven outcomes in service quality, patient trust and workforce adoption, prompting growing scholarly and policy interest in the role of leadership in shaping the organizational conditions necessary for responsible and effective AI integration (Kyambade & Namatovu, 2025).

Leadership research in healthcare has traditionally focused on transformational, clinical and distributed leadership as mechanisms for improving employee engagement, care coordination and patient safety (Gil, Rodrigo-Moya, & Cegarra-Navarro, 2021). Empirical evidence suggests that leadership behaviours influence organizational climate and the capacity of healthcare systems to adapt to environmental uncertainty and institutional complexity (Gil et al., 2021; Khan et al., 2018). More recently, the concept of digital leadership has emerged to capture leadership capabilities that extend beyond interpersonal influence to include the strategic alignment of digital technologies, organizational culture and governance structures (Binsar et al., 2025; Ylitalo, Laukka, Heponiemi, & Kanste, 2023). In healthcare contexts, these responsibilities are intensified by the ethical sensitivity of patient data and the potentially high-risk consequences of algorithm supported decision-making.

While existing research acknowledges the importance of leadership in digital transformation, scholars differ in how leadership influences technological adoption in healthcare organizations. Some studies emphasize technological infrastructure and data governance as primary determinants of successful AI implementation, suggesting that leadership mainly supports resource allocation and strategic alignment. Other perspectives highlight socio-technical dynamics, arguing that leadership plays a critical role in shaping professional acceptance, organizational learning and institutional legitimacy surrounding algorithmic technologies. This debate reflects a broader tension in the literature between technology-centric explanations of digital transformation and capability-based perspectives that emphasize organizational leadership and governance mechanisms. By conceptualizing digital leadership as a higher-order capability that shapes organizational AI readiness, this study adopts the latter perspective and provides empirical evidence on how leadership capabilities enable healthcare organizations to translate AI investments into service quality improvements.

Although AI is increasingly framed as a transformative force in health services, empirical research examining how leadership capabilities shape organizational readiness for AI adoption remains limited. Existing studies have predominantly emphasized technological infrastructure, data quality and user acceptance as primary determinants of implementation success (Salamzadeh, Ashkani, &

Asgharifar, 2025; Shatila, 2025). At the same time, the emerging literature on AI readiness has often conceptualized readiness in technical terms, focusing on system interoperability, data governance mechanisms and analytical capacity (Mishra, 2024; Thout & Khandekar, 2025). These perspectives tend to underplay the social, cultural and institutional dimensions through which leadership influence is enacted in professionalized healthcare environments.

Service quality represents a critical performance outcome, reflecting the extent to which healthcare organizations deliver care that is reliable, responsive and centred on patient needs. Foundational research demonstrates that organizational processes, frontline employee behaviour and institutional trust shape patient perceptions of care outcomes (Johnson, Newman, & Shamroukh, 2025; Laux, 2024). Within healthcare settings, leadership influences service quality indirectly through its effects on workforce motivation, safety culture and process standardization (Sakina & Dou, 2025; Sposato, 2024). However, the role of AI readiness as a mediating organizational capability linking leadership practices to service quality in digitally enabled care environments remains underexplored.

Theoretically, this study adopts a capability-based perspective that conceptualizes leadership as a higher-order organizational resource shaping the development and orchestration of digital and analytical capabilities. Drawing on dynamic capability theory, organizations achieve sustained performance advantages through their ability to sense technological opportunities, seize them through strategic investment and reconfigure internal processes (Frick, Mirbabaie, Stieglitz, & Salomon, 2021; Haque, 2025). Within this framework, digital leadership functions as a meta capability that aligns technological resources, human capital and governance structures. AI readiness is positioned as a composite organizational capability encompassing technical infrastructure, workforce competencies, ethical oversight and institutional arrangements regulating algorithmic deployment.

Recent research highlights the importance of leadership and governance in shaping the value creation potential of AI-enabled technologies. Organizations with strong digital leadership and data governance frameworks are more likely to translate AI investments into operational performance and strategic outcomes (Binsar et al., 2025). In healthcare contexts, this relationship is complicated by regulatory requirements related to data protection, explainability and clinical accountability (Amann et al., 2020). By explicitly linking digital leadership to AI readiness and service quality, this study extends these insights into health services management and leadership research.

From a practical and policy perspective, healthcare leaders face mounting pressure to justify AI investments amid resource constraints, workforce shortages and heightened public scrutiny. While policy frameworks emphasize the potential of AI to enhance efficiency, safety and accessibility, there is limited empirical guidance on the leadership practices and organizational capabilities that enable such benefits in everyday service delivery (Organization, 2023; Selander, Nevanperä, Nikunlaakso, Korikiakangas, & Laitinen, 2025). This study addresses this gap by developing and empirically testing an integrative model that identifies leadership and driven pathways through which AI readiness contributes to service quality outcomes.

Despite the growing literature on digital transformation in healthcare, existing studies primarily focus on technological infrastructure, data governance, and user acceptance as drivers of AI



implementation. Consequently, the leadership mechanisms through which organizations develop readiness for AI adoption remain insufficiently theorized. This study addresses this theoretical gap by conceptualizing digital leadership as a higher-order dynamic capability that enables the development of organizational AI readiness. By positioning AI readiness as a mediating capability linking leadership practices to service quality outcomes, the study extends prior research on digital leadership and healthcare service performance. In doing so, the research contributes to the dynamic capabilities literature by demonstrating how leadership-driven capability development shapes the organizational conditions required for responsible and effective AI integration in healthcare environments.

Methodologically, the study employs a mixed methods design to capture both the structural relationships among digital leadership, AI readiness and service quality and the contextual dynamics through which these relationships are enacted in practice. Quantitative data are analysed using structural equation modelling, while qualitative interviews provide complementary insights into leadership practices, governance challenges and institutional constraints shaping AI implementation.

This research makes three primary contributions. First, it advances leadership theory in healthcare by demonstrating that digital leadership functions as a central antecedent of organizational AI readiness rather than merely a contextual factor in technology adoption. Second, it extends service quality research by identifying AI readiness as a critical organizational capability linking leadership practices to patient-centred and operational performance outcomes. Third, it offers a managerially actionable framework for developing leadership capacity, governance structures and workforce competencies that support responsible AI integration.

This study departs from dominant models of digital maturity and IT capability and performance linkages by conceptualizing AI readiness as a leadership and shaped organizational capability through which digital leadership orchestrates technical, human and normative dimensions to translate AI adoption into patient centred service quality outcomes, positioning leadership as a theoretical mechanism rather than a contextual enabler.

## **Literature Review and Hypotheses Development**

### **Digital Leadership and AI Readiness**

The relationship between leadership and organizational readiness for technological innovation is well established in the management and information systems literature (Binsar et al., 2025). Leaders shape organizational capabilities by setting strategic priorities, allocating resources and establishing governance mechanisms that regulate technology use (Frick et al., 2021; Kyambade & Namatovu, 2025). In the context of AI adoption, digital leadership is particularly salient due to the cross functional nature of AI systems, which require coordination among clinical, technical and administrative stakeholders (Hozhabri, 2025; Jöhnk, Weißert, & Wyrcki, 2021).

Beyond a capability-based framing, digital leadership in healthcare can be situated within institutional and complexity leadership theories, which emphasize leadership as a process of enabling coordination, sensemaking and legitimacy in highly regulated and professionally stratified systems. Institutional leadership highlights how leaders shape norms and formal

structures that confer legitimacy on new practices, while complexity leadership conceptualizes leadership as an adaptive function facilitating learning and cross boundary collaboration in interdependent systems such as hospitals. By integrating these perspectives, this study frames digital leadership as both a strategic capability and an institutional process through which AI initiatives are ethically governed and embedded within clinical and administrative routines (Ylitalo et al., 2023).

Empirical research indicates that leadership commitment to digital transformation is positively associated with investment in data infrastructure, workforce training and ethical governance frameworks, fostering alignment between technological capabilities and organizational values (Binsar et al., 2025). In healthcare, leaders often mediate between competing institutional logics, such as clinical autonomy, managerial efficiency and regulatory compliance, positioning leadership as a central mechanism through which AI initiatives are legitimized and integrated into service delivery processes.

**H1:** Digital leadership is positively associated with organizational AI readiness in healthcare organizations.

### **AI Readiness and Service Quality in Healthcare**

Service quality in healthcare is commonly conceptualized as a multidimensional construct encompassing reliability, responsiveness, empathy and assurance in care delivery ((Johnson et al., 2025; Laux, 2024). In digitally enabled services, these dimensions are increasingly shaped by the performance and integration of information systems and algorithmic tools that influence patient access, clinical decision-making and administrative efficiency.

Research on health information technologies demonstrates that effective system integration can improve care coordination and patient satisfaction, but these benefits depend on organizational conditions that support reliable system use, staff competence and trust in digital tools (Salamzadeh et al., 2025; Shatila, 2025). From a capability-based perspective, AI readiness plays a critical role in translating technological potential into service quality outcomes. Technical readiness ensures interoperability with clinical workflows, human readiness supports effective use by clinicians and staff, and governance readiness promotes accountability, transparency and ethical compliance essential for maintaining patient trust (Amann et al., 2020; Organization, 2023).

It is important to distinguish AI readiness from related constructs frequently used in digital transformation research. Digital maturity generally refers to the extent to which organizations have adopted digital technologies and integrated them into operational processes, whereas IT capability emphasizes technological infrastructure, system integration and information management resources. In contrast, AI readiness extends beyond technical capacity to encompass organizational preparedness for the responsible and effective deployment of algorithmic systems. This includes workforce competencies, governance mechanisms, ethical oversight and cultural acceptance of AI-supported decision-making. By conceptualizing readiness as a multidimensional organizational capability, this study highlights how technological resources must be complemented by leadership-driven institutional and human capabilities in order to translate AI adoption into improved service quality outcomes in healthcare environments.

It is important to distinguish AI readiness from related constructs such as digital maturity and IT capability. While digital maturity reflects the extent of digitization and IT capability emphasizes technical resources and system integration, AI readiness is conceptualized as a leadership and shaped, governance-oriented organizational capability concerned with the ethical legitimization, professional acceptance and institutional embedding of algorithmic systems. This boundary positions AI readiness as analytically distinct for explaining variation in service quality beyond general digital sophistication (Jöhnk et al., 2021; Mishra, 2024; Thout & Khandekar, 2025).

**H2:** Organizational AI readiness is positively associated with service quality in healthcare organizations.

### **The Mediating Role of AI Readiness**

Dynamic capability theory posits that higher-order organizational capabilities influence performance outcomes indirectly by enabling the development and deployment of lower-order operational capabilities (Haque, 2025). Within this framework, digital leadership can be conceptualized as a meta capability that shapes service quality primarily through its impact on organizational AI readiness.

Rather than directly determining patient experiences or operational efficiency, leadership practices shape the institutional conditions under which AI technologies are selected, governed and utilized. These conditions, in turn, influence the reliability and patient centredness of digitally mediated service delivery. This logic aligns with empirical evidence showing that leadership effects on performance are often mediated by organizational processes and capabilities (Jöhnk et al., 2021; Kyambade & Namatovu, 2025).

**H3:** Organizational AI readiness mediates the relationship between digital leadership and service quality in healthcare organizations.

### **Direct Effects of Digital Leadership on Service Quality**

While the model emphasizes the mediating role of AI readiness, leadership behaviours may also exert a direct influence on service quality through workforce motivation, organizational climate and safety culture. Prior research links transformational and supportive leadership to improved patient satisfaction, reduced errors and higher staff engagement (Sakina & Dou, 2025; Sposato, 2024).

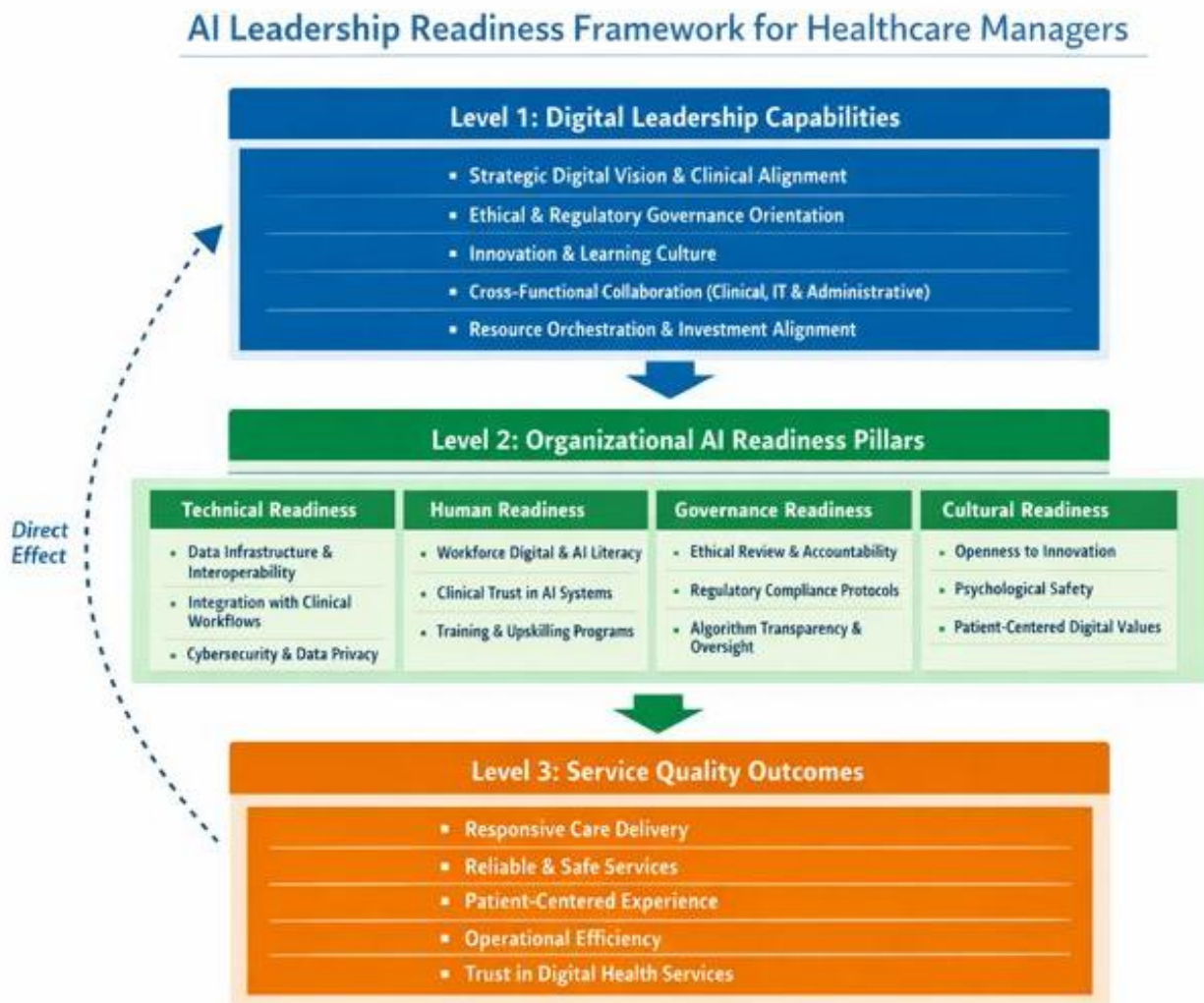
While the model emphasizes the mediating role of AI readiness, leadership behaviours may also exert a direct influence on service quality through organizational climate, workforce motivation and the institutionalization of patient-centred values. Leadership theory suggests that leaders shape service environments by establishing norms related to accountability, innovation and continuous improvement. In healthcare organizations, such leadership behaviours influence staff engagement, communication practices and adherence to quality standards, all of which affect patient experiences and operational performance. Empirical research has consistently linked supportive and transformational leadership to improved patient safety outcomes, higher staff commitment and enhanced care coordination (Khan et al., 2018; Sakina and Dou, 2025; Sposato, 2024). In digitally enabled healthcare environments, digital leadership may further reinforce service quality by encouraging responsible experimentation with AI-supported systems and promoting trust in

technology-assisted decision-making. Therefore, digital leadership is expected to influence service quality not only indirectly through AI readiness but also directly through organizational culture and workforce behaviour.

**H4:** Digital leadership has a direct positive effect on service quality in healthcare organizations.

**Conceptual Link to Figure 1**

The hypotheses are visually represented in Figure 1 (AI Leadership Readiness Framework for Healthcare Managers), which illustrates digital leadership as a higher-order capability shaping organizational AI readiness across technical, human, governance and cultural pillars, and, in turn, influencing multidimensional service quality outcomes.



**Figure 1 — AI Leadership Readiness Framework for Healthcare Managers**



## **Methodology**

### **Research Design**

This study adopts a mixed-methods research design to examine the relationships among digital leadership, organizational AI readiness and service quality in healthcare organizations. The quantitative component employs a cross-sectional survey to test the hypothesized structural relationships and the mediating role of AI readiness using structural equation modelling. The qualitative component consists of semi-structured interviews with senior managers and clinical leaders to provide contextual insight into leadership practices, governance arrangements and institutional constraints shaping AI implementation. This design supports both theory testing and interpretive depth and is consistent with methodological recommendations for complex organizational and healthcare research (Salamzadeh et al., 2025).

The mixed-methods design was selected to leverage the complementary strengths of quantitative and qualitative approaches. The quantitative survey enabled the statistical testing of hypothesized relationships among digital leadership, AI readiness and service quality across a large sample of healthcare professionals. In contrast, the qualitative interviews provided deeper contextual insight into the organizational mechanisms and leadership practices underlying these relationships. By integrating these methods, the study aims not only to test the proposed theoretical model but also to better understand how leadership practices and governance structures shape AI implementation in real organizational settings. This integration enhances the explanatory power of the research and supports a more comprehensive understanding of leadership-driven digital transformation in healthcare organizations.

### **Sample and Data Collection**

Data were collected from healthcare professionals in Canada between March and October 2025, encompassing public hospitals, private hospitals and outpatient care organizations across multiple provinces. The sampling strategy targeted clinical, administrative and managerial staff to capture diverse perspectives on leadership practices, AI readiness and service quality in a high-income, publicly funded healthcare system context. A stratified sampling strategy was employed based on three criteria: (1) professional role (clinical vs. administrative vs. managerial), (2) organizational type (public vs. private vs. outpatient), and (3) regional location. Proportional allocation was used to ensure that the final sample reflected the relative distribution of these groups within the participating organizations.

Survey instruments were distributed electronically through institutional mailing lists and professional networks. Participation was voluntary and anonymous. Participating healthcare organizations were identified through professional healthcare networks, academic partnerships and publicly available institutional directories. Invitations to participate in the survey were distributed through institutional mailing lists and professional associations connected to healthcare management and digital health initiatives. To ensure relevance to the research objectives, inclusion criteria required respondents to be employed in healthcare organizations that had adopted or were actively exploring digital health technologies or AI-enabled systems. Eligible participants included clinical professionals, administrators and managers who were familiar with digital transformation

initiatives within their organizations. This approach ensured that respondents possessed sufficient organizational knowledge to evaluate leadership practices, AI readiness and service quality.

Ethical approval was obtained from the Institutional Research Ethics Committee, Concordia University (Approval No. HREC-2025-041). Informed consent was obtained from all participants prior to participation. Survey responses and interview transcripts were anonymized at the point of collection, stored on encrypted, access-controlled servers, and used solely for academic research purposes. Participants were informed about the purpose of the study, data protection procedures and their right to withdraw at any time without consequence.

A total of  $N = 347$  responses were received. After screening for missing values, straight lining behaviour and response time anomalies,  $N = 312$  valid responses were retained for quantitative analysis. To assess non-response bias, early and late respondents were compared across key constructs using independent sample t-tests. No statistically significant differences were observed, indicating that non-response bias was unlikely to threaten the validity of the findings.

Qualitative data were collected through purposive sampling of senior managers and clinical leaders who held direct responsibility for digital transformation, clinical governance or AI-related initiatives. A total of  $n = 18$  interviews were conducted, with an average duration of 52 minutes. Interviews continued until theoretical saturation was reached, as indicated by the absence of new conceptual themes in the final three interviews.

### **Measures and Instrument Development**

All constructs were measured using multi-item reflective scales adapted from established literature and contextualized for healthcare and AI-enabled service environments. Items were rated on a seven-point Likert scale ranging from 1 (“strongly disagree”) to 7 (“strongly agree”). Scale adaptation followed a four-step procedure. First, items were selected from validated instruments and reviewed for relevance to healthcare and AI governance contexts. Second, wording was refined in consultation with two healthcare management scholars and three clinical managers to ensure conceptual clarity and clinical relevance. Third, a pilot study with  $n = 25$  respondents was conducted to assess item reliability and face validity. Fourth, minor revisions were made to improve semantic precision and reduce ambiguity.

For French-speaking respondents in bilingual Canadian settings, a back-translation procedure was applied following established cross-cultural survey guidelines to ensure linguistic equivalence between the English and French versions of the instrument. Preliminary reliability analysis in the pilot phase confirmed that all constructs exceeded a Cronbach’s alpha threshold of 0.70, indicating acceptable internal consistency. Construct definitions, dimensional structure and primary measurement sources are presented in Table 1.

Each construct was operationalized using reflective multi-item scales adapted from established studies in leadership, digital transformation and healthcare management research. Digital leadership was measured using items capturing leaders’ strategic digital vision, support for innovation, cross-functional coordination and ethical governance of digital technologies. Organizational AI readiness was operationalized as a multidimensional capability encompassing technical infrastructure readiness, workforce skills and competencies, governance and ethical oversight mechanisms and cultural openness to digital innovation. Service quality was measured



through indicators reflecting reliability, responsiveness, patient-centred care and trust in digitally supported healthcare services. Survey items were adapted from prior validated instruments and contextualized for AI-enabled healthcare environments through expert review and pilot testing to ensure content validity and contextual relevance.

**Table 1. Construct Definitions and Measurement Sources**

<b>Construct</b>	<b>Definition</b>	<b>Key Dimensions</b>	<b>Sources</b>	<b>Sample Measurement Items (7-point Likert)</b>
Digital Leadership	Leadership capability to align digital strategy, organizational culture and governance structures to support innovation, ethical technology use and cross-functional coordination in healthcare organizations	Strategic digital vision; innovation and learning culture; ethical and regulatory governance orientation; clinical–IT–administrative collaboration; digital resource orchestration	Binsar et al. (2025); (Ylitalo et al., 2023)	“Senior leaders articulate a clear digital vision for AI use in patient care.” / “Leadership ensures ethical and regulatory considerations guide AI-related decisions.”
AI Readiness	Organizational capability to adopt, integrate and govern AI technologies within clinical and administrative processes in a manner that ensures technical reliability, professional acceptance and ethical accountability	Technical readiness; human readiness; governance readiness; cultural readiness	Mishra (2024); Thout and Khandekar (2025)	“Our organization has the skills needed to effectively use AI systems in clinical and administrative work.” / “Clear governance structures exist to oversee ethical risks associated with AI use.”
Service Quality	Perceived quality of healthcare service delivery in digitally enabled environments, reflecting patient-centredness, operational reliability and institutional trust	Reliability; responsiveness; patient-centred experience; operational efficiency; trust and legitimacy	Johnson et al. (2025); Laux (2024)	“Digital systems help our organization deliver timely and reliable patient services.” / “Patients can trust how technology is used in their care.”



### **Control Variables**

To account for alternative explanations and contextual influences, several control variables were included in the structural model. These comprised organizational size (number of employees), digital maturity level, organizational ownership type (public vs. private), respondent role (clinical vs. non-clinical), and regional context. These variables have been shown to influence technology adoption and service quality outcomes in healthcare and organizational research (Mishra, 2024; Sakina & Dou, 2025).

### **Common Method Bias and Data Quality Controls**

Given the use of self reported survey data, multiple procedural and statistical remedies were implemented to mitigate the risk of common method bias. Procedurally, respondent anonymity was assured, item wording was refined to reduce ambiguity, and scale items were psychologically separated by varying scale anchors and section ordering. Although statistical tests suggested that common method bias was unlikely to significantly affect the results, the use of a single survey instrument may still introduce perceptual or respondent-related bias. Future research could mitigate this limitation by adopting multi-source data collection strategies, such as combining survey responses with objective organizational performance indicators or independently collected service quality metrics. Longitudinal or multi-wave research designs may also help reduce potential method bias by separating the measurement of predictors and outcomes over time. Statistically, full collinearity variance inflation factors (VIFs) were examined following established guidelines, with all VIF values below the conservative threshold of 3.3, indicating that common method bias was unlikely to be a serious concern. Additionally, a Harman's single factor test was conducted, and the first unrotated factor accounted for less than 40% of the total variance, providing further support for the absence of substantial common method effects (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

### **Data Analysis Strategy and Model Estimation**

Quantitative data were analysed using partial least squares structural equation modelling (PLS-SEM) with SmartPLS 4. This technique was selected for three reasons. First, the study adopts a predictive and theory development orientation, consistent with research on emergent organizational capabilities such as AI readiness in healthcare. Second, the conceptual model specifies leadership as a higher-order capability operating through mediating organizational processes, which aligns with PLS-SEM's strength in estimating complex, multi-path structural relationships. Third, preliminary assessment indicated non-normal data distributions, making variance-based SEM more appropriate than covariance-based alternatives (Hair & Alamer, 2022). All constructs were modelled as reflective, consistent with their conceptualization as manifestations of underlying latent capabilities. Sample size adequacy was assessed using G\*Power, which indicated that a minimum sample of 146 observations was required to detect a medium effect size ( $f^2 = 0.15$ ) at a statistical power of 0.80 and a significance level of 0.05. The final sample size of  $N = 312$  therefore exceeded recommended thresholds.

Measurement model evaluation included indicator reliability, internal consistency reliability, convergent validity and discriminant validity. Structural model evaluation assessed path



coefficients, coefficient of determination ( $R^2$ ), effect sizes ( $f^2$ ) and predictive relevance ( $Q^2$ ) using a bootstrapping procedure with 5,000 resamples.

**Qualitative Data Analysis and Trustworthiness**

Interview data were transcribed verbatim and analysed using a six-phase thematic analysis procedure (Braun & Clarke, 2006). An initial coding framework was developed deductively from the conceptual model, followed by inductive coding to capture emergent themes related to ethical oversight, professional trust, clinical autonomy and cross functional coordination.

To enhance analytical rigor, intercoder agreement was assessed on a randomly selected subset of transcripts, achieving a Cohen’s kappa value exceeding 0.80, indicating high coding reliability. Trustworthiness was further strengthened through member checking, whereby summary interpretations were shared with selected participants for validation, and methodological triangulation, integrating qualitative insights with quantitative findings to support interpretive consistency (Creswell, 2018).

**Replicability and Data Availability**

To support transparency and replicability, the full survey instrument and interview protocol are provided in Appendix A. An anonymized dataset and codebook are available from the corresponding author upon reasonable request, subject to institutional data protection and ethical guidelines.

**Results**

**4.1 Sample Profile**

The final quantitative sample consisted of  $N = 312$  healthcare professionals drawn from public hospitals, private hospitals and outpatient care organizations. The sample included a balanced representation of clinical, administrative and managerial roles, with respondents reporting moderate to high levels of exposure to digital health technologies and AI-enabled systems. This diversity of professional and organizational backgrounds supports the robustness of the findings across multiple healthcare contexts. The demographic and organizational characteristics of the sample are presented in Table 2.

**Table 2. Sample Characteristics (N = 312)**

Characteristic	Category	Frequency	Percentage (%)
Professional Role	Physician	86	27.6
	Nurse	102	32.7
	Administrator	64	20.5
	Manager	60	19.2
Organizational Type	Public Hospital	158	50.6
	Private Hospital	104	33.3

	Outpatient Clinic	50	16.1
Years of Experience	< 5 years	78	25.0
	5–10 years	121	38.8
	> 10 years	113	36.2
Digital Exposure	Low	54	17.3
	Moderate	149	47.8
	High	109	34.9
Region	Urban	211	67.6
	Semi urban/Rural	101	32.4

**Measurement Model Assessment**

The measurement model was evaluated for indicator reliability, internal consistency, convergent validity and discriminant validity. All standardized factor loadings exceeded the recommended threshold of 0.70, indicating satisfactory indicator reliability. Cronbach’s alpha and composite reliability (CR) values for all constructs were above 0.80, demonstrating strong internal consistency. Average variance extracted (AVE) values exceeded the minimum criterion of 0.50, supporting convergent validity.

Discriminant validity was assessed using the heterotrait–monotrait (HTMT) ratio. All HTMT values were below the conservative threshold of 0.85, indicating that the constructs were empirically distinct. Detailed measurement model results are reported in Table 3, and HTMT ratios are presented in Table 4.

In addition to reliability and validity assessments, overall model fit was evaluated using the standardized root mean square residual (SRMR), which yielded a value of 0.061, below the recommended threshold of 0.08, indicating satisfactory global model fit for PLS-SEM estimation. Cross loadings were examined to assess potential indicator overlap across constructs and confirmed that all items loaded more strongly on their intended constructs than on alternative constructs. For brevity, the full cross loading matrix is provided in Appendix D, consistent with reporting practices in applied health services and information systems research.

**Table 3. Measurement Model Results**

Construct	Item	Loading	Cronbach’s $\alpha$	CR	AVE
Digital Leadership	DL1	0.82	0.89	0.92	0.66
	DL2	0.84			
	DL3	0.79			
	DL4	0.83			
AI Readiness	AIR1	0.81	0.91	0.93	0.69
	AIR2	0.85			
	AIR3	0.87			
	AIR4	0.80			
Service Quality	SQ1	0.78	0.88	0.91	0.64



	SQ2	0.82			
	SQ3	0.84			
	SQ4	0.79			

**Table 4. Discriminant Validity (HTMT Ratios)**

Construct	Digital Leadership	AI Readiness	Service Quality
Digital Leadership	—	0.61	0.54
AI Readiness		—	0.58
Service Quality			—

**Structural Model Evaluation**

The structural model was assessed by examining path coefficients, significance levels and explanatory power. Bootstrapping with 5,000 resamples was used to test the significance of the hypothesized relationships. The model explained a substantial proportion of variance in both AI readiness and service quality. Specifically, digital leadership accounted for 38% of the variance in AI readiness ( $R^2 = 0.38$ ), while digital leadership and AI readiness jointly explained 42% of the variance in service quality ( $R^2 = 0.42$ ), indicating moderate to strong explanatory power.

Effect size analysis revealed that digital leadership exerted a medium effect on AI readiness ( $f^2 = 0.41$ ), while AI readiness demonstrated a medium effect on service quality ( $f^2 = 0.36$ ). Predictive relevance assessed using the Stone–Geisser  $Q^2$  statistic, yielded positive values for both endogenous constructs ( $Q^2_{AI\ Readiness} = 0.26$ ;  $Q^2_{Service\ Quality} = 0.29$ ), suggesting satisfactory out of sample predictive capability.

To assess the robustness of the structural model, two additional analyses were conducted. First, an alternative model excluding the direct path from digital leadership to service quality was estimated to examine whether AI readiness fully accounts for the leadership and performance relationship. The results indicated a significant reduction in explanatory power for service quality ( $\Delta R^2 = -0.09$ ), supporting the partial mediation structure specified in the primary model. Second, a multi-group analysis was performed comparing public and private healthcare organizations. The differences in path coefficients between groups were not statistically significant for the digital leadership and AI readiness path ( $\Delta\beta = 0.06$ ,  $p = 0.28$ ) or the AI readiness → service quality path ( $\Delta\beta = 0.04$ ,  $p = 0.34$ ), indicating that the proposed relationships are stable across organizational ownership types. Together, these checks provide additional confidence in the robustness and generalizability of the reported findings.

The results of the hypothesis testing are summarized in Table 5, and the standardized path coefficients and  $R^2$  values are visually represented in Figure 2. As shown in Figure 2, the strongest structural path is from digital leadership to AI readiness ( $\beta = 0.62$ ), underscoring leadership’s central role in building organizational capability, followed by the path from AI readiness to service quality ( $\beta = 0.53$ ), which highlights readiness as a key mechanism translating leadership practices into patient-centred and operational performance outcomes. The control variables organizational size, digital maturity, ownership type, respondent role and regional context were included in the structural model. None of the control paths exhibited statistically significant effects on AI



readiness or service quality at the 5% level, indicating that the observed relationships are robust to these contextual influences.

**Table 5. Structural Model Results and Hypothesis Testing**

Hypothesis	Path	$\beta$	t-value	p-value	Result
H1	Digital Leadership → AI Readiness	0.62	11.84	< 0.001	Supported
H2	AI Readiness → Service Quality	0.53	9.67	< 0.001	Supported
H3	Digital Leadership → AI Readiness → Service Quality	0.33	7.21	< 0.001	Supported
H4	Digital Leadership → Service Quality	0.21	3.94	< 0.001	Supported

**Mediation Analysis**

The mediating role of AI readiness was assessed using bootstrapped confidence intervals for indirect effects. The indirect effect of digital leadership on service quality through AI readiness was positive and statistically significant ( $\beta = 0.33, p < 0.001$ ), with a 95% bootstrapped confidence interval of [0.24, 0.41], which did not include zero. The variance accounted for (VAF) was calculated at 61%, indicating partial mediation. This suggests that while digital leadership has a direct effect on service quality, a substantial proportion of its influence operates through the development of organizational AI readiness. In addition to demographic characteristics, descriptive statistics and inter-construct correlations were examined to assess the central tendencies, dispersion and bivariate relationships among the study variables. The results are presented in Table 6.

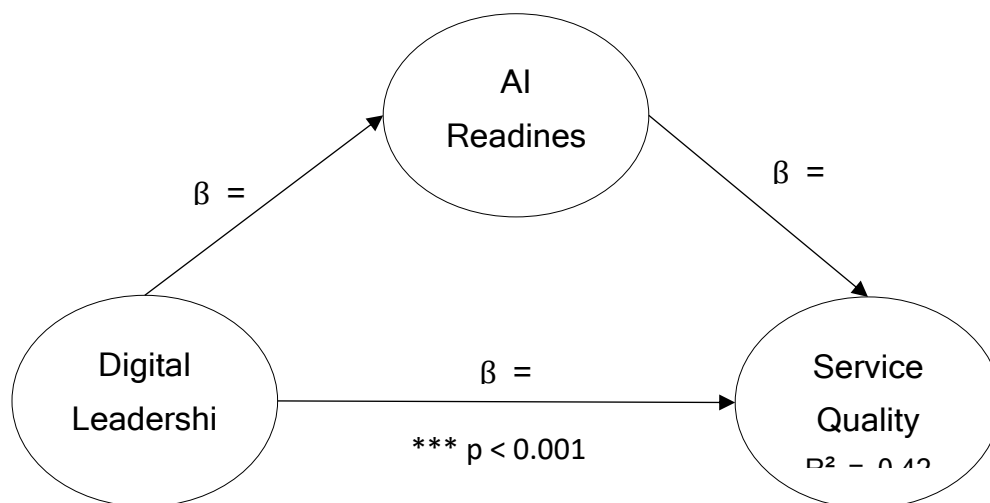
**Table 6. Descriptive Statistics and Inter-Construct Correlations**

Construct	Mean	SD	1	2	3
1. Digital Leadership	4.98	0.86	—		
2. AI Readiness	4.83	0.81	0.61	—	
3. Service Quality	5.12	0.79	0.54	0.58	—

To strengthen the integration between quantitative and qualitative findings, the interview data were analysed to identify mechanisms underlying the structural relationships observed in the model. Three recurring themes emerged that directly map onto the hypothesized pathways: (1) institutional legitimization of AI systems, whereby leaders framed algorithmic tools as extensions of professional standards and regulatory compliance; (2) governance mediated trust, reflecting how formal ethics committees and audit protocols shaped clinician confidence in AI-supported decisions; and (3) capability diffusion through cross functional leadership, describing how collaboration between clinical, IT and administrative units enabled the operationalization of AI readiness across organizational tiers. These themes provide micro level explanations for the strong

path from digital leadership to AI readiness and for the mediating role of readiness in translating leadership practices into service quality outcomes, thereby supporting the conceptual frameworks presented in Figures 1 and 3.

These themes were consistently reflected in the perspectives shared by interview participants. For example, one senior hospital manager explained that leadership commitment was essential for legitimizing the use of AI technologies within clinical settings: “When leaders clearly communicate why AI tools are being introduced and how they support patient care, clinicians are more willing to trust the system and integrate it into their routines.” Another participant responsible for digital governance emphasized the importance of formal oversight structures: “We established an interdisciplinary AI oversight committee that includes clinicians, data scientists and compliance officers. This governance structure helped build trust and ensured that ethical considerations were addressed before implementation.” A clinical leader also highlighted the role of cross-functional collaboration: “AI projects cannot be managed by the IT department alone. Successful implementation requires continuous dialogue between clinical teams, administrators and technical experts.” These insights illustrate how leadership practices contribute to the development of organizational AI readiness and support the quantitative finding that readiness functions as a key mediating capability linking leadership and service quality outcomes.



**Figure 2. Structural Model of Digital Leadership, AI Readiness and Service Quality**

## Discussion

This study examined how digital leadership shapes organizational AI readiness and how this readiness influences service quality in healthcare organizations. The findings provide empirical support for the proposed conceptual model and clarify the leadership driven mechanisms through which AI-enabled transformation translates into performance outcomes in health services.

The magnitude of the structural coefficients also provides insight into the practical significance of the findings. The strong relationship between digital leadership and AI readiness ( $\beta = 0.62$ )

suggests that leadership commitment plays a central role in developing the organizational conditions required for AI implementation. In practical terms, this implies that healthcare organizations with leaders who actively promote digital strategy, allocate resources for AI initiatives and establish governance structures are more likely to develop the technical and human capabilities needed to use AI effectively. Similarly, the substantial effect of AI readiness on service quality ( $\beta = 0.53$ ) indicates that improvements in workforce skills, system integration and ethical oversight can directly enhance the reliability, responsiveness and patient-centredness of healthcare services. These results highlight that leadership-driven investments in organizational capability development are critical for translating AI adoption into tangible service quality improvements.

### **Theoretical Implications**

The results extend healthcare leadership theory by positioning digital leadership as a higher-order organizational capability that operates primarily through the development of AI readiness rather than solely through direct behavioural or motivational pathways. While prior research has emphasized transformational and distributed leadership as drivers of workforce engagement and patient safety (Khan et al., 2018; Sakina & Dou, 2025), the present findings show that leadership influence in digitally enabled healthcare environments is increasingly mediated by socio technical capabilities integrating technological infrastructure, human capital and governance structures.

Consistent with dynamic capability theory, the strong relationship between digital leadership and AI readiness indicates that leaders play a central role in sensing technological opportunities, aligning strategic investments and reconfiguring organizational processes to embed AI systems within clinical and administrative workflows (Frick et al., 2021; Haque, 2025). The significant mediating effect of AI readiness further suggests that leadership impact is structural and institutional, operating through governance mechanisms, ethical oversight and workforce competencies rather than solely through system acceptance or use (Amann et al., 2020; Jöhnk et al., 2021; Shatila, 2025).

The observed direct effect of digital leadership on service quality highlights the role of normative and cultural pathways, reinforcing the multi level nature of leadership influence in complex healthcare organizations.

More broadly, the findings contribute to the growing literature on digital transformation by emphasizing the organizational and leadership capabilities required to translate emerging technologies into performance outcomes. Much of the digital transformation literature has focused on technological adoption and infrastructure development, often treating leadership as a contextual variable rather than a central explanatory mechanism. By empirically demonstrating that digital leadership shapes organizational AI readiness, which in turn influences service quality, this study highlights the importance of leadership-driven capability development in digitally enabled healthcare systems. The results therefore contribute to organizational capability research by showing how leadership practices orchestrate technological, human and governance resources to enable effective AI integration. In doing so, the study bridges leadership research, digital transformation scholarship and healthcare management studies, providing a more comprehensive explanation of how organizational capabilities evolve in response to emerging AI technologies.



### **Implications for Healthcare Leadership Practice**

From a managerial perspective, the findings indicate that AI investments alone are insufficient to improve service quality without corresponding leadership driven capability development. Healthcare managers should prioritize workforce digital literacy, clinical engagement and the establishment of formal AI governance structures, such as ethics committees and algorithm review processes, to ensure responsible integration aligned with regulatory and patient safety standards (Selander et al., 2025). The AI Leadership Readiness Framework (Figure 1) and the AI Readiness Maturity Matrix (Figure 3) offer practical tools for diagnosing organizational positioning and guiding targeted leadership interventions, particularly in strengthening cross functional collaboration between clinical, IT and administrative units.

### **Policy and Governance Implications**

At the policy level, the findings suggest that effective governance of AI in healthcare should extend beyond technical compliance to include leadership and readiness based regulatory mechanisms. Regulators could incorporate AI readiness audits into hospital accreditation and digital health certification processes, assessing leadership capacity, workforce training and formal ethical oversight. Funding eligibility for national digital health programs may be linked to demonstrated governance capabilities, such as interdisciplinary AI ethics committees, documented algorithm review protocols and transparent accountability assignments. This approach operationalizes international guidance on human-centred and accountable AI deployment (Organization, 2023). Although Figures 1 and 3 are presented as managerial frameworks, they are empirically informed by both the structural model results and qualitative themes. The prioritization of governance, human and cultural readiness reflects interview evidence on institutional legitimization, clinician trust and cross functional coordination, while the sequencing of leadership driven capability development derives from the observed strength and direction of the estimated path relationships, ensuring the frameworks are grounded in empirical patterns rather than purely normative design.

## **Practical Implications for Healthcare Managers**

### **Developing Digital Leadership Capability**

Healthcare managers should prioritize leadership competencies that integrate strategic vision with clinical and ethical considerations. This includes articulating a digital strategy that aligns AI initiatives with patient centred care objectives and regulatory requirements. Leadership development programs can strengthen understanding of data governance, algorithmic accountability and the organizational implications of AI deployment, equipping leaders to balance innovation with risk management. Leadership commitment and strategic communication are critical for fostering clinician engagement with digital health technologies (Binsar et al., 2025; Salamzadeh et al., 2025).

### **Strengthening Workforce Readiness and Clinical Engagement**

Human readiness is a key pathway through which leadership influences service quality. Managers should implement structured training and upskilling initiatives to build digital and AI literacy



across clinical and administrative staff. Beyond technical skills, training should address concerns related to clinical autonomy, explainability and accountability in algorithm supported decision-making. Formal feedback channels for reporting system limitations or ethical risks can enhance trust and encourage responsible experimentation. Clinician trust and perceived usefulness are decisive factors in sustained AI adoption (Selander et al., 2025).

### **Establishing AI Governance and Ethical Oversight Structures**

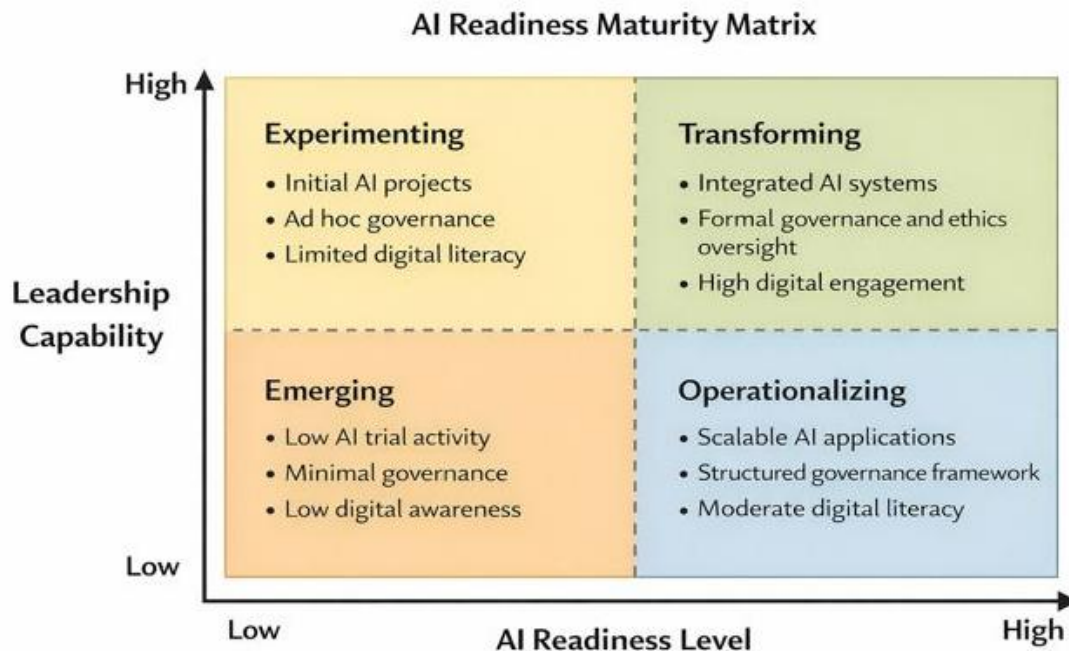
Governance readiness is a critical organizational capability linking leadership practices to service quality outcomes. Managers are encouraged to establish formal mechanisms such as interdisciplinary ethics committees, algorithm review boards and performance monitoring protocols to oversee data quality, bias, explainability and regulatory compliance. Aligning internal governance with national and international policy guidelines can further enhance institutional legitimacy and public trust (Amann et al., 2020; Organization, 2023).

### **Enhancing Cross Functional Collaboration and Integration**

Effective AI implementation requires coordination across clinical, IT and administrative domains. Managers should create cross functional leadership teams responsible for overseeing AI projects from design to deployment and evaluation. Regular interdepartmental forums and shared performance metrics can facilitate communication, reduce organizational silos and support the integration of AI systems into clinical workflows and administrative processes.

### **Using the AI Readiness Maturity Matrix as a Diagnostic Tool**

The AI Readiness Maturity Matrix (Figure 3) provides a practical diagnostic framework for assessing organizational positioning and prioritizing leadership interventions. Organizations in the “emerging” or “experimenting” stages may focus on foundational governance structures and workforce training, while those in the “operationalizing” stage can prioritize system integration and performance monitoring. Organizations in the “transforming” stage can leverage advanced analytics and continuous improvement mechanisms to sustain service quality gains and institutionalize best practices, enabling strategic resource allocation and realistic implementation timelines.



**Figure 3. AI Readiness Maturity Matrix**

### **Aligning AI Initiatives with Service Quality Metrics**

To ensure that AI adoption translates into tangible performance outcomes, managers should link digital initiatives to established service quality indicators, such as patient satisfaction, waiting times, clinical error rates and care coordination measures. Embedding these metrics into performance management systems can provide continuous feedback on the operational impact of AI systems and support evidence-based leadership decisions. This alignment reinforces the study’s finding that AI readiness functions as a mediating capability through which leadership practices influence patient-centred and operational outcomes.

### **Limitations and Future Research**

While this study provides empirical and practical insights into the role of digital leadership in shaping organizational AI readiness and service quality in healthcare organizations, several limitations should be acknowledged, which also point to meaningful directions for future research. First, the cross-sectional research design constrains strong causal inference. Although grounded in dynamic capability theory and supported by mediation analysis, leadership practices and organizational readiness are likely to evolve as AI technologies mature and regulatory environments change. Future studies should employ longitudinal designs to examine how

leadership capabilities and AI readiness co-develop and how their effects on service quality unfold across stages of digital transformation (Binsar et al., 2025; Haque, 2025).

Second, reliance on self-reported perceptual measures introduces the potential for social desirability and common method bias, despite procedural and statistical remedies. Future work could strengthen methodological rigor by incorporating objective performance indicators, such as clinical error rates, patient wait times, system uptime and externally audited quality metrics. In addition, the conceptualization of AI readiness in this study focuses on technical, human, governance and cultural dimensions; future research could extend this framework to include financial readiness, vendor ecosystem maturity and inter-organizational data-sharing capabilities to better capture the complexity of AI ecosystems (Jöhnk et al., 2021; Johnson et al., 2025; Mishra, 2024; Sakina & Dou, 2025).

Because this study is situated in a high-income, publicly funded healthcare system context in Canada, the relationships identified here may vary in low- and middle-income or predominantly privately funded health systems, where regulatory capacity, resource availability and governance structures differ. Differences in healthcare governance structures, regulatory environments and levels of digital infrastructure may influence how leadership practices shape AI readiness and service quality outcomes. For example, healthcare systems with more centralized governance or limited technological resources may experience different implementation dynamics. Future comparative studies across countries or healthcare systems would therefore be valuable in examining how institutional contexts moderate the leadership–AI readiness–service quality relationship. Comparative and multi-country research designs are therefore encouraged to examine how institutional environments, funding models and regulatory stringency moderate the leadership–AI readiness–service quality relationship. Finally, service quality is operationalized as a perceptual construct rather than a direct measure of clinical effectiveness; future studies should integrate perceptual assessments with clinical and operational performance metrics to assess how leadership-driven AI readiness influences both experiential quality and patient health outcomes.

## **Conclusion**

This study advances understanding of how digital leadership shapes the organizational conditions under which artificial intelligence (AI) contributes to service quality in healthcare organizations. By integrating leadership theory with a capability-based perspective, the research demonstrates that digital leadership operates as a higher-order organizational capability that influences performance primarily through the development of organizational AI readiness. This finding extends existing models of healthcare leadership and digital transformation by identifying readiness as a critical translational mechanism between leadership practices and patient-centred service outcomes.

Empirically, the results provide robust support for the proposed structural model, revealing strong and significant relationships between digital leadership, AI readiness and service quality. The partial mediation effect observed underscores that leadership exerts both direct cultural influence and indirect capability building effects, highlighting the multi level nature of leadership in complex, digitally enabled healthcare environments. These insights contribute to the growing



literature on dynamic capabilities and algorithmic governance by demonstrating how leadership practices shape not only the adoption of AI technologies but also their institutional legitimacy and operational impact (Amann et al., 2020; Haque, 2025).

From a practical standpoint, the study offers healthcare managers and policymakers an actionable framework for assessing and strengthening organizational readiness for AI adoption. The AI Leadership Readiness Framework (Figure 1) and the AI Readiness Maturity Matrix (Figure 3) provide structured tools for diagnosing capability gaps, prioritizing leadership interventions and aligning digital strategies with ethical governance and service quality objectives. These tools reinforce the view that effective AI integration in healthcare requires coordinated investments in leadership development, workforce capability and institutional oversight alongside technological infrastructure.

At the policy level, the findings support calls for governance approaches that extend beyond technical standards and data protection to encompass organizational leadership capacity and readiness assessment. Aligning regulatory frameworks and accreditation mechanisms with leadership driven capability development can enhance the legitimacy, safety and sustainability of AI-enabled health services, consistent with international guidelines emphasizing human-centred and accountable AI deployment (Organization, 2023).

Overall, this study contributes to bridging leadership research, digital transformation scholarship and healthcare management practice by articulating a coherent model of how leadership driven organizational capabilities shape the performance and legitimacy of AI-enabled service delivery. As healthcare systems continue to navigate the opportunities and risks associated with algorithmic technologies, the integration of leadership, governance and capability development will remain central to realizing the promise of AI in improving patient care and organizational performance.

### **Acknowledgements**

The authors would like to acknowledge all individuals, organizations, and institutions who provided valuable support, guidance, and assistance during this research.

### **Funding Sources**

The author received no financial support for the research, authorship, and/or publication of this article.

### **Conflict of Interest**

The author declares no conflict of interest.

If you want a slightly more formal version for journal submission, use this:

### **Acknowledgements**

The authors gratefully acknowledge the support and assistance provided by individuals, organizations, and institutions that contributed to the completion of this research.

### **Funding Sources**



The author received no financial support for the research, authorship, and/or publication of this article.

### **Conflict of Interest**

The author declares no conflict of interest.

### **References**

- Amann, J., Blasimme, A., Vayena, E., Frey, D., Madai, V. I., & Consortium, P. Q. (2020). Explainability for artificial intelligence in healthcare: a multidisciplinary perspective. *BMC medical informatics and decision making*, 20(1), 310.
- Binsar, F., Abdurachman, E., Sutoto, & Abdurohman, M. (2025). Perceptions of digital transformation in lower-mid-level hospitals: analyzing leadership perspectives on digital adoption and patient-centered care. *Leadership in Health Services*, 38(3), 382-401.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), 77-101.
- Creswell, W. (2018). John, and Vicky L Plano Clark. *Designing and Conducting Mixed Methods Research*: Sage Publication.
- Frick, N. R., Mirbabaie, M., Stieglitz, S., & Salomon, J. (2021). Maneuvering through the stormy seas of digital transformation: the impact of empowering leadership on the AI readiness of enterprises. *Journal of Decision Systems*, 30(2-3), 235-258.
- Gil, A. J., Rodrigo-Moya, B., & Cegarra-Navarro, J. G. (2021). The mediating role of transformational leadership between learning culture and knowledge application. *Kybernetes*, 50(7), 2093-2105.
- Hair, J., & Alamer, A. (2022). Partial Least Squares Structural Equation Modeling (PLS-SEM) in second language and education research: Guidelines using an applied example. *Research Methods in Applied Linguistics*, 1(3), 100027.
- Haque, A. (2025). Responsible artificial intelligence (AI) in healthcare: a paradigm shift in leadership and strategic management. *Leadership in Health Services*, 38(4), 644-656.
- Hozhabri, A. A. (2025). Strategic Leadership and Organizational Learning as Dynamic Capabilities: Reframing Digital Maturity and Market Orientation for Innovation and Efficiency. *Business, Technology & Innovation Studies Journal*, 1(1).
- Jöhnk, J., Weißert, M., & Wyrski, K. (2021). Ready or not, AI comes—an interview study of organizational AI readiness factors. *Business & information systems engineering*, 63(1), 5-20.
- Johnson, T., Newman, M., & Shamroukh, S. (2025). Perceptions of organizational culture among non-patient-facing health system employees. *Journal of Health Organization and Management*, 39(9), 96-123.
- Khan, S., Vander Morris, A., Shepherd, J., Begun, J. W., Lanham, H. J., Uhl-Bien, M., & Berta, W. (2018). Embracing uncertainty, managing complexity: applying complexity thinking



- principles to transformation efforts in healthcare systems. *BMC health services research*, 18(1), 192.
- Kyambade, M., & Namatovu, A. (2025). Health-care leaders' perspectives on AI implementation in Uganda: overcoming barriers, driving innovation and strategic considerations. *Leadership in Health Services*, 38(3), 442-463.
- Laux, J. (2024). Institutionalised distrust and human oversight of artificial intelligence: towards a democratic design of AI governance under the European Union AI Act. *AI & society*, 39(6), 2853-2866.
- Mishra, V. (2024). Five Dimensions of AI Readiness (AIR-5D) Framework-A Preparedness Assessment Tool for Healthcare Organizations. *Hospital Topics*, 1-8.
- Organization, W. H. (2023). *Tracking universal health coverage: 2023 global monitoring report*: World Health Organization.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of applied psychology*, 88(5), 879.
- Sakina, I. S., & Dou, X. (2025). Ambidextrous leadership and sustainability performance: the mediating role of green product innovation and green process innovation. *Strategy & Leadership*, 1-24.
- Salamzadeh, A., Ashkani, M., & Asgharifar, M. H. (2025). The impact of AI adoption on organizational performance: ethical and technological factors in Iran's startup ecosystem. *Strategy & Leadership*, 1-30.
- Selander, K., Nevanperä, N., Nikunlaakso, R., Korhakangas, E., & Laitinen, J. (2025). Engaging leadership and work recovery among key personnel of a major health-care and social services reform. *Leadership in Health Services*, 38(5), 35-47.
- Shatila, K. (2025). Artificial intelligence and organizational resilience: the mediating role of agility, innovation, and digital leadership. *Strategy & Leadership*, 1-25.
- Sposato, M. (2024). Leadership training and development in the age of artificial intelligence. *Development and Learning in Organizations: An International Journal*, 38(4), 4-7.
- Thout, S. R., & Khandekar, A. (2025). ASHAs (accredited social health activist) leadership role in delivering diabetic care services to urban poor during COVID-19 in Hyderabad, India. *Leadership in Health Services*, 38(4), 628-643.
- Ylitalo, A., Laukka, E., Heponiemi, T., & Kanste, O. I. (2023). Primary healthcare managers' perceptions of management competencies at different management levels in digital health services: secondary analysis. *Leadership in Health Services*, 36(2), 247-260.

## **Appendices**

### **Appendix A — Survey Instrument**

#### **Instructions to respondents:**



Please indicate your level of agreement with each statement using the following scale:  
1 = Strongly disagree | 2 = Disagree | 3 = Slightly disagree | 4 = Neutral | 5 = Slightly agree | 6 = Agree | 7 = Strongly agree

### **A1. Digital Leadership (DL)**

*Adapted from (Binsar et al., 2025; Ylitalo et al., 2023)*

**DL1.** Senior leaders in my organization articulate a clear digital vision aligned with patient-centred care priorities.

**DL2.** Leadership actively supports innovation in the use of digital and AI technologies across clinical and administrative processes.

**DL3.** Leaders promote collaboration between clinical, IT and administrative teams in digital and AI initiatives.

**DL4.** Leadership ensures that ethical, legal and regulatory considerations guide the deployment of AI systems.

**DL5.** Leaders allocate sufficient resources (time, budget and personnel) to support digital transformation and AI projects.

### **A2. Organizational AI Readiness (AIR)**

*Adapted from (Mishra, 2024; Thout & Khandekar, 2025)*

#### **Technical Readiness**

**AIR1.** Our organization has adequate data infrastructure and system interoperability to support AI applications.

**AIR2.** AI systems are effectively integrated into existing clinical and administrative workflows.

**AIR3.** Data security, cybersecurity and patient privacy protections are sufficient for AI-enabled systems.

#### **Human Readiness**

**AIR4.** Staff possess sufficient digital and AI-related skills to use AI tools effectively.

**AIR5.** Clinicians trust and are willing to rely on recommendations generated by AI-supported systems.

**AIR6.** Our organization provides regular training and professional development related to digital and AI technologies.

#### **Governance Readiness**

**AIR7.** Formal policies and guidelines exist to govern the ethical use of AI in this organization.

**AIR8.** Roles and responsibilities for monitoring AI system performance, risks and compliance are clearly defined.

**AIR9.** Decisions supported by AI systems are transparent and can be explained to staff and patients.

#### **Cultural Readiness**

**AIR10.** The organizational culture encourages experimentation with new digital and AI technologies.

**AIR11.** Staff feel psychologically safe to raise concerns about AI system limitations, risks or



errors.

**AIR12.** Digital innovation in this organization is consistently aligned with patient-centred values.

### **A3. Service Quality (SQ)**

*Adapted from (Johnson et al., 2025; Laux, 2024)*

**SQ1.** AI-enabled systems improve the timeliness and responsiveness of healthcare service delivery.

**SQ2.** Services supported by digital technologies are reliable and consistent.

**SQ3.** Patients receive care that reflects their individual needs and preferences.

**SQ4.** Digital and AI systems help reduce clinical or administrative errors.

**SQ5.** The use of AI increases patient trust in the quality and safety of healthcare services provided.

### **A4. Control Variables**

**CV1.** Organizational size (number of employees): \_\_\_\_

**CV2.** Organizational type: Public hospital / Private hospital / Outpatient clinic

**CV3.** Respondent role: Physician / Nurse / Administrator / Manager

**CV4.** Years of professional experience: \_\_\_\_

**CV5.** Digital maturity level (self assessed): Low / Moderate / High

**CV6.** Region/Country of organization: \_\_\_\_

## **Appendix B — Semi Structured Interview Protocol**

**Target participants:** Senior managers, clinical leaders, digital transformation leads, IT governance officers, quality and compliance managers

### **Introduction Script**

Thank you for agreeing to participate in this interview. The purpose of this discussion is to explore leadership practices, organizational readiness and governance mechanisms related to the adoption and use of artificial intelligence in healthcare service delivery. Your responses will be treated confidentially and used solely for academic research purposes. You may decline to answer any question or withdraw at any time.

### **B1. Digital Leadership and Strategic Direction**

1. How would you describe your organization's overall digital and AI strategy?
2. What role do senior leaders play in shaping priorities for AI adoption and digital transformation?
3. How are clinical, IT and administrative perspectives integrated into digital and AI-related decision-making?

### **B2. Organizational AI Readiness and Capability Development**

4. What technical or data related challenges has your organization encountered in implementing AI systems?
5. How do staff perceive and engage with AI tools in their daily clinical or administrative work?



6. What types of training or professional development are provided to improve digital and AI-related competencies?

### **B3. Governance, Ethics and Regulatory Compliance**

7. What governance structures exist to oversee the ethical and regulatory aspects of AI use in your organization?
8. How are concerns related to bias, transparency or accountability in AI systems identified and addressed?
9. How does your organization ensure compliance with data protection and patient privacy requirements when using AI technologies?

### **B4. Service Quality and Performance Outcomes**

10. In what ways has AI affected service quality, such as the responsiveness, reliability or continuity of care?
11. Can you provide examples where AI implementation led to improvements or challenges in patient-centred service delivery?
12. How do you evaluate the impact of AI systems on clinical outcomes and operational efficiency in your organization?

### **B5. Cross Functional Collaboration and Organizational Integration**

13. How do different departments (clinical, IT, administration and governance) collaborate during AI implementation projects?
14. What organizational barriers or facilitators influence cross functional coordination in digital and AI initiatives?
15. How are lessons learned from AI projects shared across units or organizational levels?

### **B6. Leadership Development and Organizational Learning**

16. What leadership development initiatives exist to strengthen digital and AI-related capabilities among managers?
17. How does your organization capture, document and institutionalize learning from AI implementation experiences?
18. What leadership competencies will be most critical as AI becomes more embedded in healthcare service delivery?