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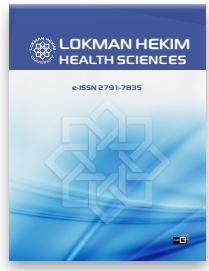

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INVITED REVIEW

Artificial Intelligence as a Managerial Decision Support Infrastructure in Hospitals: A Governance Framework

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Abstract

The advent of artificial intelligence (AI) has precipitated a paradigm shift in healthcare; however, scholarly and policy discourse still prioritizes clinical applications, while managerial applications remain comparatively underexamined. This narrative review focuses on AI governance in hospital management and repositions AI as a managerial decision support infrastructure capable of reshaping hospital governance, organizational accountability, and institutional legitimacy. We conducted a structured narrative synthesis drawing on organizational theory, healthcare management, and AI governance literature. Relevant sources were identified through targeted database searches and citation tracking, screened for applicability to hospital-level managerial AI (strategic planning, resource allocation, and performance oversight), and synthesized via iterative thematic analysis to identify recurring governance challenges and convergent mechanisms. Based on this synthesis, we develop a three-dimensional governance framework linking managerial AI to (1) decision-authority distribution, (2) accountability mechanisms, and (3) institutional legitimacy. The framework is operationalized with illustrative scenarios and contextualized for the Turkish healthcare system. Our analysis shows that effective managerial AI governance requires explicit authority assignment, baseline thresholds for transparency and auditability, and board-level oversight structures to prevent responsibility diffusion and protect institutional legitimacy. We conclude with implementation guidance for hospital leaders and health system regulators.

Keywords: Artificial intelligence governance; Artificial intelligence; Healthcare Management; Hospital governance; Managerial decision support; Narrative review

Artificial intelligence (AI) has become integral to healthcare systems, with substantial literature on the diagnostic accuracy and patient safety of its clinical applications.[1–4] This clinically oriented scholarship has shaped ethical standards and regulatory frameworks for AI in direct patient care.

Hospitals depend on strategic, financial, and operational decisions regarding resource allocation, workforce planning, and service configuration that fundamentally shape care delivery.[5,6] Increasingly, these organizational decisions are informed by AI systems that serve as managerial decision-support infrastructure, influencing

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executive and board-level choices rather than merely assisting clinicians at the point of care.

Despite this shift, the governance implications of managerial AI remain insufficiently theorized. Managerial decisions differ fundamentally from clinical decisions in scope, stakeholder complexity, and accountability expectations. While clinical AI operates within established professional governance frameworks (medical liability, clinical standards, professional ethics), managerial AI influences organizational priorities and system-level equity without precise accountability mechanisms.[7–9] This creates what organizational scholars describe as an accountability gap diffusion of responsibility across human decision-makers, algorithmic systems, and data infrastructures that challenge traditional governance arrangements.[10,11]

The governance vacuum is particularly consequential in healthcare organizations with strong public-interest obligations. When AI systems inform decisions about service availability, staffing levels, or resource distribution, the downstream effects extend to patient access, health equity, and institutional legitimacy. Yet existing governance frameworks – designed for clinical AI or adapted from corporate governance models – do not fully address these organizational and societal accountability challenges.

We define the accountability gap as the diffusion of responsibility across decision-makers, model builders, and data infrastructures, such that no single actor can provide complete justification or be held accountable for downstream harms arising from AI-supported organizational decisions. This operational definition guides the development of our framework.

Research question: How should hospitals govern AI systems that function as managerial decision support infrastructure, and what accountability mechanisms prevent responsibility diffusion while maintaining institutional legitimacy?

We: (1) distinguish managerial AI from clinical AI across key organizational dimensions; (2) examine how managerial AI reconfigures decision authority and creates accountability gaps; (3) propose a governance framework linking managerial AI to accountability mechanisms and institutional legitimacy; and (4) contextualize implications for hospital governance in the Turkish healthcare system. By repositioning managerial AI usage as a governance challenge rather than a technical challenge, this review contributes theoretical guidance for health sciences scholarship and practical frameworks for hospital leaders.

Materials and Methods

Review Design and Scope

In this study, we followed narrative review methodology[12,13] and prioritized theoretical integration and conceptual synthesis over systematic evidence aggregation. This narrative review develops a governance framework for managerial AI using concept-driven synthesis appropriate for emergent, heterogeneous topics[12,13] and synthesizes literature to develop a governance framework for managerial AI in hospitals. The review addresses a multidisciplinary problem that requires interpretive analysis across organizational theory, healthcare management, and AI governance.

Literature Identification and Selection

Sources were identified through structured searches in PubMed, Web of Science, Scopus, and Google Scholar (January 2015–December 2025). Search terms combined: (1) AI terms: AI, machine learning, algorithmic decision-making; (2) organizational terms: Hospital management, healthcare governance, organizational decision-making; and (3) governance terms: accountability, decision authority, institutional legitimacy. Seminal theoretical works (e.g., Simon, Mintzberg) were included through citation tracking.

Inclusion: peer-reviewed articles on AI in organizational/managerial contexts, healthcare governance, or algorithmic accountability. Exclusion: purely clinical AI or non-English sources.

Iterative selection involved reviewing approximately 150 full-text articles identified through database searches and citation tracking. Selection criteria operationalized "theoretical depth" as: (a) articles proposing or testing organizational theories relevant to algorithmic decision-making; (b) empirical studies examining accountability or governance in technology-intensive organizations; or (c) conceptual analyses addressing authority distribution in human-AI systems. Final inclusion of sources prioritized recent empirical evidence (2020–2024), foundational theoretical contributions from organizational and accountability scholarship, and governance-oriented analyses directly relevant to healthcare settings. To minimize selection bias, a conscious decision was made to include a range of sources that represented divergent perspectives. This approach encompassed the incorporation of optimistic views on algorithmic objectivity, alongside critical perspectives on bias. In addition, arguments for proprietary protection were balanced with calls for transparency, and technological positions were juxtaposed with institutional governance emphasis. The deliberate inclusion of contradictory

Table 1. Organizational distinctions between clinical AI and managerial AI in hospital settings

Dimension	Clinical AI	Managerial AI
Primary purpose	Diagnosis, treatment optimization, and patient outcome prediction	Strategic planning, resource allocation, and performance monitoring
Decision level	Individual patient	Organizational and system level
Primary users	Physicians, nurses, allied health professionals	Hospital executives, senior managers, governing boards
Data sources	Clinical records, imaging, laboratory results, physiological signals	Administrative, financial, operational, workforce, performance data
Accountability framework	Clinical governance, professional standards, medical liability	Organizational governance, board oversight, public accountability
Risk profile	Patient safety risks, diagnostic errors, treatment bias	Accountability gaps, erosion of legitimacy, systemic inequities
Transparency focus	Clinical explainability for individual decisions	Decision authority traceability, governance processes
Ethical emphasis	Patient autonomy, beneficence, non-maleficence	Fairness, accountability, legitimacy, public trust

This table synthesizes distinctions identified across organizational theory,[26,43] healthcare management,[5,6,33] and AI governance literature.[33,37,38] The dimensions were selected based on their governance relevance, rather than on technical characteristics of AI systems. AI: Artificial intelligence.

viewpoints ensures that the framework reflects contested terrain rather than privileging a single perspective.

Analysis Approach

Literature was analyzed thematically[14] to identify: (1) distinguishing features of managerial versus clinical AI; (2) governance and accountability challenges; and (3) existing governance frameworks and their limitations.[15–17] Synthesis focused on conceptual integration to ensure the proposed framework is theoretically grounded in organizational theory and responsive to hospital management realities. The Turkish healthcare context was incorporated through policy documents and comparative health systems analysis.

Managerial AI as Decision Support Infrastructure: A Conceptual Framework

Defining Managerial AI

Managerial AI refers to algorithmic systems supporting organizational decision-making. AI encompasses machine learning and predictive analytics that process large-scale data, identify patterns, and inform strategic decisions that affect multiple stakeholders in hospital settings.[18,19]

Managerial AI has indirect effects on patient care, positioning it at the efficiency-equity intersection with distinct governance challenges.

Distinguishing Managerial and Clinical AI

Table 1 systematically contrasts clinical AI and managerial AI across key organizational dimensions, highlighting why governance frameworks designed for clinical AI do not translate to managerial contexts. Clinical AI is embedded in established professional accountability mechanisms (e.g., medical liability and clinical governance) and primarily informs decisions affecting individual patient trajectories within ethical frameworks emphasizing autonomy, beneficence, and non-maleficence. In contrast, managerial AI influences strategic planning, resource allocation, and performance oversight – domains where accountability is organizationally distributed, oversight structures are often less explicit, and decisions shape institutional priorities with system-level equity and legitimacy implications. These differences underscore the need for governance arrangements that prioritize decision-authority traceability, institutional oversight, and public accountability in AI-supported managerial decision-making.

Illustrative Scenarios: Managerial AI in Practice

The following scenarios are analytically constructed, illustrative cases designed to synthesize governance challenges reported across healthcare management and AI governance literature, as well as recurring themes observed in documented organizational incidents. They are not presented as detailed empirical case studies of specific hospitals. Instead, they abstract commonly reported patterns in AI-supported managerial decision-making to concretize the conceptual tensions discussed in this article – particularly accountability gaps, authority ambiguities, and transparency failures. Their purpose is therefore not empirical validation, but to clarify how governance breakdowns can emerge in everyday managerial AI use.

Scenario 1: Emergency department (ED) capacity planning and equity implications.

A university hospital deploys a machine-learning model to support ED staffing and bed-flow planning. Over several months, the model repeatedly underestimates weekend demand patterns in catchment areas with higher social deprivation, contributing to longer waiting times and crowding during predictable peaks. When concerns are raised, operational leaders argue that the model's outputs were "data-driven" and should be followed to maintain efficiency, while IT teams claim they only implemented what was requested.

Governance question: Who is accountable when AI-supported managerial decisions generate systematic inequities, and what oversight mechanisms ensure that efficiency optimization does not undermine equity obligations?

Scenario 2: Workforce optimization, board approval, and patient safety spillovers.

A managerial AI tool recommends reducing night staffing in a geriatric ward by 15% based on historical utilization and cost indicators. The recommendation is escalated as a strategic efficiency measure and approved at the governance level, with the rationale that the system improves resource allocation. Within subsequent months, patients fall, and adverse events rise substantially, prompting internal disputes. Executives highlight that the board approved the decision; board members argue that management proposed the change; analysts and data scientists emphasize that the system only provided recommendations.

Governance question: How should decision authority be distributed and documented when AI-informed strategic choices have direct patient safety implications, and what decision protocols ensure that algorithmic recommendations do not displace accountable human judgment?

Scenario 3: Performance dashboards, proprietary models, and institutional legitimacy.

A teaching hospital introduces an AI-enabled performance dashboard producing departmental "efficiency scores" to guide budget negotiations and managerial evaluations. The scoring method relies on proprietary vendor algorithms that are not fully disclosed, and when departments contest their scores, leadership cannot provide a comprehensible explanation of how outputs were derived. This opacity generates distrust, resistance, and claims that governance is being replaced by vendor-defined criteria rather than institutional values.

Governance question: What transparency and explainability standards are necessary to preserve institutional legitimacy when proprietary AI systems influence performance assessment and resource decisions?

Taken together, these illustrative scenarios demonstrate that accountability gaps in managerial AI emerge not solely from technical limitations but from institutional design failures, including responsibility diffusion, unclear authority structures, and limited transparency. They underscore the need for governance arrangements that make explicit (i) who owns decisions, (ii) how algorithmic inputs are reviewed and overridden, and (iii) what baseline thresholds for transparency are required for meaningful oversight and stakeholder trust.

Governance Challenges in Managerial AI Adoption

The Accountability Gap

Organizational accountability requires identifiable decision-makers who justify choices and accept responsibility.[20,21] Managerial AI distributes influence across executives, data scientists, and algorithms – none of whom bear full responsibility.[10,11,22]

This creates responsibility gaps where harm occurs without clear accountability,[23] undermining institutional legitimacy when AI produces inequitable outcomes.

Opacity and the Black Box Problem

Many managerial AI systems operate as "black boxes" with opaque processes.[24,25] This poses three governance challenges:

First, decision-makers cannot adequately evaluate AI recommendations if they do not understand how conclusions were reached. Boards and executives asked to approve strategic decisions based on algorithmic analysis may accept recommendations uncritically, abdicating judgment to systems they cannot interrogate.[26,27]

Second, opacity prevents stakeholders from identifying embedded biases or questionable assumptions. Algorithms trained in historical data may perpetuate existing inequities – such as systematically underserving marginalized populations – without detection.[28,29] Scenario 1 illustrates this risk: An ED capacity algorithm embedding neighborhood-based disparities.

Third, proprietary AI systems may shield decision-making from institutional oversight through intellectual property protections (Scenario 3). When vendors invoke "algorithmic trade secrets," hospitals cannot audit decision processes, creating governance blind spots incompatible with public accountability expectations.[30]

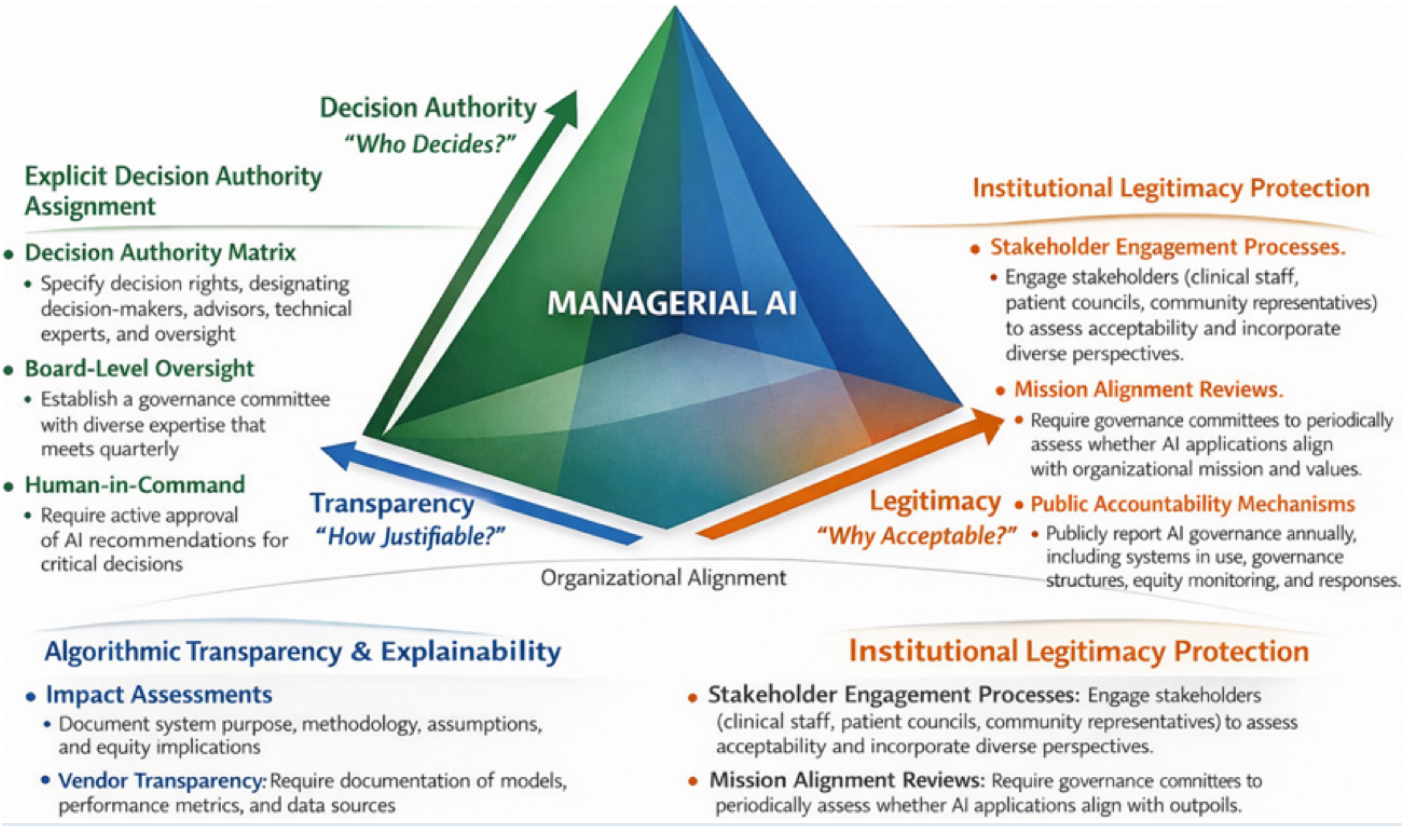

Figure 1. A governance framework for managerial artificial intelligence in hospitals.

Authority Redistribution and Organizational Hierarchy

Managerial AI alters traditional authority patterns within hospital hierarchies. When algorithmic systems gain influence over strategic decisions, authority shifts from established organizational roles (executives, clinical leaders) toward technical experts who design and maintain AI systems.[31,32] This redistribution raises concerns about governance.

Data scientists and IT specialists – traditionally supporting rather than leading organizational strategy – acquire informal power through their unique ability to interpret algorithmic outputs. Yet these individuals may lack training in healthcare ethics, organizational strategy, or stakeholder engagement and are not elected or appointed to governance roles with public accountability.[33,34]

Simultaneously, executives and board members may experience deskilling – diminished capacity for independent judgment as they increasingly defer to algorithmic recommendations. Over-reliance on AI systems can erode institutional expertise necessary for effective governance, particularly in uncertain or unprecedented situations where algorithmic predictions may be unreliable.[35,36]

A Governance Framework for Managerial AI in Hospitals

Addressing the governance challenges identified above requires frameworks explicitly designed for managerial AI contexts. We propose a three-dimensional framework linking managerial AI to decision authority, accountability mechanisms, and institutional legitimacy (Fig. 1).

The three-dimensional structure reflects distinct governance functions in accountability literature.[20,37,38] Dimension 1 (decision authority) addresses the "who decides" question central to organizational hierarchy and responsibility assignment. Dimension 2 (transparency) addresses the "how justifiable" question, essential to oversight and accountability. Dimension 3 (legitimacy) addresses the "why acceptable" question linking technical systems to organizational mission and stakeholder trust. These dimensions are analytically distinct yet interdependent: authority without transparency enables unaccountable decisions; transparency without authority creates information overload without responsibility; legitimacy without both authority and transparency becomes performative rather than substantive. This tripartite structure aligns with Bovens' accountability framework[10] while adapting it specifically for AI-enabled organizational contexts.

Dimension 1: Explicit Decision Authority Assignment

Principle: Organizations must explicitly assign decision authority when AI systems inform strategic, operational, or resource allocation decisions. Authority assignment clarifies who makes final decisions, who provides input, and who bears responsibility for outcomes.

Implementation Mechanisms

- Decision authority matrix: Specify decision rights, designating decision-makers, advisors, technical experts, and oversight
- Board-level oversight: Establish a governance committee with diverse expertise that meets quarterly
- Human-in-command: Require active approval of AI recommendations for critical decisions.

Dimension 2: Algorithmic Transparency and Explainability

Principle: Organizations must ensure managerial AI systems are sufficiently transparent to enable meaningful oversight, stakeholder understanding, and accountability assignment. Transparency requirements differ from clinical explainability – emphasizing decision processes, data provenance, and governance traceability rather than individual prediction justification.

Implementation Mechanisms

- Impact assessments: Document system purpose, methodology, assumptions, and equity implications
- Vendor transparency: Require documentation of models, performance metrics, and data sources.

Implementation faces a critical challenge: Power asymmetry between hospitals and technology corporations. Individual hospitals often lack the bargaining power to demand algorithmic disclosure from vendors that invoke trade secrets. This requires regulatory intervention through: (1) national procurement standards mandating baseline thresholds for transparency for public healthcare AI systems; (2) consortium-based procurement where hospital groups collectively negotiate transparency clauses; and (3) regulatory frameworks requiring algorithmic impact assessments as market authorization conditions. Without such structural interventions, vendor transparency remains aspirational.

- Performance monitoring: Monitor equity metrics, conduct annual audits for high-stakes applications.

Dimension 3: Institutional Legitimacy Protection

Principle: Hospitals must protect institutional legitimacy by ensuring that AI-supported decisions align with the organizational mission, professional values, and public accountability expectations. Legitimacy requires demonstrating that algorithmic systems serve patient and community interests rather than merely optimizing operational metrics.[34,35]

Implementation Mechanisms

- Stakeholder engagement processes: Engage stakeholders (clinical staff, patient councils, community representatives) to assess acceptability and incorporate diverse perspectives.
- Mission alignment reviews: Require governance committees to periodically assess whether AI applications align with organizational mission and values. Systems that optimize financial performance at the expense of access, equity, or quality should be modified or discontinued, regardless of technical sophistication.
- Public accountability mechanisms: Publicly report AI governance annually, including systems in use, governance structures, equity monitoring, and problem responses.

Discussion

The framework's relevance is heightened by recent regulatory and policy developments, including the European Union's AI Act and Organization for Economic Co-operation and Development analysis on AI in health.[39,40] The World Health Organization has also issued guidance on ethics and governance of AI for health, including large multi-modal models.[41] While our review focuses on predictive and analytical AI, GenAI systems introduce additional governance concerns (e.g., non-deterministic outputs and hallucinations) that can affect managerial decision quality and therefore warrant supplementary controls and assurance mechanisms.[42]

Theoretical Contributions

This review advances health sciences scholarship by theorizing managerial AI as a governance challenge. While existing literature addresses clinical AI ethics,[1–4,23,24] organizational governance implications remain underexplored. We contribute by: (1) distinguishing managerial from clinical AI across governance dimensions; (2) identifying accountability gaps as central challenges; and (3) proposing an integrated framework.

Our framework synthesizes organizational theory,[26,37,38,43] healthcare management,[5,6,44] and AI governance literature,[32–35,37,38,45] to address hospital-specific challenges. In contrast to the extensive citation of cross-sector AI ethics frameworks, which predominantly emphasize high-level principles such as fairness, transparency, and accountability, our approach is distinctive in its explicit focus on institutional accountability mechanisms within hospital organizations that are bound by public-interest obligations.

Implications for the Turkish Healthcare System

The proposed framework is of relevance to the healthcare system of Turkiye, where the combination of centralized management, performance-driven incentives, and rapid digitalization gives rise to both opportunities and governance risks regarding the adoption of managerial AI.

The framework's relevance extends to Türkiye's rapidly evolving healthcare system, where hospital governance faces distinct structural and institutional challenges. Türkiye's Health Transformation Program (2003–ongoing) has emphasized performance measurement, efficiency optimization, and data-driven management, thereby creating a fertile institutional environment for the adoption of managerial AI.[22,25] However, effective implementation of the framework in the Turkish context requires explicit attention to several context-specific governance considerations.

Centralized governance architecture. Public hospitals in Türkiye operate within highly centralized governance structures spanning the Ministry of Health, provincial health directorates, and individual hospital administrations. This multi-layered arrangement necessitates formal coordination and escalation mechanisms that are often less pronounced in decentralized health systems. Consequently, clear and explicit assignment of decision authority (Framework Dimension 1) becomes particularly critical when AI-supported decision rights and accountability span multiple institutional levels.

Performance-Based Management Culture

Türkiye's performance-based payment system creates strong AI-optimization incentives but may overshadow equity considerations for geographically isolated or disadvantaged populations. Legitimacy protection mechanisms (Framework Dimension 3) must ensure algorithmic optimization serves social mission alongside efficiency goals.

Academic Medicine Integration

University hospitals play dual roles as care delivery organizations and research institutions. Managerial AI governance in teaching hospitals must balance operational efficiency with the educational mission and research priorities – requiring governance structures that accommodate multiple stakeholder perspectives and accountability relationships not fully captured by corporate governance models.[36,44]

Policy Recommendations for Turkish Healthcare

We propose policy actions for Türkiye: (1) national AI governance standards with equity audits; (2) algorithmic fairness in performance-based payment; (3) mandatory impact assessments; (4) AI governance certification; and (5) consortium-based procurement.

Data governance infrastructure: Türkiye's National Health Information System provides a centralized health data infrastructure, enabling large-scale AI applications but raising data governance questions. Hospital-level managerial AI must navigate relationships with national data platforms, requiring transparency protocols (Framework Dimension 2) clarifying data provenance, access controls, and algorithmic auditability across organizational boundaries.

These considerations suggest that effective AI governance in Türkiye's hospitals requires context-sensitive adaptation of the framework to account for the centralized health system architecture, the longstanding emphasis on performance management, and the practical realities of data availability, interoperability, and infrastructure capacity. The proposed framework provides a conceptual foundation; implementation requires context-specific operationalization tailored to Turkish governance ecosystems.

Practical Implications for Hospital Leaders

While managerial AI deployment remains limited in Türkiye, the framework's anticipatory value lies in establishing governance before widespread implementation, when practices are forming, and correction is less costly.

For hospital executives and governing boards, this framework suggests actionable strategies:

- Before AI adoption: Conduct algorithmic impact assessments, establish governance committees, and develop procurement criteria that emphasize transparency.

- During implementation: Create decision authority matrices, implement human-in-command protocols, and engage affected stakeholders.
- Ongoing governance: Monitor performance across equity metrics, conduct annual audits, and publicly report governance activities.
- Implementation requires governance coordination (0.2–0.5 FTE), technical expertise, and quarterly board reviews. Smaller hospitals may use shared committees. Governance investment prevents ungoverned AI risks.

Resource Considerations

- Governance effectiveness metrics: Decision authority clarity, transparency, compliance, stakeholder trust, equity monitoring, and accountability responsiveness.
- Phased implementation: Months 1–3: Governance committee, systems inventory, authority matrix; 4–6: Impact assessments, vendor transparency; 7–9: Monitoring, stakeholder engagement; 10–12: Annual audit, process refinement.

Phased Implementation Roadmap

To support practical adoption, we provide operational guidance for implementing the governance framework. We align the recommended governance functions with the NIST AI Risk Management Framework (AI RMF 1.0) and the NIST Generative AI Profile to support risk-based implementation and assurance.[42,46] For organizations seeking a certifiable management-system approach, ISO/IEC 42001 can be used to formalize policies, roles, documentation, and continual improvement cycles around AI governance.[47] While organizations must adapt these mechanisms to their specific contexts, the templates and timelines offer actionable starting points.

Implementation Guidance and Operationalization

Translating the proposed governance framework into practice requires systematic and staged operationalization aligned with organizational readiness and AI maturity. Rather than 1-time compliance activities, effective implementation should be understood as a progressive institutionalization process, in which governance capabilities are incrementally developed, reinforced, and embedded within routine managerial practice.

For Dimension 1 (Decision Authority), hospitals should establish explicit decision-authority matrices that clarify which AI-supported decisions require executive approval, board oversight, or escalation. Dedicated board-level or executive AI governance committees play a critical role in maintaining accountability and ensuring that algorithmic recommendations do not displace human judgment.

For Dimension 2 (Transparency), organizations should conduct algorithmic impact assessments, define baseline thresholds for explainability, and require comprehensive documentation from internal teams and external vendors. These measures are essential to enable meaningful oversight and retrospective review.

For Dimension 3 (Institutional Legitimacy), proactive stakeholder engagement – including clinicians and managers, and, where appropriate, the public – should be complemented by transparent reporting practices that communicate how AI systems influence organizational decisions.

Figure 2 illustrates a 12-month, phased implementation roadmap for managerial AI governance in hospital organizations. The roadmap draws on operational lessons from an institutional responsible-AI guideline case study,[48] enterprise governance considerations for scaling AI in healthcare organizations,[49] and a prescriptive health-system evaluation and monitoring framework for the appropriate implementation and review-AI.[50] The phases are cumulative, such that activities initiated in earlier stages continue and mature throughout subsequent phases. This approach emphasizes sustained capability building – from foundational governance structures to performance monitoring and cultural integration – rather than discrete or isolated interventions. Hospitals should tailor the pace and sequencing based on their governance capacity, organizational readiness, and AI maturity levels.

Governance effectiveness across the implementation phases should be monitored using complementary indicators, including:

i. Decision-authority clarity (proportion of AI-supported decisions with documented authority and escalation pathways);
ii. Transparency compliance (proportion of systems with completed impact and explainability assessments);
iii. Stakeholder trust (survey-based measures among clinicians, managers, and staff);
iv. Equity monitoring (regularly documented demographic impact reviews); and
v. Accountability responsiveness (time from issue identification to corrective action).

Limitations

Several limitations of the present study should be acknowledged when interpreting the findings and considering directions for future research.

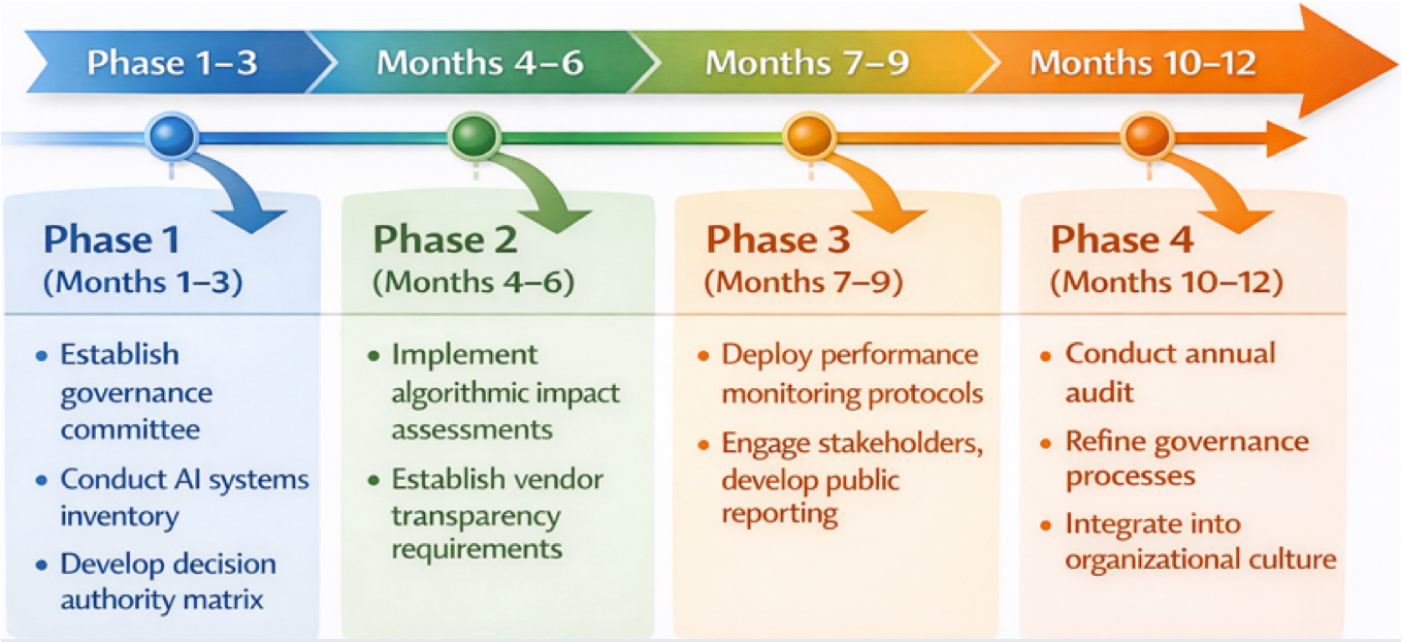

Figure 2. Phased implementation roadmap for managerial artificial intelligence governance in hospital organizations.

First, the proposed governance framework has not yet been empirically validated. Although its theoretical foundations are well grounded in organizational theory, healthcare management, and AI governance literature, empirical testing remains necessary. Future research should validate the framework through rigorous methods, including expert consensus processes (e.g., Delphi studies), pilot implementations in hospital settings, and the development and testing of validated governance instruments. The guidance offered here should therefore be regarded as preliminary and subject to contextual adaptation.

Second, the narrative review methodology does not provide systematic evidence aggregation characteristic of systematic reviews. While narrative synthesis is appropriate for emerging and interdisciplinary domains, the interpretive nature of this approach may reflect author perspectives despite efforts to minimize bias. Future systematic reviews and meta-analyses could quantify the prevalence of specific governance challenges and assess the effectiveness of different managerial AI governance interventions.

Third, the framework is primarily oriented toward medium-to-large hospitals with established governance infrastructure. Smaller or resource-constrained organizations may lack the institutional capacity required for full implementation. In such contexts, governance mechanisms should be proportionate to organizational size, complexity, and AI maturity rather than uniformly applied.

Fourth, the rapid pace of AI development may outstrip existing governance frameworks. Emerging architectures, deployment models, and data practices may introduce governance challenges not fully anticipated in the present analysis. Effective AI governance should therefore be understood as a dynamic and adaptive process, requiring periodic revision as technologies and organizational uses evolve.

Fifth, although the framework is contextualized with reference to the Turkish healthcare system, its applicability across diverse governance models, regulatory environments, and cultural contexts remains to be established. Comparative and cross-national research would strengthen understanding of how managerial AI governance frameworks should be adapted to different institutional settings.

Despite these limitations, the framework offers actionable governance guidance by integrating insights from organizational theory, healthcare management, and AI governance literature. It provides a conceptual foundation for future empirical research and a practical starting point for institutional capacity-building in managerial AI governance.

Conclusion and Future Research Directions

AI is transforming hospital management, yet governance frameworks lag adoption. This review repositions managerial AI as an institutional governance challenge that requires explicit attention to decision authority, accountability, and the protection of legitimacy.

The proposed framework addresses accountability gaps through three governance dimensions: Explicit assignment of decision authority, algorithmic transparency requirements, and protection of institutional legitimacy. These dimensions provide a conceptual foundation for hospitals navigating AI-enabled organizational transformation while maintaining public trust and accountability.

Future research should test the framework's implementation, develop validated instruments, and conduct comparative studies that engage diverse stakeholders.

As managerial AI becomes increasingly central to hospital operations, governance frameworks that ensure accountability, transparency, and legitimacy will determine whether algorithmic decision support serves the organizational mission and societal interests. This review provides theoretical foundation and practical guidance for that essential governance work.

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