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**Digital Transformation and Knowledge Sharing in Moroccan
Startups and Their Impact on Organizational Performance: A
Case of Healthcare Startups**

Abstract

This systematic literature review examines the intersection of digital transformation, knowledge sharing, and organizational performance within the context of Moroccan healthcare startups. Drawing from 108 scholarly sources, this review synthesizes evidence from emerging economy startups, healthcare organizations, and the Moroccan digital ecosystem. While direct empirical evidence on Moroccan healthcare startups remains limited, the review identifies critical mechanisms through which digital transformation and knowledge sharing drive organizational performance. Key findings reveal that: (1) digital transformation in Moroccan organizations positively influences managerial performance, innovation, and operational efficiency, though technology overload poses risks; (2) knowledge sharing in emerging economy startups is primarily motivated by social rewards rather than financial incentives, with digital cultural factors facilitating adoption; (3) high-performance human resource management practices create enabling conditions for knowledge sharing in healthcare settings; and (4) the integration of digital knowledge management significantly enhances both financial and non-financial performance outcomes. The review identifies substantial evidence gaps regarding healthcare startups specifically in Morocco and proposes directions for future research and practice.

Keywords: Digital Transformation; Knowledge Sharing; Organizational Performance; Healthcare Startups; Emerging Economies.

1. INTRODUCTION

Digital transformation has emerged as a critical strategic imperative for organizations worldwide, fundamentally reshaping how businesses create, deliver, and capture value. In emerging economies, where resource constraints and institutional voids present unique challenges, the role of digital technologies in enabling organizational competitiveness becomes particularly salient. Morocco, as a rapidly developing North African nation with ambitious digital development goals aligned with Africa's Agenda 2063, represents an important context for understanding how digital transformation unfolds in resource-constrained environments (Kazim, 2021).

Healthcare startups occupy a distinctive position at the intersection of two transformative forces: the digitalization of healthcare delivery and the entrepreneurial innovation characteristic of startup ecosystems. These organizations face the dual challenge of navigating complex regulatory environments while simultaneously leveraging digital technologies to deliver innovative healthcare solutions. Knowledge sharing the process through which organizational members exchange, combine, and create knowledge has been identified as a critical mechanism through which digital transformation translates into organizational performance outcomes. Furthermore, organizational culture plays a pivotal role in driving managerial innovation within the Moroccan startup ecosystem (Abdellah et al., 2025) (Pinheiro et al., 2023), (Nasser, 2023).

Despite growing scholarly attention to digital transformation in both healthcare and startup contexts, significant gaps remain in our understanding of how these phenomena manifest in emerging economy settings, particularly in Morocco. This literature review addresses this gap by synthesizing evidence from three interconnected streams of research: (1) digital transformation in Moroccan organizations, (2) knowledge sharing in emerging economy startups, and (3) knowledge management in healthcare organizations. The review aims to answer the following research questions:

RQ1: How does digital transformation manifest in Moroccan organizations, and what are its primary mechanisms and outcomes?

RQ2: What role does knowledge sharing play in enabling digital innovation and performance in emerging economy startups?

RQ3: How do digital transformation and knowledge sharing interact to influence organizational performance in healthcare settings?

RQ4: What enablers and barriers shape the effectiveness of digital transformation and knowledge sharing initiatives in emerging economy healthcare contexts?

This review draws upon a comprehensive search across multiple scholarly databases (Google Scholar, ArXiv, and PubMed), yielding 108 unique and relevant papers that were systematically analyzed and relevance-ranked. The synthesis focuses on the top 30 most relevant papers to provide depth and rigor in addressing the research questions.

2. LITERATURE REVIEW

2.1 Digital Transformation: Conceptual Foundations

Digital transformation extends beyond mere technology adoption to encompass fundamental changes in organizational strategy, processes, culture, and business models enabled by digital technologies. In the context of emerging economies, digital transformation represents both an opportunity to leapfrog traditional development pathways and a challenge requiring substantial investments in infrastructure, skills, and institutional capacity (Kazim, 2021).

The knowledge-based view of the firm provides a theoretical lens for understanding how digital transformation creates value. From this perspective, organizational knowledge represents a critical strategic resource, and digital technologies serve as enablers for knowledge creation, storage, transfer, and application (Manghoun et al., 2023). Digital transformation thus becomes a process of reconfiguring organizational knowledge assets and capabilities to achieve competitive advantage.

2.2 Knowledge Sharing in Organizational Contexts

Knowledge sharing encompasses both knowledge donation (communicating one's intellectual capital to others) and knowledge collection (consulting others to learn their intellectual capital) (Nodari et al., 2013). In startup contexts, knowledge sharing takes on particular importance due to resource constraints, rapid growth requirements, and the need for continuous innovation. The effectiveness of knowledge sharing depends on multiple factors, including individual motivations, organizational culture, technological infrastructure, and institutional structures (Kim et al., 2012).

Social exchange theory and social capital theory provide complementary explanations for knowledge sharing behavior. Individuals engage in knowledge sharing when they perceive benefits whether tangible (financial rewards) or intangible (reputation, reciprocity, social recognition) that outweigh the costs of sharing (Pinheiro et al., 2023). In emerging economy

contexts, where formal institutional mechanisms may be weaker, social rewards and network-based incentives often play a more prominent role than in developed economies.

2.3 Organizational Performance in Healthcare Startups

Organizational performance in healthcare contexts encompasses multiple dimensions: clinical outcomes (quality and safety of care), operational efficiency (resource utilization, process optimization), financial performance (profitability, revenue growth), and innovation performance (development of new services, technologies, or delivery models) (Ouddasser et al., 2021). For healthcare startups, performance measurement must account for both the entrepreneurial imperative of growth and scalability and the healthcare imperative of quality and patient safety.

The dynamic capabilities framework offers a useful lens for understanding how healthcare startups build and reconfigure their resource base to address rapidly changing environments. Digital transformation and knowledge sharing can be understood as mechanisms through which organizations develop sensing, seizing, and transforming capabilities that enable sustained competitive advantage (Wang et al., 2024).

3. Digital Transformation in Moroccan Organizations

3.1 Current State of Digital Transformation in Morocco

Morocco has made substantial investments in digital infrastructure and policy frameworks to support digital transformation across sectors. The country's digital development initiatives align with both United Nations Sustainable Development Goals and Africa's Agenda 2063, focusing on strengthening implementation through finance, technology, capacity building, trade, and policy coherence (Kazim, 2021). However, the actual penetration and maturity of digital transformation varies significantly across organizational types and sectors.

Empirical evidence from Moroccan IT workers demonstrates that digital orientation the strategic emphasis on leveraging digital technologies positively influences digital innovation performance through the mediating role of digital dynamic capabilities (Nasser, 2023). This relationship is further moderated by knowledge sharing practices, with knowledge sharing strengthening the link between digital capabilities and innovation outcomes, while knowledge hiding undermines this relationship. These findings suggest that the technical aspects of digital transformation must be complemented by social and organizational mechanisms that facilitate knowledge flows.

3.2 Mechanisms of Digital Transformation Impact

Recent quantitative research examining 108 Moroccan companies reveals four primary mechanisms through which digital transformation influences managerial performance (Massaoudii et al., 2025):

Digital collaborative tools enhance teamwork and communication, enabling distributed teams to coordinate effectively and share information in real-time. These tools facilitate both synchronous and asynchronous collaboration, reducing coordination costs and improving decision quality.

Manager training in digital technologies builds the competencies required to leverage digital tools effectively. Training programs that combine technical skills with change management capabilities appear particularly effective in enabling managers to lead digital initiatives.

Real-time data exploitation enables evidence-based decision-making by providing managers with timely, accurate information about organizational operations, market conditions, and performance metrics. The ability to access and analyze data in real-time accelerates decision cycles and improves responsiveness.

Agile methods foster adaptability and iterative improvement, allowing organizations to respond quickly to changing conditions and learn from experimentation. Agile approaches appear particularly well-suited to the uncertainty and resource constraints characteristic of emerging economy contexts.

These mechanisms collectively improve decision-making speed and accuracy, enhance team adaptability, and foster a culture of digital innovation that supports creativity and process efficiency (Massaoudii et al., 2025).

3.3 The Technology Overload Challenge

While digital transformation offers substantial benefits, excessive exposure to digital tools can negatively impact managerial performance by causing stress and cognitive overload (Massaoudii et al., 2025). This finding highlights the importance of strategic governance frameworks that balance technology adoption with human capacity constraints. Organizations must implement continuous training programs and establish clear guidelines for technology use to mitigate the risks of technology overload while capturing the benefits of digital transformation.

3.4 Digital Transformation in Moroccan Public Sector

The Moroccan public sector, including public institutions and state-owned enterprises, has also embraced digital transformation as a mechanism for improving performance. Quantitative research involving 67 top executives reveals that digital transformation significantly and positively impacts employee performance, with effects on internal process efficiency, talent retention, and customer satisfaction, while reducing operational costs (Jebbari, 2023). However, digital transformation in public sector contexts presents unique challenges, including cybersecurity risks, data protection requirements, and the need for careful planning to navigate complex regulatory environments.

The integration of information technology in Moroccan healthcare organizations, initiated through e-health projects since 2005, aimed to improve care quality, enhance communication, reduce waiting times, and lower hospital costs (Oumlil, 2016). However, adoption by health professionals has faced significant barriers, including cultural resistance, deficiency of qualified personnel, ineffective training programs, and lack of organizational support. These challenges underscore the importance of addressing both technical and socio-organizational factors in digital transformation initiatives.

4. Knowledge Sharing Mechanisms in Emerging Economy Startups

4.1 Motivations for Knowledge Sharing in Startups

Qualitative research involving 72 startup founders, managers, and employees across twelve focus groups reveals that knowledge sharing in emerging economy digital startups is primarily driven by social rather than financial rewards (Pinheiro et al., 2023). Individuals share knowledge to gain recognition, build credibility, and establish connections with investors, mentors, and other stakeholders. This finding contrasts with knowledge sharing patterns in established organizations, where formal incentive systems and career advancement opportunities often play more prominent roles.

The maturation of individual and organizational image and reputation emerges as a critical motivator for knowledge sharing. Startup members perceive knowledge sharing as an investment in their personal brand and professional network, with long-term benefits that extend beyond immediate organizational boundaries. This network-oriented perspective on knowledge sharing aligns with the resource-constrained nature of startup ecosystems, where access to external resources and expertise often determines survival and growth prospects.

4.2 Digital Cultural Factors Enabling Knowledge Sharing

Three digital cultural factors directly influence the adoption of digital knowledge-sharing systems in emerging economy startups (Pineiro et al., 2023):

Remote-first culture normalizes distributed work and digital communication, making technology-mediated knowledge sharing the default mode of interaction rather than an exception. This cultural orientation reduces barriers to adopting digital knowledge management platforms and encourages documentation of tacit knowledge.

Meritocracy emphasizes competence and contribution over formal hierarchy or tenure, creating an environment where knowledge sharing is valued and rewarded based on its quality and utility. Meritocratic cultures reduce status-based barriers to knowledge sharing and encourage junior members to contribute their expertise.

Online community participation extends knowledge sharing beyond organizational boundaries, connecting startup members with broader professional communities and ecosystems. Participation in online communities provides access to diverse knowledge sources and creates opportunities for reputation building and network expansion.

These cultural factors create a communal atmosphere that fosters knowledge exchange, particularly when knowledge sharers are perceived as specialists with valuable expertise (Pineiro et al., 2023). The digital age, the COVID-19 pandemic, and migration crises have accelerated the adoption of these cultural patterns, making them increasingly prevalent in emerging economy startup ecosystems.

4.3 Organizational Mechanisms Supporting Knowledge Sharing

Beyond individual motivations and cultural factors, organizational mechanisms play a crucial role in enabling effective knowledge sharing. Incentive systems that recognize and reward knowledge contributions, training programs that build knowledge sharing capabilities, and collaborative assessment processes that emphasize teamwork all contribute to cultivating relationships and sustaining knowledge flows (Pineiro et al., 2023).

The effectiveness of these mechanisms depends on their alignment with the social reward structures that motivate knowledge sharing in startup contexts. Formal incentive systems that emphasize financial rewards may be less effective than recognition programs, mentorship opportunities, and platforms for showcasing expertise that align with the social motivations of startup members.

5. Knowledge Management in Healthcare Organizations

5.1 The Strategic Role of Knowledge Management in Healthcare

Knowledge management (KM) has been recognized as a critical tool for improving performance in healthcare organizations, particularly in emerging economy contexts where resource constraints and quality challenges are pronounced. In Moroccan public healthcare organizations, KM facilitates efficient decision-making by medical staff, reduces medical errors through the sharing of best practices, improves care quality, reduces administrative costs, and optimizes overall hospital performance (Manghoun et al., 2023).

The success of KM initiatives in healthcare settings hinges on two critical factors: personnel involvement and motivating policy frameworks (Manghoun et al., 2023). Healthcare professionals must perceive KM systems as valuable tools that enhance rather than complicate their work, and organizational policies must create incentives for participation while addressing concerns about time constraints and workload.

5.2 High-Performance HRM Practices as KM Enablers

Qualitative research using grounded theory and multiple case studies in emerging market healthcare providers identifies high-performance human resource management (HPRM) practices as crucial enablers of knowledge sharing and healthcare service innovation (Malik et al., 2024). HPRM practices create a social context that encourages both face-to-face and technology-mediated knowledge sharing through several mechanisms:

Employee empowerment provides healthcare workers with the authority and autonomy to make decisions and contribute their expertise, increasing their willingness to share knowledge and engage in innovation activities.

Job autonomy allows professionals to exercise judgment and adapt practices to local contexts, creating opportunities for experimentation and learning that generate valuable knowledge.

Social interaction ties build trust and familiarity among team members, reducing barriers to knowledge sharing and facilitating the transfer of tacit knowledge that is difficult to codify.

Trust creates psychological safety that enables individuals to share knowledge without fear of negative consequences, such as loss of status or exploitation of their expertise.

Shared goals align individual and organizational objectives, creating common ground that motivates knowledge sharing and collaborative problem-solving.

These HPHRM practices enable healthcare organizations to manage technological and social change effectively, supporting the adoption of digital technologies for service innovation (Malik et al., 2024). The integration of HPHRM practices with digital transformation initiatives appears particularly important in healthcare contexts, where professional autonomy and clinical judgment must be balanced with standardization and evidence-based practice.

5.3 Interorganizational Knowledge Sharing in Digital Health Ecosystems

The establishment of digital health learning ecosystems requires effective interorganizational knowledge sharing mechanisms. Qualitative evaluation of England's national digital health transformation program, involving 341 one-on-one interviews, 116 group interviews, 86 meeting observations, and analysis of 325 documents, reveals that formal knowledge transfer processes can accelerate informal networking and establish foundations for learning ecosystems (Cresswell et al., 2021).

Knowledge exchange proves most effective when sustained through informal networking driven by mutual benefits and convergence among participating organizations. Key enablers include geographical proximity, shared organizational culture, common technological platforms, and aligned professional agendas (Cresswell et al., 2021). These findings suggest that successful digital health transformation requires not only technical infrastructure but also social infrastructure that facilitates knowledge flows across organizational boundaries.

However, knowledge sharing can be burdensome for some organizations, and asymmetries between knowledge provision and receipt can create sustainability challenges (Cresswell et al., 2021). Effective ecosystem governance must address these challenges through mechanisms that balance contributions and benefits, provide resources to support knowledge sharing activities, and create incentives for sustained participation.

5.4 Barriers to Knowledge Management in Healthcare

Despite its potential benefits, KM implementation in healthcare organizations faces multiple barriers. In the Moroccan context, these challenges include (Manghoum et al., 2023):

Integration of new information and communication technologies (ICT) requires substantial investments in infrastructure, training, and change management, which may exceed the capacity of resource-constrained healthcare organizations.

Financial constraints limit the ability to invest in KM systems, training programs, and dedicated personnel, forcing organizations to prioritize immediate operational needs over long-term capability building.

Lack of specialized KM personnel results in inadequate expertise for designing, implementing, and maintaining KM systems, leading to suboptimal system design and low adoption rates.

High IT staff turnover disrupts continuity and institutional memory, making it difficult to sustain KM initiatives over time.

Isolated socio-political context of rural areas creates challenges for knowledge sharing and technology adoption, as limited connectivity, lower digital literacy, and cultural factors may impede participation in digital KM systems.

Organizational culture can present barriers when it emphasizes hierarchy, individual achievement, or professional silos that discourage knowledge sharing and collaboration.

These barriers highlight the need for context-sensitive approaches to KM implementation that address both technical and socio-organizational challenges.

6. The Performance Impact of Digital Transformation and Knowledge Sharing

6.1 Financial Performance Outcomes

Digital knowledge management encompassing digital knowledge creation, sharing, and organizational learning significantly enhances financial performance outcomes, including profitability, return on investment, and revenue growth (Karim et al., 2024). These effects operate through multiple mechanisms: improved decision-making based on timely and accurate information, innovation that creates new revenue streams, productivity improvements that reduce costs, and enhanced customer satisfaction that drives retention and growth.

In the Moroccan public sector context, digital transformation has been shown to reduce operational costs while improving service delivery (Jebbari, 2023). The ability to automate routine processes, optimize resource allocation, and reduce errors contributes to cost savings that can be reinvested in service improvements or returned to stakeholders.

6.2 Non-Financial Performance Outcomes

Beyond financial metrics, digital transformation and knowledge sharing generate substantial non-financial performance benefits. Research demonstrates positive impacts on employee

satisfaction, customer satisfaction, innovation capability, and service quality (Karim et al., 2024). These outcomes are particularly important in healthcare contexts, where clinical quality and patient safety represent primary performance objectives that may not be fully captured by financial metrics.

In healthcare settings, knowledge sharing and digital transformation contribute to improved care quality through several pathways: reduction of medical errors via dissemination of best practices, faster and more accurate diagnosis through access to clinical knowledge bases, enhanced coordination among care team members, and continuous improvement through systematic learning from experience (Manghoum et al., 2023), (Malik et al., 2024).

6.3 Innovation Performance

The relationship between knowledge sharing and innovation performance is particularly strong in emerging economy contexts. In Moroccan IT workers, knowledge sharing positively moderates the relationship between digital orientation, digital dynamic capabilities, and digital innovation performance (Nasser, 2023). This moderating effect suggests that organizations with strong knowledge sharing practices are better able to translate digital investments and capabilities into innovative outcomes.

HPHRM practices and knowledge sharing jointly support healthcare service innovation in emerging market settings (Malik et al., 2024). The combination of empowered, autonomous employees with effective knowledge sharing mechanisms creates conditions for experimentation, learning, and the development of innovative healthcare solutions that address local needs and constraints.

6.4 Mediating and Moderating Mechanisms

The relationship between digital transformation and organizational performance is mediated by several intermediate mechanisms. Digital health transformation positively affects both innovative work behavior and job performance among healthcare workers, with innovative work behavior mediating the relationship between digital transformation and job performance (Alwali et al., 2025). This mediation suggests that digital transformation creates value not only through direct efficiency gains but also by enabling employees to engage in innovative behaviors that improve performance.

Knowledge sharing serves as a critical moderator of digital transformation effectiveness. Organizations with strong knowledge sharing practices are better able to leverage digital

technologies for innovation and performance improvement, while knowledge hiding undermines these relationships (Nasser, 2023). This moderating role highlights the importance of addressing both technical and social dimensions of digital transformation.

6.5 Contextual Factors Affecting Performance Outcomes

The performance impact of digital transformation and knowledge sharing is contingent on contextual factors. In developing country contexts, infrastructure deficiencies such as intermittent internet connectivity may weaken the relationships between digital health transformation, innovative work behavior, and job performance (Alwali et al., 2025). These findings underscore the need for mitigation strategies such as tiered training programs, low-bandwidth deployment options, and hybrid approaches that combine digital and traditional methods.

Organizational culture also shapes performance outcomes. Competitive climates moderate the relationship between employee dynamic capabilities and digital performance, with stronger effects observed in contexts that emphasize competition and achievement (Wang et al., 2024). However, excessive competition may undermine knowledge sharing by creating incentives to hoard rather than share knowledge, suggesting the need for careful balance in cultural design.

7. Enablers and Barriers

7.1 Technological Enablers

Digital collaborative tools, real-time data analytics platforms, and knowledge management systems serve as critical technological enablers of digital transformation and knowledge sharing (Massaoudii et al., 2025). These technologies reduce transaction costs for knowledge exchange, enable asynchronous collaboration across time and space, and provide platforms for codifying and disseminating tacit knowledge.

However, the effectiveness of these technological enablers depends on their integration with organizational processes and their alignment with user needs. Technology adoption must be accompanied by training, change management, and ongoing support to ensure that tools are used effectively and that potential benefits are realized (Massaoudii et al., 2025), (Oumlil, 2016).

7.2 Organizational and Human Resource Enablers

HPHRM practices including employee empowerment, job autonomy, trust-building, and goal alignment create organizational conditions that enable effective knowledge sharing and digital transformation (Malik et al., 2024). These practices address the social and motivational dimensions of knowledge sharing that technological solutions alone cannot resolve.

Training and development programs build the digital competencies and knowledge management capabilities required for effective participation in digital transformation initiatives (Massaoudii et al., 2025), (Jebbari, 2023). Continuous learning opportunities help employees adapt to evolving technologies and practices, reducing resistance to change and building organizational capacity for innovation.

Leadership support and strategic alignment ensure that digital transformation and knowledge sharing initiatives receive adequate resources and attention (Mohamed et al., 2021). Leaders who champion these initiatives, model desired behaviors, and create accountability for outcomes increase the likelihood of successful implementation.

7.3 Cultural and Social Enablers

Digital cultural factors including remote-first orientation, meritocracy, and online community participation facilitate the adoption of digital knowledge sharing systems (Pinheiro et al., 2023). These cultural elements create norms and expectations that make knowledge sharing a natural part of organizational life rather than an exceptional activity requiring special effort.

Social reward systems that recognize and celebrate knowledge contributions align with the motivations of startup members and emerging economy professionals (Pinheiro et al., 2023). Reputation mechanisms, visibility platforms, and networking opportunities provide incentives for knowledge sharing that may be more effective than financial rewards in resource-constrained contexts.

Trust and psychological safety enable individuals to share knowledge without fear of negative consequences (Malik et al., 2024). Building trust requires consistent organizational practices, transparent communication, and demonstrated commitment to protecting knowledge contributors from exploitation or punishment.

7.4 Barriers and Challenges

Despite the potential benefits of digital transformation and knowledge sharing, multiple barriers impede their effective implementation:

Technology overload occurs when excessive digital tool exposure creates stress and cognitive burden, impairing rather than enhancing performance (Massaoudii et al., 2025). Organizations must implement governance frameworks that balance technology adoption with human capacity constraints.

Resource constraints including financial limitations, personnel shortages, and infrastructure deficiencies limit the ability of emerging economy organizations to invest in digital transformation and KM initiatives (Manghoun et al., 2023), (Oumlil, 2016). These constraints require creative approaches that leverage low-cost technologies, partnerships, and phased implementation strategies.

Cultural resistance to change, particularly in professional contexts where established practices and hierarchies are deeply embedded, can undermine digital transformation and knowledge sharing initiatives (Oumlil, 2016). Addressing cultural barriers requires sustained change management efforts that engage stakeholders, address concerns, and demonstrate value.

Skills gaps in both digital technologies and knowledge management practices limit the ability of organizations to implement and sustain initiatives (Manghoun et al., 2023), (Oumlil, 2016). Building capacity through training, hiring, and partnerships is essential but requires time and resources that may be scarce.

Institutional and regulatory challenges including cybersecurity requirements, data protection regulations, and professional licensing constraints create complexity that organizations must navigate (Jebbari, 2023). These challenges are particularly pronounced in healthcare contexts, where patient privacy and safety considerations impose stringent requirements.

DISCUSSION

Synthesis of Key Findings

This literature review reveals a complex, multi-level relationship between digital transformation, knowledge sharing, and organizational performance in emerging economy contexts. Several key insights emerge from the synthesis:

First, digital transformation in Moroccan organizations demonstrates measurable positive impacts on managerial performance, innovation, and operational efficiency, but these benefits are contingent on effective implementation strategies that address technology overload risks (Massaoudii et al., 2025). The mechanisms through which digital transformation creates value

collaborative tools, training, real-time data exploitation, and agile methods provide actionable guidance for organizations pursuing digital initiatives.

Second, knowledge sharing in emerging economy startups is fundamentally shaped by social rather than financial motivations, with reputation, recognition, and network access serving as primary drivers (Pineiro et al., 2023). This finding has important implications for the design of incentive systems and organizational cultures in resource-constrained contexts, suggesting that investments in social reward mechanisms may yield higher returns than traditional financial incentives.

Third, the integration of HPHRM practices with digital transformation initiatives emerges as a critical success factor in healthcare contexts (Malik et al., 2024). The social context created by empowerment, autonomy, trust, and shared goals enables effective knowledge sharing that translates digital capabilities into innovative healthcare solutions. This integration addresses a common failure mode of digital transformation initiatives that focus exclusively on technology while neglecting organizational and human factors.

Fourth, the performance impact of digital transformation and knowledge sharing extends across multiple dimensions financial, operational, innovation, employee, and customer outcomes with particularly strong effects on innovation performance (Nasser, 2023), (Karim et al., 2024). This multi-dimensional impact suggests that organizations should adopt balanced performance measurement systems that capture the full range of benefits rather than focusing narrowly on financial metrics.

Theoretical Contributions

This review contributes to theory in several ways. It extends the knowledge-based view of the firm by demonstrating how digital technologies reconfigure knowledge processes in emerging economy contexts, where institutional voids and resource constraints create unique challenges and opportunities. The finding that social rewards dominate financial incentives in emerging economy startups suggests that social exchange theory and social capital theory may be more relevant than agency theory for understanding knowledge sharing in these contexts.

The review also contributes to dynamic capabilities theory by identifying specific mechanisms digital orientation, digital dynamic capabilities, and knowledge sharing through which organizations build and reconfigure their resource base to achieve competitive advantage (Nasser, 2023), (Wang et al., 2024). The moderating role of knowledge sharing in the

relationship between digital capabilities and innovation performance highlights the importance of social mechanisms in enabling dynamic capabilities.

Evidence Gaps and Limitations

Despite the breadth of evidence synthesized in this review, significant gaps remain. Most critically, direct empirical evidence on digital transformation and knowledge sharing specifically in Moroccan healthcare startups is sparse. The review necessarily draws on evidence from three related but distinct domains Moroccan organizations broadly, emerging economy startups, and healthcare organizations to construct an integrated understanding. While this approach provides valuable insights, it cannot fully substitute for direct empirical investigation of the target context.

The geographic distribution of evidence is also uneven, with substantial representation from developed country contexts (particularly the UK and US) and limited representation from North African and Middle Eastern contexts beyond Morocco. This geographic imbalance raises questions about the generalizability of findings to the Moroccan healthcare startup ecosystem, which may have distinctive characteristics shaped by local institutional, cultural, and market conditions.

Methodologically, the evidence base includes a mix of qualitative case studies, quantitative surveys, and systematic reviews, each with inherent strengths and limitations. The predominance of cross-sectional quantitative studies limits the ability to make strong causal inferences about the relationships between digital transformation, knowledge sharing, and performance. Longitudinal research designs that track organizations over time would provide stronger evidence for causal mechanisms and temporal dynamics.

Practical Implications

For healthcare startup founders and managers in Morocco, this review offers several actionable insights:

Prioritize social reward mechanisms for knowledge sharing rather than relying exclusively on financial incentives. Invest in platforms and practices that enable reputation building, recognition, and network expansion (Pinheiro et al., 2023).

Implement HPHRM practices that create enabling conditions for knowledge sharing, including employee empowerment, job autonomy, trust-building, and goal alignment (Malik et al., 2024).

These practices are particularly important in healthcare contexts where professional autonomy and clinical judgment must be balanced with organizational coordination.

Adopt a balanced approach to digital tool adoption that captures benefits while avoiding technology overload. Implement governance frameworks, provide continuous training, and establish clear guidelines for technology use (Massaoudii et al., 2025).

Leverage digital cultural factors remote-first orientation, meritocracy, and online community participation to facilitate adoption of digital knowledge sharing systems (Pineiro et al., 2023). These cultural elements align with the characteristics of startup ecosystems and can be cultivated through leadership modeling and organizational practices.

Build interorganizational networks that enable knowledge sharing across organizational boundaries. Participate in formal programs while also investing in informal networking that creates sustained relationships and mutual benefits (Cresswell et al., 2021).

Address infrastructure and capacity constraints through phased implementation strategies, partnerships, and creative use of low-cost technologies. Recognize that resource constraints require adaptive approaches rather than wholesale adoption of best practices from resource-rich contexts (Manghoun et al., 2023), (Alwali et al., 2025).

For policymakers and ecosystem builders, the review highlights the importance of investments in digital infrastructure, capacity building programs, and institutional frameworks that support knowledge sharing and digital transformation. The challenges faced by Moroccan healthcare organizations in adopting e-health systems including cultural resistance, skills gaps, and inadequate support suggest the need for comprehensive ecosystem interventions that address multiple barriers simultaneously (Oumlil, 2016).

FUTURE RESEARCH DIRECTIONS AND RECOMMENDATIONS

Empirical Research Priorities

The most pressing research need is for direct empirical investigation of digital transformation and knowledge sharing in Moroccan healthcare startups. Recommended research designs include:

Longitudinal case studies that track healthcare startups over time, documenting their digital transformation journeys, knowledge sharing practices, and performance outcomes. Such studies

would provide rich contextual understanding and enable analysis of temporal dynamics and causal mechanisms.

Comparative studies that examine healthcare startups across different emerging economy contexts (e.g., Morocco, Tunisia, Egypt, Jordan) to identify context-specific factors and generalizable patterns. Comparative designs would help distinguish between factors that are unique to Morocco and those that characterize emerging economy healthcare startups more broadly.

Mixed-methods studies that combine quantitative measurement of digital transformation maturity, knowledge sharing intensity, and performance outcomes with qualitative investigation of mechanisms, enablers, and barriers. Mixed-methods approaches would provide both breadth and depth of understanding.

Network analysis studies that map knowledge flows within and across healthcare startup ecosystems, identifying key actors, structural patterns, and network dynamics that facilitate or impede knowledge sharing. Network approaches would illuminate the relational infrastructure that supports digital transformation.

Theoretical Development Needs

Future research should develop and test theoretical models that integrate digital transformation, knowledge sharing, and performance in emerging economy healthcare contexts. Specific theoretical questions include:

How do institutional voids and resource constraints in emerging economies shape the mechanisms through which digital transformation creates value? What alternative pathways to value creation emerge in resource-constrained contexts?

What are the boundary conditions for the dominance of social over financial rewards in motivating knowledge sharing? Under what conditions do financial incentives become more important, and how do these conditions vary across organizational types and developmental stages?

How do professional identities and clinical cultures in healthcare interact with startup cultures to shape knowledge sharing practices and digital transformation outcomes? What tensions arise from these cultural intersections, and how can they be productively managed?

Methodological Innovations

Future research would benefit from methodological innovations that address current limitations:

Digital trace data analysis that leverages data from knowledge management platforms, collaboration tools, and digital health systems to measure knowledge sharing behaviors and digital transformation activities unobtrusively and at scale.

Quasi-experimental designs that exploit natural experiments or policy changes to strengthen causal inference about the effects of digital transformation and knowledge sharing interventions.

Participatory action research that engages healthcare startup practitioners as co-researchers, ensuring that research questions and methods are relevant to practice while building local research capacity.

9.4 Policy and Practice Recommendations

Based on the evidence synthesized in this review, several recommendations emerge for policy and practice:

For healthcare startup founders:

Invest in building a knowledge-sharing culture from inception, establishing norms and practices that encourage openness and collaboration

Adopt digital tools strategically, focusing on those that address specific organizational needs rather than pursuing technology for its own sake

Develop HPHRM practices that empower employees, build trust, and align goals, creating conditions for effective knowledge sharing

Participate actively in ecosystem networks, both formal and informal, to access external knowledge and resources

For healthcare system leaders and regulators:

Develop supportive regulatory frameworks that enable digital health innovation while ensuring patient safety and data protection

Invest in digital infrastructure and capacity building programs that reduce barriers to digital transformation

Create platforms and programs that facilitate interorganizational knowledge sharing and learning

Recognize and address the specific challenges faced by startups in navigating complex healthcare regulatory environments

For ecosystem builders and support organizations:

Design incubator and accelerator programs that explicitly address knowledge sharing and digital transformation capabilities

Create networking opportunities that connect healthcare startups with established healthcare organizations, technology providers, and investors

Develop mentorship programs that leverage the expertise of successful entrepreneurs and healthcare leaders

Provide access to shared digital infrastructure and knowledge management platforms that reduce costs for individual startups

For researchers and academic institutions:

Conduct rigorous empirical research on Moroccan healthcare startups to address current evidence gaps

Develop teaching programs that build digital transformation and knowledge management capabilities in healthcare entrepreneurs

Create partnerships with healthcare startups that enable collaborative research and knowledge exchange

Disseminate research findings in accessible formats that inform practice and policy

CONCLUSION

This systematic literature review has synthesized evidence from 108 scholarly sources to examine the intersection of digital transformation, knowledge sharing, and organizational performance in the context of Moroccan healthcare startups. While direct empirical evidence on this specific context remains limited, the review has identified critical mechanisms, enablers, and barriers that shape how digital transformation and knowledge sharing influence organizational outcomes.

Key conclusions include:

1. Digital transformation in Moroccan organizations demonstrates measurable positive impacts on managerial performance, innovation, and operational efficiency through mechanisms including collaborative tools, training, real-time data exploitation, and agile methods, though technology overload poses risks that require careful management (Massaoudii et al., 2025).
2. Knowledge sharing in emerging economy startups is primarily motivated by social rewards recognition, reputation, and network access rather than financial incentives, with digital cultural factors (remote-first orientation, meritocracy, online community participation) facilitating adoption of digital knowledge sharing systems (Pinheiro et al., 2023).
3. High-performance human resource management practices create enabling conditions for knowledge sharing in healthcare organizations by fostering empowerment, autonomy, trust, and shared goals, which support the adoption of digital technologies for service innovation (Malik et al., 2024).
4. Digital knowledge management significantly enhances both financial performance (profitability, ROI, revenue growth) and non-financial performance (employee satisfaction, customer satisfaction, innovation capability), with knowledge sharing serving as a critical moderator of digital transformation effectiveness (Nasser, 2023), (Karim et al., 2024).
5. Multiple barriers impede effective implementation of digital transformation and knowledge sharing initiatives, including technology overload, resource constraints, cultural resistance, skills gaps, and institutional challenges, requiring comprehensive interventions that address technical, organizational, and contextual factors (Manghoun et al., 2023), (Massaoudii et al., 2025), (Oumlil, 2016).

The evidence synthesized in this review provides a foundation for understanding how digital transformation and knowledge sharing can drive organizational performance in Moroccan healthcare startups, while also highlighting substantial gaps that require future empirical investigation. The integration of insights from Moroccan organizational contexts, emerging economy startups, and healthcare organizations offers a multi-faceted perspective that can inform both research and practice.

As Morocco continues to develop its digital ecosystem and healthcare sector, the effective integration of digital transformation and knowledge sharing will be critical for building competitive, innovative healthcare startups that address local health challenges while achieving sustainable growth. The mechanisms, enablers, and barriers identified in this review provide actionable guidance for entrepreneurs, managers, policymakers, and ecosystem builders working to realize this vision.

Future research should prioritize direct empirical investigation of Moroccan healthcare startups through longitudinal case studies, comparative analyses, and mixed-methods designs that capture both the breadth and depth of digital transformation and knowledge sharing phenomena. Such research will not only address current evidence gaps but also contribute to broader theoretical understanding of how digital technologies and knowledge processes create value in emerging economy contexts.

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