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Building Resilient Healthcare Systems: A Systematic Literature Review on Human Capital and Digital Transformation

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Abstract: This PRISMA-guided systematic literature review investigated the influence of human infrastructure on the outcome of digital transformation and organizational performance in healthcare by merging the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) with the McKinsey 7S Framework. A total of 43 studies were included and were integrated using qualitative thematic analysis after searches of Scopus, Web of Science, ScienceDirect, and Google Scholar for publications between 2010 and 2025. Performance Expectancy (PE) and Facilitating Conditions (FC) seemed to be the most consistently reported factors that influence the adoption of healthcare technology, while Social Influence (SI) and Hedonic Motivation (HM) also proved to be affected by organizational culture, type of technology, and previous user experience. At the organization level, organizations that are characterized by higher levels of McKinsey 7S soft elements, especially Staff, Skills, Style, and Shared Values, are more likely to see positive intention towards sustained use and improved performance at the individual level. Success in digital transformation could be an intermediate mechanism for human infrastructure to positively influence organizational output in terms of operational efficiency, service quality, and patient satisfaction, and so on. The combined model provides a richer understanding of the digital transformation in healthcare and can assist managers, policymakers, and academics in sustainable adoption.

Keywords: *Human infrastructure, digital transformation, organizational performance, sustainable healthcare, UTAUT2, McKinsey 7S*

1. Introduction and Background

The digital transformation of healthcare is increasingly seen as a people and process challenge rather than a technology challenge. While electronic health records (EHR), telemedicine, AI, cloud-based solutions, and hospital information systems (HIS) are becoming more accessible, successful adoption requires an organization's preparedness and workforce's ability to implement the change. Five interrelated facets of healthcare digitalization were identified by Kraus et al. (2021): operational efficiency, patient-centred care, workforce practices, the organizational and managerial consequences and the socio-economic impact. Their analysis suggests that sustainable change requires an organizational shift as well as access to the technology. This concern resonates in Malaysia, with the national digital-health policy gradually being formulated after the inception of telehealth in 1997 and the Introduction of the Total Hospital Information System (THIS) project /modules in a few Government Hospitals.

The Malaysian government has also supported digital development through initiatives such as the Malaysia Digital Economy Blueprint, the JENDELA programme and the Twelfth Malaysia Plan (2021-2025). Although the COVID-19 pandemic accelerated the use of digital healthcare services, including teleconsultation, the adoption and utilization of healthcare information systems in public health facilities remain uneven. Malaysian studies have identified organizational support, training adequacy, social influence, and digital competency as important factors associated with eHealth adoption and use. International literature likewise emphasizes the importance of organizational and workforce conditions in healthcare transformation.

Recent evidence indicates that successful healthcare digital transformation depends not only on the availability of digital technologies but also on organizational readiness, leadership support, adaptable structures, and the continuous development of employees' digital skills (Zavacká & Jankelová, 2025). Recent healthcare-

technology research shows that healthcare professionals' acceptance is shaped by perceived usefulness, perceived ease of use, social influence, facilitating conditions, training, self-efficacy, and organizational context (Mathew et al., 2023; Thanthrige et al., 2024). A more recent review published after the stated review period similarly emphasizes the importance of organizational and contextual factors in digital-health adoption (Ikawati et al., 2026).

Therefore, the present review is based on two complementary theoretical models: the Unified Theory of the Acceptance and Use of Technology 2 (UTAUT2) model formulated by Venkatesh, Thong, and Xu (2012) and the McKinsey 7S Framework. UTAUT2 is an extended individual-level theory explaining technology acceptance and use in terms of Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Hedonic Motivation, Price Value, and Habit. The McKinsey 7S Framework can also be applied to the organization level, considering seven interrelated elements through Strategy, Structure, Systems, Staff, Skills, Style, and Shared Values (Loonam, 2021).

Taken together, these models allow a multi-level approach to investigating the ways in which healthcare employees' acceptance of digital technologies and alignment with the organization and human infrastructure coalesce to shape the success of digital-transformation implementation and achievement of organizational performance. The application of UTAUT2 and McKinsey 7S frameworks in this paper is theoretical and should not be understood to mean that these theories combined as frameworks are already quantitatively validated as a solitary causal model. Even with the expanding research body on healthcare digital transformation, three major voids persist (Zavacká & Jankelová, 2025; Mathew et al., 2023). Recent reviews highlight that the discipline now includes healthcare-technology adoption, organisational consequences, leadership, workforce capability, and digital-transformation readiness. Nevertheless, such domains are more commonly analysed with different analytical lenses rather than from a single integrated theoretical perspective.

First, extant research typically investigates individual technology acceptance and organizational readiness as two distinct bodies of literature. Research on the uptake tends to concentrate on the individual beliefs (i.e., Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions) (Mathew et al., 2023; Zavacká & Jankelová, 2025), while organizational studies focus on leadership, organizational design/structures, systems, workforce capabilities, and change readiness. This has led to a paucity of evidence synthesis regarding the relationship between employee-level adoption factors and organization-level conditions in influencing sustained implementation and higher-level digital-transformation outcomes.

Second, although UTAUT2 and related acceptance models have been widely applied to explain healthcare professionals' intentions to adopt digital technologies, and the McKinsey 7S Framework has been used to examine organizational alignment and digital-transformation barriers, few studies appear to combine these perspectives in a single conceptual framework. Recent healthcare-technology research indicates that technology acceptance is influenced not only by perceived usefulness and ease of use but also by training, self-efficacy, facilitating conditions, social factors, and organizational context (Ikawati et al., 2026; Thanthrige et al., 2024). Similarly, the McKinsey 7S Framework identifies Strategy, Structure, Systems, Staff, Skills, Style, and Shared Values as organizational dimensions through which digital-transformation barriers and enablers can be examined (Abouaomar & Alhaderi, 2024). In particular, the role of human infrastructure Staff, Skills, leadership Style, and Shared Values in translating technology acceptance into sustained implementation and improved organizational performance remains insufficiently synthesized.

Third, the available evidence is fragmented across healthcare settings, technologies, professional groups, and national contexts. In Malaysia, recent research has examined technology readiness, perceived usefulness, perceived ease of use, digital competence, and healthcare professionals' intention to use telemedicine. However, adoption remains uneven, and limited evidence has synthesized how individual acceptance factors interact with organizational alignment factors in Malaysian public healthcare organizations (Cheah et al., 2025). Accordingly, this systematic literature review seeks to synthesize evidence on how individual technology-acceptance factors and organizational-alignment factors interact to influence healthcare digital transformation and organizational performance, with particular attention to the Malaysian healthcare context.

2 Literature Review

Building on the Introduction, this section reviews the theoretical and empirical literature linking healthcare digital transformation with technology acceptance, human infrastructure, organizational readiness, and performance. The discussion focuses on how UTAUT2 explains employee-level adoption and how the McKinsey 7S Framework explains the organizational conditions that support or constrain implementation. UTAUT2, developed by Venkatesh et al. (2012), describes technology adoption through Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, and Hedonic Motivation. The McKinsey 7S Framework focuses on organizational alignment through Strategy, Structure, Systems, Staff, Skills, Style, and Shared Values (Loonam, 2021). Together, these frameworks provide a two-level perspective for examining how healthcare employees' acceptance of digital technologies interacts with organizational readiness and alignment to influence digital transformation and organizational performance.

UTAUT2 and McKinsey 7S: An Integrated Perspective on Digital Transformation

The Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) and the McKinsey 7S Model operate at distinct but complementary layers of the healthcare digital transformation. The UTAUT2 is at the individual level of awareness as to why HCWs adopt, or intend to adopt, and continue using digital HC tools. It is defined as Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Hedonic Motivation, Price Value, and Habit (Venkatesh et al., 2012). Reviews of more recent healthcare technology indicate that UTAUT or similar models are still being used in investigations of telemedicine, electronic health records, mobile health applications, and health information systems. Adoption can be predicted by Performance Expectancy (PE) to a high degree, and the extended model addresses additional factors such as trust, compatibility, training, self-efficacy, organizational support, and task-technology fit (Mathew et al., 2023; Ikawati et al., 2026; Thanthrige et al., 2024).

The McKinsey 7S Model, on the other hand, focuses on the organizational elements that facilitate or hinder digital transformation. These are Strategy, Structure, Systems, Staff, Skills, Style, and Shared Values (Loonam, 2021). These aspects highlight that transformative success is contingent not only on employees' openness toward technology diffusion but also on the coherence between organizational priorities, leadership models, operating processes, workforce capabilities, and organizational culture. And in healthcare settings, that may be particularly crucial, as digital solutions not only need to be adapted to clinical workflows and business processes but also to professional roles and patient-service delivery.

The conceptual cross-layer integration of UTAUT2 and the McKinsey 7S Model better explains digital transformation. UTAUT2 identifies the individual factors affecting acceptance of technology, 43 whereas the 7S framework describes the organizational context in which acceptance takes place. For instance, an organizational Strategy may reinforce Performance Expectancy by making explicit the expected benefits of digital transformation. Training and professional development might influence Effort Expectancy through improving confidence and competence of employees. Leadership Style and Shared Values might impact Social Influence through promoting digital acceptance among managers and professional teams. Systems, Structure, and the human and nonhuman elements of an organization may enhance Facilitating Conditions through technical assistance, clearly defined roles, and protocols for carrying out tasks.

Conceptually, the UTAUT2 and the McKinsey 7S framework are combined in this paper but not in a statistical sense. The framework is intended to help organize evidence about how individual acceptance and organizational alignment might influence one another. It should not be construed to mean that UTAUT2 and McKinsey 7S have been empirically tested as a single causal model.

This orientation is supported by recent literature. Studies of digital transformation in healthcare (Zavacká & Jankelová, 2025) identify (transformational) leadership, organizational readiness, flexible structures, and employee digital skills as key prerequisites for effective transformation. Reviews of healthcare-technology adoption reinforce that Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, training, self-efficacy, and the context of the organization are significant factors in technology adoption (Mathew et al., 2023; Ikawati et al., 2026; Thanthrige et al., 2024).

3. Systematic Literature Review Methodology

This study used a systematic literature review (SLR) approach guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Page et al., 2021). The SLR approach was chosen as it allows for transparent, rigorous, and replicable identification, selection, and synthesis of appropriate literature on human infrastructure dimensions and their impact on the success of digital transformation and organizational performance in the field of healthcare. The systematic search was conducted across four major academic databases (Scopus, Web of Science, ScienceDirect, and Google Scholar). These databases were chosen for their comprehensive coverage of management, information systems, healthcare administration, and organizational behavior literature.

Screening

All retrieved records were compiled and screened in stages in accordance with the PRISMA process. Titles and abstracts were first reviewed against the predefined inclusion criteria. Potentially relevant records then proceeded to full-text assessment, during which the study population, healthcare setting, digital-transformation focus, human or organizational factors, and reported outcomes were examined. Records that did not address the review question, duplicated another record, or lacked sufficient methodological and substantive relevance were removed. The screening process resulted in the inclusion of 43 studies in the qualitative synthesis.

Quality Appraisal

The methodological quality of the included studies was appraised using the Mixed Methods Appraisal Tool (MMAT), which is suitable for evaluating qualitative, quantitative, and mixed-methods research designs. The appraisal considered the appropriateness of each study's research design, sampling strategy, data-collection procedures, analytical methods, and the coherence between the research question, evidence, and conclusions. Each article was assessed against the MMAT criteria relevant to its design and classified as having high, moderate, or low methodological quality. Quality appraisal was used to interpret the strength and reliability of the evidence during thematic synthesis rather than as an automatic reason for exclusion, allowing relevant studies with methodological limitations to remain visible while ensuring that their findings were weighted cautiously. The MMAT criteria used to appraise the methodological quality of the included studies are presented in Table 1.

Table 1: MMAT Quality Appraisal Criteria

Study design	Appraisal domains
Qualitative research	Appropriateness of the qualitative approach; adequacy of data collection; appropriate analysis; interpretation supported by data; coherence between data sources, analysis, and interpretation.
Randomized controlled trial	Appropriate randomization; concealment of allocation; completeness of outcome data; blinding where relevant; appropriate outcome measurements.
Non-randomized quantitative study	Representativeness of participants; appropriateness of measurements; completeness of outcome data; control of confounding; suitability of statistical analysis.
Quantitative descriptive study	Clear sampling strategy; representative sample; appropriate measurements; low risk of non-response bias; suitable statistical analysis.
Mixed-methods study	Clear rationale for using mixed methods; effective integration of qualitative and quantitative components; appropriate interpretation of integration; adherence to the relevant design criteria; limitations of integration addressed.

Eligibility

Studies were eligible when they examined digital transformation or digital-health technology in a healthcare setting and addressed at least one human-infrastructure or technology-acceptance factor, such as workforce skills, staff readiness, leadership, organizational support, facilitating conditions, performance expectancy, effort expectancy, social influence, or cultural alignment. Studies also had to report implications for

implementation, adoption, organizational performance, service quality, operational efficiency or related healthcare outcomes. Studies were excluded when they focused only on technical system development without human or organizational analysis, were unrelated to healthcare, were editorials or opinion pieces without an empirical or review basis or did not provide sufficient information for assessment. The inclusion and exclusion criteria applied during the screening and eligibility stages are presented in Table 2.

Table 2: Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Literature type	Journal articles (research and review), theses, and conference proceedings	Book chapters, editorial letters, opinion pieces without empirical basis
Publication timeline	2010–2025 (with exceptions for seminal foundational works pre-2010)	Before 2010 (except foundational UTAUT/McKinsey 7S works)
Language	English	Non-English
Nature of study	Focuses on human infrastructure, digital transformation adoption, or organizational performance in healthcare AND/OR applies UTAUT/UTAUT2 or McKinsey 7S to digital transformation contexts	Does not address digital transformation adoption, human factors, or organizational performance
Geographic scope	Global with emphasis on Malaysian and Asian healthcare contexts	Studies with no relevance to healthcare or organizational digital transformation

Search Strategy

A structured literature search was conducted in Scopus, Web of Science, ScienceDirect, and Google Scholar to identify studies examining human infrastructure, digital technology acceptance, healthcare digital transformation, and organizational performance. Search terms were developed from the study concepts and combined with Boolean operators, synonyms, and truncation where appropriate. The search covered studies published from 2010 to 2025 and was limited to research relevant to healthcare organizations and healthcare professionals. Reference lists of eligible studies were also examined to identify additional relevant publications. The database search strings and key terms used to identify relevant studies are presented in Table 3.

Table 3: Search Strings

Database	Keywords Used
Scopus & Web of Science (Search String 1-Human Infrastructure)	TITLE-ABS-KEY (("human infrastructure" OR "digital skills" OR "workforce readiness" OR "human capital" OR "organizational culture") AND ("digital transformation" OR "healthcare digitalization" OR "hospital information system") AND ("organizational performance" OR "service quality" OR "performance outcomes"))
Scopus & Web of Science (Search String 2-UTAUT2)	TITLE-ABS-KEY (("UTAUT2" OR "UTAUT" OR "performance expectancy" OR "effort expectancy" OR "social influence" OR "facilitating conditions" OR "hedonic motivation") AND ("healthcare" OR "hospital" OR "medical" OR "health service"))
Scopus & Web of Science (Search String 3-McKinsey 7S)	TITLE-ABS-KEY (("McKinsey 7S" OR "McKinsey 7-S" OR "7S framework") AND ("digital transformation" OR "organizational change" OR "change management"))
Google Scholar (Search String 1)	All in title: ("digital transformation" OR "healthcare digitalization") AND ("human infrastructure" OR "workforce readiness" OR "UTAUT" OR "McKinsey 7S")
Google Scholar (Search String 2)	All in title: ("performance expectancy" OR "effort expectancy" OR "social influence" OR "facilitating conditions") AND ("healthcare" OR "hospital" OR "Malaysia")

Data Extraction and Analysis

The PRISMA process proceeded through four stages: identification, screening, eligibility, and inclusion, resulting in 43 articles being included in the review. Data were systematically extracted from each selected study, including the study design, geographic context, theoretical framework, focal variables, and key findings. The extraction process was guided by the objectives of the review, with particular attention given to human infrastructure, digital transformation, technology adoption, and organisational performance in healthcare contexts.

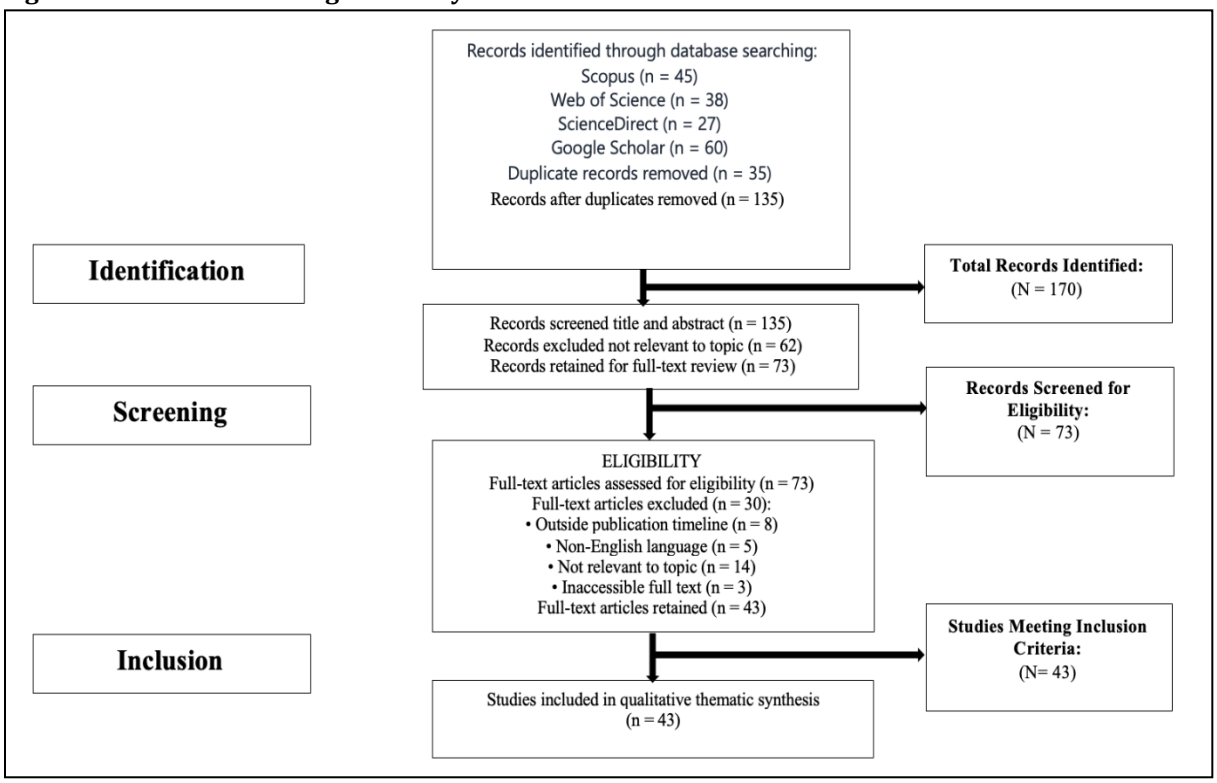
The extracted findings were then analysed using qualitative thematic synthesis. The analysis involved comparing the findings across the selected studies, identifying recurring concepts and relationships, and grouping studies with similar areas of focus into broader thematic categories. The themes were developed inductively from patterns identified across the reviewed literature while remaining aligned with the two theoretical frameworks underpinning the study, namely UTAUT2 and the McKinsey 7S Framework.

Seven thematic categories were subsequently identified: (1) Digital Transformation in Healthcare, (2) Organisational Performance, (3) Human Infrastructure and the McKinsey 7S Framework, (4) Performance Expectancy, (5) Effort Expectancy, (6) Social Influence and Hedonic Motivation, and (7) Facilitating Conditions and Workforce Readiness. These themes were used to structure the synthesis of evidence and to explain how individual-level human infrastructure factors and organisational-level factors jointly contribute to digital transformation and organisational performance in healthcare. Given the heterogeneity of the included studies in terms of research design, geographical context, and methodological approach, qualitative thematic synthesis was considered appropriate for integrating the findings.

Data Analysis and Theme Development

A hybrid coding approach was used to develop the themes. Deductive coding was guided by the review question and the two theoretical frameworks: UTAUT2 provided initial codes for performance expectancy, effort expectancy, social influence, facilitating conditions, and hedonic motivation, while the McKinsey 7S Framework provided codes for strategy, structure, systems, staff, skills, style, and shared values. Inductive coding was then used to capture concepts and recurring findings that emerged from the included studies but were not fully represented by the initial framework, including organizational readiness, leadership, digital competency, training, system integration, user satisfaction, and workforce resilience. The extracted findings were compared across studies, grouped into conceptually related categories, and iteratively refined into seven final themes. Theme boundaries were reviewed against the original study findings to ensure that each theme was internally coherent and distinct from the others. Because the included studies were heterogeneous in design, context, and outcome measurement, the analysis remained qualitative and no statistical pooling was undertaken. The study-identification, screening, eligibility and inclusion process is illustrated in Figure 1.

Figure 1: PRISMA Flow Diagram for Systematic Review Process



4. Results

The systematic review included 43 articles for qualitative thematic analysis. Seven themes were identified: (1) Digital Transformation in Healthcare, (2) Organizational Performance, (3) Human Infrastructure and the McKinsey 7S Framework, (4) Performance Expectancy, (5) Effort Expectancy, (6) Social Influence and Hedonic Motivation, and (7) Facilitating Conditions and Workforce Readiness. The findings are synthesized below according to the overall pattern, supporting evidence, conflicting findings, and contextual differences. Table 4 presents a summary of the characteristics and thematic coverage of the included studies.

Table 4: Summary of Included Studies

Study Characteristic	Summary of Included Evidence
Number of included studies	43 studies were included in the qualitative thematic synthesis.
Publication period	2010–2025.
Main setting	Healthcare organizations, including hospitals and health-service environments; Malaysian evidence was considered alongside international studies.
Study focus	Healthcare digital transformation, electronic health records, telemedicine, health-information systems, digital skills, organizational readiness, leadership, and workforce adoption.
Individual-level constructs	Performance expectancy, effort expectancy, social influence, hedonic motivation, facilitating conditions, behavioral intention, user acceptance, and digital competency.
Organizational-level constructs	Strategy, structure, systems, staff, skills, style, shared values, organizational support, culture, leadership, training, and implementation readiness.
Reported outcome domains	Operational efficiency, service quality, patient satisfaction, staff performance, technology adoption, implementation success, and organizational performance.
Synthesis approach	Qualitative thematic analysis across seven themes because the included studies differed in design, geography, theoretical framing, variables, and methods.

Theme 1: Digital Transformation in Healthcare

The literature reviewed defines digital transformation in healthcare as a systemic change process, including technology adoption, workflow redesign, and organizational restructuring and cultural adaptation. The literature also consistently emphasizes the distinction between the availability of technology and the use of it, noting that the gap between the two is mainly driven by human and organisational factors. Stoumpos et al. (2023) identified digital transformation in healthcare as one of the emerging yet rapidly maturing research domains; e-health acceptance and organizational implications are among the most active research sub-fields. Kraus et al. (2021) put that into a broader perspective of five overlapping clusters, and showed, for example, that operational efficiency and organizational factors are inherently dependent: organizations that are unable to leverage human dimensions will lose the efficiencies of technology investments. The Malaysian scenario mirrors this global development. While government intervention has supported public hospital HIS since the 1990s, adoption was only about 24% in 2019. Limna (2023) suggests there are obstacles to uptake, including provider resistance and lack of organizational support. In a hospital case study, Nurhani and Sari (2025) reported relatively high staff enthusiasm for digital innovation, but also noted differences in technology mastery, the need for continuous training, dependence on technology vendors, and challenges related to external-system integration.

Theme 2: Organizational Performance

Organizational performance in the reviewed literature was operationalized across four domains: operational efficiency, including reduced waiting times, streamlined workflows, and lower administrative burdens; service quality, including patient satisfaction, care continuity, and error reduction; financial performance, including cost optimization and resource utilization; and staff performance, including productivity, engagement, and

competency levels. The reviewed literature generally associated digital transformation with improvements in organizational outcomes; however, the strength of these relationships appeared to vary according to adoption levels, user satisfaction, and human-infrastructure conditions. Matrook et al. (2024) reviewed the effects of digital transformation on hospital efficiency and reported that electronic health records, telemedicine, and automated systems may reduce administrative burdens and support data-driven resource optimization. Agustian et al. (2025) indicated that system quality and service quality were associated with organizational performance, with user satisfaction forming part of this relationship. These findings suggest that digital transformation success may represent an intermediary pathway linking human infrastructure with organizational outcomes (Abouaomar & Alhaderi, 2024b).

Theme 3: Human Infrastructure and the McKinsey 7S Framework

The McKinsey 7S Framework in the examined literature serves as a diagnostic measure for evaluating organizational readiness for digital transformation and as a prescriptive tool for identifying areas requiring human-resource investment. Abouaomar and Alhaderi (2024) identified skills gaps, cultural misalignment, and staff-development deficits as important barriers across the seven dimensions of the framework. Aceron (2025) applied the 7S Framework to higher education institutions and reported that Shared Values and Staff were important enablers of digital transformation, whereas Skills and Systems were identified as areas requiring improvement. This finding may offer a useful comparison for healthcare institutions, although its transferability should be examined empirically. Across the reviewed studies, the four "soft" elements, which are Staff, Skills, Style, and Shared Values, were repeatedly emphasized as important dimensions of digital transformation, although the extent of their influence varied across organizational contexts. Sharma (2025) discussed resistance as an important challenge in complex transformation efforts and linked this challenge to weaknesses in human and organizational infrastructure.

Theme 4: Performance Expectancy

Performance Expectancy emerged as one of the most consistently reported factors associated with digital-technology adoption intention across the healthcare contexts represented in the review. Healthcare employees who perceived digital tools as beneficial for job performance, patient outcomes, or service quality generally reported stronger adoption intentions and, in some studies, greater actual use. Teng et al. (2024) reported a positive association between Performance Expectancy and intention to adopt telemedicine in Malaysia. Hassan et al. (2022) similarly identified Performance Expectancy as an important determinant of behavioural intention to adopt a health-information application in Malaysia. Chong (2019) reported an association between Performance Expectancy and electronic health-record adoption, while perceived goal attainment appeared to reinforce the perceived usefulness of the system.

Theme 5: Effort Expectancy

The relationship between Effort Expectancy and technology adoption appeared to vary according to system design, user experience, and the availability of training. Perceived effort may be lower, and adoption barriers may be reduced, when systems are well designed, adequately supported, and accompanied by training. Tanis et al. (2024) reported positive perceptions of ease of use across professional specialties in Greek hospitals, while age appeared to influence these perceptions. The Selangor hospital-management-system study indicated that user-friendly interfaces were important for staff acceptance, highlighting the practical role of system design in shaping Effort Expectancy. Noviany (2024) identified system complexity and user resistance as barriers to digital adoption, suggesting that difficulties with system use may reinforce implementation challenges and reduce organizational support for adoption.

Theme 6: Social Influence and Hedonic Motivation

The literature highlights context-dependent effects of Social Influence and Hedonic Motivation. In collectivist and hierarchical organizational cultures, Social Influence may be more influential when peer behaviour or supervisory support carries normative significance. Hedonic Motivation may be more relevant to voluntary technologies or platforms with gamification and engagement features, although its influence may be weaker for mandatory enterprise systems. Hassan et al. (2022) reported that Hedonic Motivation was an important predictor of Malaysian health-application adoption, while Sharuddin et al. (2023) reported mixed effects across UTAUT2 constructs in the adoption of professional training among Malaysian enforcement officers.

Theme 7: Facilitating Conditions and Workforce Readiness

In the reviewed literature, Facilitating Conditions appeared to be one of the most actionable human-infrastructure constructs from a policy and management perspective. Although Performance Expectancy and Social Influence may be more difficult to influence directly, Facilitating Conditions may be strengthened through investment in training, infrastructure, technical support, and organizational policy. Yahya et al. (2021) reported that facility access and training were important factors associated with digital-skills readiness in the Malaysian service sector. Bilgiç and Camgöz Akdağ (2021) found Management Support and Resource Reservation as critical digital transformation readiness factors in hospitals (Sharuddin et al., 2023). Nyamboga (2026) identified structured training programmes, digital dashboards, and cloud-based management systems as interventions that may support healthcare performance by developing workforce competencies relevant to digital adoption. The seven themes were then compared to identify common patterns, areas of disagreement, and differences associated with healthcare, organizational, and technology contexts.

Results Synthesis

Overall Finding

In general, this literature review shows that the individual level of technology acceptance and the organizational level of organizational readiness are intertwined in the digital transformation of healthcare. Performance Expectancy and Facilitating Conditions seemed to be the most robust predictors. Healthcare providers reported greater willingness to endorse or utilize digital systems when they saw obvious advantages in terms of their own clinical work, patient care, quality of service, and efficiency of the institution, and when the necessary physical infrastructure, training, technical support, and organizational backing were in place. At the organizational level, Staff, Skills, Style, and Shared Values were consistently mentioned in relation to workforce readiness and the sustainability of the digital transformation.

Supporting Evidence

The results of the effectiveness expectation suggest that usefulness is a key element of the acceptance of healthcare technology. The included studies reported that stronger adoption intentions were exhibited among healthcare professionals when they considered digital technologies to be supportive of work performance, patient outcomes, quality of service, or delivery of service. This trend was found in health applications, telemedicine, and electronic health-records adoption studies in Malaysia (Hassan et al., 2022; Teng et al., 2024; Chong, 2019).

Facilitating Conditions were a second significant predictor of support. The studies reviewed highlighted the importance of training, infrastructure, technical support, management support , and availability of resources to cultivate and strengthen digital skills and to allow for system utilization. Data from studies of healthcare-readiness suggested that support from management and availability of resources were key organizational facilitators for digital transformation (Bilgiç & Camgöz Akdağ, 2021). Similarly, research on workforce readiness at the national level revealed that facility access and training were significantly related to skill development among the workforce in Malaysia (Yahya et al., 2021).

Consistent with this, the McKinsey 7S-related evidence also underscored the need for organizational alignment. Staff, Skills, Style, and Shared Values were frequently mentioned as potential areas that would impact whether staff can, are supported to, and want to get involved in digital transformation. Literature reviewed linked challenges in responding to digital change with skill gaps, poorly developed staff, cultural misalignment and the lack of leadership support (Abouaomar & Alhaderi, 2024; Aceron, 2025; Sharma, 2025).

Conflicting Findings

The results indicated that Performance Expectancy and Facilitating Conditions were consistently relevant belief constructs, but the results for Social Influence and Hedonic Motivation were more mixed. Social Influence seemed to matter in some contexts, largely linked to supervisory expectations, peer use, and professional norms around use of the technology. But its impact differed between cultural and organizational contexts. Similar to that, Hedonic Motivation was mentioned as a critical factor in a number of voluntary health-applications scenarios, while it was not as (if not less) influential in mandatory systems for the workplace.

The reviewed literature, on the other hand, has also indicated variation in the significance of Effort Expectancy. Some studies suggested that perceived ease of use and user-friendly interface promoted technology acceptance, but others argued that this relationship would be moderated by training, technical support, system complexity, user experience, and profession. This indicates that high system usability may not be enough to mitigate such barriers to adoption without organizational support for employees and when digital systems are not well aligned with traditional workflows.

Contextual Differences

The Effects of UTAUT2 and McKinsey 7S elements on individuals varied for V-block according to the type of technology, organizational culture, the digital maturity level of the organization, and the type of technology application was voluntary/mandatory. Social Influence may be more powerful in the hierarchical structure of the healthcare system, where the expected behavior is shaped by managers and professional peers. Hedonic Motivation is more relevant on voluntary, interactive, or engagement-oriented platforms rather than the enterprise solutions that employees are obligated to use. Effort Expectancy might also be important when digital systems, such as smartphones, are sufficiently complex for their potential users to base their expectations on related prior digital experiences.

The elements of the McKinsey 7S model were also affected by organisational context. Transformational leaders and shared values are critical in transforming large systems because they embody trust, communication, and willingness for employees to change. Staff and Skills may be more significant in locations where digital literacy and lifelong education are more the exception. Systems, Structure, and Strategy may also be emphasized as organizations try to connect across organizational borders, which may include a variety of units such as departments, professional groups, and hospitals.

The broader differences are reflected in the Malaysian context. The findings from the studies suggest that training, organizational support, management commitment, digital competence, and system integration continue to be significant factors for the enablement of healthcare digitalisation. Yet the findings do not point to a scenario in which any one factor holds exclusive sway across Malaysian healthcare facilities. Types of hospitals, ownership, size, professional groups, technology features, and organizational preparedness may affect the degree to which individuals and organizations are aligned with acceptance.

Taken together, these findings indicate that employees appreciating the value of digital systems, together with the presence of adequate organizational supports to enable the use of these systems, are important contributors to healthcare digital transformation being maintained. Therefore, success in digital transformation may constitute an intermediate path between human infrastructure and organizational performance, but this interpretation is conceptual, as the studied literature did not test mediation statistically.

Discussion

The results suggest that healthcare digital transformation is not fully driven by the availability of technology. The integration of UTAUT2 and the McKinsey 7S Framework proposes that transformation is a result of the interplay between individual-level technology acceptance and organization-level alignment. UTAUT2 elucidates the determinants how healthcare employees would be motivated to adopt and use the digital system, whereas McKinsey 7S illustrates whether the entity possesses the necessary leadership, capabilities, systems and culture to give support and maintain such usage (Venkatesh et al., 2012; Loonam, 2021).

The UTAUT2 factors, Performance Expectancy and Facilitating Conditions, were among the strongest and most consistent predictors of behavioural intention. Performance Expectancy is related to increased intention to use as healthcare professionals anticipate digital technologies to enhance their work performance, including improvement of patient care, quality of service, and operational efficiency. However, positive anticipation does not necessarily lead to real use. Facilitating Conditions facilitate employees' access to infrastructure, training, technical support, and organizational resources to help employees realize their intentions. This indicates that healthcare organizations may make significant investments in digital systems yet find adoption to be patchy if workforce training and implementation assistance are lacking.

The McKinsey 7S Framework adds an organizational context to this gap between adoption and diffusion. The

Soft elements Staff, Skills, Style and Shared Values are more important in this respect, as they may determine if employees are ready, enabled and motivated to take part in the digital transformation. Staff is the number and type of human resources needed to carry out a function, and Skills is the degree of digital confidence and competence of these personnel. Style is the leadership style and how much managers talk about, actively support, and model digital adoption. Shared Values can determine if the digital transformation is viewed as a meaningful organizational priority as opposed to a technical change imposed externally.

The combination of the two models proposes that the elements of the McKinsey 7S shape the UTAUT2 constructs. As an illustration, an organizational leader Style could promote Social Influence by motivating managers and peers to endorse digital adoption. Staff training and Skills improvement may have a positive impact on Effort Expectancy by empowering staff to feel the ability to operate with digital tools. 'Strategy and Shared Values' can also influence Performance Expectancy by demonstrating the role of digital transformation in improving healthcare delivery. Systems and Structure could also help facilitate Facilitating Conditions, by way of well-established routines, technical assistance, obligations, and means for execution.

This relationship could be conceptualized as a path-dependent and reciprocal process. One may be able to argue that organizational alignment creates an environment that yields positive perceptions at the individual level, and these positive perceptions at the individual level may link to positive intentions of technology adoption and longer use of the system. In exchange, successful employment of digital systems could yield benefits in operational efficiency, quality of service, patient satisfaction, and staff performance, among others. Therefore, the relationship does not imply a direct impact of technology investment upon the performance of an organization. Rather, the results imply that organizational success may be a function of how human infrastructure supports employees in adopting and successfully incorporating digital systems into their work. The integrated model also contextualises the Malaysian healthcare setting. The observed gaps in adoption and use also imply that challenges to digital transformation may be more than just technological availability. They may also be indicative of deficiencies in training, organizational support, technical assistance, leadership alignment, system integration, and readiness of the workforce. In light of this, technology investment must be supplemented by investment in employee capabilities, enabling leadership, clear pathways for execution, and corporate values that support learning and adaptation.

Social Influence and Hedonic Motivation are more contingent factors compared to Performance Expectancy and Facilitating Conditions. Social Influence in particular might also play a stronger role in hierarchical and collectivist healthcare systems, as the conduct is shaped by professional norms and supervisor expectations. Hedonic Motivation might be more pertinent when digital platforms are optional, interactive, or intended to foster engagement, but its impact might be diminished in situations where users are mandated to use enterprise systems in the conduct of their formal duties. These results suggest that not all UTAUT2 variables necessarily hold equally across different healthcare contexts. Their impact may be influenced by organizational culture, type of technology, user experience, and whether adoption is voluntary or compulsory.

Therefore, the combination of UTAUT2 and McKinsey 7S offers a higher explanatory power in the conceptual understanding of healthcare digital transformation than either model alone. UTAUT2 explains the psychological and behavioural processes through which employees come to adopt, while McKinsey's 7S exposes the organizational configurations that enable or disable those processes. A key theoretical contribution from this integrated approach is its linking of individual acceptance to organizational readiness and transformational outcomes. Its implication is a warning to healthcare leaders that they should not approach digital transformation as a purchasing exercise. Design strategies for acquisition should "integrate technology investment with workforce development, leadership support, organizational restructuring, system integration and cultural alignment."

However, the suggested convergence is meant to be a theoretical one rather than a reflection of a model that was statistically supported. The included articles differ in design, healthcare setting, constructs and outcome variables, and the qualitative synthesis did not quantitatively explore the associations between the two models. Hence, it is suggested that empirical studies in Malaysian healthcare organizations investigate if the elements of the McKinsey 7S model moderate the relationships among UTAUT2 constructs, actual system use, success of digital transformation and organizational performance; and if success of digital transformation acts as a

mediator within these relationships. It could also examine if hospital type, size, ownership, professional group and digital maturity level moderate these relationships.

5. Limitations and Future Research

There are several limitations to this review. The included studies varied in terms of study design, geographic location, healthcare system, theoretical framework, and outcome assessment. These differences hindered direct comparisons between studies, and pooling by means of statistical methods was not appropriate. Thus, these results should be interpreted as qualitative thematic patterns rather than as pooled estimates or validated causal associations.

Second, the review synthesized findings across two levels of analyses: individual-level technology-acceptance research and organization-level digital-transformation research. However, even though this framework broadens the conceptual lens, there was no consistent investigation of the links between UTAUT2 constructs, McKinsey 7S elements, and actual system use and organizational performance (model 1) and (within a single analytic model) of relationships among these constructs by including organizational performance (model 2). The hypothesized mediating mechanism is, therefore, for empirical testing.

Third, the international literature was reviewed in conjunction with the Malaysian evidence. Variations in the regulation of healthcare, culture, structure, professional identity and role, and level of digital maturity may all contribute to restricting how findings can be applied across borders. Thirdly, any evidence pertaining to the enforcement or from non-Malaysian healthcare settings is to be taken with a grain of salt when applied to Malaysian healthcare institutions.

Primary data should be gathered from Malaysian healthcare organizations to validate the integrated framework put forward. Based on quantitative research, it would be interesting to investigate whether and to what extent elements of the McKinsey 7S Model moderate the relationships between UTAUT2 constructs and technology use and, based on longitudinal or mixed-methods research, to analyze the development of adoption intentions towards implementation at FOSS in future research. Future research should also make comparisons between hospitals based on ownership and size, professional group, type of technology, as well as the extent of digital maturity."

Conclusion

This systematic literature review applied the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) and the McKinsey 7S Framework to examine how human infrastructure factors influence healthcare digital transformation and organizational performance. The findings suggest that Performance Expectancy and Facilitating Conditions play important roles in encouraging technology adoption, while organizational factors such as leadership style, staff capability, organizational culture, and shared values influence the implementation and sustainability of digital transformation.

Review-based findings further indicate that the success of digital transformation acts as a potential mediating path in which human infrastructure leads to organizational performance results. This understanding suggests that the returns from investment in technology are not expected to be fully realized in the absence of organizational readiness, workforce preparation, strong leadership, and suitable implementation support. Yet since a review allowed to synthesize qualitative findings and did not provide for statistical testing for mediation, the suggested association is to be considered a conceptual path rather than a validated causal mediation effect.

In terms of theory, the study adds contribution to the extant literature by integrating UTAUT2 and the McKinsey 7S framework at the macro (organizational) and micro level (individual) in a dual-level model. UTAUT2 focuses on the individual level and explains technology acceptance by individuals within the organization, and the McKinsey 7S framework explains the organizational context enabling or limiting the realization of adoption intentions in sustained usage. From this integrated lens, health care managers and policy makers may better understand where to focus efforts to close implementation gaps and align workforce capability, leadership, organizational culture, systems, and strategy.

In future, the proposed framework needs to be tested empirically using primary data from Malaysian healthcare organizations. Such studies may determine if hospital type, size, ownership, professional group, and degree of digital maturity moderate the relationships between the success factors of UTAUT2 and the organizational factors of McKinsey's 7S model with that of digital transformation success and, in turn, organizational performance.

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