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Hospital Digital Transformation for Healthcare Excellence: Overcoming Challenges toward Sustainable Service Innovation

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ABSTRACT

Digital transformation is required by hospitals as a strategic effort in the highly regulated healthcare sector to improve service quality and maintain competitive advantage. This study aims to analyze the digital transformation process at JIH Hospital Yogyakarta through a case study of the implementation of Hospital Information Management System (SIMRS), Electronic Medical Record (ERM), JIHApps registration application, JIHPay self-payment system, and chatbot usage. The researchers used a descriptive qualitative approach with single case study method and data collection techniques through in-depth interviews, direct observation, and document studies. The findings show that digitalization improves operational efficiency, reduces patient waiting times, and increases service user satisfaction. Generally, staff showed high enthusiasm for innovation; however, there were differences in ability to master technology, so the adaptation process required contextual and continuous training approaches. Additionally, other challenges such as dependence on technology vendors and the complexity of external system integration remain obstacles that need to be managed strategically. This study also highlights the importance of cross-actor collaboration through open innovation approaches to accelerate technology adoption and optimize service innovation success. These findings provide strategic implications for hospital managers in formulating adaptive, collaborative digital policies focused on creating sustainable value for patients. This research has limitations in single case scope that only focuses on one hospital, so the findings cannot yet be generalized to other healthcare institutions. For future research, it is recommended to conduct comparative studies on several hospitals with different classifications and digitalization levels to enrich understanding of digital transformation strategies in the healthcare sector more broadly and deeply.

Keywords: Digital Transformation, Service Quality, Health technology, Open innovation

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INTRODUCTION

Hospital digital transformation has become a highly relevant topic for study in the context of sustainable development. This topic is interesting to research because it supports the achievement of Sustainable Development Goals (SDGs), particularly the pillars of Good Health and Well-being and Industry, Innovation and Infrastructure. Furthermore, the digital transformation agenda is also aligned with the principles of Education for Sustainable Development (ESD), where health technology becomes a means

to realize inclusive, quality, and sustainable services. Digital technology adoption has proven to save many sectors, including SMEs and hospitals; digital technology helps maintain operations, reduce unemployment, and drive service efficiency. Digital transformation in e-health requires digital agility to face rapid and complex environmental changes, and e-health best practices align with sustainability principles through responsiveness and digital efficiency (Bygstad & Ovrelid, 2024).

Hospitals as organizations operating in the highly regulated sector are required not only to meet medical service standards but also to innovate in business and managerial processes. In the last decade, hospital digitalization has become a priority agenda for both government and international institutions. The Indonesian government through Minister of Health Regulation No. 24 of 2022 has mandated all healthcare service facilities to implement Electronic Medical Record (EMR) as part of the Hospital Information Management System (SIMRS). The implementation of this technology aims to improve service quality, operational efficiency, and ensure compliance with applicable regulations. However, technology implementation in hospitals is not simple; this process often faces challenges such as HR resistance, infrastructure limitations, cost pressures, and increasingly high patient expectations. E-health systems often experience challenges such as lack of flexible governance models, limited resources, and low ability to adopt technology quickly without mature transition strategies (Bygstad & Ovrelid, 2024). This emphasizes the importance of technology innovation strategies in vital sectors, highlighting the need for systematic innovation systems and management to achieve service excellence and competitiveness (Aldianto et al., 2021).

Various previous studies have highlighted the importance of healthcare service digitalization. For example, regarding the concept of smart hospitals based on the adoption of smart technology across all hospital departments (Zhu et al., 2023). Additionally, regarding the success of digital innovation in the healthcare sector, which is highly determined by cross-actor collaboration: not only hospitals and technology vendors, but also insurance parties, regulators, and public authorities (Randhawa et al., 2024). EMR contributes positively to strengthening hospital digital systems, especially when combined with ERP to support process integration (Chakravorty et al., 2020). This integration becomes key in hospital management, and strategic adoption of digital technology has proven capable of improving organizational dynamic capabilities.

Despite many studies discussing digital transformation in general, very few studies specifically analyze how premium private hospitals in Indonesia—operating under high regulatory pressure and market competition—conduct digital innovation in the context of patient services. Most studies focus more on government hospitals or use macro approaches. However, private hospitals like JIH Hospital Yogyakarta have their own complexity in the digital transformation process—both in terms of regulation, organizational culture, technology, and financial sustainability. JIH Hospital, as one of the premium healthcare service institutions in Yogyakarta, has implemented various forms of digital innovation such as SIMRS, JIHApps online registration, JIHPay self-payment system, and chatbot. However, this transformation has not been analyzed in depth as an integrated case study.

Additionally, there are still research gaps (knowledge gaps) that need to be addressed. Most previous studies focus more on technological aspects and digital infrastructure, but few deeply discuss how collaboration strategies and digital governance are developed by private hospitals based on value and premium segmentation. Research on open innovation in the hospital sector, especially involving collaboration with technology providers, logistics partners, or digital service providers, is still limited. However, this approach has great potential in answering system integration challenges, cost efficiency, and accelerating service innovation. Furthermore, few studies specifically examine the experiences of hospitals in Indonesia in formulating contextual, adaptive, and sustainable digital transformation strategies.

JIH Hospital Yogyakarta provides a very rich and relevant study context. This hospital has experienced a surge in outpatient volume reaching more than 900 people per day. To address service challenges, management has developed various digital innovations—from JIHApps online registration system, JIHPay self-payment system, to technology acquisition-based SIMRS integration. However, in implementation, various constraints are still found such as long billing queues, discrepancies between waiting times and Ministry of Health standards, and user resistance to new technology use. Thus, analysis of the digital transformation process at JIH Hospital will not only provide theoretical insights but also practical contributions for other healthcare institutions. Based on the above description, the researcher proposes the following research question: How are the challenges and strategies faced by hospitals in implementing digital transformation to improve sustainable healthcare service quality?

LITERATURE REVIEW

Digital Transformation in Healthcare Sector

Hospitals can optimize the use of technology by designing or updating existing service procedures to align with current patient needs. The implementation of ICT enables healthcare units to analyze and respond to patient preferences more effectively. This contributes in improving quality and innovation in service processes. Previous research has shown that technological capabilities have a positive impact on patient service quality and service process innovation development (Stoumpos et al., 2023).

Digital transformation in healthcare delivery systems is a response of increasing needs for efficiency, patient data security, and demands for more responsive services. SIMRS and EMR have become main instruments in creating integrated hospital systems. According to the Ministry of Health of the Republic of Indonesia through (Peraturan Menteri Kesehatan Republik Indonesia Nomor 24 Tahun 2022 Tentang Rekam Medis, n.d.) all hospitals in Indonesia are required to implement EMR by the end of 2023 at the latest.

The success of digital transformation in the healthcare sector is determined not only by technology readiness but also by adequate social legitimacy and institutional support (Randhawa et al., 2024). In an open innovation ecosystem, hospitals need to build strategic collaboration with various actors such as technology startups, regulatory authorities, and insurance providers to ensure sustainable and impactful technology adoption. While modern digital health technologies have great potential benefits, their application in preventive medicine contexts needs to be done carefully. Technological adoption must also consider social inequality—limited access to digital tools and low digital literacy in certain socioeconomic groups may inadvertently deepen health disparities. As a result, the use of technology in preventive medicine services risks widening health disparities that already exist in society (De la Torre et al., 2025).

Service Quality and Patient Satisfaction

Patient satisfaction is a key indicator in assessing hospital performance, and it is directly influenced by quality culture and service quality provided. Service quality provides a direct impact of 24.83% on patient satisfaction, slightly larger than the influence of quality culture at 22.25% (Iwan Sumarta et al., 2025). This indicates that while quality culture development remains crucial, practical elements in service delivery such as response speed, efficiency, and reliability have a graeter contribution in shaping patient perceptions of hospital services.

Several studies also have shown that the highest satisfaction levels are achieved when healthcare institutions consistently provide services that exceed patient expectations. Additionally, both quality culture and service quality indirectly influence patient satisfaction through operational dimensions, each contributing by 17.22%. Overall, the combined impact of 39.47% for quality culture and 42.05% for service quality— demonstrates a close relationship between strengthening organizational culture and continuous service quality improvement. These findings are consistent with previous research

indicating that patient trust and loyalty can be enhanced through the incorporation of service quality into a culture of ongoing improvement (Iwan Sumarta et al., 2025).

In developing countries, achieving optimal patient satisfaction requires comprehensive reform at multi levels of the healthcare system. According to WHO (2023), healthcare facilities require to adopt patient-centered service approaches and integrate them into operational excellence frameworks. This involves leveraging digital technology in healthcare services, optimizing resource utilization, and enhancing the capacity of medical personnel through training programs to ensure consistently responsive and high - quality services (Iwan Sumarta et al., 2025).

Delivering high-quality service is the main goal of digital transformation. Effective service delivery includes technical competence, efficiency, effectiveness, service continuity, and strong interpersonal relationships (Veranita & Hatimatunnisani, 2023). Digital health systems such as SIMRS and EMR contribute to minimize medical errors, accelerate service flow, and increase patient satisfaction with hospital services.

Digital Innovation: JIH Applications (JIHApps) and JIHPay

Digital transformation in the healthcare sector focuses not only on clinical management systems but also includes innovation in direct patient experience, especially through self-registration applications and digital payment systems. Technology innovations such as JIHApps and JIHPay at JIH Hospital Yogyakarta represent user experience-based digital technology adaptation aligned with Technology Acceptance Model (TAM) principles. The success of mobile payment adoption is influenced by several main factors: perceived usefulness, perceived ease of use, and perceived quality (Tian & Chan, 2024). In their study of Malaysian consumers, these three factors were found significantly influence behavioral intention in using digital payment systems. Additionally, trust emergea as an important factor strengthening the relationship between intention and actual user behavior.

JIH Hospital developed JIHApps not only as an online registration tool but also as an integrated digital service ecosystem designed to enhance patient comfort and comprehensive experience. Additionally, JIHPay as a self-payment system enable non-insurance patients to have short transactions process without long queues, improving efficiency and comfort. JIHPay significantly reduces final transaction waiting time, accelerates closing procedures, and reduces queues that often become bottlenecks in hospital service flow.

Supporting Technology Utilization: Chatbot and Queue Notifications

Chatbots in healthcare service contexts have been shown to reduce administrative staff burden, accelerate communication flow, and increase patient satisfaction (Mohamed Jasim et al., 2025). Their study identified that contextually designed chatbots integrated with hospital information systems can provide more personal and accurate responses, particularly when equipped with automated notification features such as queue reminders, visit schedules, and prescription status. AI-based chatbot implementation serves not only as a one-way communication tool but also as a decision-support mechanism that assist patients in understanding services, health information, and administrative navigation (Mohamed Jasim et al., 2025).

Meanwhile, web-based queue systems and automated notifications via platforms such as WhatsApp have proven effective in minimizing physical density at healthcare facilities. Research on automated queue number provision systems integrated using CodeIgniter framework and WhatsApp API shows 100% success in sending queue numbers and waiting time notifications to patients (Arnoldus and Suprihadi, 2021). This system enables patients to register online, get queue numbers, and receive notifications when their examination time approaches, thereby reducing unnecessary waiting at the

facility. The existence of this system is especially relevant, in pandemic contexts and demanding of touchless service.

JIH Hospital utilizesm chatbot features to respond patient questions in real-time. This technology accelerates communication processes, reduces staff burden, and provides better patient experience. On the other hand, queue notification systems enable patients to schedule their arrival based on estimated turn times—it reduces waiting room density and potential service delays.

Digital Transformation Implementation Challenges in Hospitals

With increasing computational capabilities and adoption of technologies such as artificial intelligence (AI) and machine learning in medical practice, more smart devices are now used across various hospital service lines (Yew et al., 2025). While Digital Health Technology (DHT) provides several benefits such as expanding access to medical services, increasing patient participation and empowerment, providing efficient services, personal and timely care, remote monitoring, and data-based decision making, the implementation process in hospitals is largely still discussed in high-income country contexts. However, given significant differences in resources, infrastructure, healthcare systems, socioeconomic conditions, digital divide levels, and regulatory frameworks between low and middle-income countries (LMIC) and high-income countries, findings related to DHT implementation drivers and barriers in previous literature are likely not fully relevant or applicable to LMIC contexts (Yew et al., 2025).

Digital transformation is not without challenges. There is internal resistance from HR, budget limitations, pressure facing operational complexity, and dependence on technology vendors. Nevertheless, transformation success requires strong leadership, cross-departmental commitment, and continuous approaches to innovation and HR training.

Open Innovation and Cross-Sector Collaboration

In highly regulated industry contexts, open innovation approaches become increasingly critical. Hospital digital innovation requires involvement of diverse stakeholders: from technology providers, regulators, insurance, to logistics and financial partners (Randhawa et al., 2024). Effective multi-stake holders enable hospitals to expand their innovation capacity and share risks in technology development and implementation. Hospitals transforming into entrepreneurial hospitals utilize open innovation ecosystems by collaborating with technology startups, digital solution providers, and academic institutions (Shin et al., 2024). Cross-sector collaboration enables hospitals to accelerate innovation cycles, access cutting-edge technology, and overcome internal resource limitations.

RESEARCH METHOD

Sample

This study uses a descriptive qualitative approach with single case study strategy. The study was conducted at JIH Hospital Yogyakarta, a type B private hospital with premium service segmentation and Islamic approach. This location was chosen purposively because JIH Hospital has implemented various digital transformation initiatives such as SIMRS, Electronic Medical Record (ERM), JIHApps, JIHPay, and patient service chatbot.

Information was collected from three main groups: (1) leaders and strategic unit managers (including IT, medical services, finance, and customer relations), (2) operational staff directly involved in digital system use, and (3) patients using digital-based services like JIHApps and JIHPay. Data collection techniques were conducted through in-depth interviews, direct observation in hospital environments, and digital document analysis such as SIMRS dashboards, internal reports, and application usage statistical data. This approach allows researchers to deeply explore digital transformation

implementation dynamics from various perspectives—both internal and external—in the context of hospitals operating in highly regulated sectors.

Research Design

This case study is exploratory and longitudinal, capturing JIH Hospital's digital transformation during 2023–2024. Data was collected gradually to capture system change dynamics, emerging challenges, and managerial and operational responses occurring during the process. Single design selection was made because the research focus is in-depth analysis of one institution undergoing continuous digital transformation.

Data Collection

Primary data was collected through semi-structured interviews with key informants from hospital management (Director, IT Manager, Finance Manager, Medical Services Manager, Medical Ancillary Manager, and Customer Relations Manager), implementing nurses, and application users (patients). Additionally, limited participatory observation was conducted in outpatient areas, pharmacy installations, and payment waiting rooms. Documentation such as annual reports, SOPs, SIMRS systems, and Community Satisfaction Index (IKM) data were also used as secondary data.

Data Analysis

Data was analyzed using descriptive thematic analysis approach. The analysis process began by examining interview transcripts, observation notes, and hospital internal documents to identify key topics related to digital transformation. Subsequently, issue categorization was conducted into main themes based on conformity with research conceptual framework, such as SIMRS effectiveness, patient experience with JIHApps application, JIHPay digital payment adoption, chatbot use, and managerial challenges. Analysis results were then arranged narratively to describe inter-theme relationships and support interpretation of digital transformation dynamics in hospitals.

To improve validity, source and method triangulation were conducted. Digital documentation such as SIMRS dashboards, JIHApps statistical data, and JIHPay implementation reports were used for field observation result verification. This method is designed to capture real dynamics and complexity of healthcare service digitalization processes in institutions operating in highly regulated industries.

The Case Company: JIH Hospital Yogyakarta

JIH Hospital, under PT Unisia Medika Farma (PT UMF), has gained a strong reputation in the Special Region of Yogyakarta and Central Java. This reputation is reflected in various awards given by insurance partners and high patient referral volumes received during that period. In the last decade, PT UMF recorded 1000% company asset growth, with average annual growth (year on year) of more than 20%, far exceeding general hospital industry growth trends. Currently, PT UMF manages several healthcare service networks: JIH Hospital Yogyakarta, JIH Hospital Solo, and JIH Hospital Purwokerto, and is preparing for expansion to South Jakarta. Total human resources involved in this organization, including doctors, permanent employees, and outsourced personnel, has reached more than 2,800 people.

Along with accelerated digital transformation in the healthcare sector, PT UMF actively presents various technology-based service innovations to increase patient satisfaction. One notable innovation is JIHPay, the first self-payment kiosk implemented in hospitals in Indonesia. This system is specifically designed for non-insurance patients, both with and without drug prescriptions. With the ability to conduct payment transactions independently without queuing, JIHPay provides fast, practical, and efficient payment experience, while reflecting JIH's commitment to providing superior services adaptive to current developments.

RESULTS

SIMRS and EMR Implementation Effectiveness

SIMRS and EMR implementation at JIH Hospital has proven to improve efficiency and accuracy of clinical and administrative documentation. This system includes integration of patient service modules, laboratory, pharmacy, and finance. Patient information can be accessed across units in real-time; this accelerates clinical decision-making by medical personnel.JIH Hospital has been operating its SIMRS and EMR since 2017.

SIMRS provides real-time managerial dashboard that helps hospital leadership monitor daily operational performance directly and accurately. This feature facilitates management in conducting workload analysis, service planning, and quality evaluation. Additionally, SIMRS provides support in managerial decision-making, especially regarding resource management, service planning, and data-based budget allocation. This system is also integrated across service units, so coordination between departments becomes faster and with minimal errors. Clinically, SIMRS provides support for medical decision-making, for example in the form of patient vital data display, therapy history, and treatment recommendations based on previous diagnosis.

Meanwhile, EMR at JIH Hospital has been used by 100% of outpatient doctors. This full EMR implementation shows commitment to medical process digitalization at the front line of patient services. EMR enables cross-functional integration, including laboratory, radiology, and pharmacy, so patient clinical information can be accessed quickly and comprehensively. With EMR, clinical decision-making processes become more accurate and efficient because doctors can review previous examination results in one platform. This system also accelerates medical actions because patient vital information is available instantly. Additionally, EMR provides fast and secure access to medical records, which is very important for maintaining care continuity and patient data security.

Despite positive implementation results, challenges still arise, especially in interoperability aspects between SIMRS systems and external insurance platforms. Differences in digital literacy among staff also affect adaptation speed and system utilization optimization. Additionally, not all supporting systems such as e-signature are fully integrated, so several processes still require manual intervention.

Patient Perceptions of JIHApps Application

JIHApps application provides convenience for patients to conduct self-registration. Patients can choose doctors and visit times, and receive queue notifications directly. Most patients express satisfaction because waiting time is reduced and administrative interactions become faster. The online queue feature integrated in JIHApps has contributed to service efficiency, with outpatient care waiting time achieving an average of 36.04 minutes, meeting the national target of ≤ 60 minutes (see Table 1). Additionally, this feature provides service time estimation notifications, so patients can adjust arrival times and reduce physical location waiting time. Online queue integration with digital registration systems contributes to increasing patient satisfaction levels from 82% to 91%. The 2024 performance achievement of JIH Hospital's minimum service standards (SPM) are presented in Table 1:

Table 1. Minimum Service Standards Based on IKM Survey

SPM Indicator	SPM Target	JIH Hospital Realization
Customer satisfaction in the Emergency Unit	>= 70%	80.24%
Waiting time in outpatient care	<= 60 minutes	36.04 minutes

The patient portal in the application also provides access to consultation schedules, laboratory results, and real-time queue status. This feature supports information transparency and increases patient sense of control over their care processes. Additionally, digital health education is available that can be accessed directly by patients as part of hospital promotive and preventive efforts. This application enables two-way communication between patients and hospital, both for information clarification needs and direct complaint submission.

However, not all patients can access or understand these digital features; digital literacy limitations and internet signal constraints in some areas become separate obstacles. Some officers also mentioned that JIHApps features do not yet cover all administrative processes such as automatic insurance coverage validation. Therefore, user education and integrative feature improvement still need to be enhanced to achieve optimal benefits from this application. Following is JIH Hospital JIHApps user data for 2024 (see Figure 1):

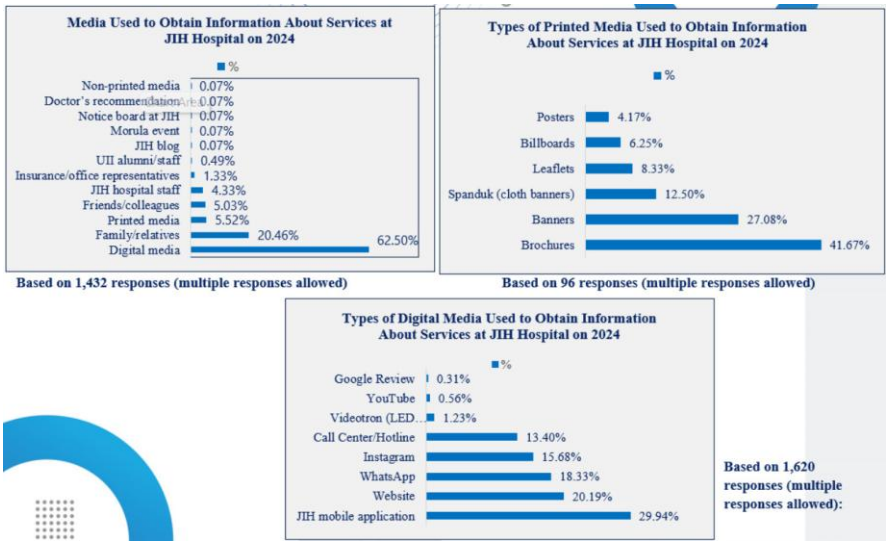

Figure 1. JIHApps User Data 2024 Based on IKM Survey

Survey results show that digital media is the main source of JIH Hospital service information, with 62.5% of respondents accessing services through digital channels. Among various available digital platforms, JIHApps occupies the highest position in usage as a source of hospital product and service information (29.94% of N=1620) in 2024. This indicates that JIHApps has successfully become the main communication channel between hospital and patients, surpassing popular social media like Instagram (15.68%) and WhatsApp (18.33%). Additionally, JIH Hospital website and call center are also recorded as frequently used media, but still below JIH application. Implications of these findings show that JIHApps adoption success is strongly influenced by: Level of user-friendliness; Complete and real-time service features (e.g., queue information, lab results, and health education); Role of digital and offline promotional media in introducing the application to the public. For the future, optimizing JIH application features, notification integration based on patient preferences, and usage training for certain age groups can be effective strategies in expanding JIHApps usage and increasing patient digital engagement.

Self-Payment Innovation through JIHPay

JIHPay is presented as a solution for non-insurance patients to complete payments without queuing at the cashier. This system supports payments with debit cards, credit cards, and is being developed to support QRIS and mobile banking. JIH hospital launched and operated JIHPay in 2024. Patient response is very positive because transactions become faster and reduce queues in cashier areas.

From management perspective, JIHPay helps reduce administrative burden, accelerates daily closing processes, and increases operational efficiency. This system also improves billing accuracy because calculation and bill matching processes occur automatically—reducing potential manual input errors. Additionally, JIHPay supports contactless service, which became important since the pandemic and remains relevant in efforts to maintain patient safety and comfort. This self-transaction provides patients freedom to control time and payment methods used, thus contributing to overall service experience improvement.

However, JIHPay adoption rate is still limited to patients with good digital financial literacy. Some patients continue to choose conventional payment methods due to habitual preferences or concerns about the security of using electronic machines. To address this, hospitals need to enhance patient education on JIHPay usage and ensure staff are available to assist those unfamiliar with digital technology.

Chatbot and Digital Interaction: Improving Service Responsiveness

Chatbot use at JIH Hospital has proven to improve service responsiveness to patients. Chatbots integrated with WhatsApp Business are utilized to answer administrative questions in real-time, such as doctor schedules, service availability, and registration procedures. Additionally, chatbots function as reminders for doctor consultation schedules, helping patients manage visit times better and reducing absence risks. This system also facilitates service booking and general information provision, which previously had to be done through counters or telephone connections. Chatbot use provides great benefits in time efficiency, staff workload reduction, and patient engagement improvement. Patients feel more connected to hospitals because communication can be done anytime and anywhere, without having to come directly to physical locations.

However, chatbot capabilities are still limited to routine questions; this system cannot yet handle complex cases requiring clinical assessment or ethical considerations. Therefore, JIH Hospital implements a hybrid approach—combining automatic chatbot responses with escalation to customer service or healthcare personnel when needed. This strategy allows digital systems to remain personal and adaptive to patient needs, while reflecting hospital commitment to providing fast, accurate, and human services.

Managerial and Organizational Challenges in Digital Transformation

Digital transformation at JIH Hospital proceeds with full management support and active participation from all staff. Generally, staff do not show resistance to change; they welcome new digital system implementation. However, there are differences in ability to understand and operate technology, affecting adaptation speed between individuals and work units.

JIH Hospital has provided specific training budgets to support employee digital competence improvement. Nevertheless, training processes require continuous and contextual approaches so all staff can optimally apply technology in daily tasks. On the other hand, dependence on external vendors in system maintenance and development remains a strategic challenge, especially when rapid system changes are needed.

Additionally, managerial challenges also arise from the need to align digitalization vision with overall organizational strategic goals. Some technical technology initiatives often lack support from structural changes or internal policies, thus hindering cross-departmental integration processes. To address this challenge, JIH management emphasizes cross-functional approaches with performance indicator-based system monitoring, strengthening interdepartmental coordination, and promoting

transformational leadership styles at managerial levels to accelerate adoption and comprehensive digital innovation synergy.

Collaboration and Open Innovation Ecosystem

JIH Hospital does not only rely on internal development but also builds partnerships with third parties to accelerate innovation. One is collaboration with technology providers for JIHApps and JIHPay development, and with logistics providers for drug delivery services. This collaboration enables faster and locally appropriate digital solution integration. Additionally, stakeholder involvement such as regulators and insurance companies becomes an important part in driving digital innovation success—especially regarding data regulations and service coverage policies.

These findings show that digital transformation at JIH Hospital is a complex continuous process but has real impact on efficiency, patient satisfaction, and hospital image. Adaptive, collaborative, and patient value-oriented strategies have proven to be keys to success in facing challenges and changes in the digital healthcare sector. This success depends not only on technology alone but also on organizational readiness to build pro-innovation digital culture. Hospitals need to continue conducting data-based evaluation and involving internal and external stakeholders to maintain transformation relevance with patient needs and industry dynamics.

Hospital-led open innovation ecosystems must enable value co-creation through mutually beneficial partnership models, supported by flexible and adaptive decision-making systems (Shin et al., 2024). In the context of JIH Hospital, this approach is highly relevant. Digitalization efforts such as JIHApps, JIHPay, and chatbot integration demonstrate collaboration with various stakeholders—from technology vendors to logistics partners—to build an integrated service ecosystem.

CONCLUSION

Performance Expectancy emerged as the strongest predictor of AI adoption, aligning with UTAUT and prior research (Avci, 2022; Venkatesh et al., 2003). Managers are more inclined to adopt AI when they perceive it enhances efficiency, decision-making and policy execution, highlighting the need for AI Digital transformation in the healthcare sector, particularly at JIH Hospital Yogyakarta, demonstrates how the implementation of technologies such as SIMRS, EMR, JIHApps, JIHPay, and chatbots has significantly improved operational efficiency and service quality. The digitalization process not only reduces patient waiting times and increases satisfaction but also provides better patient experiences. These digital initiatives not only accelerate administrative and clinical processes but also strengthen hospital image as a modern institution ready to adapt to healthcare industry dynamics. Digital transformation is not an instant process; rather, it is a strategic journey requiring continuity, organizational learning, and data-based evaluation. Despite challenges such as digital capability variations among staff, external system integration, and dependence on technology vendors remain to be persisted, JIH management has shown adaptive responses through training provision, cross-unit coordination strengthening, and transformational leadership.

Based on this analysis, the success of digital transformation depends heavily on three main pillars: system integration responsive to user needs; visionary and collaborative managerial leadership; and active stakeholder involvement through open innovation approaches. Transformation that was initially technical has now evolved into organizational strategy to create service excellence and hospital business sustainability. Going forward, hospitals need to continue investing in internal digital capability improvement to anticipate technology changes and increasingly dynamic patient expectations. Regular evaluation and feedback mechanisms from service users become will be essential to ensure that every digital innovation remains relevant effective, and capable of delivering measurable value.

RECOMMENDATIONS

This research has limitations in institutional scope because it only focuses on one hospital with specific characteristics. For future research, it is recommended to conduct comparative studies at several hospitals with different classifications, geographical locations, or ownership models to produce broader and more generalizable understanding of digital transformation in the healthcare sector. Additionally, quantitative or mixed methods approaches can also be used to measure digitalization impact on performance indicators more objectively. Future research can also explore the role of organizational culture and digital leadership in accelerating technology adoption in hospital environments.

To ensure successful digital transformation, hospital management must strengthen investment in human resource digital training by enhancing digital literacy programs for both medical and administrative staff to reduce resistance and accelerate system adoption. Additionally, developing robust infrastructure and an integrated ecosystem is essential, particularly through promoting interoperability between internal units and external stakeholders such as insurers and regulators. A hybrid approach that balances technological tools like chatbots, JIHApps, and JIHPay with human interaction is also critical to maintain service personalization and build patient trust. Strategic alliances through open innovation—collaborating with technology startups, logistics providers, and research institutions—can further accelerate digital solution development without overburdening internal resources. Ultimately, every digital initiative should focus on value co-creation, delivering shared benefits for both hospitals and patients in terms of accessibility, service experience, and cost efficiency.

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