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ARTICLE

Evaluation of Digital Maturity Level of Citra Husada Jember Hospital as a Strategy to Support Health Transformation

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Abstract

The digital transformation of healthcare services demands hospital readiness in adopting integrated information systems. This study aimed to assess the digital maturity level of RS Citra Husada Jember using the Digital Maturity Instrument version 1.1 from the Ministry of Health of the Republic of Indonesia which includes seven main components: information systems and infrastructure, standards and interoperability, management and governance, data analysis, human resources, information security, and utilisation of electronic medical records and patient-centred services. This study used a descriptive cross-sectional design involving six internal hospital stakeholders through structured discussions. Results showed good digital maturity, with the highest scores in management and governance (4.5) and EMR (4.3), while the lowest scores were found in external interoperability (1.7) and data analytics. These findings emphasise the importance of strengthening digital infrastructure, improving digital literacy of health workers, and system integration to support the national OneHealth policy.

Keywords: Digital Maturity; Hospital; Information System; Interoperability; Digital Transformation

1. Introduction

Digital transformation in the healthcare system is a key strategy to improve service quality and operational efficiency. Through the application of technology such as the Hospital Management Information System (SIMRS), services become more integrated and responsive to patient needs, as well as supporting data-based decision-making (Bintang Budaya et al., 2023; Maryati & Utami, 2023; Mokoagow et al., 2024).. This initiative is reflected in the Indonesian government's efforts to implement a single national health database that emphasises digitalisation within health centres and hospitals, making it a pillar in health system transformation. (Ainun Nadiyah & Prayoga, 2024; Bintang Budaya et al., 2023)..

Globally, digital transformation is fuelled by the demand for services that are adaptive, efficient and in line with technological developments and patient expectations. Implementation of electronic health

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records and integration of clinical and social data contribute to increased personalisation of care, especially in reaching underserved populations through innovations such as telemedicine (Katapally, 2024; Elendu et al., 2024). In Indonesia, the Digital Health Transformation policy is an important cornerstone in the development of health information systems. One of its key initiatives is the OneHealth platform, which is designed to integrate health data from various service facilities. (Mulyana et al., 2021; Supian et al., 2024).. Digitalisation of medical records through the implementation of Electronic Medical Records (RME) has also become an important pillar in efforts to improve the quality and efficiency of services. (Darianti et al., 2021; Mulyana et al., 2021; Ningsih et al., 2022).

Digital transformation initiatives also include efforts to facilitate data integration across healthcare facilities, ensuring that patient information can be accessed quickly and efficiently. (Asgiani et al., 2024; Mulyana et al., 2021; Supian et al., 2024).. With these steps, it is expected that the health system in Indonesia can be more responsive to patient needs and improve data-driven decision-making in health services. (Darianti et al., 2021; Ningsih et al., 2022).. In the context of hospitals, digital readiness is crucial to ensure successful integration of information systems. The Indonesian Ministry of Health has developed the Hospital Digital Maturity Assessment Instrument version 1.1 which includes seven main components: (1) information systems and infrastructure, (2) standards and interoperability, (3) management and governance, (4) data analytics, (5) human resources, (6) information security and data privacy, and (7) EMR utilisation and patient-centred services.n (Alotaibi et al., 2024; Hourani et al., 2021; Ferreira et al., 2025).

Digital transformation also demands HR competencies that include not only technical skills, but also an understanding of information systems in daily service practices (Ferreira et al., 2025). On the other hand, interoperability between systems is still a major challenge, especially in supporting data integration across service facilities (Asgiani et al., 2024). Until now, academic studies on hospital digital maturity in Indonesia have been dominated by studies on vertical and teaching hospitals. Different from previous studies, this study specifically evaluates the digital readiness of private hospitals at the district level, which has its own characteristics and challenges. Research on regional private hospitals is still rare, even though digital disparity between hospital types is an important issue in realising an inclusive and equitable digital health system.

This study aims to assess the level of digital maturity at Citra Husada Jember Hospital using official instruments from the Indonesian Ministry of Health. A descriptive approach was used to map the hospital's position based on the seven main components of digitalisation. The results of this study are expected to serve as a basis for hospital strategic planning as well as a reference for policy makers in designing interventions that support the acceleration of national health digital transformation.

Materials and Methods

1.1 Research Design

This research is a descriptive quantitative study with a*cross-sectional*design () conducted at Citra Husada Jember Hospital, a private hospital in Jember Regency, East Java.The study was conducted in June 2024 with the aim of assessing the hospital's digital maturity level based on seven key components of hospital digitalisation. The assessment was conducted through a collaborative process between researchers and internal hospital stakeholders.

1.2 Population and Sample

The population in this study includes all functional units within Citra Husada Jember Hospital that play a role in managing information systems and digital transformation. Sampling was conducted purposively, involving six key respondents, namely the Head of IT, IT staff, and deputy directors in charge of medical services, nursing, medical support, and general administration. These respondents were selected based on their capacity to understand, implement, and evaluate aspects of hospital digitalisation.

1.3 Research Instrument

This study uses the Hospital Digital Maturity Level Assessment Instrument version 1.1 prepared by the Ministry of Health of the Republic of Indonesia through the Directorate General of Health Services. This instrument was officially released in 2023 as part of efforts to accelerate the implementation of the digital transformation of national health services, as well as a reference in the implementation of the SATUSEHAT data integration policy (Decree of the Director General of Health Services No. HK.02.03/D/1143/2023).

The instrument contains 38 assessment parameters that are scored using a Likert scale of 1 to 5, with the following level definitions:
Level 1: Implementation is *ad hoc* and unstructured.
Level 2: There are initial initiatives but no systematic planning yet
Level 3: Processes are structured and evaluated regularly.
Level 4: Activities are aligned with internal policies and systematically managed
Level 5: Digitisation processes are fully integrated and continuous improvement is in place.

The instrument was completed through structured discussions with six key respondents, as well as a review of supporting documents*(evidence-based scoring*). Assessment validation was conducted by consensus to ensure objectivity and accuracy of results.

1.4 Data Analysis

The data obtained were analysed descriptively quantitatively by calculating the average score on each parameter and component. The results of the analysis illustrate the level of digital maturity of the hospital in each component as well as overall. This research also presents a mapping of the strengths and weaknesses of each component as a basis for recommendations for improvement and development of hospital information systems in the future.

2. Results and Discussion

The highest scoring component was Information Systems Management and Governance (4.5), followed by *Electronic Medical Record* (EMR) and *Patient Centred Care* (4.3), reflecting managerial readiness and adoption of technology that supports patient-centred *care*. In contrast, the lowest scores were found in External Interoperability (1.7) and Data Analytics (3.3), indicating barriers to system integration across facilities and utilisation of data for evidence-based decision-making.

Table 1. Digital Maturity Component Score of Citra Husada Jember Hospital

No.	Component	Total Score
I	Hospital information system and SI infrastructure	4.0
II	Standards and interoperability	3.3
III	Management and governance	4.5
IV	Data Analysis	3.3
V	Human resources, skills, and utilisation	3.4
VI	Information security, privacy and data confidentiality	4.0
VII	*Electronic Medical Record* (EMR) and *patient centre care*	4.3

Source: Primary data
High scores on Management and Governance indicate that hospitals have strategic planning,

leadership structures, and consistent investment in information systems. Meanwhile, success in *EMR* and *Patient Centred Care* reflects mature digital integration in clinical and administrative processes, supporting quality of care and patient satisfaction. However, low scores on Standards and Interoperability, particularly on external interoperability, indicate a gap in the achievement of SATUSEHAT's national policy, which prioritises data integration between healthcare facilities. This is reinforced by the findings on Data Analytics, which revealed limitations in optimally utilising *big data*, both in terms of technology and resource competencies.

The Information Systems and Infrastructure, and Information Security components scored 4.0, indicating adequate basic infrastructure and data protection policies. Meanwhile, Human Resources, Skills and Usage scored 3.4, indicating that while the digital literacy of the workforce is good, the motivation to use the system and manage knowledge still needs strengthening.

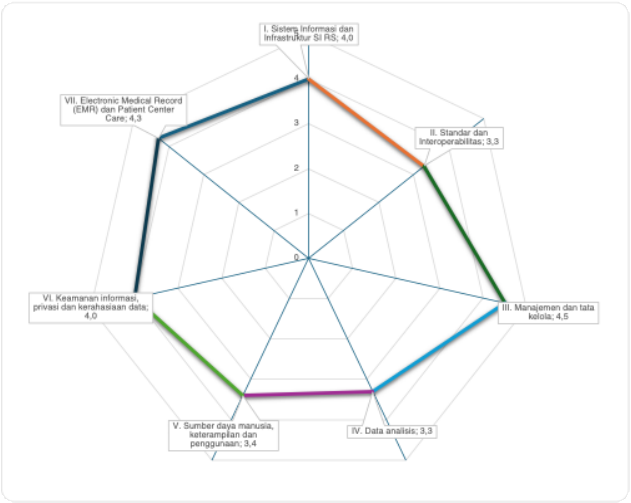

Figure 1. Digital Maturity Mapping of Citra Husada Jember Hospital

Overall, these results show that Citra Husada Hospital is already at a fairly good digital readiness phase, but still requires strengthening strategies in the areas of cross-system interoperability and data analytics. This finding is in line with the research objective, which is to map the hospital's readiness to support integrated and sustainable health digital transformation.

2.1 Information System and Infrastructure Component of Hospital Information System

The assessment results on the Information Systems and Infrastructure component show that Citra Husada Jember Hospital has built a fairly strong *digital* foundation, especially in administrative aspects and strategic planning. The *Back Office* and Information System Resource Planning sub-components each recorded a maximum score of 5.0, indicating that the hospital has optimally utilised information systems to support internal operations, IT planning, and resource allocation on an ongoing basis.

Table 2. Information System Components and Hospital Information System Infrastructure

No.	Sub-component	Sub score
A	Front Office	3,5
B	Back Office	5,0
C	ICT Quality	4,0
D	ICT Service Quality	4,0

E	Interoperability services and routine reporting	2,3
F	Information system resource planning	5,0

Source: Primary data

The ICT Quality and ICT Services sub-component scored 4.0, indicating that network infrastructure and IT services have performed reasonably well in supporting routine services, although improvements in system capacity and efficiency are still needed. In contrast, the score of 3.5 on *Front Office* indicates that utilisation of information systems for direct patient care is still limited, especially in terms of user interface and integration of digital service processes.

The lowest score appears in Interoperability and Routine Reporting Services with a score of 2.3, reflecting significant limitations in automated data exchange between units and with external systems. This condition shows a gap in the principle of interoperability mandated in the SATUSEHAT policy, where data exchange across systems is a central element of national digital transformation.

Overall, this component shows that RS Citra Husada has excelled in internal system management and technology planning, but needs to strengthen aspects of digital patient services and external data integration to fully support a connected and sustainable digital health ecosystem.

2.2 Standards and Interoperability Component

The results of the assessment of the Standards and Interoperability component show a stark contrast between the achievements of internal and external interoperability at Citra Husada Jember Hospital. Internal interoperability scored a maximum of 5.0, indicating that information systems between units and departments within the hospital were well integrated. This reflects technical and operational readiness to ensure consistent data flow, support service efficiency, and facilitate *real-time* information-based decision-making.

Table 3. Digital Maturity Component Score of Citra Husada Jember Hospital

No.	Sub-component	Sub score
A	Internal interoperability	5,0
B	External interoperability	1,7

Source: Primary data

In contrast, external interoperability only scored 1.7, indicating that hospitals still face serious barriers in exchanging data with systems outside the institution, including external laboratories, referral facilities, pharmacies, and national platforms such as SATUSEHAT. This low score is a direct indicator of a gap in the national data integration policy, which demands inter-facility connectivity as part of the digital health system transformation.

Perbedaan signifikan antara skor internal dan eksternal menggarisbawahi urgensi penguatan infrastruktur dan kebijakan teknis untuk menjamin interoperabilitas lintas sistem. Upaya perbaikan yang diperlukan antara lain meliputi: penyesuaian standar data dan protokol integrasi, penguatan konektivitas sistem dengan platform SATUSEHAT, serta peningkatan kapasitas SDM dalam pengelolaan data antar sistem.

Thus, while hospitals have shown substantial progress in internal data integration, limitations on the external side remain a critical challenge. These findings emphasise the importance of a more targeted strategy to integrate district-level private hospitals into an integrated and sustainable national health data ecosystem.

2.3 Management and Governance Component

Assessment of the Management and Governance component shows that Citra Husada Jember Hospital has a mature policy and operational foundation in managing information systems. All sub-components received high scores, indicating management's commitment to building a planned, structured and sustainable information system.

Table 4. Management and Governance Components

No.	Sub-component	Sub score
A	SI/TI strategic plan	4,3
B	IS/TI Governance	4,3
C	IT unit human resources	4,3
D	Information system investment	5,0

A score of 4.3 on the SI/TI Strategic Plan indicates that the hospital has a planning document that is aligned with the direction of institutional development and long-term digital service needs. This reflects the hospital's readiness to integrate information technology into the healthcare strategic agenda.

IT governance also scored 4.3, indicating that governance principles have been implemented through clear decision-making structures, defined IT usage policies, and active oversight mechanisms. The implementation of this governance is important to ensure the effectiveness of information systems and reduce the risk of technology failure.

On the Human Resources aspect of the IT unit, the score of 4.3 indicates that the hospital has a quantitatively and qualitatively competent team. However, future challenges remain, particularly in terms of technical capacity building through continuous training and strengthening understanding of health digitalisation policies.

Information systems investment recorded the highest score of 5.0, reflecting management's commitment to providing adequate financial resources for IT infrastructure procurement, maintenance and development. This commitment is an important indicator that digitalisation has become a strategic priority for the institution.

Overall, this component illustrates the managerial readiness of RS Citra Husada in supporting the national digital transformation agenda. Success in the aspects of planning, governance, strengthening human resources, and budget allocation are crucial foundations to ensure the sustainability of an adaptive and competitive information system.

2.4 Data Analysis Component

The assessment of the Analysis Data component shows that Citra Husada Jember Hospital has started the first step in data utilisation to support decision making, but the development is still limited and requires continuous improvement.

Table 5. Components of Data Analysis

No.	Sub-component	Sub score
A	Data usage and quality	3,0
B	Big data analysis	3,5

A score of 3.0 in the Data Use and Quality sub-component indicates that data has been used in operational and managerial activities, but there are still issues related to accuracy, consistency, and timeliness. Issues such as double-entry, late input, and lack of data validation indicate the need to strengthen recording standards and internal data governance.

Meanwhile, the Big Data Analytics sub-component scored 3.5, indicating that the hospital has started to adopt technical approaches in data processing, such as the use of dashboards, electronic reporting,

and digital performance indicators. However, the use of advanced analytics technologies such as predictive modelling, interactive visualisation and *real-time* analytics has not been optimised. This limitation is also influenced by the lack of experts with analytic competencies and the lack of data integration between service units.

In general, this component reflects the potential and awareness of the importance of data as the foundation of evidence-based decision making. However, to support a comprehensive digital transformation, RS Citra Husada needs to adopt a sustainable strategy that includes improving data quality, developing the capacity of analytics human resources, and integrating information systems across units so that data analysis truly becomes a driver of efficiency and quality of service.

2.5 Human Resources, Skills, and Usage Component

The assessment of the Human Resources, Skills and Usage component shows that Citra Husada Jember Hospital has a good level of *digital* literacy, but still faces challenges in the aspects of perceived system benefits, motivation to use, and systematic knowledge management.

Table 6. Components of Human Resources, Skills and Usage

No.	Sub-component	Sub score
A	Digital literacy	3,0
B	Perceived usefulness and usefulness of information systems	3,5
C	Encouragement to use information systems	3,3
D	Knowledge management	3,0

Source: Primary data

The Digital Literacy sub-component scored 4.3, indicating that the majority of the workforce has basic skills in operating information systems and adapting to digital work environments. This level of literacy reflects HR's initial technical readiness to run information systems, and is an important foundation for the widespread adoption of technology.

However, the score of 3.0 on the perceived usefulness of information systems indicates that not all users believe in the effectiveness of the system in improving work efficiency and service quality. This barrier can arise due to a lack of user involvement in system design, not optimal socialisation of benefits, or a less intuitive usage experience.

The score of 3.3 on Encouragement to Use the System reflects that organisational incentives, internal regulations, and monitoring mechanisms for system utilisation still need to be strengthened. Although there are individuals or units that play an active role in encouraging the use of the system, the success of digital transformation requires comprehensive and sustainable organisational support.

Meanwhile, Knowledge Management scored 3.0, indicating that documentation, internal training, and knowledge transfer are not yet optimally structured. The absence of a standardised knowledge-sharing mechanism can lead to competency gaps and hinder the adoption of system updates equally across work units.

Overall, the assessment results in this component show that the success of digital transformation is not only determined by the availability of technology, but also by the readiness of human resources. For this reason, it is necessary to strengthen the ecosystem that supports motivation to use, understanding of the use value of the system, and knowledge management based on continuous organisational learning.

2.6 Components of Information Security, Privacy, and Data Confidentiality

The Information Security, Privacy, and Data Confidentiality component is an essential aspect of hospital information systems, especially as it concerns the protection of highly sensitive patient data. Amidst the increasing digitisation of services, information security is an important prerequisite for

maintaining patient trust and ensuring compliance with health data protection regulations.

Table 7. Components of Information Security, Privacy, and Data Confidentiality

No.	Sub-component	Sub score
A	Patient data security and access	4,3
B	Implementation of information system security procedures	3,7

The Patient Data Security and Access sub-component recorded a score of 4.3, indicating that the hospital has implemented adequate role-based access controls, user authentication systems, and data encryption protocols. These measures reflect institutional awareness in securing medical information and preventing unauthorised access. However, this success still needs to be underpinned by an ongoing audit system to ensure operational compliance with established security policies.

Meanwhile, the Implementation of Information System Security Procedures sub-component scored 3.7, indicating that formal security-related policies are in place and partially implemented, but not yet fully implemented. The main weaknesses are the lack of*vulnerability assessment*, the lack of staff training on security incident mitigation, and the limited user activity monitoring system for early detection of breaches.

The low frequency of security simulations and limitations in incident response can be a significant risk, especially in the midst of increasing cyber threats to healthcare facilities. Therefore, RS Citra Husada Jember needs to strengthen security governance with a more proactive approach, including periodic evaluation of security policies, increased cyber literacy of the workforce, and the use of automated monitoring systems capable of detecting anomalies in *real-time*.

Overall, the hospital has demonstrated a strong initial commitment to securing patient data, but more systemic integration between policy, technology and human resources is needed to achieve sustainable digital information resilience in support of the digital transformation of healthcare.

2.7 *Electronic Medical Record* (EMR) and *Patient Centre Care* components

Table 8. Electronic Medical Record (EMR) and Patient Care Components

No.	Sub-component	Sub score
A	EMR function	3,9
B	Implementation of information system security procedures	4,0
C	Depth of Use of EMR	4,4
D	Patient Personalised Service	5,0

The *EMR* Functionality sub-component scored 3.9, indicating that the system has covered the essential elements of medical documentation, including history taking, examination results, and treatment plans. However, further development is still needed, especially in multimedia data integration (e.g. digital radiology) and cross-system clinical interoperability.

In the *Patient-Centred Care* sub-component, the score of 4.0 reflects the adoption of service principles that focus on patient needs and preferences. Indicators such as information transparency, easy access to services, and responsive care flow management have been well implemented, supporting the creation of a more meaningful care experience for patients.

The highest score was achieved in Patient Personalisation Services with a score of 5.0, indicating that the hospital has been able to utilise clinical data to develop individually tailored interventions. This practice includes providing therapies that are appropriate to the patient's medical history, digital monitoring of health conditions, and involving patients in clinical decision-making.

Meanwhile, the EMR Depth of Use sub-component with a score of 4.4 indicates that the system is not only used administratively, but has been integrated into the entire service process including nursing, pharmacy, diagnostic support, and referral management. This reflects the hospital's readiness to utilise

EMR as the foundation of an integrated clinical information system.

Overall, the results in this component indicate that RS Citra Husada Jember has reached an advanced stage in EMR implementation and patient-orientated services. This achievement not only strengthens service effectiveness and quality, but also supports the vision of national digital transformation through optimal utilisation of clinical data for evidence-based decision making and improved patient safety.

2.8 Impact of Components on Hospital Digital Maturity Level

The impact of hospital information systems and infrastructure, as well as other elements such as standards and interoperability, data management and governance, analytics, human resources, skills, information security, privacy, data confidentiality, *Electronic Medical Record* (EMR), and *patient-centred care*, is significant to a hospital's digital maturity level.

Hospital Management Information System (HIMS) plays a fundamental role in improving operational efficiency and health services. Research conducted by Mokoagow et al. shows that SIMRS implementation can improve service efficiency, which in turn drives digital maturity. (Mokoagow et al., 2024).. In addition, a robust and standardised information systems infrastructure enables hospitals to integrate various applications and services, which is essential for effective interoperability and collaboration in patient data management. This is important in the context of health policies that emphasise integration of services (Krasuska et al., 2020).

Data management and governance are critical aspects in improving digital maturity. Clear policies and good governance enable hospitals to ensure information security and patient data privacy, which in turn can increase patient trust in the health system. Research by Setiyowati and Siswanti shows that the application of frameworks such as COBIT for assessing the maturity of information system security processes is essential in protecting patient data. (Setiyowati & Siswanti, 2021).. Appropriate data analysis also provides useful insights for evidence-based decision-making, which is important in the development of *patient-centred care*. (Krasuska et al., 2020)..

Information security and data confidentiality have a direct impact on a hospital's digital maturity. Ensuring patient data is secure and confidential not only fulfils legal requirements but also builds good reputation for the hospital. A good strategy for maintaining information security helps to reduce the risk of data breaches and increase user trust. (Sari et al., 2024). This is particularly important in the context of EMRs, where proper management ensures that patient medical records are accurate and accessible to authorised medical personnel, supporting more personalised and efficient care. (Darsono, 2024).

The readiness and skills of human resources greatly affect the level of digital maturity. Without adequate training and skills development, information technology such as EMR and other information systems cannot be utilised optimally. According to Suhartatik et al.'s research, there are challenges in implementing SIMRS due to inadequate user skills. (Suhartatik et al., 2022).. Therefore, digital skills development through continuous training is strategic to improve the level of digital maturity in hospitals.

2.9 Challenges in Improving Hospital Digital Maturity

Implementing digital maturity in hospitals presents a variety of challenges that stem from different sectors within the healthcare system. These challenges can be classified into a few key areas: technology integration, workforce capacity, regulatory framework, and organisational culture.

Firstly, technology integration is a major obstacle for hospitals in achieving higher levels of digital maturity. Many hospitals face difficulties with interoperability, the ability of various information systems to communicate effectively with each other. This problem is emphasised in various studies that show that hospitals experience obstacles in building integrated health data systems needed for comprehensive services. (Wahyuni et al., 2024).. In addition, the absence of a standardised approach to digital health technology can result in fragmented systems, resulting in data silos and hindering the

seamless exchange of information. (Putra et al., 2024). Therefore, addressing the issue of interoperability through the development of a cohesive digital infrastructure is essential to improve digital maturity in various healthcare facilities. (Wahyuni et al., 2024)..

Furthermore, workforce capacity is a significant challenge in digital transformation efforts. The digital capabilities of health workers directly affect the successful implementation of electronic medical records (RMEs) and other digital tools (Sanjaya et al., 2023).. Research shows that inadequate training and low digital literacy of staff can seriously undermine efforts to improve digital maturity. (Snowdon et al., 2024).. This requires a strategic approach to workforce development, where ongoing education and training programmes are essential to equip health workers with the required digital competencies. (Duc et al., 2023).. In addition, resistance to change among staff can also hinder efforts to improve digital capabilities and workflows, requiring a supportive management framework. (Burmann et al., 2022).

Regulatory and policy challenges also complicate efforts to achieve digital maturity in hospitals. As highlighted by various studies, there is an urgent need for regulations that support innovation while ensuring patient safety and data security. (Bawazier & Sulistiadi, 2023; Putra et al., 2024).. Policymakers must formulate guidelines that are adaptive to the rapidly evolving digital landscape, in order to facilitate initiatives that foster digital maturity without compromising essential healthcare standards. (Putra et al., 2024). This includes the challenge of overcoming bureaucratic inertia and aligning national health strategies with hospital capacity at the local level, which is often a complex endeavour due to regional differences in needs (Cresswell et al., 2025). (Cresswell et al., 2025)..

Finally, organisational culture plays an important role in determining the speed and effectiveness of digital transformation. A culture that encourages innovation and flexibility can significantly improve a hospital's ability to adopt digital tools and processes. (Putra et al., 2024). However, many healthcare organisations still exhibit a change-resistant culture, where conventional practices take precedence over adapting to new digital solutions. (Burmann et al., 2022).. Therefore, building an organisational culture that accepts and supports digital transformation at all levels, from management to clinical staff, is a vital step to overcome internal resistance and achieve higher digital maturity. (Woods et al., 2023).

2.10 Strategies for Improving Hospital Digital Maturity

Improving digital maturity in hospitals requires a comprehensive set of strategies that include technology, staff engagement and organisational change. In this context, an effective strategy can be divided into several key areas: technology infrastructure development, staff training and skills development, increased collaboration between stakeholders, and implementation of a supportive policy framework.

Firstly, the development of a robust technology infrastructure is the cornerstone for digital maturity. Hospitals need to invest in information technology systems that are integrated and can communicate with each other. This is crucial to support interoperability and enable effective data exchange among various units within the hospital. (Aisyah et al., 2024).. A planned digital transformation model is important to ensure that all aspects of healthcare are well integrated and support the operational needs of the hospital. (Baihaqy & Subriadi, 2024).. The implementation of information management systems that utilise data analytics and digital technologies can improve operational efficiency and the quality of patient care. (Xiang, 2024).

Furthermore, staff training and skills development are also crucial aspects in achieving digital maturity. A study showed that the digital skills of medical staff largely determine the successful implementation of digital technologies such as *Electronic Health Record* (EHR). (Baihaqy & Subriadi, 2024).. Therefore, ongoing training programmes should be developed to enhance the digital capabilities of all staff, from medical personnel to hospital managers, to facilitate adaptation to new technologies. (Ariga et al., 2023).. An emphasis on transformational leadership can help drive organisational culture change that supports the adoption of digital technologies. (Ariga et al., 2023)..

The importance of collaboration between stakeholders cannot be overlooked in efforts to improve digital maturity. This collaboration includes co-operation between hospitals, government, technology

providers, and the community in formulating and implementing policies that encourage *digital* innovation. (Stoumpos et al., 2023; Sulaiman & Bachtiar, 2024).. By involving all parties in the decision-making process, hospitals can create a more holistic approach to digital transformation and ensure that all voices are represented in the development of relevant solutions. (Sulaiman & Bachtiar, 2024).

However, the implementation of a supportive policy framework is also crucial in creating a conducive environment for digital maturity. The government and relevant agencies need to establish regulations that not only protect patient data but also encourage innovation and technology integration (Khanh Quan et al., 2023).. Policies that are adaptive and responsive to the development of digital technology can go hand in hand with the needs of hospitals in facing challenges and utilising opportunities that exist in this digital transformation journey. (Sulaiman & Bachtiar, 2024).

This research has several limitations, namely that this study was only conducted in one private hospital in Jember Regency, so the results cannot be generalised to hospitals with different types or scales. In addition, the assessment of the level of digital maturity was conducted based on internal discussions with key informants without any independent external evaluation. Subjectivity in filling out the instrument and the limited number of respondents may also affect the objectivity of the results. Therefore, further studies involving more institutions and external validation mechanisms are recommended.

3. Conclusion

Citra Husada Jember Hospital is at a good stage of digital maturity, reflecting the institution's readiness to support healthcare transformation. The components with the highest achievements, such as Information System Management and Governance and *EMR* and *Patient-Centered Care*, show the hospital's success in effectively managing strategic planning, information system governance, and integration of patient-based services.

However, aspects of external interoperability, utilisation of data analytics, and strengthening human resource capacity are still challenges that need attention in the next development strategy. Therefore, improving digital maturity in hospitals needs to focus on building standardised interoperability infrastructure, continuous training programmes for the workforce, and system integration with national policies such as SATUSEHAT.

This research also has the prospect to be further developed through comparative studies among hospitals in other regions, as well as a reference in the formulation of healthcare digitalisation policies at the national level.

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Ethics approval and consent to participate

This study was approved by the Ethics Committee of the Faculty of Dentistry, Universitas Jember (Ethical Clearance No. 809/UN25.8/KEPK/2024). All participants were informed about the objectives and procedures of the research, and written informed consent was obtained prior to their participation.

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