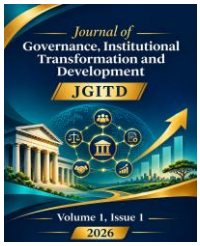
Journal of Governance, Institutional Transformation and Development (JGITD)
Vol. 1 No. 1 (2026): ISSN (Online): 3142-600X
DOI: https://doi.org/10.66313/zbe51b97
*Adoption and Utilisation of Electronic Systems in a Public Maternity Hospital in Tanzania: Evidence from Chanika Maternity Hospital*




# Adoption and Utilisation of Electronic Systems in a Public Maternity Hospital in Tanzania: Evidence from Chanika Maternity Hospital

**Azmara Hussein Mdoe[1*], Janet Mutebe[1] & Felix Makori[1]**
[1]*Kampala International University in Tanzania, Dar es Salaam, Tanzania*

*Corresponding author: Azmara H. Mdoe, Kampala International University in Tanzania, Dar es Salaam, Tanzania. Email: azmaramdoe@gmail.com

ORCID

Azmara Hussein Mdoe: https://orcid.org/0009-0007-9124-3065
Janet Emily Mutebe: https://orcid.org/0009-0002-1187-6596

**Article History**
*Received: 2026-09-15*
*Revised: 2026-10-20*
*Accepted: 2026-11-10*
*Published: 2026-11-13*

***Keywords***
*Electronic systems*
*Electronic medical records*
*Digital health*
*Technology utilisation*
*Maternity hospital*

**How to cite:**
Mdoe, A. H., Mutebe, J., & Makori, F. (2026). Adoption and utilisation of electronic systems in a public maternity hospital in Tanzania: Evidence from Chanika Maternity Hospital. *Journal of Governance, Institutional Transformation and Development (JGITD)*, *1*(1), 12–23. https://doi.org/10.66313/zbe51b97

## Abstract

**Purpose:** This study assessed the level of adoption and utilisation of electronic systems, namely Electronic Medical Records (EMR), the Government of Tanzania Hospital Management Information System (GoTHOMIS), District Health Information Software 2 (DHIS2) and electronic reporting systems, at Chanika Maternity Hospital in Dar es Salaam, Tanzania.

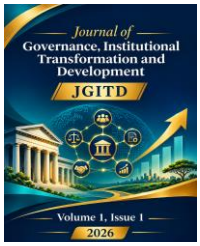
**Design/methodology/approach:** A mixed-methods case study design guided by Digital Transformation Theory and Digital Dynamic Capabilities Theory was used. Data were collected through structured questionnaires completed by 51 hospital staff and semi-structured interviews with 10 key informants from hospital management and ICT units, complemented by documentary review. Quantitative data were analysed descriptively, and qualitative data were analysed thematically.

**Findings:** Adoption and utilisation were generally positive (overall mean = 3.7). Regular use of the systems (M = 4.0; 80.4% agreement) and perceived improvement in work performance (M = 4.0; 82.4%) were rated highly, and ease of use was favourable (M = 3.9). However, adequacy of training (M = 3.4) and system reliability and accessibility (M = 3.3) were comparatively weak. Interviews attributed these gaps to limited practical and refresher training, unstable internet connectivity, power interruptions and delayed technical support.

**Research limitations/implications:** The study was limited to one maternity hospital and relied on perception-based measures, so the findings should be generalised cautiously.

**Practical implications:** Hospital managers and the Ministry of Health should pair system roll-out with continuous practical training, reliable ICT infrastructure, back-up power and responsive technical support so that routine use becomes effective and sustainable use.

Journal of Governance, Institutional Transformation and Development (JGITD)
Vol. 1 No. 1 (2026): ISSN (Online): 3142-600X
DOI: https://doi.org/10.66313/zbe51b97
*Adoption and Utilisation of Electronic Systems in a Public Maternity Hospital in Tanzania: Evidence from Chanika Maternity Hospital*




## INTRODUCTION

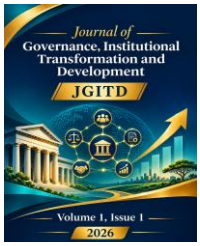
Health systems across the world are increasingly relying on electronic systems to capture, store, retrieve and share clinical and administrative information. Electronic health records, hospital management information systems and digital reporting platforms are expected to reduce dependence on paper files, speed up the retrieval of patient information, improve the accuracy of records and support evidence-based managerial decisions (World Health Organization, 2024; World Bank, 2023). Yet a growing body of evidence shows that the introduction of a digital platform does not, on its own, guarantee that it will be used consistently or effectively. The benefits of digital health depend on whether staff actually adopt the systems in routine work, whether they have the skills to use them, and whether the systems are reliable and accessible when they are needed (Kruse et al., 2016; Verhoef et al., 2021).

In Tanzania, the adoption of electronic systems gained momentum through national ICT reforms and digital transformation initiatives. The establishment of the e-Government Authority (eGA) in 2012 strengthened the coordination of ICT utilisation within public institutions. In the health sector, government initiatives promoted the application of digital technologies to improve information management, accountability, service delivery, and institutional performance. The National ICT Policy and national digital health initiatives provided policy direction for the use of electronic systems in public services, including healthcare (Ministry of Health Tanzania, 2024).

Tanzania introduced several electronic systems in the health sector, including Electronic Medical Records (EMR), the District Health Information Software 2 (DHIS2), the Government of Tanzania Hospital Management Information System (GoTHOMIS), and other digital health platforms. These systems supported patient registration, medical record management, healthcare reporting, information sharing, and administrative decision-making. Their implementation was intended to improve information accuracy, reduce administrative delays, strengthen employee productivity, and support the efficient delivery of healthcare services. However, the realisation of these benefits depended on reliable infrastructure, sufficient technical support, employee training, and consistent system utilisation (Ministry of Health, 2019; World Health Organization, 2025).

Maternity hospitals provide a particularly demanding setting for electronic systems. Maternal and newborn care depends on timely access to antenatal histories, laboratory results, referral information and delivery records, often under time pressure. Where systems are unavailable, slow or poorly understood, staff revert to paper or parallel records, duplicating work and weakening data quality. Chanika Maternity Hospital in Ilala, Dar es Salaam, uses electronic platforms for patient registration, medical records, reporting and administrative operations, which makes it an appropriate case for examining how far such systems have been adopted and utilised in everyday practice.

Despite the progress made in introducing electronic systems in Tanzania's health sector, challenges continued to affect their effective utilisation. These included inadequate ICT infrastructure, unreliable internet connectivity, unstable electricity supply, limited technical support, insufficient digital competencies among healthcare workers, fragmented information systems, and continued reliance on paper-based records. Such challenges could increase employees' administrative workload, delay the retrieval of patient information, and reduce the efficiency of healthcare operations. They could also limit the ability of healthcare managers to use accurate and timely information when making decisions about service delivery and resource allocation (Ministry of Health, 2019). Consequently, the availability of electronic systems alone did not establish whether organisational performance had improved.




National data illustrate the scale of the problem. By March 2025, GoTHOMIS had not been implemented in about 29% of public health facilities, and studies indicate that a substantial proportion of facilities still operate parallel paper-based and electronic systems, face inadequate ICT infrastructure and unreliable connectivity, and have health workers with limited digital competencies (Ministry of Health, 2024; Mwogosi & Mambile, 2024b). Most previous Tanzanian studies have examined adoption at national or primary-care level (Mwogosi & Kibusi, 2024; Mwogosi & Mambile, 2025) rather than at the level of an individual hospital, and limited facility-specific evidence exists from maternity hospitals. Without such evidence, hospital managers cannot tell whether their systems are being used routinely, whether staff are adequately prepared, or whether infrastructural weaknesses undermine utilisation.

This article therefore addresses the following question: what is the level of adoption and utilisation of electronic systems at Chanika Maternity Hospital, and what factors explain the observed pattern? The article reports the first objective of a broader study on the effectiveness of electronic systems on organisational performance in the health sector in Tanzania, and contributes facility-level evidence on the conditions under which digital systems move from availability to effective use.

## Theoretical Framework

### *Digital Transformation Theory*

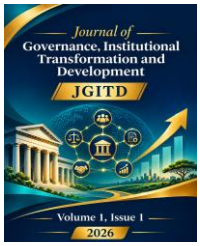
Digital Transformation Theory was advanced by Vial (2019) to explain how organisations create value and improve performance through the adoption, integration, and effective utilisation of digital technologies. The theory argues that digital transformation is not simply the introduction of new technologies but a continuous organisational process through which digital technologies reshape organisational processes, service delivery, decision-making, organisational capabilities, and value creation. According to Vial (2019), digital transformation was driven by the interaction between digital technologies, organisational strategies, and environmental changes, resulting in improved operational efficiency, innovation, service quality, and organisational performance.

The theory is relevant because it frames the adoption and utilisation of EMR, GoTHOMIS, DHIS2 and electronic reporting systems as a process through which hospital work is reorganised. Regular use, perceived usefulness and ease of use are therefore early indicators of whether transformation is taking place. However, the theory has been criticised for assuming that introducing technology naturally leads to transformation and for giving limited attention to the capabilities that organisations need in order to use technology well.

### *Digital Dynamic Capabilities Theory*

Digital Dynamic Capabilities Theory was advanced by Warner and Wäger (2019) as an extension of Dynamic Capabilities Theory to explain how organisations develop, integrate, and continuously reconfigure digital resources and competencies to respond to rapidly changing technological environments. The theory argues that sustainable organisational performance depends not only on possessing digital technologies but also on developing organisational capabilities that enable effective adoption, integration, learning, and continuous adaptation. These capabilities include ICT infrastructure, employee digital competencies, leadership commitment, organisational learning, technical support, and organisational readiness for digital transformation.

This perspective complements Digital Transformation Theory by explaining why two facilities with the same software may achieve different levels of utilisation. In this study, training adequacy, system reliability and accessibility are treated as capability conditions that determine whether adoption becomes effective use.




Combining the two theories allows the analysis to consider both the extent of system use and the institutional conditions that support or constrain it (Vial, 2019; Warner & Wäger, 2019).

### Empirical Literature

Kruse et al. (2016), in a systematic review of electronic health record adoption, identified perceived usefulness, staff training, organisational support, interoperability, and management commitment as important facilitators. Inadequate infrastructure, limited user skills, and resistance to change were reported as barriers. These findings demonstrate that introducing electronic systems does not necessarily guarantee their effective utilisation. They relate directly to the present study's assessment of staff training, system integration, reliability, and ICT infrastructure.

Campanella et al. (2016), through a systematic review and meta-analysis of electronic health record implementation, reported improvements in documentation and selected healthcare processes, while emphasising the importance of implementation quality and organisational readiness. Similarly, Verhoef et al. (2021) explained that digital transformation requires leadership commitment, employee competencies, organisational learning, and continuous innovation. Although these studies provide useful international evidence, they do not specifically establish the conditions affecting electronic system utilisation in Tanzanian maternity hospitals.

In Africa, digital health implementation has been associated with improved information accessibility, reporting, and service coordination. However, infrastructure deficiencies, unreliable electricity, limited funding, and shortages of skilled personnel continue to constrain utilisation. These challenges highlight the importance of assessing electronic systems within their specific organisational and technological contexts.

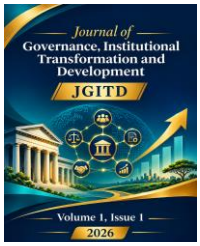
In Tanzania, Mwogosi and Mambile (2024a) identified infrastructure limitations, interoperability challenges, inadequate digital competencies and organisational support as important considerations in electronic health record utilisation. Mwogosi and Kibusi (2024) similarly showed that barriers to EHR implementation in primary healthcare limit its value for decision support, while Mwogosi et al. (2025) reported that digital health records can improve workflow and service efficiency where implementation is well supported. Holl et al. (2024) found that Tanzania's digital health strategy is broadly consistent with the WHO global strategy, but noted that implementation depends on infrastructure, human resources and governance. These studies demonstrate that effective adoption requires more than system availability.

Overall, the literature indicates that adoption and utilisation depend on the interaction between technology, employee competencies and organisational readiness (Kraus et al., 2022; Yusof et al., 2023). However, limited facility-specific evidence establishes how EMR, GoTHOMIS, DHIS2 and electronic reporting systems are adopted and utilised together in a Tanzanian maternity hospital, and how training and infrastructure shape that utilisation. The present study addresses this gap.

## METHOD

### Research Approach and Design

The study adopted a mixed-methods approach, integrating quantitative and qualitative methods. The quantitative approach was used to assess the adoption and utilisation of electronic systems, examine their perceived contribution to organisational performance, and determine the relationship between electronic systems and organisational performance. Questionnaires provided standardised responses that could be summarised using descriptive statistics and correlation analysis.




The qualitative approach was used to obtain detailed explanations from hospital management and ICT personnel concerning system implementation, operational challenges, technical support, staff training, and management commitment. Semi-structured interviews enabled participants to explain their experiences and perspectives beyond the information captured through closed-ended questionnaire items.

The mixed-methods approach was appropriate because quantitative data established patterns and relationships, while qualitative data helped explain the organisational and infrastructural conditions underlying those findings. Combining the two forms of evidence also facilitated triangulation and provided a more comprehensive understanding of electronic systems at Chanika Maternity Hospital.

The study employed a case study design within a mixed-methods approach. A case study enables an in-depth examination of a contemporary phenomenon within its real-life setting (Yin, 2023). It was appropriate because the study focused on electronic systems and organisational performance within one healthcare institution.

### Study Area

The study was conducted at Chanika Maternity Hospital, located in Ilala Municipality, Dar es Salaam, Tanzania. The hospital provides maternal and child healthcare services and uses electronic systems to support patient information management, reporting, and administrative activities.

Chanika Maternity Hospital was selected purposively because it provided a relevant institutional setting for examining the use of electronic systems in healthcare service delivery. Its use of electronic health and information management platforms made it possible to investigate system adoption, utilisation, perceived organisational benefits, and implementation challenges within an operational healthcare environment.

### Population, Sample and Sampling

The target population comprised hospital staff (hospital management, doctors and nurses, administrative staff and ICT personnel) and patients at Chanika Maternity Hospital, giving a total of 260 people. The sample size of 158 was determined using Yamane's (1967) formula for finite populations. Hospital management, administrative staff and ICT personnel were included purposively because of their specialised knowledge of the implementation and management of electronic systems, while medical staff and patients were selected by simple random sampling to give every eligible respondent an equal chance of participating. Table 1 summarises the sampling frame. Because the first objective concerns the use of electronic systems by service providers, the analysis in this article draws on the 51 staff questionnaires and the 10 key-informant interviews.

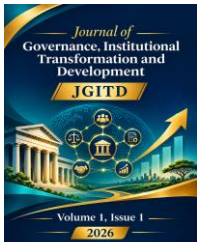
*Table 1. Sample size distribution by category of respondent*

| Category of Respondents | Target Population (N) | Sample Size (n) | Sampling Technique |
|---|---|---|---|
| Hospital Management | 6 | 6 | Purposive sampling |
| Medical Staff (Doctors & Nurses) | 39 | 34 | Simple random sampling |
| Administrative Staff | 10 | 10 | Purposive sampling |
| ICT Personnel | 4 | 4 | Purposive sampling |
| Patients | 201 | 104 | Simple random sampling |
| Total | 260 | 158 | |

Source: Field data (2026).

### Data Collection Instruments

Data were collected through structured questionnaires, semi-structured interviews and documentary review. The staff questionnaire contained five statements on the adoption and utilisation of electronic systems: regular




use in daily work, ease of use, perceived improvement in work performance, adequacy of training, and system reliability and accessibility. Items were rated on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The researcher administered questionnaires after explaining the purpose of the study and obtaining informed consent; clarification was offered where needed without directing responses.

An interview is a data collection method that involves direct interaction between the researcher and respondents to obtain detailed information about the study topic (Saunders et al., 2023). In this study, semi-structured interviews were conducted with Hospital Management and ICT personnel to collect information on the implementation, utilisation, benefits, and challenges of electronic systems. This method is appropriate because it provided the researcher with an opportunity to probe responses, obtained detailed explanations, and gathered rich qualitative information that could not be captured adequately through questionnaires alone.

Documentary review is a method of collecting secondary data through the examination of existing documents relevant to the research problem (Creswell & Creswell, 2022). In this study, documentary review involved the examination of Hospital reports, government policy documents, digital health strategy reports, and published academic literature related to electronic systems in the health sector. This method was appropriate because it provided supporting evidence, verifies information obtained from primary data sources, and enhances the completeness and credibility of the study findings.

### Validity and Reliability

To ensure validity, the study employed content validity. The questionnaire and interview guide were reviewed by academic supervisors, research experts, and specialists in public administration and health information systems to assess their relevance, clarity, comprehensiveness, and alignment with the study objectives and variables. Their comments and recommendations were used to revise the instruments before actual data collection.

Reliability was assessed through a test–retest procedure in which the questionnaire was administered twice, one week apart, to 10 respondents knowledgeable about electronic systems who were excluded from the main study. Internal consistency was further assessed using Cronbach's alpha in the Statistical Package for the Social Sciences (SPSS), and items were reviewed and refined before the main data collection (Creswell & Creswell, 2022).

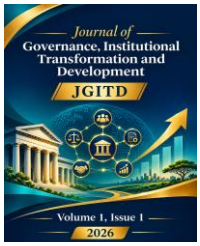
### Data Analysis

Quantitative data were analysed using descriptive statistics, including frequencies, percentages and means. Mean scores were interpreted using the ranges shown in Table 2: 1.00–1.80 (very low), 1.81–2.60 (low), 2.61–3.40 (medium), 3.41–4.20 (high) and 4.21–5.00 (very high). Qualitative data from interviews and open-ended items were transcribed, coded and analysed thematically, and the two strands were integrated at the interpretation stage to explain the quantitative patterns (Saunders et al., 2023).

*Table 2. Interpretation of mean scores*

| Description | Likert scale | Mean Range | Interpretation |
|---|---|---|---|
| Strong disagreed | 1 | 1.00-1.80 | Very low |
| Disagreed | 2 | 1.81-2.60 | Low |
| Undecided | 3 | 2.61-3.40 | Medium |
| Agreed | 4 | 3.41-4.20 | High |
| Strongly agreed | 5 | 4.21-5.0 | Very high |

Source: Adapted from Sekaran and Bougie (2010).




### Ethical Considerations

Research clearance and institutional permission were obtained before data collection. Participation was voluntary and based on informed consent, and respondents could withdraw at any time without penalty. Confidentiality and anonymity were maintained by avoiding personal identifiers, presenting results in aggregate form and storing data securely. Because the study took place in a healthcare setting, data collection was arranged so as not to disrupt patient care.

## RESULTS

### Response Rate

Of the 54 staff questionnaires distributed, 51 were completed and returned (94.4%), while all 10 planned key-informant interviews were conducted (100%). Across all respondent groups, including patients, 158 of the 168 targeted participants took part (94.0%). This response level was considered adequate for analysis.

### Level of Adoption and Utilisation of Electronic Systems

The first objective sought to assess the level of adoption and utilisation of electronic systems at Chanika Maternity Hospital. Respondents were asked to rate statements concerning regular use, ease of use, work performance, training, and reliability/accessibility of electronic systems using a five-point Likert scale where 1 = Strongly Disagree and 5 = Strongly Agree.

*Table 3. Level of adoption and utilisation of electronic systems (n = 51)*

| Statement | SD | D | N | A | SA | Total | Mean |
|---|---|---|---|---|---|---|---|
| I regularly use electronic systems in my daily work. | 2 | 3 | 5 | 25 | 16 | 51 | 4.0 |
| Electronic systems are easy to use. | 2 | 4 | 7 | 24 | 14 | 51 | 3.9 |
| Electronic systems improve my work performance. | 1 | 3 | 5 | 26 | 16 | 51 | 4.0 |
| I have received adequate training on electronic systems. | 5 | 7 | 9 | 21 | 9 | 51 | 3.4 |
| Electronic systems are reliable and accessible when needed. | 6 | 8 | 10 | 20 | 7 | 51 | 3.3 |
| Total | 16 | 25 | 36 | 116 | 62 | 255 | 3.7 |

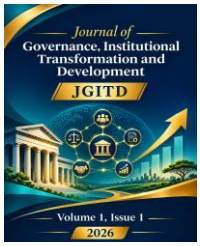
Note. SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree. Source: Field data (2026).

Table 3 presents respondents' perceptions regarding the level of adoption and utilisation of electronic systems at Chanika Maternity Hospital. The results show a generally positive level of adoption, but they also reveal important weaknesses in training and system reliability/accessibility. The overall mean of 3.7 indicates that respondents generally tended towards agreement that electronic systems are being adopted and utilised in their daily work. However, the relatively lower scores for training and reliability suggest that adoption has not necessarily been accompanied by adequate institutional support and system infrastructure.

#### *Regular Use and Perceived Contribution to Work Performance*

The statement "I regularly use electronic systems in my daily work" recorded a mean of 4.0, indicating a relatively high level of utilisation. Out of 51 respondents, 41 (80.4%) either agreed or strongly agreed, compared with only 5 (9.8%) who disagreed or strongly disagreed. This finding suggests that electronic systems have become an integral part of employees' routine work activities. The high level of regular use provides evidence that the technology has moved beyond mere introduction and is being incorporated into day-to-day service delivery.

Similarly, respondents generally perceived electronic systems as contributing positively to their work performance. The statement "Electronic systems improve my work performance" recorded a mean of 4.0, with




42 respondents (82.4%) agreeing or strongly agreeing. Only 4 respondents (7.8%) disagreed or strongly disagreed, while 5 (9.8%) remained neutral. This is an important finding because it suggests that utilisation is not simply driven by institutional requirements; users also perceive practical benefits from the systems. The perceived improvement in performance may relate to faster information retrieval, reduced paperwork, improved record management, or more efficient processing of maternity-related services.

*Ease of Use*

The statement "Electronic systems are easy to use" recorded a slightly lower mean of 3.9. A total of 38 respondents (74.5%) agreed or strongly agreed, while 6 (11.8%) disagreed or strongly disagreed and 7 (13.7%) were neutral. The result indicates relatively favourable perceptions of system usability. Nevertheless, the presence of almost one-quarter of respondents who were either neutral or negative is analytically important. It suggests that ease of use may not be uniform across all users. Differences in computer literacy, experience, system design, exposure to training, or the complexity of particular electronic applications could potentially explain these variations.

*Adequacy of Training*

The most significant weakness is revealed by the statement "I have received adequate training on electronic systems," which obtained a mean of only 3.4. Although 30 respondents (58.8%) agreed or strongly agreed, 12 (23.5%) disagreed or strongly disagreed and 9 (17.6%) were neutral.

This finding is important because it creates a potential contradiction in the overall adoption pattern. Employees report high regular utilisation (mean = 4.0) despite only moderate perceptions of adequate training (mean = 3.4). This could mean that staff are using the systems because their work requires them to do so, rather than because they have received comprehensive preparation. Consequently, high utilisation might not automatically be interpreted as full technological readiness or effective adoption.

The implication is that some employees may be learning through experience, peer assistance, trial and error, or informal workplace support. Such circumstances may allow systems to be used but can also increase the risk of inconsistent utilisation, user errors, resistance, or underutilisation of advanced system functions

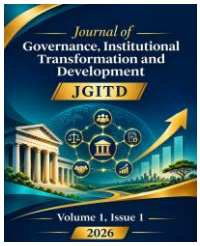
*System Reliability and Accessibility*

The weakest dimension is system reliability and accessibility. The statement "Electronic systems are reliable and accessible when needed" obtained a mean of only 3.3, the lowest score in the table. Only 27 respondents (52.9%) agreed or strongly agreed, whereas 14 (27.5%) disagreed or strongly disagreed and 10 (19.6%) were neutral.

This result deserves particular attention because electronic adoption depends not only on whether employees are willing to use a system but also on whether the system is available, functional and dependable when required. A system may be easy to use and regularly utilised, but interruptions such as downtime, connectivity problems, power interruptions, inadequate hardware, server problems, or maintenance issues can undermine its practical contribution to service delivery.

## Qualitative Findings

Semi-structured interviews with hospital management and ICT personnel were used to explain the quantitative pattern. Four themes relevant to adoption and utilisation emerged: benefits of electronic systems, training and user capacity, infrastructure and reliability challenges, and organisational culture and management support.




*Benefits of Electronic Systems*

Key informants explained that electronic systems improved access to patient information, record management and reporting. One respondent stated: "The electronic system helps us to find patient information faster than when we were using physical files. It also makes preparation of reports easier" (Respondent 1). This supports the high ratings for regular use and perceived improvement in work performance.

*Training and User Capacity*

Respondents indicated that effective use required continuous training, practical support and refresher courses. As one key informant put it: "Some staff can use the system well, but others still need practical training. Refresher training would help us to become more confident in using the system" (Respondent 2). The theme helps to explain why training received only a medium rating even though use was high.

*Infrastructure and Reliability Challenges*

Internet interruptions, power cuts and technical faults were reported to interrupt work: "Sometimes the internet is not stable, and when electricity goes off, the system becomes difficult to use. This can delay the work we are supposed to complete" (Respondent 3). These experiences correspond closely to the low rating for reliability and accessibility.

*Organisational Culture and Management Support*

Management commitment, teamwork and timely technical assistance were seen as encouraging sustained use: "When management encourages us to use the electronic system and responds quickly when there is a problem, staff become more willing to use it" (Respondent 4). This indicates that institutional support conditions influence whether staff persist with electronic systems when difficulties arise.

*Table 4. Integration of quantitative and qualitative findings on adoption and utilisation*

| Quantitative finding | Qualitative evidence | Integrated interpretation |
|---|---|---|
| Electronic-system adoption/utilisation was generally positive | Staff reported faster access to information and easier reporting | Interviews reinforce the positive perception of system usefulness |
| Training received a comparatively lower assessment | Staff indicated a need for practical and refresher training | Training gaps help explain limitations in effective utilisation |
| Reliability/accessibility was relatively weak | Internet and electricity interruptions were reported | Infrastructure constraints provide a plausible explanation for lower reliability |

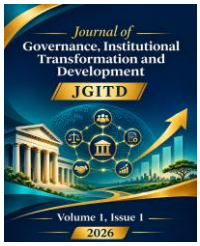
Source: Field data (2026).

## DISCUSSION

### Adoption Is Widespread but Not Fully Supported

The results indicate that electronic systems have moved beyond the stage of introduction at Chanika Maternity Hospital. An overall mean of 3.7, high agreement with regular use and a strong perception that the systems improve work performance show that staff have incorporated EMR, GoTHOMIS, DHIS2 and electronic reporting into their routine work. In terms of Digital Transformation Theory (Vial, 2019), this suggests that digital technologies have begun to reshape how information is recorded, retrieved and reported in the hospital.

However, the pattern of results also shows that adoption has run ahead of the capabilities required to sustain it. Training adequacy (M = 3.4) and reliability and accessibility (M = 3.3) fell into the medium range and were the weakest dimensions. This pattern closely reflects Kruse et al. (2016), who identified staff training, organisational support and management commitment as facilitators of electronic health record adoption, and limited user




skills and inadequate infrastructure as barriers. It is also consistent with Mwogosi and Mambile (2024a), who highlighted infrastructure, interoperability and digital competencies as key considerations in Tanzania, and with Mwogosi and Kibusi (2024), who found that implementation barriers reduce the decision-support value of EHRs.

### Capabilities as the Bridge Between Use and Effective Use

The contrast between high use and moderate training suggests that some staff are learning on the job through experience, peer assistance or trial and error. Such informal learning may be enough for basic functions but increases the risk of inconsistent data entry, user errors and under-use of advanced functions. Similarly, a system that is easy to use but frequently unavailable because of connectivity or power problems cannot deliver its full value, and repeated interruptions may push staff back to paper records. These findings support the central proposition of Digital Dynamic Capabilities Theory (Warner & Wäger, 2019): the value of digital technology depends on the organisation's capacity to build skills, maintain infrastructure and respond to technical problems. Verhoef et al. (2021) and Campanella et al. (2016) likewise emphasise that implementation quality and organisational readiness determine whether digital systems improve healthcare processes.

The qualitative evidence adds a further dimension. Key informants stressed that management encouragement and quick responses to technical problems make staff more willing to continue using the systems. Adoption at Chanika Maternity Hospital is therefore not only a technical matter but also an organisational one, in which leadership, culture and support services shape user behaviour. This is in line with the human–organisation–technology fit perspective, which holds that digital health systems succeed when technology, people and organisational conditions are aligned (Yusof et al., 2023).

### Theoretical and Practical Implications

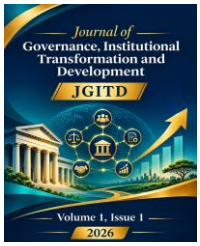
Theoretically, the study supports the integration of Digital Transformation Theory and Digital Dynamic Capabilities Theory. The first explains the high levels of use and perceived usefulness, while the second explains why training and reliability remain binding constraints. Practically, the findings imply that hospital managers should measure success not only by whether systems are installed and used, but also by whether staff are adequately trained and whether systems are available when needed. National programmes such as the Digital Health Strategy 2024–2029 (Ministry of Health, 2024) would benefit from facility-level indicators that track training coverage, system downtime and response times for technical support.

### Limitations and Directions for Further Research

The study was conducted at a single maternity hospital, so its findings should be interpreted within that context rather than generalised to all Tanzanian health facilities. The staff sample was relatively small (n = 51), and the measures of adoption and utilisation were based on self-reported perceptions rather than system log data. Future studies could compare several hospitals, use system usage logs and downtime records as objective indicators, and examine how specific training interventions change utilisation over time.

## CONCLUSION

This study assessed the level of adoption and utilisation of electronic systems at Chanika Maternity Hospital. It concludes that electronic systems have been widely adopted and are used routinely by staff, who regard them as easy to use and beneficial to their work performance. Nevertheless, effective and sustainable utilisation is constrained by uneven training and by unreliable access arising from unstable internet connectivity, power




interruptions and delayed technical support. Adoption is therefore generally positive, but full utilisation depends on staff competence, infrastructure reliability and management support.

### Recommendations

i. Hospital management should institutionalise continuous, practical and refresher training on EMR, GoTHOMIS and DHIS2, including orientation for newly recruited staff and targeted support for less confident users.
ii. The hospital, in collaboration with the Ministry of Health and the e-Government Authority, should improve ICT infrastructure by strengthening internet connectivity, providing back-up power and maintaining adequate hardware.
iii. A responsive technical support arrangement, with clear procedures for reporting and resolving system faults, should be established to minimise downtime.
iv. Management should continue to encourage a supportive culture for digital work by recognising effective use, involving staff in system improvement and monitoring utilisation through simple indicators such as training coverage and downtime.

### Acknowledgements

The authors thank all respondents and key informants who participated in the study, and the institutions that granted permission for data collection.

### Conflict of Interest

The authors declare no conflict of interest.

### References

Campanella, P., Lovato, E., Marone, C., Fallacara, L., Mancuso, A., Ricciardi, W., & Specchia, M. L. (2016). The impact of electronic health records on healthcare quality: A systematic review and meta-analysis. *European Journal of Public Health, 26*(1), 60–64. https://doi.org/10.1093/eurpub/ckv122

Creswell, J. W., & Creswell, J. D. (2022). *Research design: Qualitative, quantitative, and mixed methods approaches (6th ed.)*. Sage.

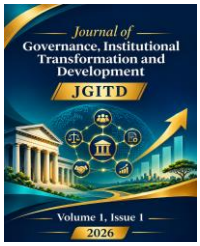
Holl, F., Kircher, J., Hertelendy, A. J., Sukums, F., & Swoboda, W. (2024). Tanzania's and Germany's digital health strategies and their consistency with the World Health Organization's Global Strategy on Digital Health 2020–2025: Comparative policy analysis. *Journal of Medical Internet Research, 26*, e52150. https://doi.org/10.2196/52150

Kraus, S., Durst, S., Ferreira, J. J., Veiga, P., Kailer, N., & Weinmann, A. (2022). Digital transformation in business and management research: An overview of the current status quo. *International Journal of Information Management Data Insights, 2*(1), 100063. https://doi.org/10.1016/j.jjimei.2022.100063

Kruse, C. S., Kristof, C., Jones, B., Mitchell, E., & Martinez, A. (2016). Barriers to electronic health record adoption: A systematic literature review. *Journal of Medical Systems, 40*(12), 252. https://doi.org/10.1007/s10916-016-0628-9

Ministry of Health. (2019). *National Digital Health Strategy 2019–2024*. Government of Tanzania.

Ministry of Health. (2024). *National Digital Health Strategy 2024–2029*. Government Printer.




Mwogosi, A., & Kibusi, S. (2024). *Unveiling barriers to EHR implementation for effective decision support in Tanzanian primary healthcare: Insights from practitioners*. Health Informatics Journal, 30(4). https://doi.org/10.1177/14604582241304698.

Mwogosi, A., & Mambile, C. (2024a). *Adoption and utilization of electronic health record systems in public primary healthcare facilities in Tanzania*.

Mwogosi, A., & Mambile, C. (2024b). *Insights into the current state of electronic health records adoption and utilisation in Tanzanian public primary healthcare facilities: A survey study*.

Mwogosi, A., & Mambile, C. (2025). *Electronic health record adoption in Tanzania: A scoping review using the PEST analytical framework*.

Mwogosi, A., Mallya, M., Asenga, S. J., Mchome, A. J., Audi, M. J., & Gunda, J. J. (2025). *The impact of digital health records systems on workflow and service efficiency in Tanzania: A systematic review and framework development*. Health Information Management Journal. https://doi.org/10.1177/18333583251363641

Saunders, M., Lewis, P., & Thornhill, A. (2023). *Research methods for business students (9th ed.)*. Pearson.

Sekaran, U., & Bougie, R. (2010). *Research methods for business: A skill building approach (5th ed.)*. Wiley.

Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research, 122*, 889–901. https://doi.org/10.1016/j.jbusres.2019.10.017

Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems, 28*(2), 118–144. https://doi.org/10.1016/j.jsis.2019.01.003

Warner, K. S. R., & Wäger, M. (2019). Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal. *Long Range Planning, 52*(3), 326–349. https://doi.org/10.1016/j.lrp.2018.12.001

World Bank. (2023). *Digital-in-health: Unlocking the value for everyone*. World Bank.

World Health Organization. (2024). *Health information systems: Guidelines for implementation and management*. World Health Organization.

World Health Organization. (2025). *Global digital health transformation report*. World Health Organization.

Yamane, T. (1967). *Statistics: An introductory analysis (2nd ed.)*. Harper & Row.

Yin, R. K. (2023). *Case study research and applications: Design and methods (7th ed.)*. Sage.

Yusof, M. M., et al. (2023). *Validation and application of the Human–Organization–Technology Fit (HOT-Fit) framework in digital health information systems*. BMC Medical Informatics and Decision Making.