Scientific Journal of Informatics
Vol. 13, No. 3, August 2026
p-ISSN 2407-7658 http://journal.unnes.ac.id/nju/index.php/sji e-ISSN 2460-0040

An Evaluation of the Implementation of Electronic Medical Records on Healthcare Service Performance Using SEM-PLS

Arie Gunawan[1*], Asrul Sani[2], Harun Al Fathih Gunawan[3]
[1]Department of Information System, Universitas Nasional Jakarta, Indonesia
[2]Magister of Information Technology, Universitas Nasional Jakarta, Indonesia
[3]Department of Information System, Universitas Pembangunan Nasional "Veteran" Jakarta, Indonesia

Abstract.
Purpose: The study aims to explore the factors that determine the successful implementation of Electronic Medical Records in community health centers of Indonesia in which System Quality, Information Quality, and Perceived Ease of Use are proposed to influence User Satisfaction, and then the impact of User Satisfaction on Healthcare Service Performance is measured.
Methods: A quantitative cross-sectional survey was conducted involving 180 healthcare professionals, namely physicians, nurses, administrative staff, and information system operators who routinely use EMR systems. The data were collected through a five-point Likert-scale questionnaire. The proposed model is the DeLone and McLean Information Systems Success Model and Technology Acceptance Model (TAM) integrated. Data analysis was performed using Structural Equation Modeling–Partial Least Squares (SEM-PLS) with SmartPLS 4.
Result: The results show that System Quality, Information Quality, and Perceived Ease of Use significantly and positively affect User Satisfaction, which then significantly positively influences Healthcare Service Performance. The results further show that User Satisfaction mediates the relationship between technical system characteristics and organizational performance, highlighting the importance of system reliability, information quality, and usability for improved delivery of healthcare services.
Novelty: This paper presents an SEM-PLS model that integrates the DeLone and McLean Information Systems Success Model with TAM in explaining healthcare service performance through User Satisfaction. The proposed framework not only offers a holistic approach to evaluate EMR implementation but also provides practical insight to enable the sustainability of digital health transformation in Indonesian community health centers.

Keywords: Electronic medical record, Healthcare service performance, SEM-PLS, User satisfaction
Received May 2026 / **Revised** July 2026 / **Accepted** July 2026

INTRODUCTION

Rapid change in the field of IT (information technology) has had a deep impact on health services delivery, especially for the collection, storage, sharing, and use of medical information, and so for digitally-enabled health care delivery [1], [2]. The digitization of medical information has driven health systems, including community health centres, to implement health information systems to improve quality, efficiency, and the ability to integrate data in real-time. The most important contribution among these developments is the Electronic Medical Records (EMR), where the paper-based medical record systems were gradually replaced by integrated electronic recording systems, thereby improving the process of clinical data and information management [3].

The implementation of EMR benefits healthcare organizations through enabling the rapid access of healthcare professionals, keeping accurate medical records and fewer documentation errors, and having access to evidence-based clinical decision support [4]. EMRs also enable increased communication and collaboration between different departments, since they provide a common computer-based platform to access standardized information about patients for the authorized professionals [5]. This in turn leads to improved service delivery and a greater continuity and consistency of care.

*Corresponding author.
Email addresses: arigunawan@civitas.unas.ac.id (Gunawan)*, asrulsani@civitas.unas.ac.id (Sani), harun.alfathih@gmail.com (Gunawan)
DOI: 10.15294/sji.v13i3.49387

The Indonesian government needs to accelerate the digital transformation of the health care system, one of which is to encourage the application of Electronic Medical Record (EMR) nationally in accordance with the national digital health strategy [6] to support the optimization of health administration, the interoperability of health information, technology-based health services that are integrated in a healthcare service system [7]. Thus, EMRs have changed from being a technological innovation to a calculated imperative for community health centers responding to the growing demand for modern healthcare services.

Despite this, the successful use of EMR in practice has encountered difficulties due to lack of technical infrastructure, insufficient digital literacy of medical staff, resistance to organizational changes, as well as lack of user training [8]. These barriers can prevent the full benefits of EMR systems in improving the quality of healthcare services from being realized [9]. If there is a mismatch between system functions and user needs, the acceptance of the EMR system by healthcare workers may be compromised, jeopardizing the long-term success of its implementation [10].

Earlier research has indicated that Information Quality, System Quality, and Perceived Ease of Use are the primary determinants of health information system effectiveness [11]. In the DeLone and McLean Information Systems Success model, it is stated that both system quality and information quality directly influence user satisfaction, which in turn affects organization performance [12]. Because medical practitioners have a heavy dependence on the system for their clinical as well as administrative responsibilities, satisfaction with the system becomes crucial in the implementation of Electronic Medical Records [13].

In terms of the relationships among these factors, Structural Equation Modeling Partial Least Squares (SEM-PLS) is preferred by scholars recently. It is an advantageous technique for information systems research since it permits the researcher to analyze several related latent variables at the same time and to consider the complex structural relationships among many elements [14]. This kind of approach in the study of Electronic Medical Records has been found to evaluate the direct and indirect effects of System Quality, Information Quality, Perceived Ease of Use, User Satisfaction, Healthcare Service Performance, and all other relevant components to the successful implementation of EMR [15].

As directed by the Ministry of Health Regulation No. 24 of 2022, the development of Electronic Medical Record (EMR) systems in Indonesia is now a top national priority. Accordingly, every health facility in Indonesia, including community health centers (Puskesmas), must implement an EMR in a phased manner as part of National Digital Health Transformation. Furthermore, community health centers are required to integrate their own EMR systems into the SATUSEHAT system to achieve the level of health data interoperability across health facilities. As of October 2025, according to the Indonesian Ministry of Health, more than 34,000 health facilities had been integrated into the SATUSEHAT ecosystem, although gaps in digital infrastructure, human resources and interoperability still remained in primary health facilities such as community health centers (Puskesmas). These issues require the evaluation of EMR implementation at the level of community health center (puskesmas) to support evidence-based improvement of Indonesia's digital health transformation. Previous studies have mainly evaluated EMR implementation from a single theoretical perspective.

Empirical studies of EMR implementation have been carried out using many different theoretical frameworks, yet some components of implementation have produced mixed results across studies. Shania and Paramarta [16] found that Perceived Ease of Use in Technology Acceptance Model (TAM) had a substantial contribution to EMR acceptance. However, their research focused on behavioral acceptance and did not consider whether the technical quality of EMR systems eventually leads to improving healthcare service performance. A similar limitation can be found in Himawan's study [17], where the influence of users' behavioral intention to use EMR on implementation outcomes had been assessed without considering the potential mediating role of User Satisfaction.

Other studies have adapted the information system success model to assess EMR. For example, Putri and Sutrisno [18] reported System Quality and Information Quality positively affect User Satisfaction for outpatient EMR services. However, their study did not examine whether satisfaction improvements would lead to better performance of the healthcare service. Similarly, Walle et al. [11] showed that the success dimensions of information systems considerably influenced healthcare professionals' satisfaction.

However, they did not incorporate technology acceptance constructs into their proposed model to explain EMR implementation success, and only provided a partial explanation.

These factors suggest that information system acceptance and technological effectiveness are usually considered as separate problems. Along with their impact on Healthcare Service Performance, especially within Indonesian community health clinics, limited empirical research has looked at the relationships among System Quality (SQ), Information Quality (IQ), Perceived Ease of Use (PEOU), and User Satisfaction (US). Primary healthcare organizations' special structural frameworks, procedures, and resource limits differentiate them from hospitals, hence this difference is quite important. This therefore creates particular difficulties for electronic medical records implementation.

To help fill these knowledge gaps, this study offers a combined model using Structural Equation Modeling-Partial Least Squares (SEM-PLS) to analyze the links between the DeLone and McLean Information Systems Success Model and the Technology Acceptance Model (TAM) at once. Whereas the current study looks at how SQ, IQ, PEOU, and US together affect Healthcare Service Performance (HSP), previous studies have mostly concentrated on either the quality of technical infrastructure or user acceptance of a system in isolation. This all-encompassing strategy improves theoretical knowledge of effective EMR implementation and offers practical understanding to help in the delivery of digital health services inside Indonesia's main healthcare institutions.

METHODS

Therefore chosen was a quantitative cross-sectional survey research plan whereby data was manually collected at community health centers using EMR systems as part of their healthcare delivery approach. The study participants were nurses, administrators, information system operators, and physicians who daily engaged the EMR system to get correct insights derived from their real-world experiences inside clinical settings.

Using a structured questionnaire with a 5-point Likert scale, data was gathered from January to March 2026 by means of Google Forms URLs and physical surveys. This plan sought to raise participant response percentages. The heads of the participating community health centers handled the distribution of the questionnaire, which was directly shown to the medical experts using EMR systems. All participants received information on the study's goal and voluntary involvement before data gathering.

The DeLone and McLean Information Systems Success Model and the Technology Acceptance Model offered the metrics used in the study instrument [19], [20]. These models were selected because of their extensive approach in understanding user acceptance of Electronic Medical Record technology together with the technical skill of information systems. Five main elements were the target of the survey: IQ, SQ, US, PEOU, and HSP. A five-point Likert scale was used to rate responses; a 1 indicated great disagreement and a 5 indicated strong agreement.

Using targeted sampling, questionnaires were gathered from 180 medical practitioners working at health centers with EMR. Doctors, nurses, administrative staff members, and information system operators who had used the EMR in their everyday clinical and administrative capacities for at least one year before the start of the study were among the participants. This criteria of choice guaranteed that candidates had the necessary practical experience and system knowledge for assessing EMR deployment and its influence on healthcare service delivery.

For data analysis, SmartPLS 4 adopted the method of Structural Equation Modeling-Partial Least Squares (SEM-PLS). A two-phase strategy, which is generally recommended for PLS-SEM studies, was used in this study. This involves first assessing the measurement model (outer model) for construct validation and reliability, and then the structural model (inner model) to understand relationships between latent variables [21]. Reliability (loading variables), convergent validity (Average Variance Extracted), discriminant validity (Heterotrait-Monotrait Ratio and Fornell-Larcker Criterion), and construct reliability (Composite Reliability and Cronbach's Alpha) were some of the aspects checked to evaluate the outer model. The subsequent step was to assess the inner model in terms of path coefficients, bootstrapping methods, the coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2) to determine the tenability of the proposed research hypotheses.

Optional variables

Table 1. Operational variables

Variable	Indicator	Code
SQ	System speed, ease of access, system stability, data security	KS1–KS4
QI	Data accuracy, completeness of information, relevance of information, timeliness	KI1–KI4
PEOU	Easy to learn, easy to use, system flexibility	KP1–KP3
US	User satisfaction, effectiveness of use, ease of use	KU1–KU3
HSP	Service efficiency, speed of service, accuracy of service, quality of service	KK1–KK4

Conceptual model

Figure 1. Conceptual model

Research hypothesis
H1: SQ has a positive effect on US.
H2: IQ has a positive effect on US.
H3: PEOU has a positive effect on US.
H4: US has a positive effect on HSP.

Based on the DeLone and McLean Information Systems Success Model and Technology Acceptance Model (TAM), a structural model of five latent constructs was developed: SQ, IQ, PEOU, US and HSP. The model proposed that SQ, IQ, and PEOU act as antecedents to US and HSP. As a result, these variables are operationalized as the EMR's successful implementation in this study rather than as a separate latent variable used to measure such constructs.

RESULT AND DISCUSSION

Respondent characteristics

Three hundred questionnaires were distributed to healthcare workers of community health centers already implementing EMR, with 180 returns. Respondents were doctors, nurses, healthcare administrative staff, and information system operators who had experience of operating the EMR in their daily healthcare practice. All participants also met the criteria that they had practical work experience with the system and were positioned to examine the EMR implementation in the study.

Table 2 below shows the frequency and percent distribution based on the sex of the respondents. According to the data, the majority of the respondents were women (60.0% or 108 respondents) while men constituted 40.0% of the respondents (72 respondents). This distribution reflects the common workforce profile of Indonesian primary healthcare facilities, with females (especially nurses) being the largest user group of EMRs in healthcare facilities.

Table 2. Characteristics of respondents by gender

Gender	Number	Percentage
Man	72	40%
Women	108	60%
Total	180	100%

Table 3 displays a breakdown of respondents based on profession. Most were nurses (48.9%) , followed by administrative staff (20.6%), doctors (19.4%) and information system operators (11.1%). Since nurses are the frontline individuals documenting patient care, maintaining medical records and coordinating clinical services, it is not surprising they are the predominant users of EMR.

Table 3. Characteristics of respondents by profession

Profession	Number	Percentage
Doctors	35	19,40%
Nurses	88	48,90%
Administrative staff	37	20,60%
System operators	20	11,10%
Total	180	100%

The study participants were also grouped according to the length of time they had been using the EMR system and the details are given in Table 4. The result indicated that 84.4% of respondents had experience of using the EMR system for more than one year. This shows that most of the respondents used EMR supported healthcare services. This experience helped ensure respondents' reliability, as they were well positioned to evaluate the key variables of the research model, namely SQ, IQ, PEOU, US, and HSP, owing to their continual use of the system in their daily clinical practice.

Table 4. Duration of EMR use

Duration of use	Number	Percentage
< 1 Years	28	15,60%
1–3 Years	76	42,20%
> 3 Years	76	42,20%
Total	180	100%

Variable description

A thorough statistical analysis was done to evaluate how people saw each basic aspect given in the research model. The average and variability of responses rated on a five-point Likert scale drove this investigation; higher average scores indicate more favorable views on the EMR system's adoption.

Table 5. Description of research variables

Variable	Mean	Standard Deviation	Category
SQ	4,21	0,542	Very good
IQ	4,18	0,561	Good
PEOU	4,09	0,603	Good
US	4,24	0,521	Very good
HSP	4,27	0,498	Very good

According to Table 5, the performance of EMR system features, which are HSP, US and IQ were rated positively by respondents. The mean score of 4.27 for the HSP component suggested that EMR system contributed to the effectiveness of services and the rapid availability of the patient's information, as well as the clinical decision-making process. The US component was also rated with a mean score of 4.24.

A mean score of 4.21 on the System Quality Dimension indicated that the EMR system was reliable, readily available, consistent, and safe. Regarding the Information Quality Dimension, an average of 4.18 showed that the EMR system's data was accurate, thorough, relevant, and current. Though there were requests for changes in the user interface and the integration of processes, the PEOU category garnered the lowest average score of 4.09 still in the "Good" range suggesting that the system was simple to learn and use.

Instrument Validation

As advised, SEM-PLS was used to assess the measurement framework and examined on construct reliability, convergent validity, and discriminant validity. These steps were done to make sure the measurement instrument fairly and consistently evaluated the underlying ideas in the research model.

Convergent validity

Convergent validity was checked using indicator loading factors and Average Variance Extracted (AVE). Factor loadings should be greater than 0.70, while the AVE should be greater than 0.50 [22].

Table 6. Convergent validity results

Variable	Loading Factor	AVE	Description
SQ	0,788–0,871	0,78	Valid
IQ	0,786–0,885	0,77	Valid
PEOU	0,789–0,876	0,74	Valid
US	0,801–0,892	0,8	Valid
HSP	0,802–0,891	0,78	Valid

All indicators in the study had factor loading values greater than 0.70 and AVE values greater than 0.50, meeting the convergent validity criterion.

Discriminant validity

For discriminant validity, the Heterotrait-Monotrait Ratio (HTMT) and the Fornell-Larcker Criterion were used. The HTMT values must be less than 0.90, to show that each construct is distinct.

Table 7. HTMT results

Construct	SQ	IQ	PEOU	US	HSP
SQ	—				
IQ	0.764	—			
PEOU	0.682	0.715	—		
US	0.824	0.846	0.781	—	
HSP	0.701	0.735	0.689	0.842	—

The HTMT criterion values were well below the cutoff value of 0.90, confirming that discriminant validity was estimated by the HTMT criterion. Construct validity was also confirmed with the Fornell and Larcker Criterion because the square root of the AVE values was greater than the correlation values with other constructs.

Reliability test

As for construct reliability, for both CR and Cronbach's Alpha, the value of all constructs exceeded the minimum acceptable value of 0.70, indicating that constructs had good internal consistency [23].

Table 8. Reliability test results

Variable	Composite Reliability	Cronbach's Alpha	Description
SQ	0,912	0,884	Reliable
IQ	0,904	0,871	Reliable
PEOU	0,891	0,853	Reliable
US	0,921	0,892	Reliable
HSP	0,915	0,887	Reliable

So, it can be concluded that in general, the measurement model meets the validity and reliability requirements so that the proposed structural model can be used to test the proposed hypothesis using the SEM-PLS method.

SmartPLS model visualization

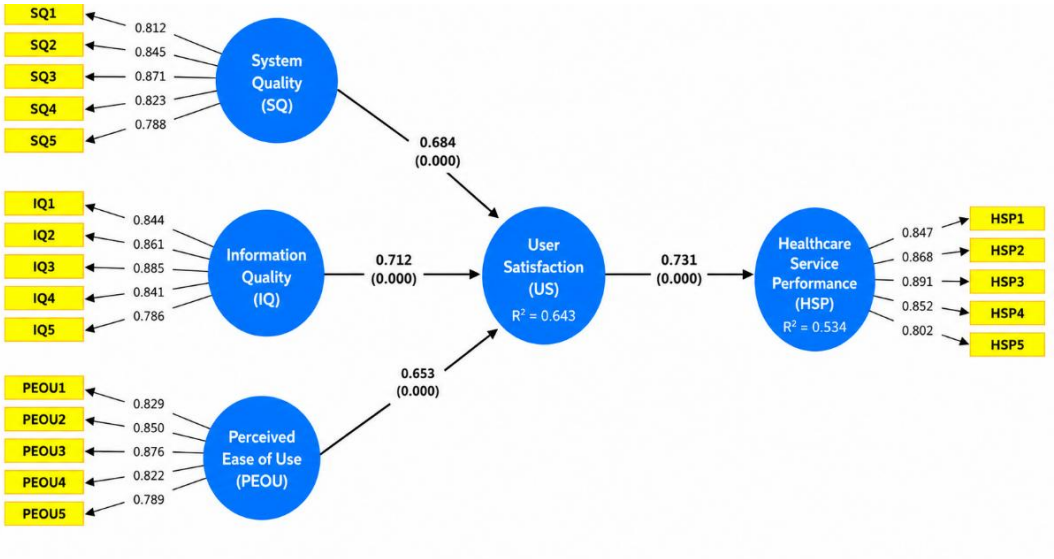

Figure 2. SmartPLS visualization

Statistical analysis and hypothesis testing
The SEM-PLS method with SmartPLS 4 program was used for the evaluation of the structural model. This β t-statistics p-values from the bootstrapping method and coefficient of determination (R^2) were used to evaluate the structural model. The significance of the structural pathways of the model was checked with 180 resamples by bootstrapping. It was suggested that if the t-statistic is greater than 1.96 and the p-value is less than 0.05 then the paths will be considered as statistically significant.

The coefficient of determination (R^2) was used to measure the predictive accuracy of the endogenous variables. With a value of R^2= 0.643, SQ, IQ, and PEOU explained 64.3% of the variation associated with US. The R^2 value for HSP was found to be 0.534, which means that US influenced HSP at a level of 53.4% of the variation in HSP.

The results of the hypothesis test are shown in Table 9.

Table 9. Results of the hypothesis test

Hypothesis	Structural Relationship	Path Coefficient (β)	t-Statistic	p-Value	Decision
H1	SQ → US	0.684	7.912	<0.001	Accepted
H2	IQ → US	0.712	8.104	<0.001	Accepted
H3	PEOU → US	0.653	7.224	<0.001	Accepted
H4	US → HSP	0.731	8.511	<0.001	Accepted

Interpretation of Results
As anticipated, the system's quality helps to improve US ($\beta = 0.684$; $p < 0.001$). Healthcare professionals are more satisfied with the electronic medical record system when it is reliable, readily available, trustworthy, and safe. The most important direct impact on US is the QI which is judged on the timeliness, correctness, completeness, and importance of medical data— $\beta = 0.712$; $p < 0.001$.

The apparent simplicity of use also positively influences user satisfaction ($\beta = 0.653$; $p < 0.001$), hence encouraging healthcare professionals to use user-friendly EMR tools in their daily activities. Additionally positively related is user happiness with the caliber of medical care ($\beta = 0.731$; $p < 0.001$). Greater user happiness corresponds with fewer decision-making times, quicker access to patient data, less documentation mistakes, and better EHR use in healthcare delivery in clinical settings.

The structural model suggests that user satisfaction mediates the relationship between observed improvement in healthcare service performance, perceived system usability, and EMR system quality. The results of this study can help to guide the assessment of the Technology Acceptance Model (TAM) and the D&M Information Systems Success Model as a conceptual framework for investigating EMR acceptance in Indonesian community healthcare settings.

Discussion
Research has indicated that system quality, information quality, and perceived usefulness somewhat contribute to user satisfaction, hence better delivery of healthcare services. The paper makes a case for integrating the Technology Acceptance Model with the DeLone and McLean Information Systems Success Model. Positive user comments regarding Electronic Medical Record (EMR) systems and overall satisfaction can further enhance healthcare outcomes as well as the efficacy of the EMR system.

The primary hypothesis was validated that system quality has a significant impact on user satisfaction. Respondents in this study were satisfied with the EMR system when they perceived it to be fast, secure, dependable, consistent, and user-friendly. These results further support the DeLone and McLean Information Systems Success Model in which it is posited that system quality leads to user satisfaction, and ultimately successful information systems. As in the research of Putri and Sutrisno [18], this study also found outpatient EMR system quality to significantly influence user satisfaction. In other words, a more dependable and user-friendly system will make healthcare providers more satisfied with their outpatient EMR tools.

The second theory claims that among all outside elements influencing user happiness, information quality ranks most important. This focus is necessary since doctors depend on timely, correct, thorough, and relevant patient information to make wise and efficient decisions. Having the correct knowledge easily

accessible will help medical professionals to communicate better and minimize differences in diagnoses and treatments. These results support research by Kuswari et al. [24] and Alubaie et al. [25], which suggest that good organizational performance and quality of service depend on accurate and connected health data. These observations might enable Indonesian community health clinics leading national digital health projects in regions including data quality and system interoperability to reach their goals.

Furthermore, the third theory says that user satisfaction correlates positively with perceived ease of use; hence, some data support this. People are more likely to accept and routinely use technology if the TAM suggests it is simple to learn and use. This finding is consistent with Shania and Paramarta's study [16], which found that the main reason healthcare professionals embrace EMR systems is their perceived simplicity of use. EMR systems have to be made user-friendly if one wants to help to encourage continuous acceptance of EMR and reduce opposition to change, especially in basic care settings where medical professionals often deal with significant workloads without enough help from information systems.

Finally, user satisfaction helps to determine the level of healthcare quality. User happiness is a measure of how happy users of information systems are with the general user-friendliness of EMR systems, the information given by such systems, and the quality of electronic medical record systems. Therefore, these factors inspire consumers to interact with the system more skillfully to improve the operational effectiveness of healthcare services. This conclusion suggests that user satisfaction acts as a bridge between the performance of information systems and the results of companies in the healthcare sector.

From a practical perspective, these results have consequences for how community health centers put EMRs into practice. Community health centers have problems with user interface design, data integrity, and system dependability, just like other healthcare facilities using an EMR system. It is also advised that medical staff members participate in ongoing training programs to make sure they have the tools needed to properly implement EMR systems. Furthermore, healthcare managers should often assess system performance, data accuracy, and user satisfaction to identify implementation impediments for EMR systems and to encourage ongoing improvements in EMR quality. These ideas are especially pertinent for Indonesia's national digital health transformation project, which calls for every healthcare facility to have compatible EMR systems linked to the SATUSEHAT platform.

It integrates the Technology Acceptance Model with the DeLone and McLean Information Systems Success Model into a single SEM-PLS framework, thus extending prior research that considered either user acceptance or information systems quality as separate constructs. The study also examines the impact of user satisfaction, perceived ease of use, information quality, and system quality on healthcare results in Indonesian community health centers. Hence, the model proposed aids in the better understanding of how user acceptance and technical quality interrelate and influence healthcare outcomes, thus enhancing knowledge in the assessment of digital health information systems.

CONCLUSION

These findings indicate that technology dynamics, particularly system technical quality, determine user acceptance of Electronic Medical Records (EMR) at community health centers in Indonesia. The SEM-PLS study demonstrates that User Satisfaction is more strongly influenced by SQ, IQ, and PEOU, thus indirectly affecting HSP. This underscores the fact that user satisfaction is necessary to help organizations benefit from the technological aspects of EMR systems. Therefore, successful digital transformation in primary healthcare is a combination of user experience with technology and not just information system application.

This study contributes to the field of health information systems by integrating the Technology Acceptance Model (TAM) with the DeLone and McLean Information Systems Success Model into one framework SEM-PLS. Most previous studies consider system quality and technology acceptance as separate factors. In output, it presents a good model that explains the relationships between system quality, information quality, perceived ease of use, and user satisfaction and therefore supports better delivery of healthcare. This study provides full knowledge of the success variables for EMR and develops a conceptual framework suitable for Indonesian community health centers.

From a managerial perspective, this study provides data-driven recommendations for those in charge of carrying out EMR, healthcare administrators and legislators. Simply bringing in EMR tools will not be enough to raise performance level of healthcare services. Continuous investment is vital in fields like

improving system dependability, raising information quality, creating user-friendly interfaces, training healthcare personnel, and assessing user happiness. Emphasizing the need of both technical preparedness and human-centered system adoption to guarantee the long-term viability of EMR deployment helps Indonesia's national digital health transformation project to be successful.

This study has some limits. First, it was done only in community health centers, so the results may not be relevant for hospitals or other healthcare organizations that run differently. Second, the cross-sectional design of the study relies on user ideas caught at one time, therefore restricting the ability to explain the elements affecting technology acceptance and service performance across the several phases of EMR deployment. Thirdly, the model ignores organizational, management, or environmental aspects that may also affect healthcare service performance, therefore focusing on the technical quality and user acceptability of the systems.

Future studies should extend the proposed framework by including other elements including organizational readiness, digital skills, leadership support, system interoperability, and data security in conjunction with privacy laws. Concentrating on hospitals, clinics, and local health groups will help the suggested model to be applied externally. Studies ought to be carried out over time to provide a more thorough awareness of how user happiness and healthcare system efficiency are affected by electronic medical records (EMRs). To support the model's constancy across several organizational and healthcare settings, future studies may also use Multi-Group Analysis (MGA), Importance-Performance Map Analysis (IPMA), or Covariance-Based Structural Equation Modelling (CB-SEM).

This study underlines the need of evaluating from technical, user, and organizational standpoints how EMR systems are being used. The study highlights how important user satisfaction is in connecting the components of the system to the standard of healthcare services. These results help to clarify theoretical and practical aspects of health information system research as well as the creation of sustainable digital health services in Indonesia and support a more thorough assessment of EMR adoption.

REFERENCES

[1] B. Mcdonough, "Health Information Technology Landscape," *Physician Leadersh. J.*, vol. 12, no. 3, pp. 29–33, 2025, doi: https://doi.org/10.55834/plj.1274167685.

[2] Kamaruddin, M. Ihsan, A. S. Asmi, W. O. N. Angraeni, W. Hardi, and J. A. M. Takke, "Analyzing the Implementation of Health Information Systems to Improve Service Efficiency in Community Health Centers," *Jurnal Ilmiah Kesehatan Sandi Husada*, vol. 14, no. 2, p. 415, 2025, doi: https://doi.org/10.35816/jiskh.v14i2.1330.

[3] Kapote, Shweta, and S. Pallerla, "Health-Care System Digitalization – Implementation of Electronic Health Record," *Journal of Integrated Health Sciences*, vol. 10, no. 1, p. 48, 2022, doi: https://doi.org/10.4103/jihs.jihs_3_22.

[4] D. E. Johnson, "Electronic Medical Records (EMR)," in *Management Engineering for Effective Healthcare Delivery: Principles and Applications*, 2012, p. 19. doi: https://doi.org/10.4018/978-1-60960-872-9.ch016.

[5] Lederman, Reeva, E. Brainin, and O. Ben-Assuli, "The Electronic Medical Record—A New Look at the Challenges and Opportunities," *Future Internet*, vol. 16, no. 3, p. 74, 2024, doi: https://doi.org/10.3390/fi16030074.

[6] R. Idris, S. Said, and P. Ramlan, "Hubungan Implementasi Rekam Medis Elektronik (RME) dengan Kualitas Pelayanan Kesehatan di Wilayah Kerja UPT Puskesmas Rappang Kabupaten Sidenreng Rappang Provinsi Sulawesi Selatan," *Malahayati Nursing Journal*, vol. 7, no. 9, 2025, doi: https://doi.org/10.33024/mnj.v7i9.21792.

[7] L. Hansen and P. Oktamianti, "Implementation of Electronic Medical Records and its Implications for the Effectiveness of Health Services in Indonesia: Narrative Review," *Journal Health Sains*, vol. 6, no. 9, 2025, doi: https://doi.org/10.46799/jhs.v6i9.2704.

[8] Md. K. Hossain, J. Sutanto, P. W. Handayani, A. A. Haryanto, and J. Bhowmik, "An exploratory study of electronic medical record implementation and recordkeeping culture: the case of hospitals in Indonesia," *BMC Health Serv. Res.*, vol. 25, no. 249, 2025, doi: https://doi.org/10.1186/s12913-025-12399-0.

[9] I. Agustiany, R. Andriani, and A. D. Suwardhani, "Efektivitas kualitas rekam medis elektronik dalam upaya meningkatkan produktivitas dan manajemen keselamatan pasien: Studi kualitatif di

Rumah Sakit Ibu dan Anak (RSIA) Mutiara Putri, Bandar Lampung," *Intisari Sains Medis*, 2024, doi: https://doi.org/10.15562/ism.v15i3.2158.
[10] A. T. Dubale, N. D. Mengestie, B. Tilahun, and A. D. Walle, "User Satisfaction of Using Electronic Medical Record System and Its Associated Factors among Healthcare Professionals in Ethiopia: A Cross-Sectional Study," *Biomed Res. Int.*, 2023, doi: https://doi.org/10.1155/2023/4148211.
[11] A. D. Walle, A. W. Demsash, T. A. Ferede, and S. M. Wubante, "Healthcare professionals' satisfaction toward the use of district health information system and its associated factors in southwest Ethiopia: using the information system success model," *rontiers in Digital Health*, vol. 5, 2023, doi: https://doi.org/10.3389/fdgth.2023.1140933.
[12] A. I. Alzahrani, I. Mahmud, T. Ramayah, O. Alfarraj, and N. Alalwan, "Modelling digital library success using the DeLone and McLean information system success model," *JOURNAL OF LIBRARIANSHIP AND INFORMATION SCIENCE*, vol. 51, no. 2, pp. 291–306, 2019, doi: 10.1177/0961000617726123 WE - Social Science Citation Index (SSCI).
[13] G. C. M. Makarewa and I. R. Mambu, "A SCOPING REVIEW: PEMETAAN BUKTI HUBUNGAN MASA KERJA DAN TINGKAT KEPUASAN PERAWAT DALAM PENGGUNAAN ELECTRONIC MEDICAL RECORD," *Klabat Journal of Nursing*, vol. 7, no. 2, 2025, doi: https://doi.org/10.37771/kjn.v7i2.1317.
[14] M. KANTE, C. Chepken, and R. Oboko, "Partial least square structural equation modellingâ' use in information systems," *Kabarak Journal of Research & Innovation*, vol. 6, no. 1, 2018, doi: https://doi.org/10.58216/kjri.v6i1.125.
[15] N. D. Astuti and A. Fahyudi, "Kepuasan Pengguna Sistem Informasi Rekam Medis Elektronik RSUD Tugurejo," *Jurnal Manajemen Kesehatan Indonesia*, vol. 11, no. 3, pp. 289–297, 2023, doi: https://doi.org/10.14710/jmki.11.3.2023.289-297.
[16] F. Shania and V. Paramarta, "Analysis of Technology Acceptance Model (TAM) on The Use of Electronic Medical Records in Hospitals," *Jurnal Indonesia Sosial Sains*, vol. 5, no. 12, 2024, doi: https://doi.org/10.59141/jiss.v5i12.1520.
[17] A. Himawan, "Evaluation of the Application of Electronic Medical Records with a Technology Acceptance Model Approach in Hospital X," *Eduvest - Journal of Universal Studies*, vol. 5, no. 5, 2025, doi: https://doi.org/10.59188/eduvest.v5i5.51152.
[18] D. A. Putri and T. A. Sutrisno, "Impact of Information and System Quality on User Satisfaction with Outpatient EMRs at RSKIA Sadewa, Indonesia," *Journal of Intelligent Computing & Health Informatics*, vol. 5, no. 2, 2024, doi: https://doi.org/10.26714/jichi.v5i2.11845.
[19] A. Sutiyono, S. Bakhri, Ulyanti, D. R. Ningsih, and F. Syukur, "Assessing E-learning Systems Using the DeLone & McLean and Technology Acceptance Models," *Jurnal Penelitian Pendidikan IPA*, vol. 10, no. 12, 2024, doi: 10.29303/jppipa.v10i12.8790.
[20] S. S. Wahyuningsih, C. H. S. A, N. Rahayu, U. W. Nuryanto, and B. Ramadhani, "Application of Technology Acceptance Model and Delone and McLean IS Success Model to Measure Information System Design for Academic Activities in Higher Education Institution," *Jurnal Informasi dan Teknologi*, vol. 6, no. 1, 2024, doi: https://doi.org/10.60083/jidt.v6i1.470.
[21] J.-H. Cheah, F. Magno, and F. Cassia, "Reviewing the SmartPLS 4 software: the latest features and enhancements," *Journal of Marketing Analytics*, vol. 12, pp. 97–107, 2024, doi: https://doi.org/10.1057/s41270-023-00266-y.
[22] F. Firman, Y. Anra, R. Pratama, and F. W. Tersta, "Factors Affecting Intentions and Behavior of Plagiarism Among Students in Jambi University: Testing the Data Quality for Validity and Reliability," *SPEKTRUM: Jurnal Pendidikan Luar Sekolah (PLS)*, vol. 9, no. 4, 2021, doi: https://doi.org/10.24036/spektrumpls.v9i4.114281.
[23] M. Lee, K. Kim, Y. Shin, Y. Lee, and T.-J. Kim, "Advancements in Electronic Medical Records for Clinical Trials: Enhancing Data Management and Research Efficiency," *Cancers (Basel).*, vol. 17, no. 9, p. 1552, 2025, doi: https://doi.org/10.3390/cancers17091552.
[24] M. Kuswari, R. Gantino, and J. Maratis, "Maximizing Healthcare Service Information System: Understanding the Influence of Integration on Efficiency," *ADI Journal on Recent Innovation (AJRI)*, vol. 6, no. 2, pp. 108–117, 2024, doi: 10.34306/ajri.v6i2.1145.
[25] M. A. Alubaie, M. Y. Sayed, R. E. Alnakhli, and F. I. N. Alshaia, "The Efficiency and Accuracy Gains of Real-Time Health Data Integration in Healthcare Management: A Comprehensive Review of Current Practices and Future Directions," *Egypt. J. Chem.*, 2024, doi: https://doi.org/10.21608/ejchem.2025.343595.10967.