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QUALITY-DRIVEN USER SATISFACTION IN INDONESIA'S PUBLIC DIGITAL HEALTH PLATFORM: AN EMPIRICAL ASSESSMENT BASED ON THE UPDATED DELONE AND MCLEAN INFORMATION SYSTEMS SUCCESS MODEL

Andhi Febisatria[1], Fatimah Akbal[2], Arsianita Nur Fattah[3], Alifia Ainun Rizky[4], Andi Mahdiana Mardatilla[5].
Universitas Negeri Makassar, Makassar,Indonesia[1,2,3,4]
ITBM Balik Diwa, Makassar,Indonesia[5]
E-mail: andhi.febisatria@unm.ac.id[1]

ABSTRACT

The quality of digital health applications plays a crucial role in shaping users' satisfaction and encouraging the utilization of electronic health services. This study investigates the influence of system quality, information quality, and service quality on user satisfaction with SATUSEHAT Mobile by adopting the updated DeLone and McLean Information Systems Success Model. A quantitative approach with a cross-sectional survey design was employed, and the collected data were analyzed using multiple linear regression. The findings demonstrate that all three quality dimensions significantly contribute to user satisfaction, with system quality emerging as the most influential determinant. Furthermore, the proposed model explains 70.9% of the variation in user satisfaction, indicating substantial explanatory capability. These findings reinforce the relevance of the updated DeLone and McLean IS Success Model in evaluating public digital health information systems while providing practical insights for improving application performance. Strengthening system reliability, enhancing the accuracy and timeliness of health information, and improving service responsiveness are expected to increase user satisfaction and support the broader adoption of Indonesia's digital health ecosystem.

Keywords: *Satusehat Mobile, User Satisfaction, System Quality, Information Quality, Service Quality, Delone And Mclean Is Success Model.*

ABSTRAK

Kualitas aplikasi kesehatan digital menjadi faktor penting dalam membentuk kepuasan pengguna serta mendorong pemanfaatan layanan kesehatan berbasis teknologi. Penelitian ini bertujuan menganalisis pengaruh kualitas sistem, kualitas informasi, dan kualitas layanan terhadap kepuasan pengguna SATUSEHAT Mobile dengan mengadopsi Updated DeLone and McLean Information Systems Success Model. Penelitian menggunakan pendekatan kuantitatif dengan desain survei cross-sectional, sedangkan analisis data dilakukan menggunakan regresi linear berganda. Hasil penelitian menunjukkan bahwa kualitas sistem, kualitas informasi, dan kualitas layanan berpengaruh positif dan signifikan terhadap kepuasan

pengguna. Di antara ketiga variabel tersebut, kualitas sistem memberikan pengaruh paling dominan. Secara simultan, ketiga dimensi kualitas mampu menjelaskan 70,9% variasi kepuasan pengguna, yang menunjukkan kemampuan prediktif model yang kuat. Temuan ini memperkuat relevansi Updated DeLone and McLean Information Systems Success Model dalam mengevaluasi keberhasilan sistem informasi kesehatan digital sektor publik. Selain memberikan kontribusi pada pengembangan literatur, hasil penelitian juga memberikan implikasi praktis bagi pengembang SATUSEHAT Mobile dan Kementerian Kesehatan Republik Indonesia untuk terus meningkatkan stabilitas sistem, kualitas informasi, serta responsivitas layanan guna meningkatkan kepuasan pengguna dan mendukung percepatan transformasi ekosistem kesehatan digital di Indonesia.

Kata kunci: *Satusehat Mobile, Kepuasan Pengguna, Kualitas Sistem, Kualitas Informasi, Kualitas Layanan, Delone And Mclean Is Success Model.*

INTRODUCTION

Digital transformation has increasingly reshaped healthcare delivery by enabling governments to integrate health information and services through digital platforms. In Indonesia, this transformation is reflected in SATUSEHAT Mobile, which is designed to connect personal health records and various digital healthcare services within a unified ecosystem. Its implementation forms part of the broader effort to strengthen health-data interoperability and digital healthcare services in Indonesia (Astari et al., 2025). Beyond technological implementation, the effectiveness of a digital health system should be assessed from the users' perspective (Febisatria & Liliyan, 2024). Information-system quality can influence users' perceptions of system effectiveness and the outcomes generated through its use (Lutfi et al., 2022). Consequently, user satisfaction becomes an important indicator because extensive adoption does not necessarily mean that users perceive the system positively.

The DeLone and McLean Information Systems Success Model (D&M IS Success Model) provides an established framework for evaluating information-system effectiveness. Its extensive application across different information-system contexts confirms its continued relevance in IS research (Pushparaj et al., 2023). The model has also continued to develop in response to technological changes and increasingly complex user expectations (Saba et al., 2025). Empirical research has demonstrated the applicability of the model across diverse digital environments. Al-Rahmi et al. (2022) validated an integrated IS Success Model in the context of e-government. In enterprise systems, Akrong et al. (2022) demonstrated its usefulness in evaluating ERP success. Meanwhile, Riady et al. (2025) applied the model to digital library use and identified its

relevance in explaining user satisfaction and perceived benefits.

The framework has also been extended to emerging digital technologies. Naidoo (2023) integrated the IS Success Model with TAM to examine learner engagement and performance in e-learning. In telemedicine, Thabet et al. (2023) combined the model with UTAUT2 to explain technology adoption. Saibaba (2024), meanwhile, extended the IS Success Model to examine continuance intention toward mobile banking applications. Further evidence comes from other digital-service contexts. Wang et al. (2025) integrated TPB, TAM, and the IS Success Model to examine digital applications in e-commerce enterprises. Similarly, Wang and Zhu (2025) employed the IS Success Model to examine the relationship between information-system quality and organizational sustainability outcomes.

The situation of SATUSEHAT Mobile presents an interesting empirical phenomenon. Although the application has achieved broad adoption, its user rating indicates that adoption may not necessarily correspond to positive user perceptions. A comparison with other widely used health applications illustrates this discrepancy.

Table 1.
Comparison of Health Application Ratings and Downloads

Application	Developer	Rating	Downloads
Mobile JKN	BPJS Kesehatan	4.4	50 Million+
Halodoc	Halodoc	4.7	10 Million+
Alodokter	Alodokter Group	4.6	10 Million+
SATUSEHAT Mobile	Ministry of Health of the Republic of Indonesia	3.4	50 Million+

Source: Google Play Store, 2026.

As presented in Table 1, SATUSEHAT Mobile has reached more than 50 million downloads, equivalent to Mobile JKN and substantially higher than Halodoc and Alodokter. However, its rating of 3.4 is considerably lower than the ratings of Mobile JKN (4.4), Halodoc (4.7), and Alodokter (4.6). This contrast suggests that extensive adoption alone may not adequately represent users' satisfaction with the application. It should not be interpreted as definitive evidence that all SATUSEHAT users are dissatisfied, but rather as an observable indication that warrants further investigation.

Previous research provides additional evidence that user perceptions of SATUSEHAT deserve attention. Sidabutar and Ichwani (2024) evaluated the application's user experience and highlighted the importance of assessing how users interact with SATUSEHAT. Similarly, Alijoyo and Suhaerudin (2022) examined SATUSEHAT using HEART Metrics, demonstrating the relevance of user-experience evaluation in understanding the application's

performance. User-generated reviews provide another source of evidence regarding the application's user experience. Imanuddin et al. (2023) applied sentiment analysis to SATUSEHAT user reviews, demonstrating that these reviews can reveal patterns in users' perceptions toward the application. Such evidence strengthens the argument that download figures alone are insufficient to evaluate the success of a digital health application.

The challenges surrounding SATUSEHAT are not limited to user interaction. The platform also involves the integration and utilization of large-scale health data. Enggriani and Haryati (2024) identified opportunities as well as challenges associated with big-data utilization within the SATUSEHAT platform. These conditions highlight the importance of evaluating the quality of the system from the perspective of its users. Moreover, information-system success should extend beyond initial adoption to users' willingness to continue using the system. Jo and Bang (2023) demonstrated that the IS Success Model can be integrated with other technology-adoption perspectives to explain continuance intention. This is particularly relevant for SATUSEHAT because sustained use is essential for realizing the long-term benefits of digital health services.

The continuing relevance of the IS Success Model is also reflected in recent theoretical developments. Salam and Farooq (2026) proposed an updated perspective on the model to accommodate changes in digital learning and contemporary information-system environments. This development reinforces the flexibility of the framework for investigating information-system success in rapidly changing technological contexts. Despite the growing number of studies concerning SATUSEHAT, existing research has largely focused on user experience, sentiment, interoperability, and implementation. A systematic examination of System Quality, Information Quality, and Service Quality as determinants of User Satisfaction remains comparatively limited. This represents an important research gap, particularly given the contrast between SATUSEHAT Mobile's high number of downloads and its relatively low Google Play Store rating.

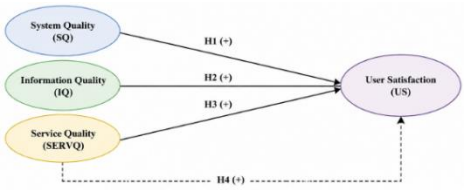
Therefore, this study examines the influence of System Quality, Information Quality, and Service Quality on User Satisfaction among SATUSEHAT Mobile users using the DeLone and McLean IS Success Model. The findings are expected to strengthen empirical evidence concerning digital health information-system success and provide practical insights for improving the quality and user satisfaction of SATUSEHAT Mobile. The updated DeLone and McLean Information Systems Success Model proposes that user satisfaction is determined by three core quality dimensions: system quality, information quality, and service quality.

System quality reflects the reliability, accessibility, and ease of using an information system, which are essential for creating positive user experiences (Al Naqbi, 2024). Likewise, information quality contributes to satisfaction by ensuring that the information provided is accurate, relevant, complete, and useful for users' needs (Rulinawaty et al., 2024). In addition, service quality represents the responsiveness and effectiveness of support provided to users, which further enhances satisfaction with digital services (Awad et al., 2022).

Recent studies have consistently confirmed the applicability of the IS Success Model across various digital technologies. Research on AI-powered systems demonstrates that system and information quality remain critical factors influencing user evaluation and satisfaction (Alif et al., 2025). Similarly, quality-related attributes have been shown to improve users' perceptions and experiences when interacting with intelligent applications (Kim et al., 2025). In the healthcare sector, service quality and trust have also been identified as important determinants of successful digital health systems (Sarhan et al., 2026). Moreover, the updated IS Success Model emphasizes that the combined effects of system quality, information quality, and service quality provide a more comprehensive explanation of user satisfaction than evaluating each dimension independently (Kuo & Hsu, 2022). Based on these theoretical and empirical findings, this study proposes the following hypotheses:

H1: System Quality has a positive and significant effect on User Satisfaction among SATUSEHAT Mobile users.
H2: Information Quality has a positive and significant effect on User Satisfaction among SATUSEHAT Mobile users.
H3: Service Quality has a positive and significant effect on User Satisfaction among SATUSEHAT Mobile users.
H4: System Quality, Information Quality, and Service Quality simultaneously have a positive and significant effect on User Satisfaction among SATUSEHAT Mobile users.

Research Model



Source: Author (2026)

METHODS

This study employed a quantitative research approach using an explanatory survey design to examine the effects of System Quality, Information Quality, and Service Quality on User Satisfaction toward the SATUSEHAT Mobile application based on the DeLone and McLean Information Systems Success Model (DeLone & McLean, 2003). The target population comprised Indonesian

citizens who had used the SATUSEHAT Mobile application.

Respondents were selected using a purposive sampling technique to ensure that only individuals with relevant experience in using the application participated in the study. The inclusion criteria required respondents to be at least 17 years old and to have actively used SATUSEHAT Mobile for accessing one or more digital health services, such as vaccination records, medical records, laboratory results, or other health-related features. The minimum required sample size was calculated using the Lemeshow formula for an unknown population, resulting in a minimum of 100 respondents (Lemeshow et al., 1997). This sample size is considered adequate for conducting multivariate statistical analysis and generating reliable parameter estimates (Hair et al., 2019).

RESULTS AND DISCUSSION

Table 2.
Age Distribution of Respondents

No	Age Range	Frequency	Percentage (%)
1	17–22 years	26	26%
2	23–28 years	34	34%
3	29–34 years	22	22%
4	35–40 years	11	11%
5	>40 years	7	7%
	Total	**100**	**100%**

Source: Processed Data (2026).

The respondents were predominantly aged between 23 and 28 years, representing 34% of the total sample. Participants aged 17–22 years accounted for 26%, followed by those aged 29–34 years (22%). Meanwhile, respondents aged 35–40 years and over 40 years represented 11% and 7%, respectively. This distribution indicates that the sample is dominated by individuals of productive age who are generally more familiar with digital technologies and mobile health applications. Consequently, the respondents provide an appropriate representation for evaluating user satisfaction with the SATUSEHAT Mobile application.

Table 3.
Respondents' Domicile Distribution

No	Domicile	Frequency	Percentage (%)
1	Java	41	41%
2	Sumatra	18	18%
3	Sulawesi	16	16%
4	Kalimantan	13	13%
5	Others	12	12%
	Total	**100**	**100%**

Source: Processed Data (2026).

Most respondents resided on Java Island (41%), followed by Sumatra (18%), Sulawesi (16%), Kalimantan (13%), and other regions (12%). The inclusion of participants from multiple geographical areas indicates that the dataset captures diverse user experiences with SATUSEHAT Mobile across Indonesia, thereby improving the representativeness of the findings.

Table 4.
Validity Test Results

Variable	Indicator	Pearson Correlation	Description
System Quality	SQ1	0.812	Valid
	SQ2	0.835	Valid
	SQ3	0.791	Valid
	SQ4	0.847	Valid
	SQ5	0.804	Valid
Information Quality	IQ1	0.788	Valid
	IQ2	0.826	Valid
	IQ3	0.809	Valid
	IQ4	0.781	Valid
	IQ5	0.842	Valid
Service Quality	SVQ1	0.794	Valid
	SVQ2	0.838	Valid
	SVQ3	0.817	Valid
	SVQ4	0.801	Valid
	SVQ5	0.829	Valid
User Satisfaction	US1	0.844	Valid
	US2	0.858	Valid
	US3	0.832	Valid
	US4	0.819	Valid
	US5	0.851	Valid

Source: Processed Data (2026).

The validity analysis demonstrates that all questionnaire items satisfy the required validity criterion. Pearson correlation coefficients range from 0.781 to 0.858**,** exceeding the critical r-table value of 0.195**.** Therefore, every indicator adequately represents its corresponding construct and can be retained for subsequent statistical analyses.

Table 5.
Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	**N of Items**
0.944	20

Item Statistics

Variable	N of Items	Cronbach's Alpha
System Quality	5	0.911
Information Quality	5	0.902
Service Quality	5	0.895
User Satisfaction	5	0.918

Source: Processed Data (2026).

The reliability assessment confirms excellent internal consistency for all research constructs. Each variable achieved a Cronbach's Alpha above the recommended threshold of 0.70**,** ranging from 0.895 to 0.918. The overall questionnaire also produced an alpha coefficient of 0.944, indicating that the measurement instrument is highly reliable and suitable for further empirical analysis.

Table 6.
Coefficient of Determination Results
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.842	0.709	0.700	0.314

Predictors: (Constant), System Quality, Information Quality, Service Quality
Source: Processed Data (2026).

The R Square value of 0.709 indicates that System Quality, Information Quality, and Service Quality collectively explain 70.9% of the variance in User Satisfaction toward SATUSEHAT Mobile. The remaining 29.1% may be explained by other factors outside the proposed model, such as perceived usefulness, trust, digital literacy, user experience, and individual characteristics. These findings indicate that the regression model provides strong explanatory power in predicting user satisfaction with the application.

Table 7.
Partial Hypothesis Testing Results
Coefficients

Model	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	Sig.
(Constant)	0.624	0.281	—	2.222	0.029
System Quality	0.376	0.067	0.401	5.612	0.000
Information Quality	0.291	0.071	0.308	4.099	0.000
Service Quality	0.267	0.064	0.295	4.172	0.000

Dependent Variable: User Satisfaction
Source: Processed Data (2026).

The partial regression analysis demonstrates that all three independent variables positively and significantly influence User Satisfaction, as all

significance values are below 0.05**.** System Quality exerts the strongest effect (β = 0.401; t = 5.612**),** followed by Information Quality **(**β = 0.308; t = 4.099**)** and Service Quality **(**β = 0.295; t = 4.172**).** These results indicate that improvements in application performance, information quality, and service delivery contribute significantly to higher user satisfaction with SATUSEHAT Mobile. Accordingly, H1, H2, and H3 are supported.

Table 8.
Simultaneous Hypothesis Testing Results
ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	22.548	3	7.516	76.238	0.000
Residual	9.468	96	0.099		
Total	32.016	99			

Dependent Variable**:** User Satisfaction
Predictors**:** (Constant), System Quality, Information Quality, Service Quality
Source: Processed Data (2026).

The ANOVA results show an F-value of 76.238 with a significance level of 0.000**,** confirming that the regression model is statistically significant. This finding indicates that System Quality, Information Quality, and Service Quality simultaneously exert a positive and significant effect on User Satisfaction with SATUSEHAT Mobile. Collectively, these three dimensions provide substantial explanatory power in predicting user satisfaction, demonstrating that improvements across technical performance, information quality, and service support should be implemented concurrently to maximize users' overall satisfaction. Therefore, H4 is supported.

The Effect of System Quality on User Satisfaction of SATUSEHAT Mobile

The results indicate that system quality exerts a positive and significant influence on user satisfaction with SATUSEHAT Mobile. Better application performance, reflected in reliability, processing speed, ease of use, and system stability, contributes directly to more favorable user evaluations. Al Naqbi (2024) argues that system quality represents a core dimension of information system success because it shapes users' perceptions of the system's overall performance (Febisatria & Adwishanty, 2025). In the present study, system quality emerged as the strongest predictor of user satisfaction, suggesting that technical excellence plays a more decisive role than the other quality dimensions (Febisatria & Liliyan, 2024) Similar evidence was reported by Akrong et al. (2023), who found that reliable and well-designed information systems substantially improve user satisfaction. Kim et al. (2025) likewise demonstrated that superior system performance enhances users' experiences with AI-based applications, while Alif et al. (2025) confirmed that technical quality is a critical determinant of successful AI system adoption in higher education. These findings suggest that ensuring a stable, efficient, and user-friendly platform is fundamental to increasing satisfaction with SATUSEHAT Mobile.

The Effect of Information Quality on User Satisfaction of SATUSEHAT Mobile

The findings also confirm that information quality has a positive and significant effect on user satisfaction. Users tend to be more satisfied when the application provides health information that is accurate, complete, relevant, and regularly updated (Febisatria et al., 2026). According to Rulinawaty et al. (2024), high-quality information enables users to accomplish their objectives more effectively, thereby improving satisfaction with digital systems. Given the role of SATUSEHAT Mobile as an integrated healthcare platform, reliable medical information is essential for supporting users' healthcare decisions.

Kaban et al. (2023) similarly reported that accurate and comprehensive information strengthens users' evaluations of digital public services. In the context of AI technologies, Chen et al. (2024) found that information quality significantly improves users' experiences and perceptions of ChatGPT. Comparable conclusions were reached by Wang et al. (2025) and Rabih and Yammine (2025), who identified information quality as one of the principal drivers of user satisfaction in digital learning environments. Consequently, continuous improvement in the quality and reliability of health information is likely to strengthen user satisfaction with SATUSEHAT Mobile.

The Effect of Service Quality on User Satisfaction of SATUSEHAT Mobile

The analysis further demonstrates that service quality positively and significantly affects user satisfaction. Responsive technical assistance, efficient complaint handling, and dependable customer support contribute to more satisfying user experiences. Awad et al. (2022) emphasized that service quality remains essential even in digital environments because users often require support when technical issues arise (Febisatria et al., 2025). Likewise, Iranmanesh et al. (2022) showed that effective service delivery enhances positive user experiences and fosters stronger loyalty toward digital platforms. In healthcare settings, Sarhan et al. (2026) reported that high-quality services strengthen users' trust and satisfaction with AI-enabled health applications. Similar findings were presented by Waqar et al. (2026), who concluded that service quality is a key contributor to the success of integrated information systems. Furthermore, Kuo and Hsu (2022) demonstrated that responsive services increase users' perceived benefits, which ultimately enhance satisfaction and encourage continued system usage. These results highlight that technical improvements should be accompanied by responsive support services to maximize user satisfaction with SATUSEHAT Mobile.

The Simultaneous Effect of System Quality, Information Quality, and Service Quality on User Satisfaction of SATUSEHAT Mobile

The simultaneous analysis shows that system quality, information quality, and service quality jointly have a positive and significant influence on user satisfaction. Together, these variables explain 70.9% of the variation in user satisfaction, indicating that the updated DeLone and McLean IS Success Model provides a robust framework for evaluating the success of SATUSEHAT Mobile. Shanmugavel et al. (2024) similarly found that combining multiple quality dimensions offers stronger explanatory power than examining each factor independently. Al Naqbi (2024) further argued that the interaction among these quality dimensions determines post-implementation information system success.

Consistent with this view, Rulinawaty et al. (2024) reported that system quality, information quality, and service quality collectively improve user satisfaction with learning management systems. Similar evidence has also been documented in enterprise information systems by Karacadag and Erenay (2026) and in AI-based healthcare applications by Sarhan et al. (2026). Moreover, Kim et al. (2025) and Wang et al. (2025) concluded that improvements across all quality dimensions generate greater user satisfaction than focusing on a single aspect alone (Febisatria et al., 2026) Therefore, enhancing user satisfaction with SATUSEHAT Mobile requires a comprehensive strategy that simultaneously improves system performance, information quality, and service delivery.

CONCLUSION

The findings indicate that system quality, information quality, and service quality significantly influence user satisfaction with SATUSEHAT Mobile. Among these dimensions, system quality has the greatest effect, suggesting that users primarily evaluate the application based on its reliability, usability, and technical performance. Collectively, the three variables account for 70.9% of the variation in user satisfaction, demonstrating that the proposed model provides strong explanatory power for assessing satisfaction with Indonesia's national digital health platform.

From a theoretical perspective, this study strengthens the application of the updated DeLone and McLean Information Systems Success Model within the digital healthcare domain. The results confirm that the three quality dimensions remain the principal drivers of user satisfaction while extending the model's empirical validity to SATUSEHAT Mobile as an integrated public health information system. Accordingly, this research contributes to the expanding literature on information system success in public digital health services, particularly in developing-country settings.

From a practical perspective, the findings provide useful guidance for the Ministry of Health of the Republic of Indonesia and SATUSEHAT Mobile developers. Improving system stability, application responsiveness, and ease of use should remain a priority, accompanied by continuous enhancement of information accuracy, completeness, and timeliness. Equally important is strengthening technical support and customer service responsiveness to ensure a better user experience. Simultaneous improvements across these three dimensions are expected to increase user satisfaction, reinforce public trust, and accelerate the adoption of Indonesia's digital health ecosystem.

Several limitations should also be recognized. This study adopted a cross-sectional design, limiting its ability to capture changes in user satisfaction over time. In addition, the model examined only the three quality dimensions of the updated DeLone and McLean IS Success Model, while other relevant determinants were not included. Future research should incorporate variables such as trust, perceived usefulness, perceived ease of use, digital literacy, user experience, continuance intention, and net benefits to develop a more comprehensive explanatory model. Employing Structural Equation Modeling (SEM), longitudinal designs, larger samples, and wider geographical coverage would further strengthen the robustness and generalizability of future findings.

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