



ASSESSING E-GOVERNMENT USER SATISFACTION WITH DELONE & MCLEAN INFORMATION SYSTEM SUCCESS MODEL AND DIGITAL LITERACY

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ABSTRACT

Abstract: This study aims to analyze e-government user satisfaction using the D&M IS Success Model. Digital literacy is added as an additional variable to provide a broader explanation of the contradictory research results from previous studies. A quantitative research approach is employed. Research data were collected by distributing an online questionnaire to users of the BPS-Statistics Sulawesi Barat Province official e-government website who accessed the site in the last year. Multiple linear regression is used to analyze the impact of system quality, information quality, service quality, and digital literacy on user satisfaction, both partially and simultaneously, using RStudio. Findings indicate that the variables from the D&M IS Success Model have a significant influence on user satisfaction. On the contrary, digital literacy was found not to significantly influence user satisfaction when tested partially. Simultaneously, the four variables have a significant influence on user satisfaction. The R-squared value indicates that system quality, information quality, service quality, and digital literacy collectively explain 75.26% of user satisfaction. In comparison, the other 24.26% is covered by different variables that are not included in this research. These results offer valuable insights for governments implementing e-government websites to enhance user satisfaction and deliver improved public services. The study contributes to the existing literature on user satisfaction with e-government in Indonesia.

INTRODUCTION

In the era of rapid technological advancement, governments worldwide are pressured to innovate and digitize public services. Innovation in public sector organizations has the potential to enhance competitiveness, improve public welfare, generate employment opportunities, and contribute to a higher quality of life (Purwanto & Elu, 2019). It plays a vital role in promoting economic development, improving service delivery, and building trust between the government and its citizens. In the context of digital transformation, one of the key drivers of this transformation is the implementation of electronic government (e-government). E-Government refers to the use of information and communication technology (ICT) to deliver public services, facilitate interaction between government and citizens, and streamline internal administrative processes (Suasridewi et al., 2025).

Globally, governments are increasingly turning to e-government to enhance transparency, efficiency, and citizen satisfaction. The United Nations E-Government Survey 2022 reported that over 90% of countries have developed some form of digital government strategy, reflecting a global trend toward modernization and innovation in public administration (United Nations, 2022). This transformation is driven not only by technological advancements but also by the growing demands of citizens for more responsive and accessible services. Indonesia is no exception in this regard. Since the issuance of a strategic policy in the

implementation of information and communication technology in Indonesia's government through Presidential Instruction No. 3 of 2003 concerning the National Policy and Strategy for the Development of e-Government, the utilization of ICT in the public sector has continued to increase. Various government institutions have developed digital platforms to improve service accessibility, speed, and transparency (Rizky et al., 2025).

However, despite ongoing efforts to enhance digital services, several challenges persist in Indonesia's e-government implementation, particularly at the regional level. Studies indicate that technological infrastructure, digital divide, system quality, and user digital literacy continue to hinder the effective delivery of e-government services (Omweri, 2024). Moreover, a gap remains between the availability of digital platforms and the actual satisfaction of users, especially in underdeveloped or rural regions where ICT access and skills vary significantly.

To evaluate the success of digital public services, scholars frequently apply the DeLone and McLean Information System Success Model (D&M IS Success Model). This model introduces six interconnected dimensions of information system success: system quality, information quality, service quality, use, user satisfaction, and net benefits. Among these, system quality, information quality, and service quality are often used as key predictors of user satisfaction, making them highly relevant in the context of e-government assessment (Petter et al., 2013; Urbach & Müller, 2012). D&M IS Success Model is one of the most commonly used models for assessing information systems in many fields (Rulinawaty et al., 2024). Although this model has been widely used to measure the quality of e-government, previous empirical studies using this model have yielded contradictory results. Research involving relatively homogeneous respondents tends to produce significant results for the variables. For instance, Alwi et al. (2023), who conducted research with students as respondents, and Suranto (2022), who studied expenditure treasurers of government work units, both found that the digital literacy gap within these homogenous respondent groups was minimal, indicating a generally similar level of capability in using applications. Conversely, studies involving more heterogeneous respondents have found that one of the variables, which is system quality, does not significantly influence user satisfaction, while information quality and service quality do (Abdulkareem & Ramli, 2021; Nam et al., 2024). The diverse characteristics of heterogeneous respondents likely contribute to this variation. However, the findings of Absharina & Negara (2023) present a contradiction to the above conclusion. Although their respondents were also homogeneous, the study found that information quality and system quality did not significantly affect user satisfaction, whereas service quality did show a significant influence. This contradiction highlights the need for further investigation and validation, particularly in the context of regional e-government systems in Indonesia. These contradictory findings indicate that user satisfaction with e-government may not solely depend on technical aspects, but also on individual capabilities and contextual factors. This highlights the importance of integrating user characteristics such as digital literacy into public service evaluation (Haerana & Riskasari, 2022).

Additionally, previous studies have largely overlooked the role of user characteristics, especially digital literacy, in shaping satisfaction with e-government services. In a digital society, digital literacy is defined as

an individual's ability to locate, evaluate, and communicate information using digital platforms. It is crucial for engaging effectively with online services. It is particularly relevant in the context of public service delivery, where citizens must navigate digital portals, fill in online forms, and interpret electronic information without face-to-face assistance (Kirjavainen & Jalonen, 2025).

Recent research suggests that higher levels of digital literacy correlate with greater e-government adoption and satisfaction (Abdulkareem & Ramli, 2021; Amirulkamar, 2024). Yet, empirical studies specifically investigating the direct impact of digital literacy on user satisfaction within the D&M framework remain limited. This presents an opportunity to expand the model by incorporating digital literacy as a potential explanatory variable.

To address this gap, this study introduces digital literacy as an independent variable alongside system quality, information quality, and service quality to provide a more comprehensive explanation of user satisfaction in the e-government context. This extension is expected to uncover deeper insights into how user capabilities interact with digital system features. In addition to addressing the empirical inconsistencies of previous studies, this research also provides practical implications. Government institutions often focus on the technical development of platforms but neglect the user-side readiness, such as digital competencies and the ability to navigate government websites effectively. By examining the role of digital literacy, this study seeks to inform policymakers and practitioners about the importance of capacity-building initiatives that accompany digital transformation.

Based on the issues outlined above, this study aims to investigate the impact of system quality, information quality, service quality, and digital literacy on user satisfaction in e-government services using the D&M IS Success Model. This research offers a novel contribution by testing the extended model in the Indonesian regional context with a more heterogeneous sample, thus providing new insights into the dynamics of e-government service delivery and user experience.

METHOD

This study aims to conduct a further empirical investigation of the influence of system quality, information quality, service quality, and digital literacy on user satisfaction. A quantitative approach is used to achieve this objective. The questionnaire was distributed online to respondents selected through purposive sampling based on specific criteria. The population in this study comprises all users of BPS-Statistics Indonesia's e-government services who accessed one of its e-government platforms, specifically the official website of Statistics Sulawesi Barat Province (sulbar.bps.go.id) in 2024. According to the website's dashboard, the total population is 90,092 users. By using the Isaac and Michael table, 346 respondent samples are determined to be the minimum number of representative samples required for a 95% confidence level. 348 respondents completed the questionnaire, and all were included in the analysis.

Table 1.
Sample Size Determination Using the Isaac and Michael Table

Population Size	Confidence Level	Sample Size
50 000 – 99 999	95%	346

Source: Sugiyono (2013)

The questionnaire was constructed with questions to determine respondents' characteristics and indicators for the variables using a Likert scale. Validity and reliability tests were conducted on the questionnaire before its distribution to ensure that the research instrument yields data as expected and to verify that the instrument is stable and consistent in measuring the variables. Pearson's Product Moment is used to test the validity, and Cronbach's Alpha Coefficient is used to test the reliability of the instrument. Both tests indicate that the instrument is valid and reliable. The retrieved data from 348 samples were then analyzed using RStudio statistical software, which served as the primary tool for data processing and statistical analysis. The classical assumption tests performed include normality tests, multicollinearity tests, and heteroscedasticity tests, to confirm that the data were normally distributed, free from multicollinearity, and exhibited no heteroscedasticity. After meeting these assumptions, the study proceeded with multiple linear regression analysis to test the hypotheses and examine the simultaneous and partial effects of the independent variables on user satisfaction. In addition, descriptive analysis was used to explain the demographic characteristics of the respondents and the overall score distributions for each variable, providing deeper insight into user perceptions and behavior.

RESULTS AND DISCUSSIONS

This study aims to address differences in the results of previous research that used the D&M IS Success Model to measure the quality of e-government services and their effect on user satisfaction. By adding digital literacy as a variable and using data from various user backgrounds, this study provides a better understanding of what influences satisfaction in using e-government services.

Instrument Validity and Reliability

Pilot data with 30 respondents was used to perform the validity and reliability test. The validity test was conducted to determine whether each item of the user satisfaction variable accurately measured the intended construct. Pearson's product-moment correlation was used, and the results were compared with the critical value of $r_{table} = 0.361$ ($\alpha = 0.05$, $n = 30$). All 35 items measuring the variables produced correlation coefficients (r_{count}) greater than the r_{table} value. The coefficients ranged from 0.4845 to 0.9183, indicating a strong and statistically significant relationship between each item and the total score. Therefore, all items in the variables are declared valid and suitable for further analysis.

The reliability test was conducted using Cronbach's Alpha to assess the internal consistency of each research variable. All variables obtained Cronbach's Alpha values above the minimum cut-off value of 0.6, indicating that the instruments used are reliable. Specifically, application system quality (X1) scored 0.93, information quality (X2) scored 0.86, service quality (X3) scored 0.89, digital literacy (X4) scored 0.80, and

user satisfaction (Y) scored 0.94. These results demonstrate that the measurement instruments are consistent and dependable for capturing data across all constructs in this study.

Classical Assumption Test

The classical assumption tests were conducted to ensure the validity of the multiple linear regression model used in this study. The multicollinearity test using the Variance Inflation Factor (VIF) shows that all VIF values are below 5 ($X_1 = 3.39$, $X_2 = 4.34$, $X_3 = 3.26$, $X_4 = 1.31$), indicating no serious multicollinearity among the independent variables. Furthermore, the Breusch-Pagan test for heteroscedasticity produced a p-value of 0.3767, which is greater than the 0.05 significance level, suggesting that the model does not suffer from heteroscedasticity. The Kolmogorov–Smirnov normality test was conducted on the standardized residuals of the regression model to assess whether the residuals follow a normal distribution. The test yielded a p-value of 0.0000001614 ($p < 0.05$), indicating that the null hypothesis is rejected. Therefore, it can be concluded that the residuals in this model are not normally distributed. However, given the relatively large sample size ($n = 348$), this violation of the normality assumption is unlikely to significantly affect the validity of the regression results, particularly when the primary focus of the analysis is on parameter estimation and statistical significance rather than individual prediction. This interpretation aligns with the Central Limit Theorem, which suggests that regression coefficient estimates tend to approximate a normal distribution in sufficiently large samples, even when the residuals themselves are not perfectly normally distributed. Therefore, the regression model satisfies the assumptions of normality, no multicollinearity, and homoscedasticity, and is considered appropriate for further hypothesis testing.

Descriptive Statistics

This study aims to fill the empirical gap in previous studies that have implemented the D&M IS Success Model to assess the quality of e-government in terms of user satisfaction. The samples of this study are predominantly within the 26-45 year age range when viewed by age distribution. This indicates that the majority of users of the BPS-Statistics Sulawesi Barat Province's official website are in their productive age, typically engaged in the workforce or pursuing higher education. In terms of generational classification, nearly 80 percent of the samples belong to Generation Y and Generation Z, which are considered younger generations that tend to be more adaptive to technology and responsive to changes in public services provided by the government.

Gender classified, the majority of the samples are male. However, the difference is not statistically significant, suggesting that the study has a relatively balanced gender distribution between male and female participants. Most samples are residents of Sulawesi Barat Province, with only 14,08 percent residing outside the province. In terms of educational background and occupation, the majority of respondents hold a bachelor's degree and are employed as civil servants, military personnel, or police officers, working in ministries, government agencies, or research and educational institutions. Most samples obtained

information about the e-government services independently, through search engines, social media, or websites, and have been long-term users of BPS e-government services.

Table 2.
Respondents' Characteristics

Categories	Frequency	Percentage
Age Group		
≤ 25	64	18.39
26-45	222	63.79
46-60	60	17.24
> 60	2	0.57
Generation		
Baby Boomers (1946-1964)	2	0.57
Generation X (1965-1980)	71	20.40
Generation Y (Millennials) (1981-1996)	172	49.43
Generation Z (1997-2012)	103	29.60
Sex		
Male	181	52.01
Female	167	47.99
Dominion		
Sulawesi Barat Province	299	85.92
Others	49	14.08
Education		
≤ High School/Equivalent	44	12.64
Diploma	23	6.61
Bachelor	213	61.21
Postgraduate	66	18.97
Doctoral	2	0.57
Main Occupation		
Student/Researchers/Lecturers	27	7.76
Civil Servants	289	83.05
Private Employees	7	2.01
Self Employed	5	1.44
Others	20	5.75
Information Source		
Self-obtained	170	33.91
BPS Officer	109	26.44
Colleagues/Nearby People	69	19.83
Application Access Time		
< 1 year	25	7.18
1-3 years	91	26.15
4-5 years	48	13.79
> 5 years	184	52.87

Source: primary data processed with RStudio

In addition to conducting causal analysis to examine the influence of independent variables on the dependent variable, this study also includes a descriptive analysis of the responses from 348 samples, which were then scored using the agree-disagree scale. This technique employs a scoring system ranging from a minimum value of 1 to a maximum value of 5.

Table 3.
Score Categories

Score	Category
1.00 – 1.80	Very low
1.81 – 2.60	Low
2.61 – 3.40	Moderate
3.41 – 4.20	High
4.21 - 5.00	Very high

Source: primary data calculated with scale range

Referring to the categories mentioned in Table 3, the subsequent step involves calculating the average score for each variable. This step aims to determine the descriptive assessment of each variable based on the sample's perception. By categorizing the average scores into predetermined intervals, this study examines how system quality, information quality, service quality, digital literacy, and user satisfaction are perceived in terms of their overall performance. The categorized results serve as a basis for further interpretation and discussion.

Table 4.
Samples' Perceptions of the System Quality Variable (X1)

Indicator	Questionnaire Statement	Score
X11	The e-government service application provided by BPS that I use has reliable security features	4.18
X12	The e-government service application provided by BPS that I use has a flexible structure that allows for further advanced development	4.10
X13	The menu navigation in the BPS e-government service application that I use is clear and easy to understand	4.07
X14	The BPS e-government service application that I access is user-friendly and easy to operate	4.18
X15	The BPS e-government service application that I use is efficient in helping me obtain the products I need	4.13
X16	The BPS e-government service application that I use is flexible and of high quality	4.13
X17	The BPS e-government service application that I use is consistently in good condition, with no issues encountered during use.	4.02
X18	The BPS e-government service application that I use provides a fast response and processing time for each click	4.11

Indicator	Questionnaire Statement	Score
X19	The BPS e-government service application that I use has features and an interface that are user-friendly	4.13
System Quality (X1)		4.12

Source: primary data processed with RStudio

Service users' perceptions regarding the quality of the BPS-Statistics Sulawesi Barat Province e-government application system are generally positive. The application is perceived as secure, with a flexible structure for further development, and a clear and easy-to-understand menu navigation. It is user-friendly, responsive, and capable of meeting users' needs. It operates reliably with minimal disruptions and errors, demonstrating a high level of responsiveness and usability. These findings suggest that the e-government service has successfully fulfilled its role as a platform for delivering public services effectively.

Despite the overall positive perception, continuous improvement remains necessary to meet better user expectations, especially concerning indicators that received relatively lower scores. The lowest-scoring indicator within the system quality variable was the statement: "The BPS e-government service application that I use is consistently in good condition, with no issues encountered during use." This item received low scores (1 to 3 on the Likert scale) from 63 respondents (18.10 percent of the total sample). Among those who reported issues, 46.03 percent were members of Generation Z. This suggests that although Millennials make up the majority of respondents, Generation Z users were more likely to disagree with the notion that the application always functions smoothly without errors. Notably, this was the only indicator to receive a negative response from Baby Boomer respondents. System errors and technical issues significantly impact the user experience and may hinder the fulfillment of users' needs. Therefore, BPS must place greater emphasis on monitoring and addressing potential system errors and user-facing challenges during application use.

The second-lowest scoring indicator within the system quality variable was the clarity and comprehensibility of menu navigation. Among the 348 respondents, 15.52 percent disagreed or strongly disagreed that the navigation within the BPS e-government application was straightforward and easy to understand. Notably, among these responses, female users outnumbered male users, making this the only indicator where women were more likely to report difficulties. This finding suggests that the application's navigation remains unclear or difficult to understand for specific users. Straightforward and intuitive navigation is essential for application usability. Even if an application contains all the necessary information, unclear navigation can confuse users and prevent them from accessing relevant content, despite its availability. On the other hand, the indicators with the highest scores were related to security, accessibility, and user-friendly features and interface. While efforts should be made to improve the lower-scoring indicators, BPS should also maintain the strengths reflected in these high-scoring components to ensure continued user satisfaction.

This study examined three dimensions of e-government quality: system quality, information quality, and service quality. Among these, system quality had the lowest average score across all independent variables. Similarly, the lowest-scoring items under the user satisfaction variable were related to application performance and user experience, both of which are core components of system quality. Therefore, if prioritization is required for addressing issues, improving the quality of the application system should be the primary focus in enhancing BPS's e-government services.

Table 5.
Samples' Perceptions of the Information Quality Variable (X2)

Indicator	Questionnaire Statement	Score
X21	The information presented in the BPS e-government service application that I use is easy to understand	4.17
X22	The information presented in the BPS e-government service application that I use is up-to-date	4.17
X23	The information presented in the BPS e-government service application that I use is accurate	4.31
X24	The information presented in the BPS e-government service application that I use is relevant	4.30
X25	The information presented in the BPS e-government service application that I use is comprehensive and meets my needs	4.12
Information Quality (X2)		4.22

Source: primary data processed with RStudio

Service users' perceptions regarding the information quality of BPS e-government services are generally positive. The application is considered to provide information that is easy to understand, up-to-date, accurate, relevant, and comprehensive, meeting users' needs. These findings suggest that the information presented through BPS e-government services has been effective in meeting the informational needs of users.

This variable was measured using five indicators, represented by five statements—three of which received “high” scores and two received “very high” scores. Although users' perceptions of information quality are overall favorable, continuous improvements remain necessary, especially for indicators that received lower scores compared to others. The lowest-scoring item in this variable was the statement: “The information presented in the BPS e-government service application that I use is comprehensive and meets my needs.” This statement received the highest number of low scores (1 to 3) compared to other statements in the information quality variable, with 38 respondents (10.92 percent) expressing dissatisfaction. Notably, 44.75 percent of these respondents had been using BPS e-government services for more than five years. This finding underscores the importance for BPS to identify unmet user needs and take targeted actions to enhance

information quality by providing more comprehensive and relevant content. Particular attention should be paid to long-term users, as their expectations may be higher due to extended exposure to the system.

The statement with the highest score in this variable pertained to the accuracy of information provided through the BPS e-government platform. This high score reflects a strong level of user trust in the accuracy of the information shared by BPS. While efforts should be directed toward improving the lowest-performing indicators, it is equally essential for BPS to maintain and uphold high-performing aspects of the system. Doing so will ensure the overall information quality of BPS e-government services continues to improve significantly.

The statistical analysis also confirms that improvements in information quality have a positive contribution to user satisfaction. High-quality information must align with users' needs, be easy to comprehend, current, accurate, and relevant. Clear and well-targeted information presentation enables users to navigate and utilize e-government services effectively. Periodic evaluations are crucial to ensure that the information remains current and continues to align with the evolving and increasingly diverse needs of users. As information quality improves, user satisfaction will also increase, as users' informational needs are more consistently fulfilled.

Table 6.
Samples' Perceptions of the Service Quality Variable (X3)

Indicator	Questionnaire Statement	Score
X31	The BPS e-government service application that I use presents a clear list of services	4.21
X32	The BPS e-government service application that I use provides reliable services	4.25
X33	The BPS e-government service application that I use offers tangible services that are visible to users	4.29
X34	The BPS e-government service application that I use delivers responsive services	4.22
X35	The BPS e-government service application that I use offers services that adhere to service standards and meet the promised completion timelines	4.27
X36	The BPS e-government service application that I use provides professional services	4.32
Service Quality (X3)		4.26

Source: primary data processed with RStudio

Service quality was the highest-rated variable among all dimensions assessed in this study. Based on user perceptions, the BPS e-government application delivers services that are clear, reliable, tangible, responsive, timely, and professional. These findings suggest that users perceive the quality of BPS e-government services as very high. The aspects of reliability and professionalism demonstrated in service delivery contribute significantly to strengthening users' trust in the BPS-Statistics Sulawesi Barat Province's e-government system.

Although the indicators under the service quality variable received overall high scores, attention must still be given to those with relatively lower ratings. The lowest-scoring indicators within this variable were the clarity of the service list and the responsiveness of service personnel. A total of 27 respondents expressed disagreement (ranging from slightly disagree to strongly disagree) with the statement: “The BPS e-government service application that I use presents a clear list of services.” This suggests that some users still perceive the list of services as unclear and in need of improvement. The service list should be made prominently visible on the most frequently visited pages or the landing page, ensuring that users can immediately identify the available services offered by the BPS e-government application.

Regarding responsiveness, 6.32 percent of respondents disagreed with the statement that the BPS e-government application provides a responsive service. Responsiveness is a vital component of public service, especially within non-traditional platforms that do not involve direct face-to-face interaction and where wait times and response times can vary. Delayed responses from service personnel can result in a negative user experience, particularly for users who require timely access to critical information or services.

On the other hand, the highest-scoring statement within the service quality variable was: “The BPS e-government service application that I use provides professional services.” This indicates that users view the BPS e-government service as delivering public services with a high degree of professionalism. This assessment demonstrates that BPS has successfully established a positive image through the delivery of structured and trustworthy services via its e-government platform. Maintaining and further enhancing professionalism in service delivery is essential. With such strong performance in service quality, BPS must continue to uphold and improve its service standards to meet the evolving expectations of its users.

Table 7.
Samples’ Perceptions of the Digital Literacy Variable (X4)

Indicator	Questionnaire Statement	Score
X41	I am confident in making online payments through any application without assistance	4.26
X42	I am capable of requesting government services online without assistance	4.10
X43	I am confident in my ability to search for information using search engines	4.43
X44	I am confident in uploading posts on websites and social media platforms	4.06
X45	I am confident in engaging in conversations or chats using the internet	4.38
X46	I am confident in my ability to adopt new technologies	4.09

Indicator	Questionnaire Statement	Score
X47	I am confident in my ability to filter information obtained from mass media	4.33
X48	I am not easily influenced by trending information and always conduct my own research before believing the truth of any information	4.33
Digital Literacy (X4)		4.25

Source: primary data processed with RStudio

Users' perceptions of digital literacy within the BPS e-government context are generally categorized as high or good, based on the response scores from the study sample. The majority of respondents demonstrated a strong level of digital literacy. They expressed confidence in conducting payment transactions through any application independently, requesting government services online without assistance, searching for information via search engines, uploading content on websites and social media, engaging in online conversations or chats, adopting new technologies, filtering information from mass media, resisting the influence of trending but potentially misleading news, and consistently conducting personal research before believing in the truthfulness of any given information.

However, the lowest-scoring indicators within this variable were related to the statements: "I am confident in uploading posts on websites and social media platforms" and "I am confident in my ability to adopt new technologies." Among the 348 respondents, 22.41 percent expressed strong disagreement, disagreement, or slight disagreement with the former, while 20.40 percent responded similarly to the latter. These findings suggest that, despite an overall high level of digital literacy, a notable portion of users still lack confidence in sharing content and adopting technology.

This insight offers valuable input for the future development of BPS e-government services, particularly in designing systems that accommodate varying levels of user familiarity with digital tools. Application features should avoid overly complex processes, such as requiring excessive file uploads or presenting unclear navigation flows, that may deter users with lower technological confidence. Conversely, the statement "I am confident in my ability to search for information using search engines" received the highest average score (4.43), with no respondents selecting "strongly disagree." This suggests that users are generally accustomed to and confident in navigating the internet to obtain the information they need.

Table 8.
Samples' Perceptions of the User Satisfaction Variable (Y)

Indicator	Questionnaire Statement	Score
Y11	I am satisfied with the performance of the BPS e-government service application that I use	4.22
Y12	I am satisfied with the experience I have gained while using the BPS e-government service application	4.23
Y13	I am satisfied with the quality of information provided in the BPS e-government service application that I use	4.26

Indicator	Questionnaire Statement	Score
Y14	I am satisfied with the services delivered through the BPS e-government service application that I use	4.29
Y15	I am satisfied with the BPS e-government service application because it fulfills my needs	4.24
Y16	I am satisfied with the ease of access to the BPS e-government service application	4.28
Y17	Overall, I am satisfied with the BPS e-government service application that I use	4.26
User Satisfaction (Y)		4.25

Source: primary data processed with RStudio

Table 8 shows that the average total score for the User Satisfaction variable (Y) is 4.25, which falls into the “Very High” category. Among the seven statements under this variable, all were rated within this highest category. The highest score was recorded for the statement: “I am satisfied with the services delivered through the BPS e-government service application that I use” with an average score of 4.29. This indicates that, from the users' perspective, the majority are highly satisfied with the services offered through the BPS e-government application.

In contrast, the lowest score was associated with the statement: “I am satisfied with the performance of the BPS e-government service application that I use” which received a score of 4.22. Although this still falls within the “Very High” category, it represents the lowest perceived satisfaction level among all statements within this variable. A total of 2,436 responses were recorded across the seven statements related to the User Satisfaction variable: 1,476 respondents selected “Agree,” 802 selected “Strongly Agree,” 138 selected “Somewhat Disagree,” 15 selected “Disagree,” and five selected “Strongly Disagree.” Overall, these results indicate that users are highly satisfied with the e-government application services provided by BPS.

Regression Analysis

F-test is conducted to examine whether system quality, information quality, service quality, and digital literacy simultaneously influence user satisfaction significantly. With a 95 percent confidence interval, the results show that $p\text{-value} < \alpha$, which means the dependent variables simultaneously influence the independent variable significantly.

Table 9.
F-test Result

Test	F value	p-value	Alpha
F-test	260,9	2,2e-16	0,05

Source: primary data processed with RStudio

Based on Table 9, the data analysis results indicate that the F-value obtained is 260,9. This high F-statistic strongly suggests that the overall regression model simultaneously exerts a highly significant influence on user satisfaction with e-government services. The associated p-value is 2.2e-16, which is a minimal value far below the commonly used significance level of $\alpha = 0.05$. This means that the null hypothesis, which states that all independent variables together have no significant effect on the dependent variable, is rejected. The exceptionally small p-value also implies a very high level of confidence in rejecting the null hypothesis, reinforcing the validity and robustness of the model used in this study. The magnitude of the F-value reflects the strength of the joint contribution of system quality, information quality, service quality, and digital literacy in explaining the variation in user satisfaction. This indicates that the proposed model accurately fits the data, and there is strong statistical evidence that the independent variables collectively have a significant and positive impact on the dependent variable.

The t-test is then conducted to determine whether each independent variable has a statistically significant partial influence on the dependent variable. The independent variable has a significant partial influence on the dependent variable when the t-value is greater than the t-table value and the p-value is less than the alpha (0.05). Conversely, if the t-value is lower than the t-table and the p-value is greater than 0.05, then the independent variable does not have a statistically significant partial influence on the dependent variable.

Table 10.
t-test Result

Variable	t-value	p-value	Alpha
System Quality (X1)	4.657	4.60e-06	0.05
Information Quality (X2)	4.546	6.38e-15	0.05
Service Quality (X3)	8.161	6.38e-15	0.05
Digital Literacy (X4)	-0.054	0.9569	0.05

Source: primary data processed with RStudio

Based on Table 10, the data analysis results indicate a t-value of 4.657 and a p-value of 4.6e-06. Since the p-value is substantially lower than the significance level ($\alpha = 0.05$), the null hypothesis is rejected. These findings provide strong evidence that system quality has a statistically significant partial effect on user satisfaction. This result also implies that any increase in the system quality will have a significant impact on user satisfaction.

Ensuring the quality of the system is crucial for enhancing the performance of e-government services, thereby delivering better public services with shorter and more streamlined service processes. Indicators of system quality encompass security, structure, navigation, accessibility, efficiency, flexibility, error-free operation, responsiveness, and user-friendliness. These indicators must be prioritized, as they directly affect the user experience when interacting with e-government service applications. Enhanced system quality ultimately contributes to higher user satisfaction.

For the information quality variable, the data analysis yielded a t-value of 4.546 and a p-value of 6.38e-15. Since the p-value is considerably smaller than the significance level, the null hypothesis is rejected. These

results provide strong evidence that this variable has a statistically significant partial effect on Y. This also indicates that any improvement in the variable will have a considerable positive impact on user satisfaction. Information quality is a critical aspect that must be addressed to ensure that the information delivered to users aligns with their needs, is easy to understand, up-to-date, accurate, and relevant. Clear and well-targeted information presentation enables users to access and utilize e-government services effectively. Periodic evaluations are also necessary to ensure that the information remains current and aligned with the increasingly diverse and evolving needs of users. Improved information quality contributes to higher user satisfaction by fulfilling users' informational needs.

For the service quality variable, the data analysis produced a t-value of 8.161 and a p-value of 6.38e-15. Since the p-value is far smaller than the significance level ($\alpha = 0.05$), the null hypothesis (H_0) is rejected. These results provide strong evidence that variable X3 has a statistically significant partial effect on Y. This implies that any improvement in the Service Quality variable will have a considerable positive impact on User Satisfaction. The test results indicate that enhancing service quality leads to increased user satisfaction. Among all the variables examined, service quality shows the highest correlation coefficient, suggesting that it has the most substantial influence on user satisfaction compared to application system quality, information quality, and digital literacy.

Lastly, for the digital literacy variable, the data analysis yielded a t-value of -0.054 and a p-value of 0.9569. Since the p-value is greater than the significance level, the null hypothesis is accepted. These results provide strong evidence that digital literacy has no statistically significant partial effect on user satisfaction. The test results suggest that digital literacy has no significant impact on user satisfaction. This suggests that digital literacy is not a significant predictor of user satisfaction with e-government services. This finding contrasts with a study conducted by Abdulkareem & Ramli (2021), which concluded that digital literacy has a significant impact on user satisfaction. Their research suggests that users with a higher level of knowledge about information and communication technology are better equipped to utilize e-government portals and are more capable of articulating their satisfaction levels. Research that examines the relationship between digital literacy and user satisfaction remains limited. Further studies are needed to explore this variable, particularly by involving samples with diverse characteristics and incorporating mediating variables to gain a deeper understanding.

Discussion

The results of this study confirm that system quality, information quality, and service quality significantly influence user satisfaction with the BPS e-government service platform in Sulawesi Barat Province. These findings are consistent with the D&M IS Success Model, which emphasizes the importance of these three dimensions in determining the success of information systems. The model suggests that high-quality systems, relevant and accurate information, and reliable service delivery are key factors in shaping positive user experiences and satisfaction.

System quality was found to have a significant effect on user satisfaction. This suggests that the technical aspects of the BPS e-government platform, such as ease of navigation, user interface design, system reliability, and responsiveness, play a critical role in influencing users' perceptions. When the system functions smoothly, is free from errors, and is user-friendly, users are more likely to feel satisfied with their interaction. This result supports previous studies such as those by Suranto (2022) and Alwi et al. (2023), which also found a strong correlation between system quality and user satisfaction. The findings also highlight that for users in Sulawesi Barat, smooth system operation is not only expected but considered essential in public digital service delivery.

Information quality also showed a statistically significant influence on user satisfaction. The clarity, accuracy, timeliness, and relevance of the information presented on the BPS e-government platform contributed positively to users' evaluations. This aligns with studies by Wang & Liao (2008) and Abdulkareem & Ramli (2021), who emphasized that public trust and satisfaction are largely determined by the credibility and usefulness of the information provided by government portals. In regions where misinformation or outdated content can easily reduce public trust, maintaining high-quality information becomes particularly important.

Among all the independent variables, service quality had the strongest influence on user satisfaction. The professionalism, responsiveness, and reliability of digital public services provided by BPS were perceived positively by the users. This finding reinforces the importance of human-centered elements in e-government services, even in digital platforms where face-to-face interactions are absent. When users perceive that they are well-supported and that their needs are addressed promptly and professionally, their satisfaction increases significantly. This result echoes findings from Petter et al. (2013) and Nam et al. (2024), which emphasized that perceived service quality remains a dominant predictor of satisfaction, even in digital environments.

On the other hand, digital literacy was found to have no significant partial effect on user satisfaction, despite scoring high in descriptive analysis. This indicates that while users generally perceive themselves as digitally competent, variations in digital literacy levels among respondents did not statistically explain differences in satisfaction levels. This finding may reflect a relatively uniform level of digital skill among users of the BPS website, or it may suggest that the platform is sufficiently intuitive, reducing the impact of individual differences in digital capability. This result contrasts with studies such as Abdulkareem & Ramli (2021), who found digital literacy to be a significant predictor of satisfaction. The difference may be due to contextual factors such as platform usability, demographic composition, or levels of ICT exposure among respondents. It is also possible that digital literacy influences satisfaction indirectly. For example, by moderating the effect of system quality or information quality, which was not tested in this study.

The findings also demonstrate that service quality received the highest average score, followed closely by information quality and system quality. However, system quality had the lowest score among the three, indicating room for improvement, particularly in areas such as consistent system performance and clarity of menu navigation. Feedback from respondents revealed that Generation Z users and some female users were

more likely to report issues related to unclear navigation and occasional technical glitches. These insights suggest the need for BPS to continue improving user experience by simplifying interface designs and addressing technical stability issues.

Furthermore, the data revealed that users with longer exposure to the platform had higher expectations regarding information quality, especially in terms of content comprehensiveness. This suggests that long-term users may be more critical and demand more personalized or advanced information features. Therefore, maintaining and continuously updating content is crucial to retain the satisfaction of experienced users. In summary, the results provide strong support for the applicability of the D&M IS Success Model in evaluating user satisfaction in a regional Indonesian e-government context. The findings validate the importance of system, information, and service quality while also offering a nuanced understanding of how digital literacy may or may not directly influence satisfaction outcomes. These insights not only contribute to the academic literature but also provide practical recommendations for improving the design and delivery of digital public services in Indonesia.

CONCLUSIONS

Based on the findings and discussion, all independent variables significantly influence user satisfaction when tested simultaneously. However, digital literacy does not have a significant partial effect. Despite this, the inclusion of digital literacy enriches the model by offering a broader perspective on user characteristics, especially within a heterogeneous population. The study contributes theoretically by extending the D&M IS Success Model with a user capability dimension. Although the direct effect of digital literacy was not significant, it may play a role indirectly or as a moderating factor, which warrants further investigation. This study is limited by its cross-sectional design and its focus on one regional e-government platform, which may affect generalizability. In addition, digital literacy was measured through self-perception, which may not fully reflect actual skill levels. Digital literacy and its impact on user satisfaction in e-government services remain in their early stages and require further exploration. Future research should consider using longitudinal approaches, testing the model in various regional contexts, and exploring the role of digital literacy through mediating or moderating variables to provide a deeper understanding of user satisfaction in e-government services.

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