

Usability Evaluation of the SanguPalu E-Government Mobile Application Using PSSUQ and UMUX: a Case Study in Palu

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Abstract

The SanguPalu mobile application is a e-government digital service platform developed by the Palu City Government to enhance accessibility, transparency, and efficiency in public service delivery. Despite its comprehensive features, user feedback indicates issues related to interface clarity, navigation efficiency, and system consistency, suggesting potential usability problems. This study aims to evaluate the usability level of the SanguPalu application using a descriptive quantitative approach integrating the Post-Study System Usability Questionnaire and the Usability Metric for User Experience. Data were collected from 118 active users through an online survey. Usability was assessed using average scores of PSSUQ subscales and a global UMUX score. The results show that system usefulness achieved a score of 2.87 (upper limit), while information quality obtained a score of 2.87 (lower limit). Interface quality recorded the highest score of 3.09 (above upper limit), indicating the most critical usability issue. The overall PSSUQ score was 2.93 (upper limit). The UMUX analysis produced a score of 65.20, reflecting a marginal-to-high usability level consistent with the PSSUQ findings. By combining subscale-specific and global usability measurements, this study offers a more nuanced understanding of usability issues in a local government mobile application context. These findings indicate that while SanguPalu adequately supports core service functions, improvements in interface design and navigation structure are essential to strengthen user satisfaction and overall service quality.

Keywords: Mobile Application, Usability, SanguPalu, PSSUQ, UMUX.

I. INTRODUCTION

Digital transformation has become one of the key pillars of urban development in Indonesia, demanding collaboration among the government, private sector, and society in building an ecosystem of public services based on information technology [1]. The central government promotes the acceleration of digital transformation through the enhancement of e-government services to make public administration processes more efficient, transparent, and accessible [2]. One form of implementation at the regional level is the development of integrated mobile applications that provide various public services digitally [3].

Palu City is among the regions participating in this initiative by launching the SanguPalu application on September 27, 2023, as an effort to present multiple public services within a single digital platform. The application offers various features such as local news, a mayoral complaint service, public transportation information (TransPalu), village administration services, and a local product marketplace [4]. The latest update in March 2025 shows that the Palu City

Government is still actively maintaining the system. Nevertheless, regular updates alone do not necessarily guarantee that users will accept or be satisfied with it. In the context of digital public services, success largely depends on the level of usability, which refers to how effectively, efficiently, and satisfactorily users are able to interact with the system [5].

Many e-government applications in Indonesia have faced adoption challenges despite offering comprehensive features. Common issues such as non-intuitive interfaces, slow system performance, and complex navigation structures often result in a mismatch between potential and actual user engagement [6]. A similar issue was observed in the SanguPalu application based on preliminary observations and informal user interviews. Several users reported that the interface appeared confusing and that certain features, such as TransPalu, were difficult to use due to inconsistent navigation design. User feedback on the Play Store also highlighted comparable concerns, particularly regarding registration errors and service connection failures, as illustrated in Figures 1 and 2 below.



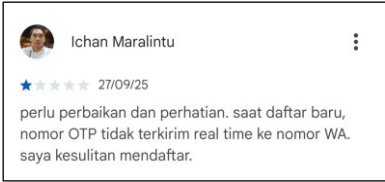


Figure 1. User Review on Registration Issue

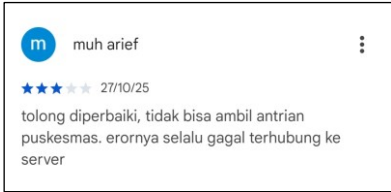


Figure 2. User Review on Server Connection Failure

The user reviews presented in Figures 1 and 2 demonstrate concrete usability issues encountered in the SanguPalu application, particularly during the initial stages of user interaction. Figure 1 shows complaints about delayed OTP delivery, which prevented users from completing the registration process in real time. Meanwhile, Figure 2 highlights server connection failures that disrupted access to public service features such as health center queue management. Such usability problems are commonly reported in e-government mobile applications. However, they are often addressed only as technical incidents rather than being systematically evaluated through standardized usability assessment methods to understand their broader impact on user experience and service adoption [7].

The usability challenges of public applications in Palu City cannot be separated from the context of its citizens’ digital literacy. According to the 2025 Indonesian Digital Society Index (*Indeks Masyarakat Digital Indonesia / IMDI*), the digital empowerment pillar score of Palu City reached only 35.88, which is below the national average [8]. This indicates that some residents still face limitations in optimizing digital services [9]. Therefore, the usability issues of *SanguPalu* are not purely technical but are also associated with the digital capability gap among users. Technically adequate features may not be effectively utilized by all user groups, particularly users with low levels of digital literacy, as prior studies have demonstrated that limited digital skills significantly constrain users’ ability to navigate, comprehend, and fully benefit from e-government and mobile public service applications [10].

Previous studies on e-government and public service mobile applications in Indonesia have examined usability issues across different service scopes. Handasari et al. (2024) evaluated the usability of the national-scale JKN mobile application using a combination of the System Usability Scale (SUS) and the User Experience Questionnaire (UEQ), reporting that although the application adequately supports core services, challenges related to interface consistency and user interaction persist among diverse user groups [11]. Kusumaningtyas et al. (2024) assessed the usability of the Depok Single Window application as a local e-government platform using SUS and found that the integration of multiple public services within a single application increased navigation

complexity and user cognitive load [12]. Similarly, Putera et al. (2024) analyzed the usability of the Pekanbaru Dalam Genggaman application using SUS and showed that, despite offering comprehensive service features, the application faced limitations in terms of learnability and interaction efficiency [13].

However, existing studies on e-government mobile applications have shown that usability evaluation plays an important role in understanding user interaction with digital public services. Empirical research, however, remains largely concentrated on national-level systems or major cities, while medium-sized urban contexts such as Palu are still relatively underrepresented, despite differences in user characteristics and service usage patterns. In addition, prior studies adopt usability evaluation methods with varying focuses, ranging from general usability perception to specific aspects of user experience. Building on this context, the present study examines the usability of the SanguPalu application by applying the Post-Study System Usability Questionnaire (PSSUQ), which evaluates system usefulness, information quality, and interface quality, alongside the Usability Metric for User Experience (UMUX) as a global usability measure. This approach allows for a more nuanced interpretation of usability conditions within a local government mobile application context.

Accordingly, this study aims to examine the usability of the SanguPalu mobile application by identifying key usability issues experienced by users and evaluating how these issues affect interaction with local e-government services. The findings are expected to contribute empirical insights that support interface improvement, system efficiency, and user satisfaction in the implementation of user-centered public service applications at the local government level.

II. RESEARCH METODOLOGY

A. Research Approach

This study adopts a descriptive quantitative approach using a survey-based research design to evaluate the usability of the SanguPalu mobile application from the perspective of end users. The research design focuses on the systematic measurement of perceived usability through standardized instruments, enabling consistent data collection and quantitative comparison.

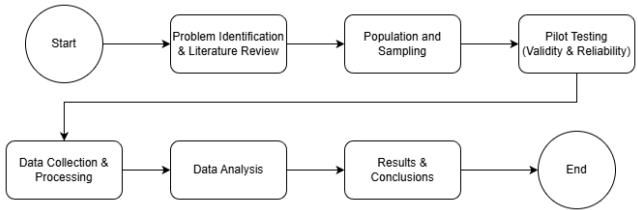


Figure 3. Research Workflow

Based on the established research design in Figure 3, the study is conducted through a structured sequence of methodological stages, beginning with problem identification



and literature review, followed by population determination and sampling, instrument validation through pilot testing, and subsequent data collection and analysis.

B. Population and Sample

The population of this study comprises all active users of the SanguPalu mobile application in Palu City. As official data regarding the total number and distribution of active users are not available, the study applies a probabilistic approximation approach to determine an adequate sample size. Accordingly, the Lemeshow formula is employed to estimate the minimum required sample for a large or unknown population [14]. The sample size calculation is conducted using a 95% confidence level and a 10% margin of error. While a 95% confidence level is commonly adopted in quantitative studies, the margin of error is set at 10% to accommodate the exploratory nature of this usability evaluation, which aims to capture a general representation of user perceptions rather than precise population parameters. The minimum sample size was determined using the Lemeshow formula, as presented in Equation 1 [15].

$$n = \frac{z^2 \times p(1-p)}{d^2} \quad (1)$$

$$n = \frac{1,96^2 \times 0,5(1-0,5)}{0,10^2}$$

$$n = 96,04$$

With parameters defined as follows:

n = required sample size

Z = Z-value for confidence level (e.g., 1.96 for 95%)

P = estimated population proportion (use 0.5 if unknown)

d = margin of error

Based on the calculation results, the minimum required sample size was determined to be 96 respondents. This sample size is considered adequate for conducting usability analysis.

C. Pilot Testing

Prior to the main data collection, a pilot testing stage was conducted to evaluate the validity and reliability of the usability measurement instruments employed in this study, namely the Post-Study System Usability Questionnaire (PSSUQ) and the Usability Metric for User Experience (UMUX). Although both instruments have been widely validated and applied in previous usability studies, differences in cultural context, language usage, and application characteristics may influence their measurement performance. Therefore, empirical validation using the target user population was necessary before proceeding to the main usability analysis.

Validity testing was performed by examining the correlation between each questionnaire item and the total score using Pearson's correlation coefficient. An item was considered valid if the obtained correlation coefficient exceeded the critical value at a 5% significance level using a two-tailed test. Reliability testing was conducted to assess internal consistency through Cronbach's alpha, where a coefficient value of 0.7 or higher indicates acceptable

reliability. A summary of the reliability interpretation for each instrument is presented in Table 1.

Table 1. Internal Consistency Reliability

Cronbach's Alpha Value	Internal Consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

The pilot testing involved 30 respondents who represent active users of the SanguPalu mobile application. With a sample size of 30 respondents and a significance level of 5%, the critical r-value was determined to be 0.361. Accordingly, each questionnaire item was considered valid if its calculated correlation coefficient exceeded this threshold.

Table 2. Validity Test of PSSUQ items

Item	r-calculated	r-table
1	0.873	0.361
2	0.922	0.361
3	0.798	0.361
4	0.887	0.361
5	0.749	0.361
6	0.828	0.361
7	0.907	0.361
8	0.866	0.361
9	0.927	0.361
10	0.841	0.361
11	0.843	0.361
12	0.866	0.361
13	0.838	0.361
14	0.833	0.361
15	0.891	0.361
16	0.870	0.361

Table 3. Validity Test of UMUX Items

Item	r-calculated	r-table
1	0.727	0.361
2	0.743	0.361
3	0.753	0.361
4	0.754	0.361

Tables 2 and 3 summarize the item validity assessment results for the PSSUQ and UMUX instruments. All items satisfied the predefined validity requirements and were therefore retained for subsequent reliability evaluation. Following the completion of the validity assessment stage, reliability testing was performed to assess the consistency of the validated instruments.

Table 4. Reliability Test of PSSUQ Items

PSSUQ Subscale	N of Items	Cronbach's Alpha
System Usefulness	6	0.939
Information Quality	6	0.944
Interface Quality	3	0.891
Total (Overall)	16	0.976

Table 5. Reliability Test of UMUX Items

N of Items	Cronbach's Alpha
4	0.939

Tables 4 and 5 show that the Cronbach's alpha values obtained for the PSSUQ and UMUX instruments exceed the established threshold, indicating acceptable internal consistency across all items. Based on the predefined validity and reliability criteria, the instruments were deemed appropriate for use in the main data collection phase.

D. Data Collection and Processing

Data collection was conducted after the usability measurement instruments had successfully passed the pilot testing stage. The main data were collected using an online questionnaire administered through Google Forms. A purposive sampling technique was applied to ensure that the collected responses were obtained from relevant users. The inclusion criteria required respondents to have prior experience using the SanguPalu mobile application, be at least 18 years old to ensure sufficient cognitive maturity in providing valid responses, and be willing to participate by completing the questionnaire fully and honestly. A total of 150 responses were initially collected through the online questionnaire distribution. In addition to usability-related items, the questionnaire collected demographic information, including age, gender, duration of application usage, frequency of use, and commonly used features, to provide contextual information about the respondent profile.

The collected data were exported from Google Forms in spreadsheet format and processed using Microsoft Excel and IBM SPSS Statistics version 27. Response completeness was enforced at the questionnaire level to prevent missing data. Data cleaning procedures included the removal of duplicate entries and the identification of straight-lining responses. Responses that did not meet these data quality criteria were excluded during the preprocessing stage. As a result of this process, 118 valid responses were retained and used for usability score computation based on the PSSUQ and UMUX measurement procedures.

E. Usability Measurement

The usability evaluation in this study adopts a questionnaire-based measurement approach using the Post-Study System Usability Questionnaire (PSSUQ) and the Usability Metric for User Experience (UMUX). The PSSUQ is selected due to its high sensitivity in measuring perceived usability. The instrument is capable of detecting differences across a wide range of variables, including system type, user group characteristics, years of system use, levels of experience with different systems, stages of system

development, and evaluation contexts [16]. Its multidimensional structure enables a detailed assessment of usability from the perspectives of system, information, and interface, making it suitable for capturing variations in user perception across heterogeneous user populations.

The UMUX instrument is employed as a complementary measure because it provides a concise global usability indicator using only four items, allowing efficient data collection without imposing excessive response burden. Despite its brevity, UMUX is designed to capture users' overall perception of how usable a system is, rather than identifying specific usability issues or system components [17]. For this reason, UMUX is effectively combined with PSSUQ, as the two instruments jointly provide both a high-level usability summary and a more detailed diagnostic perspective.

1) Post-Study System Usability Questionnaire

The Post-Study System Usability Questionnaire (PSSUQ) is a questionnaire designed to measure user satisfaction with a computer system or application. Initially, PSSUQ was developed as an internal IBM project under the name System Usability Metrics (SUMS), led by Suzanne Henry. The first version of PSSUQ consisted of 18 questions. However, since one of the five characteristics was not well accommodated, a second version was developed with 19 questions [18]. After several years of use, reliability analysis indicated that three questions in the second version were less relevant, resulting in the third version of PSSUQ consisting of 16 questions.

The current version of PSSUQ uses a 7-point Likert scale ranging from 1 (strongly agree) to 7 (strongly disagree), where lower scores indicate higher usability satisfaction [19]. The PSSUQ instrument consists of four subscales: Overall Satisfaction, System Usefulness (SysUse), Information Quality (InfoQual), and Interface Quality (InterQual). The System Usefulness subscale measures the perceived ease of use, efficiency, speed, and reliability of the system, representing its technical performance and effectiveness in supporting task completion. The Information Quality subscale evaluates the adequacy, clarity, and relevance of the information presented by the system in fulfilling user needs. Meanwhile, the Interface Quality subscale reflects the extent to which the interface design, features, and functionalities contribute to a positive user experience, particularly in terms of visual design, navigability, and interaction consistency [20]. The following Table 6 presents the items of the PSSUQ questionnaire employed in this study.

Table 6. PSSUQ Questionnaire Items [21]

No.	Item
1	Overall, I am satisfied with how easy it is to use SanguPalu
2	It was simple to use SanguPalu
3	I was able to complete the tasks and scenarios quickly using SanguPalu
4	I felt comfortable using SanguPalu
5	It was easy to learn to use SanguPalu

6	I believe I could become productive quickly using SanguPalu
7	SanguPalu gave error messages that clearly told me how to fix problem
8	Whenever I made a mistake using SanguPalu, I could recover easily and quickly
9	The information (such as online help, on-screen messages, and other documentation) provided with SanguPalu was clear
10	It was easy to find the information I needed in SanguPalu
11	The information provided by SanguPalu was effective in helping me complete the tasks and scenarios
12	The organization of information on SanguPalu screens was clear
13	The interface of SanguPalu was pleasant
14	I liked using the interface of SanguPalu
15	SanguPalu has all the functions and capabilities I expect it to have
16	Overall, I am satisfied with SanguPalu

The PSSUQ provides preliminary norms that are used as reference values for interpreting the obtained usability scores. The PSSUQ version 3 preliminary norms are presented in Table 7. These norms define a range consisting of a lower limit, mean, and upper limit for each subscale, where scores closer to the lower limit indicate better perceived usability, the mean represents the average usability level derived from prior empirical studies, and values approaching the upper limit reflect relatively lower perceived usability [22].

Table 7. PSSUQ Version 3 Norms

Subscale	Lower Limit	Mean	Upper Limit
System Usefulness	2.57	2.80	3.02
Information Quality	2.79	3.02	3.24
Interface Quality	2.28	2.49	2.71
Overall	2.62	2.82	3.02

The average score for each PSSUQ subscale was calculated based on the respondents item scores, as formulated in Equation 2 [23]:

$$\text{Subscale Score} = \frac{\text{EScore of Subscale Items}}{\text{Number of Items in Subscale}} \quad (2)$$

Specifically, the subscale scores are calculated as follows:

1. Overall: average score of items 1–16.
2. System Usefulness: average score of items 1–6.
3. Information Quality: average score of items 7–12.
4. Interface Quality: average score of items 13–15.

The calculated subscale scores were subsequently used as the primary input for usability analysis and comparison in the results stage.

2) Usability Metric for User Experience

The Usability Metric for User Experience (UMUX) is a concise standardized questionnaire designed to measure

perceived usability efficiently with fewer items compared to traditional instruments like System Usability Scale (SUS) [24]. UMUX aligns with the ISO 9241-11 usability definition, focusing on effectiveness, efficiency, and satisfaction [25]. The questionnaire consists of four items that evaluate the extent to which a system meets user needs and expectations regarding usability. The following Table 8 presents the items of the UMUX questionnaire employed in this study.

Table 8. UMUX Questionnaire Items [26]

No.	Item
1	SanguPalu's capabilities meet my requirements.
2	Using SanguPalu is a frustrating or disappointing experience.
3	SanguPalu is easy to use.
4	I spend too much time correcting errors when using SanguPalu.

In this study, UMUX employs a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Scoring adjustments are made such that positively worded items (items 1 and 3) have scores calculated by subtracting 1 from the user response, while negatively worded items (items 2 and 4) have scores calculated by subtracting the user response from 5 [27]. The UMUX score is calculated using the Equation 3:

$$UMUX = \frac{(Item_1 - 1) + (5 - Item_2) + (Item_3 - 1) + (5 - Item_4)}{16} \times 100 \quad (3)$$

This transformation produces a standardized usability score on a 0–100 scale, which was subsequently used for usability analysis and interpretation in the Results and Discussion section.

III. RESULTS AND DISCUSSION

A. Demographic Characteristics of Users

This section presents the demographic characteristics of respondents involved in the usability evaluation of the SanguPalu mobile application. The demographic data provide contextual information regarding user profiles and serve as supporting information for the interpretation of the usability evaluation results (Table 9).

Table 9. Age Distribution of Users

Age Range	Respondents	Percentage
18–25 years old	38	32%
26–35 years old	37	31%
36–45 years old	34	29%
> 45 years old	9	8%

The age distribution of users shows that the largest proportions fall within the 18–25 and 36–45 age groups, accounting for approximately 32% and 31% of the total sample, respectively. This distribution suggests that the SanguPalu application is primarily accessed by users within

productive age ranges who are generally familiar with digital technologies (Table 10).

Table 10. Gender Distribution of Users

Gender	Respondents	Percentage
Male	62	53%
Female	56	47%

The gender composition of respondents is relatively balanced, with male users comprising 53% of the sample and female users accounting for 47%.

Table 11. Duration of Application Use

Duration of Use	Respondents	Percentage
Under 1 Month	39	33%
1–3 Months	29	25%
4–6 Months	27	23%
Over 6 Months	23	19%

The distribution of application usage duration is relatively balanced across categories, indicating varying levels of user experience with the SanguPalu application (Table 11). This variation provides a broad representation of users with different degrees of familiarity with the system.

Table 12. Frequency of Application Use

Frequency of Use	Respondents	Percentage
Rarely/Irregular	58	49%
Monthly	40	34%
Weekly	14	12%
Daily	6	5%

The frequency of application use (Table 12) shows that a considerable proportion of respondents access the SanguPalu application rarely or irregularly (49%), followed by users who report monthly usage (34%).

Table 13. Most Frequently Used Features

Features	Respondents	Percentage
Essential Contact Numbers	31	26%
Public Complaint Services	28	24%
Emergency services	22	19%
E-Subdistrict	14	12%
TransPalu	12	10%
Palu Health Services	8	7%
Local MSME Products	3	2%

The most frequently used features of the SanguPalu application (Table 13) include access to important contact numbers (26%) and public complaint services (24%). These features are primarily utilized for emergency-related information and civic reporting, highlighting the application's role in facilitating public service access.

B. PSSUQ Questionnaire Results

The PSSUQ results provide an overview of users' perceived usability of the SanguPalu mobile application

across multiple usability dimensions. The analysis yields one overall usability score and three subscale scores, reflecting user perceptions of system, information, and interface aspects. A summary of the descriptive statistics for each PSSUQ subscale and the overall score is presented in Table 14.

Table 14. Average Score of PSSUQ Overall and Subscales

Respondents	PSSUQ Subscale Score			
	SysUse	InfQual	IntQual	Overall
R1	3.50	3.50	3.00	3.38
R2	2.67	3.33	4.00	3.25
R3	4.00	4.00	4.00	4.00
R4	2.50	3.33	2.67	3.00
R5	4.83	3.83	2.67	3.88
....				
R58	4.17	3.00	4.00	3.69
R59	3.83	5.00	6.00	4.81
R60	1.67	2.33	2.67	2.25
R61	1.17	2.33	3.33	2.06
R62	2.50	3.33	3.33	2.94
....				
R114	2.17	3.33	3.67	2.88
R115	3.67	2.83	2.67	3.31
R116	3.67	2.50	2.33	2.94
R117	2.67	2.00	2.33	2.44
R118	2.00	2.67	4.33	2.88
Avg. Score	2.87	2.87	3.09	2.93

To facilitate interpretation, the obtained PSSUQ scores were evaluated by comparing the average values of each subscale and the overall score with the corresponding lower limit (LL), mean (M), and upper limit (UL) based on the preliminary norms defined in the PSSUQ assessment framework. This comparison is summarized in Table 15 and visually illustrated in Figure 4 to highlight relative usability performance across dimensions.

Table 15. Comparison of PSSUQ Scores with Norms

SS	LL	M	UL	ARS	Category
SysUse	2.57	2.80	3.02	2.87	Upper Limit
InfoQual	2.79	3.02	3.24	2.87	Lower Limit
InterQual	2.28	2.49	2.71	3.09	> Upper Limit
Overall	2.62	2.82	3.02	2.93	Upper Limit

Notes: SS = Subscale; LL = Lower Limit; M = Mean; UL = Upper Limit; ARD = Average Respondent Score

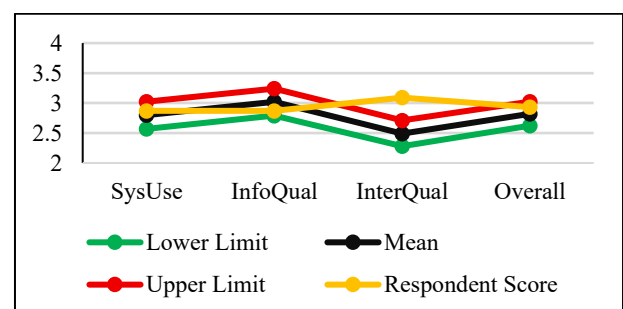


Figure 4. Visualization of PSSUQ Scores Relative to Norms

As shown in Table 15, the System Usefulness subscale recorded an average score of 2.87, which is close to its upper limit value of 3.02. This result indicates that the core functions of the SanguPalu application are generally usable and capable of supporting intended public service tasks, although minor inefficiencies remain. In the context of a public service application, this finding is significant because functional adequacy is a fundamental requirement for ensuring that users can complete essential tasks without excessive effort or error.

The Information Quality subscale yielded an average score of 2.87, slightly below its benchmark mean value. This result suggests that the information provided by the application is generally relevant and sufficiently complete to support user needs. However, the proximity of the score to the benchmark indicates room for improvement, particularly in terms of consistency and clarity across different service modules. For public service applications, information quality is critical, as unclear or inconsistent information can directly affect users' trust and decision-making processes.

In contrast, the Interface subscale obtained an average score of 3.09, exceeding its upper limit threshold of 2.71. This result indicates significant usability issues related to interface design. The divergence between relatively acceptable system and information scores and the poorer interface score represents an important usability anomaly. While the application is functionally capable, interface-related issues may increase cognitive effort and hinder efficient navigation, which is particularly critical for applications intended for public use.

The overall PSSUQ score of 2.93 falls within the upper limit category, indicating that the SanguPalu application is usable at a basic level but exhibits vulnerabilities that may affect long-term user acceptance. In usability studies, an overall score approaching the upper threshold typically signals that usability improvements are necessary to prevent potential declines in user engagement, especially for applications intended for repeated public use.

This usability pattern is consistent with the findings reported by Riyadi (2023) in a PSSUQ-based usability evaluation of the Belanjo local application, where the Interface Quality subscale exceeded the upper limit while the System Usefulness subscale approached the upper threshold, indicating the need for serious attention to interface-related issues despite acceptable functional performance [21]. Similarly, Fauzi et al. (2023), in a study focused on improving user interface design of the BMKG Info application, employed PSSUQ as a usability evaluation instrument and highlighted interface design as a dominant factor influencing overall user perception [28].

C. UMUX Questionnaire Results

The UMUX results are used to provide a concise assessment of how usable the SanguPalu application is from the users' overall perspective. To facilitate interpretation, the UMUX scores were mapped to established usability interpretations, including grade equivalence and adjective rating scales. The summary of the UMUX scores obtained in this study is presented in Table 16.

Table 16. Average Respondent UMUX Scores

Respondents	Questionnaire Items				UMUX Score
	Q1	Q2	Q3	Q4	
R1	3	3	3	3	50.00
R2	3	3	3	3	50.00
R3	4	2	4	4	62.50
R4	3	1	4	2	75.00
R5	4	2	4	3	68.75
....					
R58	4	2	4	2	75.00
R59	3	4	2	4	31.25
R60	5	2	5	2	87.50
R61	5	1	5	2	93.75
R62	2	3	2	4	31.25
....					
R114	4	2	4	2	75.00
R115	3	3	3	3	50.00
R116	4	2	4	2	75.00
R117	4	1	5	2	87.50
R118	4	2	4	2	75.00
Average Respondent Score					65.20

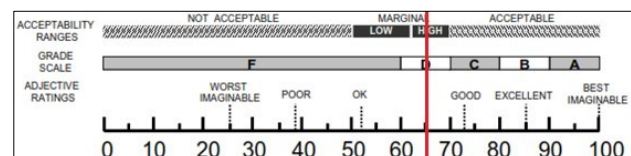


Figure 5. Interpretation of UMUX Usability Score

Table 16 shows that the UMUX average score for the SanguPalu application is 65.20, which is below the commonly referenced usability benchmark of 70. Based on the SUS-equivalent interpretation, this score places SanguPalu in the Marginal–High usability range, indicating that the application is usable but has not yet reached a level of optimal overall usability. As illustrated in Figure 5, when interpreted using the grade equivalence and adjective rating scales, the UMUX score corresponds to a D grade and an “OK” rating. These classifications indicate moderate usability performance and suggest that improvements are necessary to enhance the overall user experience. Importantly, the UMUX results align with the PSSUQ findings, indicating consistency between the global usability assessment and the multidimensional usability evaluation.

IV. CONCLUSION

This study contributes to the usability evaluation of local e-government applications by empirically assessing the SanguPalu mobile application developed by the Palu City government to facilitate digital public service delivery. By integrating the Post-Study System Usability Questionnaire (PSSUQ) and the Usability Metric for User Experience (UMUX), this research demonstrates how multidimensional usability evaluation and global usability measurement can be combined to obtain a comprehensive understanding of user

perceptions. The consistent findings across both instruments indicate that, while the application supports essential public service functions, usability challenges remain, particularly in aspects related to user interaction and interface design.

From a practical perspective, the results highlight the importance of prioritizing user interface improvements in public service applications to ensure effective and sustainable digital service delivery. The convergence between detailed PSSUQ subscale findings and the global UMUX assessment suggests that future development efforts should emphasize user-centered design principles with particular attention to navigation clarity, interface consistency, and workflow coherence. Addressing these aspects is critical for increasing user trust, encouraging repeated use, and maximizing the impact of e-government initiatives on public service accessibility.

Despite its contributions, this study has several limitations. The analysis is based on self-reported questionnaire data collected at a single point in time, which may not fully capture long-term usability experiences or evolving user expectations. Additionally, the use of standardized questionnaires alone limits the ability to identify specific interaction problems or explain the underlying causes of usability issues. Future research should therefore incorporate task-based usability testing and qualitative approaches, such as user interviews or direct observation, within a user-centered design framework. Iterative usability evaluation following interface redesign is also recommended to assess the effectiveness of proposed improvements and to support continuous enhancement of public service applications like SanguPalu.

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