UX Analysis on SpeedID Application Using Usability Testing Method and System Usability Scale

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Abstract: The SpeedID application is a smart city application developed by a subsidiary of PT Bamboomedia Cipta Persada, namely PT Inovasi Solusi Nusantara since 5 years ago. The SpeedID application wants to present a solution to the city's problems to become a new digital identity for the smart city community. Because it was only developed 5 years ago, the SpeedID application is classified as a new application and has never been analyzed for usability before. Usability analysis is carried out to improve user experience, so that the SpeedID application can be accepted and used more easily by users. This research uses Usability Testing method with Performance Measurement and Retrospective Think Aloud (RTA) techniques and System Usability Scale (SUS). The results obtained are the SpeedID application has a quality that cannot be said to be effective, efficient and meet user satisfaction. In addition, the average score of the System Usability Scale (SUS) Questionnaire is 70.33. The score is rated "C" with an adjective rating of "Good" with the acceptance range included in the "Marginal" category, and finally the net promotion score (NPS) is included in the "Passive" category, which explains that the use of the SpeedID application gets an assessment that is still marginalized by its users. This shows that the SpeedID application still urgently needs correction to improve quality to its users and design improvements also need to be made so that the SpeedID application is even better at meeting user expectations in the future.

Keywords: User Experience; Performance Measurement; Retrospective Think Aloud (RTA); System Usability Scale (SUS) Questionnaire; SpeedID Application

INTRODUCTION

In today's globalization and digital era, fast, precise and accurate information services are needed. Because today's society is a society that needs information, where space and time are not a barrier to getting all the information needed. Smart City is the application of the concept of smart cities with the use of technology and communication to realize better community services (Hasibuan & Sulaiman, 2019). The public service innovation was successfully realized by one of the IT and Creative Software companies headquartered in Bali, namely, PT. Bamboomedia Cipta Persada. This company focuses on

the digital and technology fields, especially in the development of Smart City applications that have been developed since 5 years ago. In supporting the development of Smart City applications that have been made, a subsidiary of PT. Inovasi Solusi Nusantara was formed to focus on Smart City applications called SpeedID. Quoted from the website of PT. Inovasi Solusi Nusantara (isn- speed.com) as a subsidiary of PT. Bamboomedia Cipta Persada that SpeedID is an application that has a big vision, where SpeedID wants to present a solution for IT implementation in all cities in the world, where SpeedID will become a new digital identity for smart city communities. The SpeedID application has 12 different features, namely the SpeedQ, SpeedNews, SpeedReport, SpeedParking, SpeedSOS, SpeedMeter, SpeedResto, SpeedSales, SpeedOrder, SpeedTask, SpeedEdu, and SpeedTour features.

The SpeedID application is an application that has been launched and has only been running for five years. Therefore, efforts are needed to improve the quality of the application in terms of User Experience (UX). Based on information obtained from the application developer, the number of users of the SpeedID application for the Denpasar City area reaches 356,621 users, with the most frequently used feature being SpeedQ with 325,125 users, the least used is SpeedSOS with 754 users and the second most frequently used is SpeedNews with 215,236 users. The app has also never undergone usability testing in terms of User Experience (UX) since its launch. The low ratings and negative comments on the Play Store and App Store indicate that there is a lack of user satisfaction with the SpeedID app. Some reviews indicate that there are problems both from a technical point of view and in terms of user experience in using the SpeedID application which has an impact on the effectiveness and user experience of the application. User experience plays a very important role in ensuring the effective and efficient delivery of products or services to end users (Putri et al., 2024; Ratih A, 2023). This research will take the SpeedID dashboard home page and focus on 2 features that will be tested. The selection of only these 2 features is based on the fact that they are the most popular or frequently used. It can be seen from the significant users indicating that the negative comments are potentially present from the two features, namely SpeedQ and SpeedNews as well as from the initial page of the SpeedID dashboard.

Based on the explanation above, this research needs to be done with the aim of analyzing the SpeedID application in the usability aspect, to determine the effectiveness and efficiency of the SpeedID application with the Performance Measurement technique, to determine the user satisfaction of the SpeedID application with the Retrospective Think Aloud technique and the System Usability Scale questionnaire and to find out recommendations for improvements to the SpeedID application based on the analysis results to increase user satisfaction. Usability Testing method is one way to find out whether users can easily use the application or not, how effective and efficient an application can help users achieve their goals and whether users are satisfied with the application used. The Usability Testing method was chosen because it is a method that is very suitable for analyzing User Esperience from the usability aspect. Usability testing is the main process in ensuring the quality of information systems. Usability testing has several different evaluation techniques, namely the Think Aloud technique, Shadowing Method, Coaching Method, Question-Asking Protocol, Teaching Method, Performance Measurement, Remote Testing, and Eye Tracker. Among several of these techniques, there is a technique that measures the success performance and speed of completing tasks (commands), namely the Performance Measurement technique. Another technique in the usability testing method that can be combined with this technique is the Retrospective Think Aloud (RTA) technique. This technique is a technique that allows a respondent to tell what they did when the test was completed (Utami et al., 2020). Performance Measurement and Retrospective Think Aloud are two techniques that can be combined with each other and are most suitable for use in conducting analyzes related to user experience. While the System Usability Scale is a usability evaluation that involves end users in the implementation process. System Usability Scale can help determine user satisfaction with quantitative data generated through questionnaires to respondents. SUS proves to be a very simple, reliable, fast and of course easy tool. SUS is used because it is one of the most popular methods in usability testing. SUS has 10 questions that must be answered by respondents after using the application or system to be tested (Putra et al., 2023; Ziqri et al., 2023).

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LITERATURE REVIEW

The first research to discuss usability issues found in the BNI Mobile Banking application, such as difficulty finding transaction receipts, lack of decimal points when entering amounts, and some menu services not being grouped appropriately was conducted by (Kusumawardhana et al., 2019). A three-stage research process was conducted. The first stage involved initial tests to measure learnability, efficiency, error, and satisfaction metrics using Usability Testing and System Usability Scale (SUS) methods, then providing improvement recommendations based on the results of interviews and following Google Material Design guidelines and involving testing the recommended improvements and comparing with the initial test results. The second study that discusses the development of a mobile platform called SIAP TARIK by Puskesmas Tarik, which includes features for making appointments was conducted by (Iryanto et al., 2019). The test results show that the usability of SIAP TARIK is rated as okay, grade "D" and marginal high with an SUS score of 66.5 which indicates that there is still room for improvement to increase usability. The third research that discusses the acc.one application developed by Astra Credit Company by (Manik, 2020) The results showed that the level of application usability for ease of use was 73.33%, including in the poor category. The user speed level is 0.0467 goals/second, which is considered normal. The application acceptance rate is marginal low, the grade scale level is F, and the adjective rating level is OK. The fourth study discussed the PermataMobile X application, an internet-based electronic banking service provided by PT Bank Permata Tbk (Permata Bank) conducted by (Irdiaga et al., 2020). Usability testing was carried out using the Usability Testing method and the System Usability Scale to evaluate the usability level of the application, which resulted in an efficiency aspect score of 0.01 goals/second, which is considered normal and an error aspect score of 0.41, which is below average compared to the standard error rate of 0.70. The level of satisfaction measured using the SUS questionnaire obtained an average score of 70.1. The fifth research that discusses the measurement of the usability level of the e-Report Application System was conducted by (Tuloli et al., 2022). The results of the measurements taken show that the effectiveness aspect obtained a value of 96% of the user's success rate in working on the scenario task and the efficiency aspect obtained an average time of 0.037 seconds needed by users in completing the scenario task given.

Usability Testing

Usability Testing or usability testing is a method used in evaluating a system or product where the user is the tester. Usability Testing has the aim of knowing the usability problems contained in the system or product, getting data on a system or product where the user is the tester. Usability Testing has the aim of knowing the usability problems contained in the system or product, obtaining data as research material and measuring user satisfaction with the system or product (Hertzum, 2020; Mertha et al., 2021). Usability testing will produce qualitative data about the difficulties experienced by users, this data will later be used as recommendations for improvements to an application or website. Before conducting usability testing, a question and task that will be done by the user is needed. The task will later provide answers to the main objectives to be achieved in the test (Ziqri et al., 2023).

Performance Measurement

Performance Measurement technique is used to measure how the effectiveness and efficiency of the SpeedID application when used by users. Effectiveness measurement can be calculated based on the success and failure of the task scenario that has been done by each respondent. Effectiveness is calculated by assigning a binary number "1" if the respondent successfully completes the task scenario and "0" if the respondent fails (Permana et al., 2024; Wahanani & Swari, 2023). The formula used to calculate the level of respondent success can be seen in equation (1), while the formula used to calculate the level of respondent failure can be seen in equation (2).

$$\text{Successful} = \frac{\text{Number of tasks successfully performed}}{\text{Total number of tasks}} \times 100\% \qquad (1)$$

$$\text{Failed} = \frac{\text{Number of tasks failed to perform}}{\text{Total number of tasks}} \times 100\% \qquad (2)$$

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According to Richard Steer, effectiveness should be assessed on the basis of feasible objectives, not on the basis of the concept of maximum objectives. Effectiveness is measured using standards in accordance with the Ministry of Home Affairs R&D (1991).

Table 1 Standardized Measures of Effectiveness as Referenced by Ministry of Home Affairs R&D

Effectiveness Ratio	Achievement Level
Under 40	Very Ineffective
40 - 59,99	Ineffective
60 - 79,99	Effective Enough
Above 80	Highly Effective

The results of the calculation of successful and failed task scenarios will determine whether the SpeedID application is effective to use, if the average value of the task scenario that is done successfully reaches 100%, then the SpeedID application can be said to be effective. Effectiveness is a condition that occurs because it is desired. As for the results of the average time required to work on the task scenario, it is interpreted using the time range on the time behavior indicator.

Table 2 TimeInterval on Time Behavior Indicator

No.	Length of time	Qualification
1	60 - 300 seconds	Very Fast
2	360 - 600 seconds	Quick
3	660 - 900 seconds	Slow

Data processing for the efficiency dimension can be done by calculating the average time of respondents in working on each task scenario given in seconds. The calculation results obtained will show which task scenarios take the longest time to complete based on the average time to work on each task scenario of all respondents (Luh Putri Ari Wedayanti et al., 2019; Quiñones & Rusu, 2019).

Retrospective Think Aloud

Retrospective Think Aloud is a method for testing a system that involves users, or end users, by verbalizing continuously what users feel and think when using an application or system. Verbalization is done by conducting interviews with respondents to find out the experience and opinions of respondents while using applications and systems. The verbalization includes impressions of messages or difficulties expressed by respondents along with suggestions given when the testing session is completed (Zakiyamani & Parlingotan Manik, 2022). The results of verbal behavior analysis are used to determine user needs. Verbal behavior analysis determines user needs (Putri et al., 2024).

SUS Questionnaire

System Usability Scale (SUS) is a subjective measurement of user usability by giving questionnaires to users after using the application or system to be tested. (Lewis & Sauro, 2021) said that a questionnaire that can be used to assess the level of user satisfaction is to use the SUS questionnaire. SUS has 10 questions that must be answered by respondents after using the application or system to be tested (Ziqri et al., 2023). The SUS (System Usability Scale) questionnaire which is a testing tool developed by John Brooke by providing a subjective global view of usability with 10 questions and 5 rating scales, namely "Strongly Disagree" with a rating of "1", "Disagree" with a rating of " 2", "Undecided" with a rating of "3", "Agree" with a rating of " 4", and "Strongly Agree" with a rating of 5. The questionnaire will be distributed to active users of the SpeedID application and to respondents who have completed the task scenario to determine the level of user satisfaction.
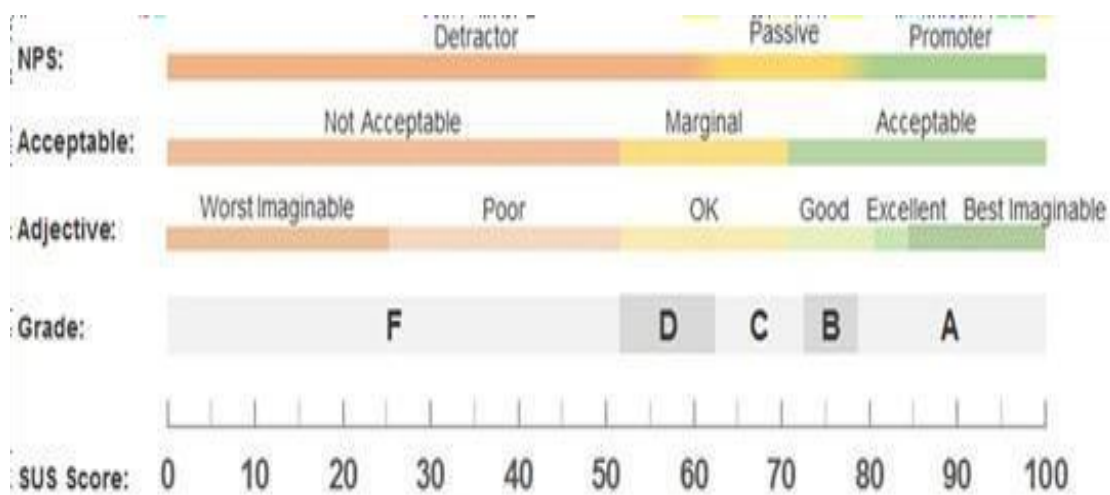
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Figure 1 *System Usability Scale* Assessment

METHOD

Research Stages

The purpose of the research stages is to facilitate problem identification and selection of the most appropriate and suitable methodology in conducting tests on the SpeedID application using the Usability Testing method with Performance Measurement and Retrospective Think Aloud (RTA) techniques and the System Usability Scale (SUS) Questionnaire. The research employs Performance Measurement and Retrospective Think Aloud (RTA) techniques alongside SUS to evaluate the application's usability. It involves end users in the evaluation process to gather quantitative and qualitative feedback. The research stages can be seen in the illustration below.
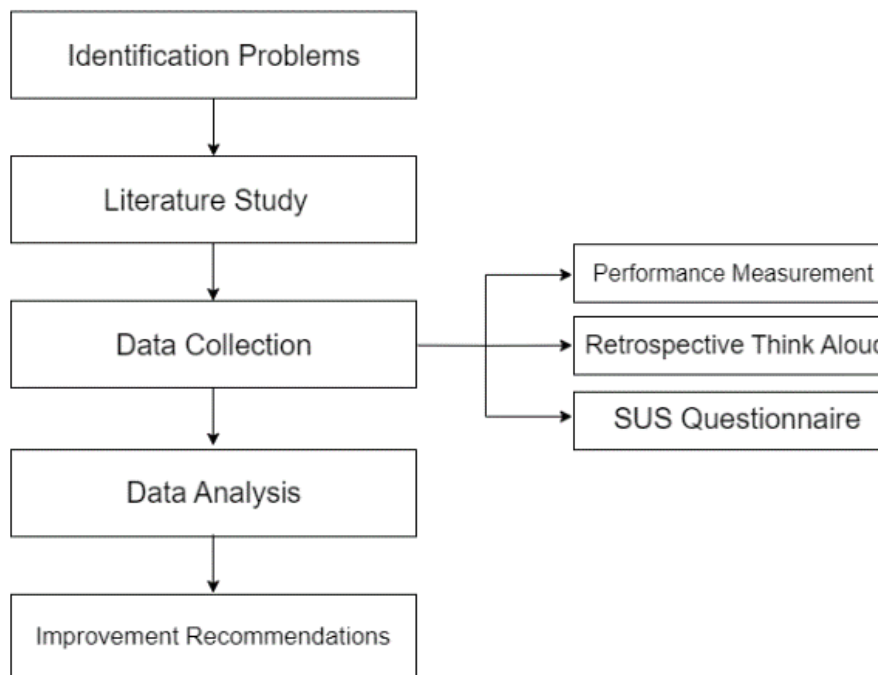

Fig. 1. Flowchart of Research Stages

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Problem Identification

At this stage, identification of what problems occur in the SpeedID application is carried out. The SpeedID application as a smart city application certainly does not escape the complexity of using applications which certainly causes problems. Not to mention the many negative comments on the Play Store and App Store which encourage the need for analysis of the SpeedID application .

Literature Study

Next, proceed with conducting a literature study to find out some theories that have a relationship with this research. These theories are obtained from previous research, books and the internet related to User Experience, Usability Testing, Performance Measurement techniques, Retrospective Think Aloud (RTA) techniques and System Usability Scale (SUS) .

Data Collection

Data collection is done by testing using Usability Testing and System Usability Scale (SUS) methods. The technique used is Performance Measurement by working on 3 different task scenarios that have been determined previously. There is a SpeedID Application Dashboard Home Page scenario task and there are task scenarios of the 2 types of features most frequently used by users, namely SpeedQ and SpeedNews. The test was carried out to determine the level of effectiveness and efficiency of the SpeedID application, then using the Retrospective Think Aloud (RTA) technique to conduct in-depth interviews with respondents and after that distribute System Usability Scale (SUS) questionnaires to measure user satisfaction. Data collection is carried out on SpeedID application users who have the age of 15-64 years as a condition for using the SpeedID application which is divided into 3 different classifications or user characteristics, namely at Bank BPD Bali Renon Branch, Puri Raharja Hospital and Denpasar City Regional Revenue Agency.

Table 3 Classification of Research Respondents

Code	User Classification	Place	Address
BPD	Classification 1	Bank BPD Bali Renon Branch	Jalan Raya Puputan, Renon, South Denpasar
RSPR	Classification 2	Puri Raharja Hospital	Jalan WR Supratman No. 14 & 19 North Denpasar
BDD	Classification 3	Denpasar City Regional Revenue Agency	Jalan Letda Tantular No. 12, East Denpasar

The distribution of task scenarios and in-depth interviews was carried out on 15 respondents in total with details of 5 respondents in each research site and the distribution of SUS questionnaires was carried out on 30 respondents. Population in the context of research refers to a group of individuals, objects, or events to be studied and drawn conclusions. Population is the entire research subject (Ibrahim et al., 2023; Kurniawan et al., 2023). In this study, there are 356,621 users of the SpeedID application in Denpasar City. The sample is a part or representative of the population under study. As stated which states that for research using strategic data analysis, the minimum sample size is 30 (Purba et al., 2023). Therefore, in this study, which uses a questionnaire, 30 respondents will be involved. The number of respondents who are accurate enough in the assessment of the SUS questionnaire is 30 people (Rosyad et al., 2020). When referring to the theory of sample determination regarding the minimum limit that researchers must take, namely 30 samples. The principle of 5 usability testing respondents is a principle introduced by Jakob Nielson and Jon Landauer. In this principle (Barnum, 2020) states that complex usability tests are a waste of resources. The best results come from testing no more than 5 users.

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Table 4 Questionnaire Question List

Question	Answer Options				
	SS	S	R	TS	STS
I think I will use this SpeedID app again	5	4	3	2	1
I find the SpeedID app complicated to use	5	4	3	2	1
I need help from other people or technicians in my work. using the SpeedID app	5	4	3	2	1
I need help from other people or technicians in using the SpeedID app	5	4	3	2	1
I feel that the features of the SpeedID application work properly	5	4	3	2	1
I feel that there are many things that inconsistent (mismatched on SpeedID app)	5	4	3	2	1
I feel others will understand how to use the SpeedID app quickly	5	4	3	2	1
I find the SpeedID app confusing	5	4	3	2	1
I feel there are no obstacles in using the SpeedID application	5	4	3	2	1
I need to familiarize myself first before I use the SpeedID app in my daily life.	5	4	3	2	1

Data Analysis

Based on the data that has been tested, data processing and results analysis are then carried out using qualitative analysis methods and quantitative analysis methods. The qualitative analysis method produces usability problems that exist in the SpeedID application. Meanwhile, the quantitative analysis method produces percentages related to effectiveness, efficiency and user satisfaction. From these calculations, it can then be known whether the use of the SpeedID application can be said to be effective and efficient or not. Furthermore, in-depth interviews will be asked about the problems that have been felt by users, as well as getting input for the SpeedID application both in terms of features, services and icons / appearances. Problems or obstacles faced by users when failing to complete the task scenario will be taken into consideration as a recommendation for future improvements. The SUS questionnaire will be calculated using a Likert scale where respondents will rate a scale of 1 to 5 for each statement item based on how much they agree with the statements in the questionnaire. Scale 5 means strongly agree, while scale 1 means strongly disagree. After the SUS questionnaire data is collected, the next calculation is to determine the level of user satisfaction with the SpeedID application.

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Recommendation for Improvement

Recommendations for improvement are based on the results of task scenario testing and interview results. Recommendations are made in the form of input and suggestions obtained from the results of in-depth interviews. In addition, improvements are also based on the task scenario work carried out. If the level of effectiveness and efficiency is low, then most likely there are things in the SpeedID application features that are still not maximized and need to be given recommendations for future improvements both in terms of features, services and icons / appearance of the SpeedID application.

RESULT

Performance Measurement

Usability Testing   method to measure the level of effectiveness and efficiency is done using Performance Measurement technique. The effectiveness level is calculated from how many task scenarios can be completed by respondents, while efficiency is measured from how much time is spent to complete one task scenario that has been done.

Effectiveness

Based on the results of data processing and analysis, testing three *task scenarios* in three different locations resulted in 24 tables in total with details of one successful table and one failed table for each *task scenario* in each different location. In each table, each calculation has been carried out and the average of all is obtained. Thus, the following table below summarizes the conclusions of the results of the data processing and analysis that has been carried out

Table 5 Effectiveness Data Analysis Results

Effectiveness	Bank BPD Bali		Puri Raharja Hospital		Regional Revenue Agency	
	Success	Failure	Success	Failure	Success	Failure
SpeedID Dashboard Home Page	89%	11%	87%	13%	87%	13%
SpeedQ	94%	6%	88%	12%	58%	42%
SpeedNews	75%	25%	90%	10%	80%	20%

It can be seen in the table above that the success rate of the SpeedID Dashboard Home Page scenario task has a high success rate at three different test locations. This shows that there are minimal obstacles experienced by users. However, the SpeedID Dashboard Home Page must also always continue to undergo development because there is no one location that shows the perfect success rate of the SpeedID Dashboard Home Page.

The SpeedQ feature at the Bank BPD Bali and Puri Raharja Hospital test locations has a high success rate, but at the Regional Revenue Agency test location has a low success rate. This indicates that the SpeedQ feature among users of agencies and the like is still not optimal in its application as evidenced by the high failure rate. Not to mention that the SpeedQ feature is the feature that has the most users compared to other features. From these two things, it can indicate that the many negative comments that have sprung up on the *Play Store* and *App Store* stem from the SpeedQ feature which is still not very effective. Because the data above also shows that the collective failure rate of SpeedQ in three different testing sites is very high.

Based on the data above, it can be seen that the SpeedNews feature which has the second highest number of users after the SpeedQ feature has the second highest failure rate also collectively in three different testing sites. The SpeedNews feature had a high success rate at all three test sites, although it had a higher failure rate at the Bank BPD Bali test site than at the other two sites.
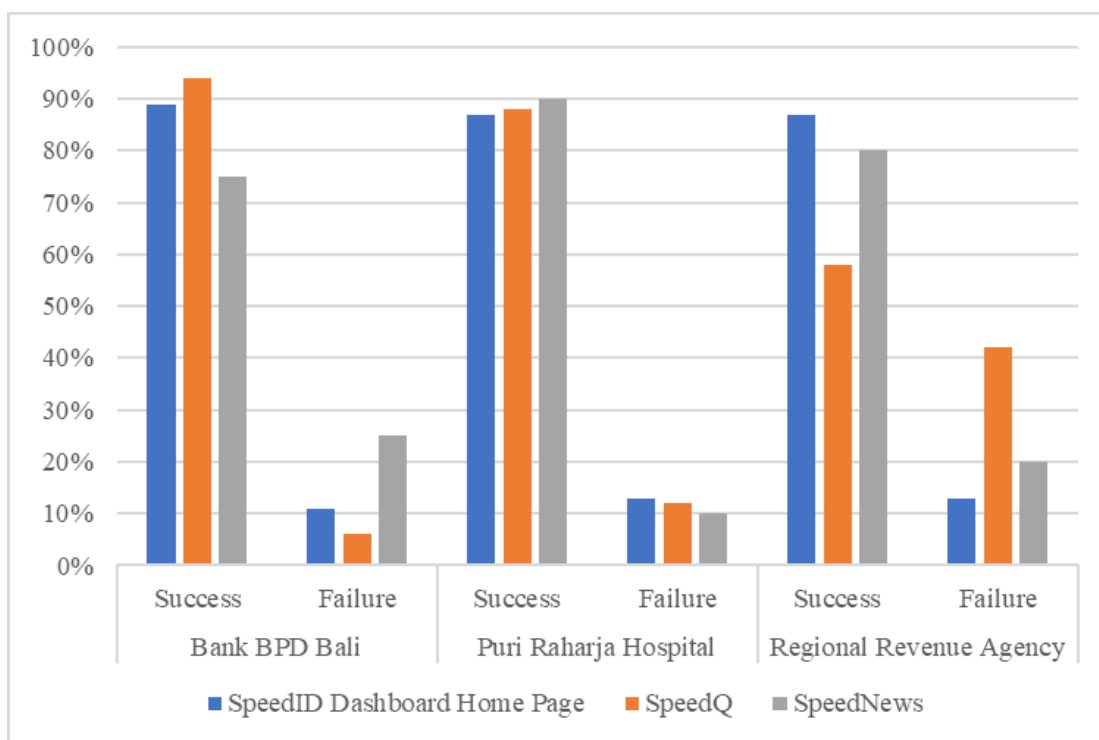
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Figure 3 Graph of Effectiveness Level

Efficiency

Efficiency data is obtained from calculating how long each respondent can complete the task scenario given. The faster the processing time, the more efficient the feature is, but if on the contrary the slower the processing, it indicates that the quality of the feature still does not have the quality to be categorized as efficient.

Table 6 Data Analysis Results Efficiency

Efficiency	Bank BPD Bali	Puri Raharja Hospital	Regional Revenue Agency
SpeedID Dashboard Home Page	6 second	9 seconds	10 seconds
SpeedQ	18 seconds	20 seconds	21 seconds
SpeedNews	19 seconds	25 seconds	16 seconds

From the table above, it can be seen that the SpeedID Dashboard Home Page has the most efficient average time in three different test locations. It is then followed by SpeeedQ which has the second most efficient average after the SpeedID Dashboard Home Page. Finally, SpeedNews has a lot of constraints in the process which makes this feature the least task scenario, but has a fairly long average processing time. This shows that there are still inefficient qualities in the SpeedQ and SpeedNews features that need to be improved. It can also be seen from the data above that respondents at the Bank BPD Bali test location were so fast in completing the task scenario given compared to respondents at the Puri Raharja Hospital and Regional Revenue Agency test locations. This indicates that users of the SpeedID application at Bank BPD Bali tend to understand and understand better.
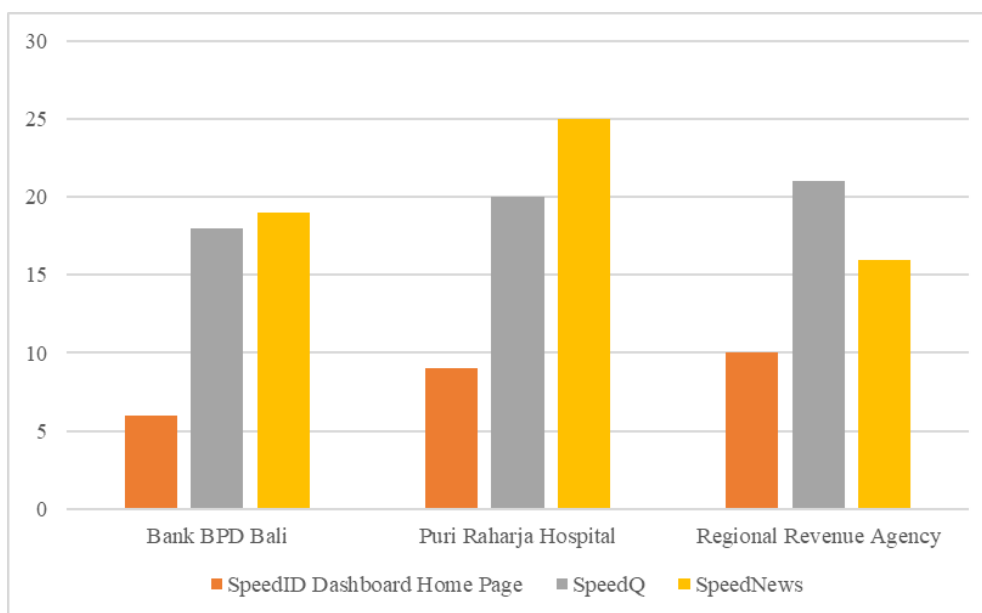
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Figure 4 Graph of Efficiency Level

Retrospective Think Aloud

Restrospective Thinking Aloud (RTA) is carried out to see the problems felt by respondents while using the SpeedID application. Verbal comments from each respondent are used to identify existing problems and as a consideration for recommendations for improvements to the SpeedID application.

Table 7 RTA Data of Bank BPD Bali Respondents

Respondent Code	Problem Place	Problems	Enter
BPD1	SpeedQ	Difficulty in performing services due to long loading process	Service quality needs to be improved
BPD2	SpeedID initial dashboard	Difficulty distinguishing between SpeedNews and SpeedCRM features	There is a need to merge the two features into one
BPD4	SpeedID initial dashboard	Many features are still not understood	Tutorials and familiarization with the use of
BPD4	SpeedNews	Features that don't need to be there	There is a need to merge the two features into one
BPD5	SpeedQ	Difficulty in scanning	Service quality needs to be improved

Based on the results of the analysis of the problems faced by respondents of BPD Bali Bank, it can be concluded that respondents with the respondent codes BPD 1 and BPD 5 require service quality that needs to be improved on the SpeedQ feature. Respondents with the BPD 2 and BPD 4 codes both provide input on the SpeedID Dashboard Home Page, namely the need to merge two features (SpeedNews and SpeedCRM) into one and the need for tutorials for familiarization with use. Respondents with BPD 4 code regarding input on the SpeedNews feature are almost the same as BPD 2 respondents.

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Table 8 RTA Data of Respondents of Puri Raharja Hospital

Respondent Code	Problem Place	Problems	Enter
RSPR1	SpeedQ	Difficulty in booking certain services	Service quality needs to be improved
RSPR2	SpeedID initial dashboard	App display color is not attractive	Customized color combination
RSPR2	SpeedNews	News that sometimes does and repeats	Need to refresh terudate news regularly
RSPR3	SpeedQ	Frequent muting of the Announce	Services must be monitored
RSPR3	SpeedNews	Too copywriting from an existing site	There is a need for innovation in news preparation
RSPR4	SpeedID initial dashboard	There are still features that are never used	There is a need to simplify features that are of equal usefulness
RSPR5	SpeedQ	Often already booked but at the location asked for a manual	Need to coordinate and synchronize services with relevant partners

From the table above, it can be seen that respondents of Puri Raharja Hospital with the respondent codes RSPR 3 and RSPR 5 provide input on the SpeedQ feature for services that must be monitored and synchronized regularly. Respondents with the code RSPR 2 want a more customized and elegant color combination on the SpeedID Dashboard Home Page. The SpeedNews feature is given input by respondents with the codes RSPR 2 and RSPR 3 for the need for regular refreshment of updated news and innovation in news preparation.

Table 8 RTA Data for Regional Revenue Agency Respondents

Respondent Code	Problem Place	Problems	Enter
BDD1	SpeedQ	There are still too few services available	Need for cooperation and additional partners
BDD3	SpeedID initial dashboard	Dashboard display that is not user friendly	The initial dashboard design needs to be improved
BDD4	SpeedNews	Features and news services that appear are still not many	Need for variation and addition of other news features

The problem faced by the respondent of the Regional Revenue Agency with the respondent code BDD 1 provides input on the need for cooperation and the addition of partners to the SpeedQ feature.

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Respondent code BDD 3 wants a fresher and more user friendly design or appearance on the SpeedID Dashboard Home Page. Then the respondent with the respondent code BDD 4 conveyed the obstacle that the features and news services available on SpeedNews were still not much or less.

SUS Questionnaire

Based on the questionnaires that have been distributed to 30 respondents at three different research locations, the results of the SUS score calculation are obtained to measure the level of user satisfaction.

Table 9 SUS Questionnaire Tally Score

Respondent Code	Calculated Score	
	Total	Score (Total x 2.5)
BPD1	18	45
BPD2	20	50
BPD3	30	75
BPD4	23	57,5
BPD5	27	67,5
BPD6	21	52,5
BPD7	27	67,5
BPD8	27	67,5
BPD9	30	75
BPD10	31	77,5
RSPR1	30	75
RSPR2	20	50
RSPR3	28	70
RSPR4	25	62,5
RSPR5	30	75
RSPR6	30	75
RSPR7	28	70
RSPR8	38	95
RSPR9	30	75
RSPR10	27	67,5
BDD1	30	75
BDD2	26	65
BDD3	35	87,5
BDD4	30	75
BDD5	32	80
BDD6	33	82,5
BDD7	30	75
BDD8	31	77,5
BDD9	23	57,5
BDD10	34	85
Average		**70,33**

Based on calculations from 30 SUS questionnaire respondents, the average value is 70.33. After getting this value, the next step is to determine the value of the interpretation results. The interpretation results can use 3 points of view, namely Acceptability, Grade Scale, and Adjective Rating. The interpretation results of the SpeedID application when viewed from Acceptability are in the Marginal category, which means that the SpeedID application is still marginalized among its users in general. For the interpretation results from the Grade Scale point of view, the SpeedID application gets Grade C

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because the SUS score is 70.33. In addition, in terms of Adjective Rating, the SpeedID application is included in the Good category. However, it should be noted that for the interpretation approach based on NPS, the result is Passive, in the sense that users of the SpeedID application are not in a state of refusing or unwilling to use this application, but they are also not in a state of strongly liking the application. That is why there is a need for future corrections and improvements to the SpeedID application to be able to improve the quality of service to its users.

Table 10 Interpretation of SUS Score Results

Grade Scale	SUS	Adjective	Acceptable	NPS
C	65,0 - 71,0	Good	Marginal	Passive

The research focuses on the UX Analysis of the SpeedID Application using Usability Testing Method and System Usability Scale (SUS). It aims to enhance user experience and ensure the application is easily accepted and used by users. The key findings in this research are as follows :
1. The study reveals that the SpeedID application is not yet effective, efficient, or satisfying for users.
2. The SUS score averages at 70.33, indicating a "Good" rating but only "Marginal" acceptance among users. The Net Promoter Score (NPS) falls under the "Passive" category, suggesting that the application's usage is still marginalized by its users.

DISCUSSIONS

From the results of testing and analysis that has been done, there is still much that needs to be improved and improved from the SpeedID application. This can be seen from the level of effectiveness of some features where the success rate is still fairly low. Then the use in certain locations or places sometimes the SpeedID application is not optimal in its application, making it ineffective. In terms of processing time, which is fairly fast, it has no effect if the task is done incorrectly. Not to mention the results of the SUS score calculation which puts the SpeedID application at Grade C with Marginal Acceptability indicating that the SpeedID application is functionally correct but seems to be just made without paying attention to various points of view that make users able to accept the SpeedID application so well. Therefore, based on the results of in-depth interviews conducted, there are several recommendations for improvements that can be given for the development of a better SpeedID application.
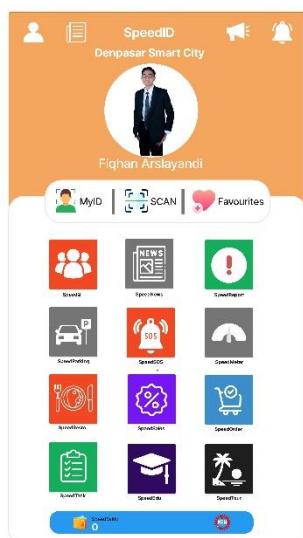

Fig. 5 SpeedID application

Fig.6 Recommended Improvements

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From the picture above, we can see that the improvement recommendations given focus more on the appearance of the SpeedID Dashboard Home Page. Based on the data discussed earlier, where the improvement recommendations start from eliminating the SpeedCRM icon at the top of the display which is then combined with SpeedNews. Then the Newsticker icon which is also combined into the SpeedNews feature. The profile icon in the upper left corner is removed and combined with the MyID feature. Furthermore, the bell-shaped notification icon is moved in line with the MyID, Scan and Favourites features which are just below the profile photo. Finally, the display color is adjusted to the concept of a futuristic smart city with a blue base color that illustrates a range of trust, responsibility and harmony.

CONCLUSION

The application of Usability Testing and System Usability Scale (SUS) methods is done by measuring how the level of effectiveness, efficiency, and user satisfaction in using the SpeedID application. Effectiveness can be calculated based on the success and failure of the task scenario that has been done by the respondent. Efficiency can be calculated based on the length of time taken by respondents in completing the given task scenario. User satisfaction is obtained by conducting in-depth interviews with respondents about what has been done so that they can provide information on errors, complaints and suggestions for improvement. The questionnaire on the System Usability Scale (SUS) is also used to measure the level of user satisfaction with the results of quantitative data in the form of scores which are expected to support qualitative data obtained from in-depth interviews. The results based on testing show that the SpeedID application has a quality that cannot be said to be effective, efficient and meet user satisfaction. The SpeedID application has not been able to provide maximum understanding through the existing display both to respondents and users in general. This causes respondents to experience difficulties in achieving their goal of finding the desired information and makes the respondent's performance also not optimal in using the application. Based on the analysis, the study suggests urgent corrections and design improvements to better meet user expectations and improve the application's quality for future use. The recommendations focus on enhancing feature accessibility, simplifying the interface, and improving service quality.

REFERENCES

Barnum, C. M. (2020). *Usability testing essentials: ready, set... test!* Morgan Kaufmann.

Hasibuan, A., & Sulaiman, O. K. (2019). Smart Cit, Konsep Kota Cerdas Sebagai Alternatif Penyelesaian Masalah Perkotaan Kabupaten/Kota, di Kota-Kota Besar Provinsi Sumatera Utara. *Buletin Utama Teknik*, *14*(2), 127–135. https://jurnal.uisu.ac.id/index.php/but/article/view/1097

Hertzum, M. (2020). Usability Testing: A Practitioner's Guide to Evaluating the User Experience. *Synthesis Lectures on Human-Centered Informatics*, *13*(1), i–105.

Ibrahim, M. B., Sari, F. P., Kharisma, L. P. I., Kertati, I., Artawan, P., Sudipa, I. G. I., Simanihuruk, P., Rusmayadi, G., Nursanty, E., & Lolang, E. (2023). *METODE PENELITIAN BERBAGAI BIDANG KEILMUAN (Panduan & Referensi)*. PT. Sonpedia Publishing Indonesia.

Irdiaga, I., Wijoyo, S. H., & Perdanakusuma, A. R. (2020). Evaluasi usability pada aplikasi permatamobile x dengan menggunakan metode usability testing dan system usability scale(SUS). *Jurnal Pengembangan Teknologi Informasi Dan Ilmu Komputer*, *4*(10), 7708–7716.

Iryanto, M. U. A., Putra, W. H. N., Dwi, A., & Herlambang. (2019). Evaluasi Usability Aplikasi SIAP TARIK Dengan Menggunakan Metode Usability Testing dan System Usability Scale (SUS) Pada Puskesmas Tarik Sidoarjo. *Jurnal Pengembangan Teknologi Informasi Dan Ilmu Komputer*, *3*(8), 7708–7716.

*I Gede Iwan Sudipa

Kurniawan, H., Hakim, L., Sanulita, H., Maiza, M., Arisanti, I., Rismawan, M., Sudipa, I. G. I., Daryaswanti, P. I., Kharisma, L. P. I., & Haryani, H. (2023). *TEKNIK PENULISAN KARYA ILMIAH: Cara membuat Karya Ilmiah yang baik dan benar*. PT. Sonpedia Publishing Indonesia.

Kusumawardhana, I. M. H., Wardani, N. H., & Perdanakusuma, R. A. (2019). Evaluasi Usability Pada Aplikasi BNI Mobile Banking Dengan Menggunakan Metode Usability Testing dan System Usability Scale (SUS). *Jurnal Pengembangan Teknologi Informasi Dan Ilmu Komputer*, *3*(8), 7708–7716.

Lewis, J. R., & Sauro, J. (2021). Usability and user experience: Design and evaluation. *Handbook of Human Factors and Ergonomics*, 972–1015.

Luh Putri Ari Wedayanti, N., Kadek Ayu Wirdiani, N., & Ketut Adi Purnawan, I. (2019). Evaluasi Aspek Usability pada Aplikasi Simalu Menggunakan Metode Usability Testing. *Jurnal Ilmiah Merpati (Menara Penelitian Akademika Teknologi Informasi)*, *7*(2), 113. https://doi.org/10.24843/jim.2019.v07.i02.p03

Manik, V. (2020). Evaluasi Usabilitypada Aplikasi Mobileacc.Onemenggunakansystem Usability Scale(Sus)Dan Usability Testing. *Veni Manik*.

Mertha, I. M. S., Satwika, I. P., & Paramitha, A. A. I. I. (2021). Analisa Usability pada Website Platform Marketplace Edukasi Menggunakan Metode Heuristic Evaluation System Usability Scale. *Jurnal Krisnadana*, *1*(1), 37–46.

Permana, I. P. H., Aristana, I. D. G., Prayana, I. K. W. D., Wijaya, B. K., & Pratiwi, N. W. A. D. (2024). Analyzing User Acceptance of Balindo Paradiso University Information System Using UTAUT 2 Model. *TECHNOVATE: Journal of Information Technology and Strategic Innovation Management*, *1*(2), 96–109.

Purba, C. S., Lestira, T., & Warganegara, P. (2023). Pengaruh Orientasi Pasar Dan Orientasi Kewirausahaan Terhadap Kinerja Pemasaran UMKM Fashion Di Kota Bandar Lampung. *JAMBURA*, *6*(1). http://ejurnal.ung.ac.id/index.php/JIMB

Putra, I. N. T. A., Sudipa, I. G. I., Sukerthi, N. M. S. D., & Yunia, N. P. Y. (2023). Analisis User Experience Pada Layanan Telekomunikasi Operator Seluler Menggunakan Metode System Usability Scale (SUS). *Digital Transformation Technology*, *3*(1), 49–57.

Putri, R. M. A., Parwita, W. G. S., Handika, I. P. S., Sudipa, I. G. I., & Santika, P. P. (2024). Evaluation of Accounting Information System Using Usability Testing Method and System Usability Scale. *Sinkron*, *9*(1), 32–43. https://doi.org/10.33395/sinkron.v9i1.13129

Quiñones, D., & Rusu, C. (2019). Applying a methodology to develop user eXperience heuristics. *Computer Standards & Interfaces*, *66*, 103345.

Ratih A, A. L. Z. D. S. W. H. (2023). Analisis User Experience Pengguna Aplikasi Neobank Berdasarkan Alat Ukur Heart Metrics. *Jurnal Penelitian Rumpun Ilmu Teknik (JUPRIT)*, *2*(1), 01–15.

Rosyad, F., Pramono, D., & Brata, K. C. (2020). *Analisis dan Perbaikan Usability Pada Aplikasi Ker Menggunakan Metode Usability Testing dan System Usability Scale (SUS)* (Vol. 4, Issue 7). http://j-ptiik.ub.ac.id

Tuloli, M. S., Patalangi, R., & Takdir, R. (2022). Pengukuran Tingkat Usability Sistem Aplikasi e-Rapor

*I Gede Iwan Sudipa

Menggunakan Metode Usability Testing dan SUS. *Jambura Journal of Informatics*, *4*(1), 13–26. https://doi.org/10.37905/jji.v4i1.13411

Utami, N. W., Arthana, I. K. R., & Darmawiguna, I. G. M. (2020). Evaluasi Usability Pada E-Learning Universitas Pendidikan Ganesha Dengan Metode Usability Testing. *Jurnal Nasional Pendidikan Teknik Informatika (JANAPATI)*, *9*(1), 107. https://doi.org/10.23887/janapati.v9i1.23663

Wahanani, H. E., & Swari, M. H. P. (2023). Usability Testing pada Sistem Kearsipan Dokumen Dosen. *Jurnal Krisnadana*, *2*(3), 424–431.

Zakiyamani, M., & Parlingotan Manik, L. (2022). Usability Aplikasi Kebencanaan Di Indonesia Dengan Usability Testing Dan Sistem Usability Scale Usability Disaster Applications in Indonesia With Usability Testing and Usability Scale System. *Journal of Information Technology and Computer Science (INTECOMS)*, *5*(2).

Ziqri, A., Riestianto, A. A., & Cahya Wardhana, A. (2023). Evaluasi User Experience Aplikasi Google Meet Menggunakan Metode Usability Testing. *Jurnal ICTEE*, *3*(2), 20–31.

*I Gede Iwan Sudipa