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Quality Analysis of the Registration Information System Website using ISO/IEC 9126 Standard

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ABSTRACT

The performance of registration information systems is a crucial factor in ensuring the efficiency and effectiveness of academic administrative services. This study evaluates the quality of a registration information system based on the ISO 9126 standard, focusing on key aspects such as functionality, reliability, usability, efficiency, maintainability, and portability. The data collection methods used in this study vary based on each quality aspect. For the usability and maintainability aspects, data was collected through a questionnaire distributed to 100 respondents, consisting of students, prospective students, and academic staff. For the efficiency aspect, the GTMetrix tool was used to evaluate website performance. The reliability aspect was tested using the WAPT application. The functionality aspect was assessed using black-box testing with a total of 10 participants consisting of 2 prospective students, 5 students, and 3 administrative staff members, while portability was evaluated by accessing the website on five different mobile devices with varying screen sizes, operating systems, and types. The evaluation results indicate that the system performs well in functionality, usability, portability, reliability and maintainability but requires significant improvements in efficiency, particularly in LCP optimization. Based on these findings, optimization strategies such as image compression, CSS and JavaScript minification, and server-side caching implementation are recommended.

I. INTRODUCTION

The rapid advancement of technology, alongside developments in the internet and telecommunications, has significantly influenced the digitalization of various sectors, including higher education [1]. One key implementation is the use of web-based registration information systems, which play a vital role in managing prospective student data and supporting efficient administrative processes. These systems must maintain high levels of performance to ensure accessibility, usability, and reliability for users from diverse backgrounds [2].

The significant development of technology has greatly aided humans in their daily activities. This development is not limited to technology alone but is also accompanied by advancements in the internet and telecommunications, resulting in widespread usage across various societal groups [3]. Websites can deliver various types of information with diverse purposes, such as entertainment, education, arts, business, commerce, and personal use. The growth of organizations is often accompanied by improvements in the quality of the services provided by their websites [4]. Web-based information systems have become a crucial element in various aspects of life, particularly in the education sector [5].

In line with the increasing complexity of user needs and technological developments, continuous evaluation of information system quality becomes essential [6]. Regular assessments help ensure that systems remain effective, efficient, and responsive to evolving demands, particularly in

administrative processes such as student admissions. The ISO 9126 standard offers a comprehensive framework for evaluating software quality through six key characteristics: Functionality, Reliability, Usability, Efficiency, Maintainability, and Portability. This standard is widely adopted to measure and identify areas that require optimization in information systems, including those used in academic environments.

Previous studies have applied ISO 9126 to assess various web-based systems, focusing primarily on usability and reliability aspects. However, limited research has addressed performance efficiency and optimization strategies within registration information systems using this standard. This gap highlights the importance of conducting a thorough evaluation that not only identifies areas of improvement but also proposes practical solutions to enhance system performance.

Several previous studies have used ISO 9126 to evaluate the quality of web-based information systems. Research by Budiman et al. in 2015 showed that ISO 9126 could be adapted to various application contexts, including student registration information systems [7]. Additionally, a study by Condro Kartiko in 2019 demonstrated that the use of ISO 9126 could help identify aspects of information systems that require improvement in terms of usability and reliability [8].

The novelty of this research lies in its focus on evaluating a web-based registration information system that has not been systematically assessed following its latest version updates, which include significant improvements in both visual and functional aspects to deliver effective, efficient, and high-quality services for prospective students while supporting optimal registration administration. This study aims to assess the system's quality using the ISO 9126 standard, providing a comprehensive analysis of its performance and offering recommendations for optimization. The research is expected to contribute to the ongoing development of efficient and user-centered academic information systems, particularly within the context of private higher education institutions in Indonesia that face challenges in enhancing the effectiveness of their information systems amid the demands of digital transformation.

II. METHOD

A. Research Flow

This research employs a quantitative research method. Quantitative research is a method that transforms data into numerical form to analyze the results[9]. The research procedure begins with identifying the problem, which in this case is the quality of the SIAP ITB STIKOM Bali website. Once the problem is identified, the next step is to determine the quality characteristics based on the ISO/IEC 9126 standard. According to Muauwanah et al., 2023, these characteristics include Functionality, Reliability, Usability, Efficiency, Maintainability, and Portability [10]. After determining the characteristics, the next step is the data collection process, which is divided into two schemes. The first scheme involves using questionnaires to measure the usability and maintainability aspects. For technical data, the black-box testing method is employed to measure functionality, the WAPT application is used to measure reliability, the GTMetrix application is used to measure efficiency, and testing the website on five different devices with various operating systems is conducted to evaluate portability. Once the data is collected, it is processed using appropriate data analysis techniques, and the results are interpreted and followed by recommendations for improvement. Ultimately, conclusions will be drawn, and the research findings will be published.

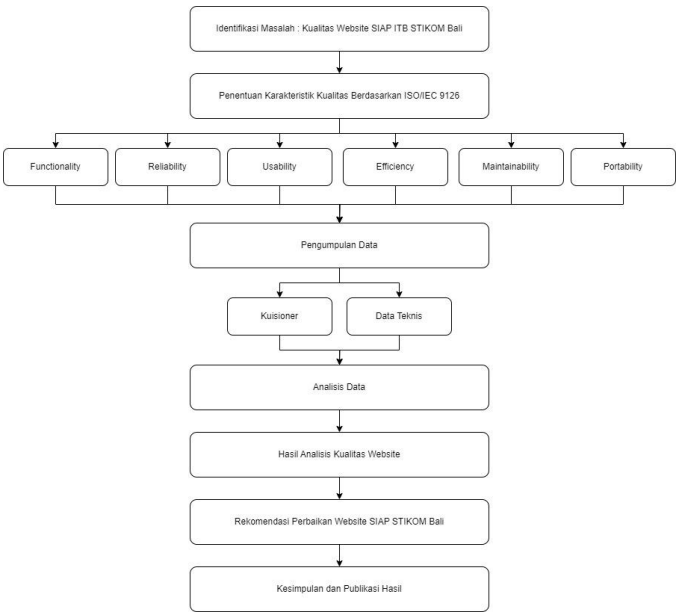

Figure 1. Research Flow

B. Requirements Analysis

1. Respondent

The respondents in this study for testing the aspects of usability and maintainability are prospective students, current students, and the staff managing the SIAP ITB STIKOM Bali website. Respondents were selected using simple random sampling, with a total sample size of 100 respondents. The sample size was determined through statistical calculation using the Slovin Formula. This formula is used to determine the sample size from a known population, which includes 1,352 students from the 2023 cohort—since these students are still using the older version of SIAP—and 20 staff members. According to Sugiyono (2017:81), the level of precision set for determining the sample is 10% [11]. The Slovin Formula is as follows:

$$n = N / (1+(N \times e^2))$$

where:
n = sample size
N = population size
e = margin of error due to sampling inaccuracy

Based on the Slovin Formula, the sample size for this study is calculated as follows:

n= N / (1+(1372 x $0{,}10^2$))
n= 1372 / (1+(1372 X 0,01)
n= 1372 / 14,72
n= 93.20 -> rounded to 100 respondents

The following table is the respondent matrix for this study:

TABEL I
RESPONDENTS & CHARACTERISTIC MATRIX

No	Aspect	Method	Respondent	Characteristic
1	Usability	Computer System Usability Questionnaire	ITB STIKOM Bali Students and Management	ITB STIKOM Bali students from the 2023 batch and the Management teams departments, with a total of 100 respondents.
2	Reliability	WAPT Application	System	According to the Telcordia standard, software reliability is considered acceptable if at least 95% or 0.95 of the application functions properly during stress testing
3	Functionality	*BlackBox Testing*	Prospective students, students, and administrative staff	10 people, consisting of 3 prospective students, 4 students, and 3 administrative staff.
4	Efficiency	GTMetrix Application	System	According to Nielsen, a good load time is less than 10 seconds.
5	Maintainability	Questionnaire	ITB STIKOM Bali Students and Management	ITB STIKOM Bali students from the 2023 batch and the Management teams departments, with a total of 100 respondents.
6	Portability	Tested into 5 different mobile phones	Mobile phone	These five phones have different screen sizes, operating systems, and types.

2. Hardware & Software

The hardware used consists of one unit of Lenovo B40 laptop with an I3 processor and 8 GB RAM, five mobile phones, and one 4GB flash drive. The software used includes Windows 10 OS, WAPT application, and GTMetrix.

C. Reseach Time & Location

This research was conducted at ITB STIKOM Bali during the Odd Semester 2024/2025 and Even Semester 2024/2025.

D. Data Collection Methods

Evaluating the SIAP ITB STIKOM Bali website using the ISO 9126 standard according to Muauwanah et al., 2023 [10], there are six aspects, namely Functionality, Reliability, Usability, Efficiency, Maintainability, and Portability. The data collection method in this study was conducted using two tools: questionnaires and technical data. The details of the data collection method in this study are as follows:

1. Functionality

Functionality refers to the extent to which a software system or application meets the specified requirements and performs the desired functions effectively and accurately [12]. Data collection on the functionality aspect is conducted using black-box testing test cases. This testing is carried out to determine whether the functionality of the information system operates as expected. The test was conducted by 10 participants, consisting of 2 prospective students, 5 students, and 3 administrative staff members.

2. Reliability

Reliability refers to the ability of the software to maintain its performance and prevent undesirable failures [13]. According to ISO/IEC 9126, Reliability refers to the capability of the software to maintain a specified level of performance when used under specified conditions. This includes several key attributes such as maturity, fault tolerance, and recoverability. In this study, reliability testing focuses on: System availability (uptime) within a certain period, Fault tolerance, or how the system handles invalid input or unexpected user behavior. Recoverability, such as the average recovery time if a system failure occurs [14].

The testing for this aspect was conducted using the Web Application Performance Testing (WAPT) tool, which enables load, stress, and performance testing. The system is expected to demonstrate consistent performance under stress, with minimal failures and acceptable recovery behaviour.

3. Usability

The usability aspect is related to the users of an information system or software. Usability testing is important because it helps determine the level of understanding and difficulty users experience when interacting with the software interface that has been developed [15]. Usability testing is conducted using a questionnaire instrument based on the Computer System Usability Questionnaire published by J.R. Lewis[16].

The respondents of this aspects are ITB STIKOM Bali students from the 2023 batch, prospective students and the Management team from Marketing, Front Office (FO), and PSI/MBC departments, with a total of 100 respondents. The questionnaire distribution technique was conducted online using Google Forms and randomly distributed to students and the management department.

4. Efficiency

Efficiency is one of the characteristics in the ISO/IEC 9126 standard that measures how well a system can perform its tasks using the available resources efficiently [17]. The efficiency aspect is tested using the online software GTMetrix. The results of the efficiency test with GTMetrix are presented as values in the form of grades or scores. The higher the score, the better the website's performance.

5. Maintainability

Maintainability is the ability of a system or software product to be easily managed, repaired, and developed by developers or system owners. In the context of software testing, maintainability testing is conducted to evaluate how easily and efficiently the system or software product can be maintained [18]. Data collection on this aspect is carried out using questionnaires.

6. Portability

Data collection on the portability aspect was conducted by accessing the SIAP ITB STIKOM Bali website on five different mobile devices, which have different screen sizes, operating systems, and types.

E. Data Analysis Techniques

1. Functionality

The technique used to test the Functionality aspect is the black-box testing method, which is distributed to 10 participants consisting of prospective students, current students, and administrative staff. After obtaining the results, an analysis is conducted using the following calculation:

$$X = \frac{i}{p}$$

Explanation:
P: Number of functions designed
I: Number of functions successfully implemented

The interpretation of the measurement used is based on the value resulting from the calculation, where a value closer to 1 indicates a higher number of successfully implemented features. In testing the functional suitability aspect, the software can be considered good if X approaches 1 ($0 \leq X \leq 1$).

2. Reliability

The reliability aspect analysis technique is tested using the Web Application Performance Testing (WAPT) software. The results of testing with this tool will generate success rate and failure rate values. The success rate is then analyzed using descriptive analysis techniques aligned with the Telcordia standard based on the obtained feasibility percentage. According to the Telcordia standard, software reliability is considered acceptable if at least 95% or 0.95 of the application functions properly during stress testing using WAPT [19].

3. Usability

In the usability aspect, testing is conducted by distributing the application to 100 respondents. Respondents can also try the system by accessing the system URL on the provided devices. Subsequently, respondents fill out a questionnaire distributed by the researcher.

A validity test is performed to determine whether an instrument is valid or invalid in measuring a research variable, such as a questionnaire. A questionnaire instrument is considered valid if it can accurately measure what it is intended to measure. Thus, validity is related to the "accuracy" of the measuring tool. The requirement for a validity test is that the calculated r-value must be greater than the r-table value. The r-table value for 100 respondents with a 5% significance coefficient is 0.195.

A reliability test is conducted by comparing the r-table value with the results of Cronbach's alpha. The requirement for the reliability test is alpha > r-table. The r-table value with a 5% significance level and 100 respondents, as in the validity test, is 0.195.

Usability data analysis is conducted by calculating the average of the responses based on the score for each answer from the Computer System Usability Questionnaire filled out by the respondents. The formula used for calculation is as follows:

$$Skor = (JSS\ x\ 5) + (JS\ x\ 4) + (JKS\ x\ 3) + (JTS\ x\ 2) + (JSTS\ x\ 1)$$

$$Max\ Skor = JP\ x\ JR\ x\ 5$$

Explanation:
JSS = Number of respondents who answered Strongly Agree
JS = Number of respondents who answered Agree
JKS = Number of respondents who answered Somewhat Agree
JTS = Number of respondents who answered Disagree
JSTS = Number of respondents who answered Strongly Disagree
JP = Number of questions
JR = Number of respondents

After obtaining the total score, the next step is to calculate the percentage to interpret the usability testing results using the formula:

P = (Skor/Max Skor) x 100%

The results obtained are then compared with the percentage results using the following table. The usability and maintainability aspects are considered good if the percentage results indicate the "eligible" criteria.

TABEL II
USABILITY AND MAINTAINABILITY ASSESSMENT CATEGORIES

Percentage Result (%)	Assessment Categories
0 – 20	Very Poorly Eligible
21 – 40	Poorly Eligible
41 – 60	Fairly Eligible
61 – 80	Eligible
81 – 100	Highly Eligible

4. Efficiency

The efficiency aspect analysis technique is carried out using the Yslow and PageSpeed tools available on GTMetrix. Both tools calculate the load time for each web page. According to Nielsen, a good load time is less than 10 seconds [20].

5. Maintainability

Testing the maintainability aspect is conducted by distributing questionnaires to respondents. The calculation of the maintainability score is carried out in the same way as the usability aspect calculation.

6. Portability

In the portability aspect, testing is conducted by running the website on different smartphones, so the data analysis results for the portability aspect are obtained from testing each version to determine whether the displayed pages are functioning correctly without any errors. The technical data analysis for the portability aspect can be calculated using the following formula:

$$P = (BB\ x\ TB)\ x\ 100\%$$

Explanation:
BB = Successful Browser
TB = Total Browser

TABEL III
PORTABILITY ASSESSMENT CATEGORIES

Score	Grade
90 – 100	A
80 – 89	B
70 – 79	C
<69	D

III. RESULT AND DISCUSSION

The following are the results and explanations related to the findings of this study.

A. Functionality

For the functionality aspect, 12 questionnaire items were presented to 10 respondents, consisting of 2 prospective students, 5 current students, and 3 administrative staff. Based on the results, all respondents provided answers that aligned with the expected outcomes. The calculation is presented as follows:

$$X = \frac{i}{p}$$

$$X = \frac{12\ x\ 10\ (respondents)}{12\ x\ 10\ \ (respondents)}$$

$$X = \frac{120}{120}$$

$$X = 1$$

The interpretation of the measurement used is based on the value resulting from the calculation, where a value closer to 1 indicates a higher number of successfully implemented features. In testing the functional suitability aspect, the software can be considered good if X approaches 1 ($0 \leq X \leq 1$). The result obtained is 1, indicating that the SIAP ITB STIKOM Bali website meets the functionality aspect.

B. Reliability

The reliability aspect testing has been successfully conducted by the researcher using the WAPT application. The test results using the WAPT application are illustrated in the image below.

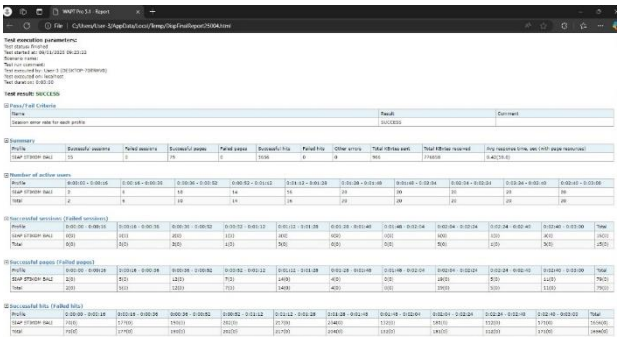

Figure 2. Reliability Test Results using WAPT

The analysis of the reliability test results is as follows:

Session Performance: Successful Sessions: All 15 sessions were completed successfully with no failures (failed sessions = 0). This indicates that the system handled all requests effectively in the tested scenario.

Error Rate: No error rate was detected (0% error rate), which is an indicator that the system operated without technical issues.

Response Time: Average Response Time: The average response time was 0.42 seconds, indicating excellent load testing results for the application. This response time is well below the typical threshold for web applications (5–7 seconds for a good application).

Response Time Stability: There were no significant spikes in response time, even with a maximum of 20 active users, demonstrating the system's stability under this load.

Hits and Pages: Successful Hits: A total of 1,656 hits were successfully completed without failure. Successful Pages: A total of 79 pages were successfully loaded without errors, indicating that the system effectively handled page requests.

*Number of Active Users:*The system was tested with up to 20 active users simultaneously, and all sessions were

successful without any failures. This shows that the system can handle concurrent user loads at the tested level.

Data Transfer: Total KBytes Sent & Received: Data sent (966 KB) and received (776,858 KB) demonstrate that communication between the client and server was smooth, with no disruptions or data loss.

Recoverability: Although no system failure occurred during testing, response time consistency and system stability under stress are used as proxies for recoverability. A stable response time under increasing user load suggests that the system is capable of maintaining or quickly restoring performance in case of disruption.

Based on these results, the system can be considered reliable for the tested load (20 simultaneous users) because there were no failures (error rate = 0%), response times were fast and consistent (0.42 seconds), and the system remained stable under the tested load.

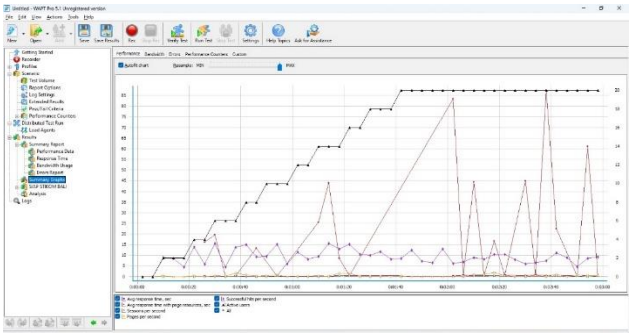

Figure 3. Summary Graph of Reliability Test Results

C. Usability

The usability test was conducted by distributing research questionnaires to 100 respondents to evaluate the performance of the SIAP ITB STIKOM Bali website in terms of usability. A total of 18 questions were distributed, based on the Computer System Usability Questionnaire.

A validity test was performed to determine whether an instrument is considered valid or invalid in measuring a research variable, such as a questionnaire. A questionnaire instrument is considered valid if it accurately measures what it is intended to measure. Thus, validity is related to the accuracy of the measuring tool. The requirement for the validity test is that the calculated r-value (r count) must be greater than the r-table value. The r-table value for 100 respondents with a 5% significance coefficient is 0.195.

The reliability test was conducted by comparing the r-table value with the Cronbach's alpha result. The requirement for the reliability test is alpha > r-table. The r-table value with a 5% significance level and 100 respondents is 0.195, the same as in the validity test.

The results of the validity test using SPSS showed that all questionnaire items had a Pearson correlation value greater than 0.195, indicating that all distributed questions were valid. Below is the documentation of the usability questionnaire validity test results:

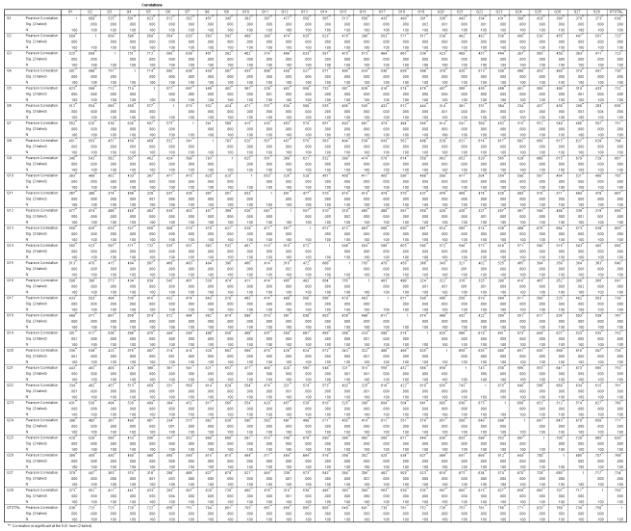

Figure 4. Validity Test Results

The reliability test was also conducted to determine whether the distributed questionnaire was consistent. The reliability test result for the questionnaire was 0.968, which exceeds the r-table value of 0.195, indicating that the questionnaire is consistent. The documentation is as follows:

Reliability Statistics

Cronbach's Alpha	N of Items
.968	28

Figure 5. Reliability Test Results

The usability test results were calculated as follows:

$$Skor = (JSS\ x\ 5) + (JS\ x\ 4) + (JKS\ x\ 3) + (JTS\ x\ 2) + (JSTS\ x\ 1)$$
$$Skor = (916\ x\ 5) + (717\ x\ 4) + (152\ x\ 3) + (14\ x\ 2) + (1\ x\ 1)$$
$$Skor = 7933$$
$$Max\ Skor = JP\ x\ JR\ x\ 5$$
$$Max\ Skor = 18x\ 100\ x\ 5$$
$$Max\ Skor = 9000$$
$$P = (Skor/Max\ Skor)\ x\ 100\%$$
$$P = (7933\ /\ 9000) * 100$$
$$P = 88.14\%$$

The results obtained show a score of 88,14%, which falls into the "Highly Eligible" category. This indicates that the usability aspect of the SIAP ITB STIKOM Bali website is rated highly by respondents, reflecting a positive user experience and ease of use.

D. Efficiency

The efficiency aspect testing has been successfully conducted by the researcher. Based on the results of the efficiency test using the GTMetrix application, the load testing analysis of the SIAP ITB STIKOM Bali website is as follows:

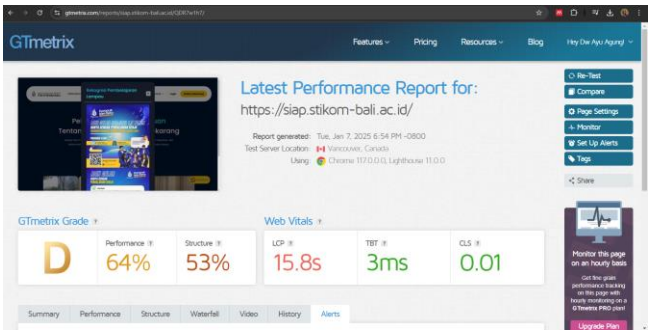

Figure 6. GTMetrix Test Results

Based on the results from GTmetrix displayed in the image, here are the meanings of several key indicators:

Performance Grade (D - 64%)

Performance Grade is the overall performance score of the website based on key metrics. A score of D indicates that the website's performance is suboptimal and requires improvements to enhance speed and user experience.

Structure (53%)

The Structure Score indicates how well the website structure adheres to best practices in web development. A score of 53% means the website structure has several areas for optimization, such as HTML, CSS, or JavaScript code.

TTI (Time to Interactive) - 3ms

TTI is the time it takes for the website to become interactive (i.e., responsive to user input). A time of 3ms is excellent, showing the website is responsive after loading.

CLS (Cumulative Layout Shift) - 0.01

CLS measures the visual stability of the page while it is loading. A value of 0.01 indicates that the elements on the page do not shift much, which is a very good score.

LCP (Largest Contentful Paint) - 15.8 seconds

LCP measures the time it takes for the largest visible element (e.g., image or main text) to load. Ideally, LCP should be below 2.5 seconds. A time of 15.8 seconds is very slow, meaning users have to wait too long before the main content appears.

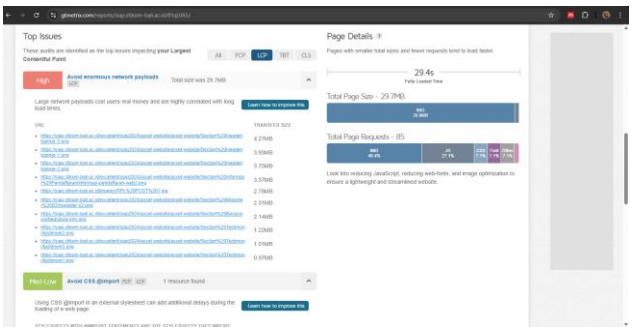

Figure 7. LCP Detail Results

The test results indicate that the LCP value reached 15.8 seconds, which exceeds the recommended threshold for optimal website performance. Several factors contribute to this high LCP value:

Large Network Payloads (High Image Sizes): The total page size is 29.7MB, with images accounting for 28.8MB (49.4%) of the total size. Several large images significantly contribute to the delay in rendering the largest visible element, including: Header/banner images ranging from 3.75MB to 4.27MB and other images with sizes between 0.97MB and 3.37MB. The presence of large images increases loading time, as the browser needs to fetch and render these resources before displaying the main content.

High Number of Page Requests: The website makes 85 total requests, including images, JavaScript (27.1%), CSS (7.1%), fonts (7.1%), and other elements. A high number of requests can delay rendering, as the browser must load multiple assets before fully displaying the page.

Use of CSS @import (Render Blocking Issue): The GTmetrix analysis detected an issue related to CSS @import, which can introduce render-blocking delays. When CSS files are imported in this manner, the browser must first retrieve the external stylesheets before rendering the page, further increasing load time.

Unoptimized JavaScript and Web Fonts: JavaScript contributes to 27.1% of the total page size, which may delay page rendering if not properly optimized. Web fonts account for 7.1% of the page size, potentially impacting text rendering speed.

Conclusion: The website https://siap.stikom-bali.ac.id/ has serious issues with speed and structure, particularly evident from: LCP (15.8 seconds) being extremely slow from the standard is maximum 10 seconds. Structure Score (53%) indicating that the website's code and elements need optimization. TTI and CLS are decent, but they are not enough to provide an optimal user experience. Based on these findings, the high LCP value (15.8 seconds) is primarily caused by large image sizes, a high number of requests, render-blocking CSS, and unoptimized JavaScript. To enhance efficiency, several optimizations are recommended, including image compression, lazy loading techniques, CSS and JavaScript minification, and reducing unnecessary page requests. Implementing these improvements would lead to a faster LCP and a better user experience.

Improvement Recommendations: The improvement recommendations for enhancing the website's performance include several key steps. The Largest Contentful Paint (LCP) of 15.8 seconds on the SIAP ITB STIKOM Bali website indicates performance inefficiencies primarily caused by large image files, excessive page requests, render-blocking CSS/JavaScript, and suboptimal caching strategies. To enhance efficiency, several optimizations are recommended: compressing and resizing images, implementing lazy loading, reducing HTTP requests, minifying and asynchronously loading JavaScript and CSS, enabling browser caching and server-side compression, and limiting unnecessary web fonts

and third-party scripts. These improvements aim to reduce LCP to under 2.5 seconds, ensuring faster load times, better user experience, and improved SEO performance, ultimately making the website more responsive and efficient.

E. Maintainability

The maintainability test consisted of 10 questions, which were distributed alongside the usability test to 100 respondents. This approach ensured that participants could evaluate both aspects simultaneously, providing comprehensive feedback on the system's maintainability. The calculation of the questionnaire results obtained is as follows:

$$Skor = (JSS\ x\ 5) + (JS\ x\ 4) + (JKS\ x\ 3) + (JTS\ x\ 2) + (JSTS\ x\ 1)$$
$$Skor = (459\ x\ 5) + (398\ x\ 4) + (127\ x\ 3) + (14\ x\ 2) + (2\ x\ 1)$$
$$Skor = 4298$$
$$Max\ Skor = JP\ x\ JR\ x\ 5$$
$$Max\ Skor = 10\ x\ 100\ x\ 5$$
$$Max\ Skor = 5000$$
$$P = (Skor/Max\ Skor)\ x\ 100\%$$
$$P = (4298\ /\ 5000) * 100$$
$$P = 85.96\%$$

Based on the maintainability test calculations, the result obtained is 85.96%, indicating that the SIAP ITB STIKOM Bali website falls into the 'Highly Eligible / Maintained' category. This means that the system is considered well-maintained, easy to manage, and efficient in terms of updates and improvements.

F. Portability

The testing of the portability aspect was conducted by accessing the application on five different Android OS and iOS devices. The results of this testing will be presented in the table below:

TABEL IV
PORTABILITY TEST RESULT

No	Phone Type	OS Version	Screen Size (Inchi)	Result
1	Iphone 7+	IoS 15.8.3	5.5	100
2	Iphone 15	IoS 18.2.1	6.1	100
3	Samsung Galaxy Note 8	7.1.1 Marshmallow	6.30	100
4	Iphone 13	IoS 18.1.1	6.06	100
5	Oppo A5s	8.1 Oreo	6.20	100

Based on the results of the testing on the portability characteristic above, the calculation for this characteristic can be seen as follows:

$$P = \frac{500}{500}\ x\ 100\% = 100\%$$

Based on the calculation above, which shows a value of 100%, it can be concluded that the SIAP ITB STIKOM Bali website performs 100% well across different mobile phones, OS versions, and screen sizes. Based on the feasibility percentage calculation, the Talocraft application meets the portability aspect and is categorized into Grade A.

To provide a clearer overview of the assessment results for each quality aspect of the SIAP ITB STIKOM Bali website based on the ISO/IEC 9126 standard, a summary scoring table has been compiled. Each characteristic Functionality, Reliability, Usability, Maintainability, Efficiency, and Portability was evaluated using specific methods aligned with ISO/IEC 9126 indicators shown in table I. The scoring methods vary depending on the characteristic being assessed: Functionality was measured by calculating the ratio of successfully implemented functions to the total number of designed functions; Reliability was evaluated through WAPT load testing; Usability and Maintainability were assessed using online questionnaires distributed to 100 respondents consisting of students, prospective students, and academic staff; Portability was tested through cross-device compatibility; and Efficiency was analyzed using the GTmetrix tool. The following table summarizes the scores, evaluation methods, and categorizations for each aspect:

TABEL II
SCORE SUMMARY

No	Aspect	Score / Percentage	Category	Assessment
1	Usability	88.14%	Highly Eligible	Online Questionnaire (Google Forms, 100 respondents)
2	Reliability	100% (0% error rate)	Highly Reliable	Testing with WAPT (0% error rate, 100% session success)
3	Functionality	1.00 (100%)	Fully Functional	Calculation: Successful Functions / Designed Functions
4	Efficiency	Grade: D – 64% LCP: 15.8s	Need Improvements	GTmetrix Analysis
5	Maintainability	85.96%	Fully Functional Highly Maintained	Online Questionnaire (Google Forms, 100 respondents)
6	Portability	100%	Grade A (Fully Compatible)	Feasibility Percentage Across 5 Devices & OS

IV. CONCLUSION

The research on the "Quality Analysis of the Registration Information System (SIAP) Website of ITB STIKOM Bali using ISO/IEC 9126" shows significant findings across various aspects. The functionality test revealed a result of 1, meaning the website successfully meets the functionality aspect. This score of 1 was obtained from the calculation in the discussion section, point A, by dividing the Number of functions successfully implemented by the Number of functions designed. In terms of reliability, all 15 sessions were completed successfully with no failures (failed sessions = 0) this indicates that the system handled all requests 100% effectively in the tested scenario, no error rate was detected

(0% error rate), which is an indicator that the system operated without technical issues. Usability testing results showed a score of 88.14%, which falls into the "Highly Eligible" category. This indicates that the usability aspect of the SIAP ITB STIKOM Bali website is rated highly by respondents, reflecting a positive user experience and ease of use. The Maintainability test resulted in a score of 85.96%, placing the website in the "Highly Eligible / Maintained" category, meaning the system is considered well-maintained, easy to manage, and efficient in terms of updates and improvements. Both of these scores were obtained through user surveys using online questionnaires distributed via Google Forms. The questionnaire was designed based on the ISO/IEC 9126 standard, and responses were collected from 100 respondents, consisting of students, prospective students, and academic staff. The final percentages were calculated by averaging the total scores from all questionnaire items related to each aspect. In terms of portability, the website achieved a 100% performance rate across different mobile phones, OS versions, and screen sizes, as confirmed by the feasibility percentage calculation, categorizing it into Grade A.

However, the efficiency test identified significant issues related to speed and structure. The Largest Contentful Paint (LCP) time was recorded at 15.8 seconds, exceeding the recommended threshold of 10 seconds. This LCP is primarily caused by large image sizes, a high number of requests, render-blocking CSS, and unoptimized JavaScript. To enhance efficiency, several optimizations are recommended, including image compression, lazy loading techniques, CSS and JavaScript minification, and reducing unnecessary page requests. Additionally, minifying HTML, CSS, and JavaScript files and removing unnecessary elements can enhance structure optimization. Utilizing server caching techniques is also recommended to improve response time. A short-term improvement plan should focus on optimizing images and minifying code, while a long-term strategy should include server enhancements and continuous monitoring to ensure sustained performance improvements. These findings highlight that while the SIAP ITB STIKOM Bali website performs well in functionality, usability, maintainability, portability, reliability and further enhancements in efficiency are necessary to provide an optimal user experience.

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