Combining Webqual 4.0, CSI, and IPA to Evaluate and Improve Website Quality: Case Study Luwu Timur Local Government

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APPROVAL PAGE

PENGGABUNGAN WEBQUAL 4.0, CSI, DAN IPA UNTUK MENGEVALUASI DAN MENINGKATKAN KUALITAS SITUS WEB: STUDI KASUS PEMERINTAH DAERAH LUWU TIMUR

Combining Webqual 4.0, CSI, and IPA to Evaluate and Improve Website Quality: Case Study Luwu Timur Local Government

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This final project has been accepted and ratified to fulfill part of the requirements for obtaining a degree in the Informatics Bachelor Study Program

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STATEMENT SHEET

Hereby, I (Andi Achmad Adjie) declare that my Final Project with the title **Combining Webqual 4.0, CSI, and IPA to Evaluate and Improve Website Quality: Case Study Luwu Timur Local Government** along with all its contents are my own work, and I have not plagiarized which is not in accordance with the scientific ethics that apply in the scientific community. I am ready to bear the risks/sanctions given if in the future a violation of scientific ethics is found in the Final Project book or if there are claims from other parties to the authenticity of the work.

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Combining Webqual 4.0, CSI, and IPA to Evaluate and Improve Website Quality: Case Study Luwu Timur Local Government

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Abstrak
Saat ini, banyak situs web pemerintah yang belum mencapai standar kualitas yang baik dan belum sepenuhnya memenuhi kebutuhan penggunanya, salah satunya adalah Wartalutim. Oleh karena itu, penelitian ini bertujuan untuk mengevaluasi kualitas situs web Wartalutim dan memberikan rekomendasi perbaikan yang dibutuhkan oleh pengguna untuk meningkatkan kualitas situs web pemerintah daerah. Penelitian ini menggunakan Webqual 4.0, Customer Satisfaction Index, dan Importance Performance Analysis. Data dikumpulkan melalui survei pengguna dan dianalisis secara statistik. Hasil pengujian pertama menunjukkan bahwa adanya kesenjangan antara harapan pengguna dengan kinerja situs web. Namun, setelah dilakukan evaluasi dan perbaikan, terjadi peningkatan skor kepuasan pengguna yang signifikan yaitu sebesar 83,26%. Selain itu, hasil analisis IPA juga menunjukkan adanya penurunan kesenjangan antara kinerja website dengan harapan pengguna. Atribut-atribut yang menjadi prioritas perbaikan (U4, U7, I5, S2) juga mengalami peningkatan dari segi kualitas dan memenuhi ekspektasi pengguna. Temuan ini menunjukkan bahwa evaluasi kualitas website yang dilakukan serta penerapan rekomendasi perbaikan yang tepat dapat meningkatkan kualitas situs web dan kepuasan pengguna.

Kata kunci : website quality evaluation, user satisfaction, webqual 4.0, customer satisfaction index, importance performance analysis

Abstract
Currently, many government websites have not achieved good quality standards and have not fully met the needs of their users, one of them is Wartalutim. Therefore, this study aims to evaluate the quality of the Wartalutim website and provide recommendations for improvements needed by users to improve the quality of local government websites. This research uses Webqual 4.0, Customer Satisfaction Index, and Importance Performance Analysis. Data were collected through user surveys and analyzed statistically. The first test results show that there is a gap between user expectations and website performance. However, after do the evaluation and improvement, there was a significant increase in user satisfaction scores of 83.26%. In addition, the IPA analysis results also show a decrease in the gap between website performance and user expectations. The attributes that are prioritized for improvement (U4, U7, I5, S2) have also improved in terms of quality and meet user expectations. These findings indicate that the evaluation of website quality and the implementation of appropriate improvement recommendations can improve website quality and user satisfaction.

Keywords: website quality evaluation, user satisfaction, webqual 4.0, customer satisfaction index, importance performance analysis

1. **Introduction**

Background

The development of ICT has had a huge impact on many sectors of human life, including the government sector. Governments realize that it is important to have a website as a tool to communicate and provide public services to their communities [1]. In addition, government websites can also be used to involve the public in the decision-making process, such as holding online consultations or allowing the public to comment on proposed legislation [2]. One of the websites managed by the government is Wartalutim. This website is managed directly by Luwu Timur Local Government which is used to provide information related to developments and services to the community, which can be accsessed at https://warta.luwutimurkab.go.id/. However, the average website managed by the local government is still at the preparation level and only a few websites have reached the maturation level [3].

Based on the development guidelines of the Web Content Accessibility Guidelines (WCAG), a high-quality website should have good accessibility, attractive, have a responsive design, and provides relevant and high-quality content/information [4]. However, after conducting an initial survey to users of the Wartalutim website to find out their views on the website, it was found that there were several problems faced by users that made the website not reach the standards of good website quality. Based on the survey results, there is a problem with the website's outdated appearance and displaying all the information together, which fills the screen. This causes difficulties for users in learning and searching for appropriate information, thus interfering with the user experience. Figure 1 shows the problems expressed by the respondents. Regarding the website information, respondents revealed that the popular section of the website features news that is no longer relevant, and some categories have not been updated in recent years. Figure 2 illustrates these issues.

Figure 1. Homepage of Wartalutim Website

Figure 2. Irrelevant Information

This problem shows that the Wartalutim website still does not meet the quality standards of a good website. This problem can occur one of them because the website has never been evaluated, besides that this problem can affect user satisfaction and the reputation of the government as the website owner. There are several methods to evaluate the quality of a website, such as WebQual 4.0, WebUse, and WebQEM. This research chose Webqual 4.0 because its dimensions are in accordance with the problems faced on the Wartalutim website, such as measuring the quality of information and the quality of service interaction which are important things on a news

website. This research combines it with the Customer Satisfaction Index (CSI) to measure user satisfaction with certain products or services, such as websites or applications. This research also relies on Importance Performance Analysis (IPA) to help understand how the performance of an attribute can affect website quality and user satisfaction. So that the combination of these three methods can complement each other's shortcomings, such as Webqual 4.0 which can only evaluate website quality but cannot determine the level of user satisfaction, so the CSI method is used to complement this shortcoming. By combining these three methods, this research aims to comprehensively understand the quality of Wartalutim, so that it can formulate appropriate improvement recommendations to increase user satisfaction and overall website quality. This research provides the following theoretical and practical contributions:

- Combining WebQual 4.0, CSI, and IPA to obtain a more comprehensive and integrated website quality evaluation method.
- Improve the quality of the Wartalutim website and the satisfaction of its users.
- improve the quality of the website by implementing appropriate improvements based on the evaluation results.
- Illustrates the importance of maintaining the quality of the website and prioritizing the needs of its users.

Topics and Limitations

Based on the background that has been described, the problem limitation in this study is to evaluate the quality of the Wartalutim website based on end-user perceptions using the WebQual 4.0 method and the Customer Satisfaction Index (CSI), after that make recommendations for improvements to attributes that are prioritized or in quadrant I using the Importance Performance Analysis (IPA) method.

Purpose

This study aims to evaluate the quality of the Wartalutim website using a combination of Webqual 4.0, CSI, and IPA to obtain a more comprehensive and integrated website quality evaluation method and provide appropriate improvement recommendations based on the evaluation results.

Writing Organization

A literature review is explained in the second section, which contains the theory that supports this research. The third section contains the design of the system to be made. The fourth section contains an evaluation of the test, and the fifth section will contain conclusions and suggestions for further research.

2. Literature Review

2.1 E-Government

The development of e-government has significantly impacted both developed and developing countries by increasing the efficiency of public services and public participation in public affairs [4]. E-government refers to a technology-based system that government creates to improve public services by providing various options for accessing general information [5].

One important aspect of e-government development is providing accessible and open access to public information [6]. Through responsive and user-friendly government websites, the public can easily search for the information they need, such as public policies, regulations, government programs, and other public services [7].

2.2 Webqual 4.0

WebQual is a method used to determine the user's perspective on the quality of a website. Stuart Barnes and Richard Vidgen invented this approach in 1998. They used the Quality Function Deployment (QFD) concept, which involves developing and implementing a product or service based on user desires [8]. Since it was developed from the first version, WebQual 1.0, it is now in the fourth version, WebQual 4.0. It has undergone several changes in the preparation of dimensions and question items [9]. Webqual 4.0 has three dimensions: usability quality, information quality, and interaction quality. Usability quality relates to design and usability, such as the ease of users running the website. Information quality refers to content on the website, such as information provided to users. Service interaction quality is related to user trust and empathy when using service interactions [10].

2.3 Customer Satisfaction Index

Customer Satisfaction Index (CSI) is a method used to measure the overall level of user satisfaction by examining the importance of an attribute [11], [12]. This method contains a table containing score criteria

expressed in percentage (%), as shown in Table 1. This table is used to determine whether the user is satisfied or not with the service used [13].

Table 1. CSI Scoring Criteria

No.	CSI Score (%)	Description
1.	81% - 100%	Very Satisfied
2.	66% - 80.99%	Satisfied
3.	51% - 65.99%	Fairly Satisfied
4.	35% - 50.99%	Less Satisfied
5.	0% - 34.99%	Dissatisfied

There are five main steps to determine the CSI score, namely determining the Mean Satisfaction Score (MSS), which is the average score of user satisfaction (1), and the Mean Importance Score (MIS), which is the average score of the importance of an attribute (2). After that, calculate the Weight Factor (WF), which is the percentage weight of the MIS score per index to the overall MIS index (3), then calculate the Weight Score (WS), which is the multiplication weight between WF and MSS (4). Furthermore, determine the CSI score (5) [11].

$$MSS = \frac{[\Sigma_{i=1}^{n} Xi]}{n} \qquad (1)$$

$$MIS = \frac{[\Sigma_{i=1}^{n} Yi]}{n} \qquad (2)$$

$$WF = \frac{MISi}{\Sigma_{i=1}^{p} MISi} \; x \; 100\% \qquad (3)$$

$$WS = WFi \; x \; MSS \qquad (4)$$

$$CSI = \frac{\Sigma_{i=1}^{p} WS(i)}{HS} \; x \; 100\% \qquad (5)$$

2.4 Importance Performance Analysis (IPA)

Importance-Performance Analysis (IPA) is a method used to assess customer satisfaction with the quality of a company's products or services, proposed by Martilla and James [14]. This method can help prioritize resources and efforts to improve customer satisfaction by focusing on attributes that customers think are important, but have poor performance scores [15].

The IPA method combines performance metrics and user interests in a two-dimensional view for easy data interpretation [16]. The quality of each attribute is determined by four quadrants (Figure 3). Quadrant I is a priority for improvement because users need essential information, but because the website conditions are less supportive, users feel dissatisfied. Quadrant II is a performance determination where website users are already satisfied, so it is necessary to maintain the performance of the website work system. Quadrant III is not prioritized because it has a trim level of importance for users and has low performance, so it is not a priority for improvement. Quadrant IV is where website developers are considered too excessive in building websites, but have little importance for users [17].

This analysis is split into two processes: the gap analysis obtained from the average score of user satisfaction minus the average score of the importance of each attribute (6). Meanwhile, the quadrant analysis maps the MSS and MIS scores into four quadrants. The division of quadrants in the Cartesian diagram requires a cut-off point between the X-axis (Performance) and the Y-axis (Importance) obtained from the division between the sum of the average scores of all performance attributes (ΣMSS) or importance (ΣMIS) with the number of all attribute statements (S) (7 and 8) [18].

$$Gap = MSS\,(i) - MIS\,(i) \qquad (6)$$

$$X = \frac{\Sigma MSS}{\Sigma S} \qquad (7)$$

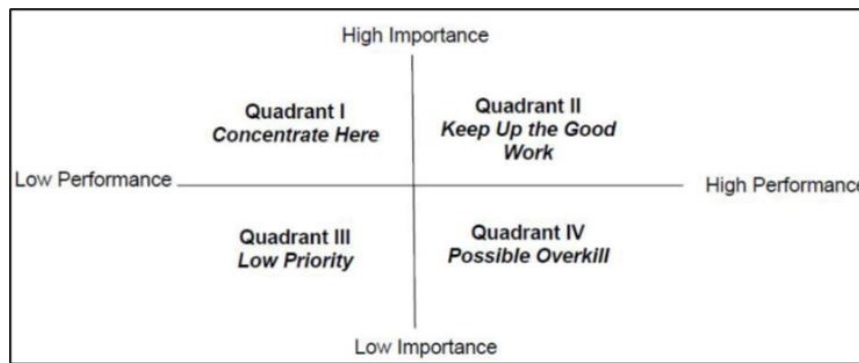$$Y = \frac{\Sigma MIS}{\Sigma S} \qquad (8)$$

Figure 3. Original IPA Cartesian Diagram [19]

3. METHODOLOGY

As illustrated in Figure 4, there are various steps in this research. Each stage is explained in detail below:
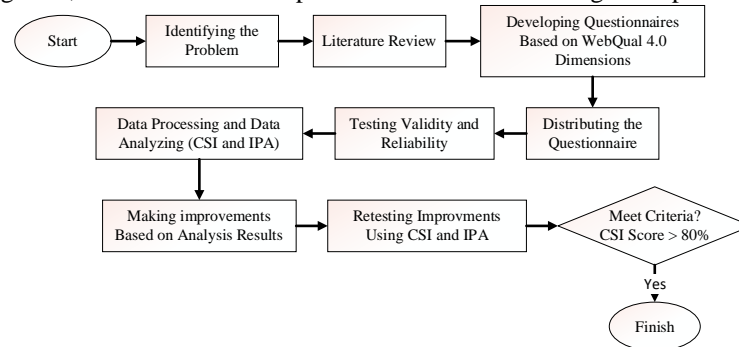

Figure 4. Flow of Research

3.1 Identifying the Problem and Literature Review

This stage is taken to observe the surroundings and identify any difficulties or unmet demands. Furthermore, the problem is stated clearly and precisely so that it becomes the focal point of the research that will be conducted. While conducting a literature review to better understand the problem at hand.

3.2 Creating and Distributing Questionnaire

This questionnaire is based on the attributes covered in WebQual 4.0, namely Usability Quality, Information Quality, and Service Quality as shown in Table 2. The questionnaire is then distributed online to website users who are the sample in this study. Users are asked to answer the statements in the questionnaire using a rating scale, namely the Likert scale and have two types of answers for each statement which can be seen in Table 3.

Table 2. Webqual 4.0 Attributes

Dimension	Attribute Code	Attribute
Usability Quality	U1	The site easy to use
	U2	The site easy to navigate
	U3	Interaction with the site is clear and understandable
	U4	The site has an attractive appearance
	U5	Appropriate to the type of site
	U6	Positive experience
	U7	Conveys a sense of competency
	U8	Easy to learn to operate
Information Quality	I1	Provides accurate information
	I2	Provides believable information
	I3	Provides relevant information
	I4	Easy to understand information

	I5	Information at the right level of detail
	I6	Information in appropriate format
	I7	Provide information on time
Service Quality	S1	The site has a good reputation
	S2	The site provides a sense of security
	S3	Communicate with the organization
	S4	Sense of personalization
	S5	Confident that services will be delivered as promised

Table 3. Likert Scale

No	Importance level	Score	Satisfaction Level
1	Very Important	5	Very Satisfied
2	Important	4	Satisfied
3	Fairly Important	3	Fairly Satisfied
4	Not Important	2	Not Satisfied
5	Very Unimportant	1	Very Dissatisfied

3.3 Testing Validity and Reliability

A validity test is used to measure how good the quality of a measuring instrument is in carrying out its function [20]. The validity test in this study uses the Pearson Product Moment formula by correlating each item score with the total score obtained from the respondent's answer and producing a correlation coefficient. Attributes are declared valid if each attribute correlates significantly with the total score. Meanwhile, the reliability test is carried out to measure an attribute that is an indicator of a variable. Attributes are declared reliable with a Cronbach alpha value above 0.60 [16].

3.4 Data Processing and Data Analysis

Data processing was carried out using Statistical Product and Service Solution (SPSS), a data processing and analysis software that can perform statistical analysis [21]. Then the Customer Satisfaction Index (CSI) method is used to measure user satisfaction with the website based on the attributes in WebQual 4.0. The results are mapped using the Importance Performance Analysis (IPA) approach, which analyzes the level of importance of a website component and how that aspect is viewed by users, allowing it to be determined which portions of the website should be enhanced and which should be kept.

3.5 Creating and Testing Improvements Based on Analysis Results

Improvements in the form of website design prototypes based on website attributes that need to be improved. The results of this website design prototype are used as input to improve the quality of the Wartalutim website. After that, the prototype is tested again by conducting a survey to the same respondents to find out whether the suggested improvements are in accordance with user expectations. If the user satisfaction value is above 80%, then the improvement results can be said to be successful.

4. Evaluation

4.1 Population and Sample

The population of this study consists of visitors to the Wartalutim website who have experience using similar websites or news services to find information. Based on data analysis from the similarweb website, the number of website visitors for three months (November, December 2022, and January 2023) was 44,699 people. We used the Isaac and Michael equation (1) [22], for sampling and applied the simple random sampling technique. In this technique, researchers randomly selected respondents from 44,699 website visitors. Referring to (9), variable S has a value of 67.55 (rounded to 68), so this research targets 68 respondents.

$$S = \frac{\lambda^2.N.P.Q}{d^2(N-1)+\lambda^2.P.Q} \qquad (9)$$

The sample demographics identified covered a range of factors, including age, domicile, and job. Table 4 provides a summary of the sample demographics.

Table 4. Demographics of Sample

Demographics		Number of Sample (Percentage)
Age	<20 Years	11 (16.2)
	20-30 Years	21 (30.9)
	31-40 Years	13 (19.1)
	41-50 Years	19 (27.9)
	>50 Years	4 (5.9)
Domicile	East Luwu	64 (94.1)
	Outside East Luwu	4 (5.9)
Job	Employee	25 (36.8)
	Service Wage Labor	27 (39.7)
	Students	16 (23.5)

4.2 Validity and Reliability Test Results

Researchers conducted validity and reliability tests on 37 respondents before distributing questionnaires to 68 respondents. For the validity test using Pearson Product Moment, where the results of all 20 attributes in the three dimensions of Webqual 4.0 are valid because the correlation coefficient value is greater than the rTable value, which is 0.325 for a significant value of 5%. The validity test results are shown in Figure 5.

As shown in Table 5, the reliability test results show that the Cronbach alpha value for each data on 20 attributes is greater than 0.60, which means it can be concluded that all attributes in the study are declared reliable as a data collection tool.
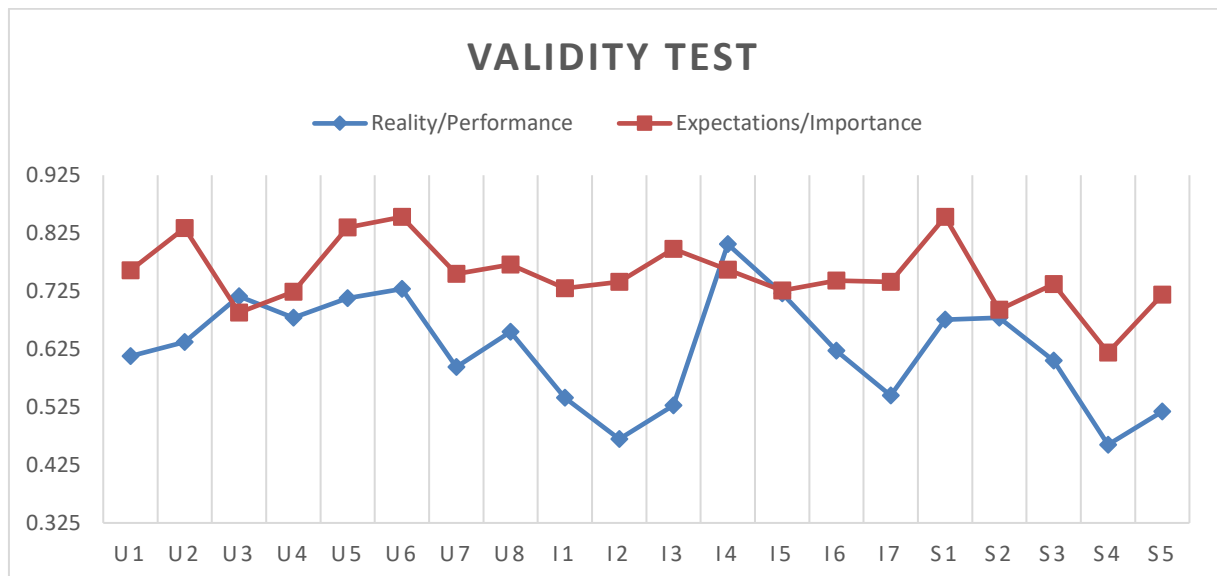

Figure 5. Validity Test Results

Table 5. Reliability Test Results

Dimension	Cronbach Alpha		Description
	Performance	*Importance*	

Dimension	Cronbach Alpha		Description
	Performance	*Importance*	
Usability Quality	0.927	0.934	Reliable
Information Quality	0.853	0.948	Reliable
Service Interaction Quality	0.883	0.886	Reliable

4.3 Data Analysis Using Customer Satisfaction Index (CSI)

All data that has been collected previously is measured using the CSI method to get a user satisfaction score in the first test.

Table 6. CSI Analysis Results on the First Test

Code Attribute	MSS	MIS	WF	WS
U1	4.13	4.09	4.82	19.91
U2	3.97	4.03	4.75	18.86
U3	3.87	4.18	4.92	19.04
U4	3.81	4.34	5.11	19.47
U5	3.93	4.22	4.97	19.53
U6	3.99	4.25	5.01	19.96
U7	3.94	4.28	5.04	19.88
U8	4.04	4.29	5.06	20.47
I1	4.15	4.38	5.16	21.42
I2	4.09	4.38	5.16	21.11
I3	4.09	4.28	5.04	20.62
I4	4.15	4.29	5.06	20.99
I5	3.90	4.35	5.13	19.99
I6	3.93	4.15	4.89	19.19
I7	4.04	4.40	5.18	20.96
S1	4.94	4.21	4.96	19.54
S2	3.91	4.35	5.13	20.07
S3	3.72	4.16	4.90	18.25
S4	3.66	4.01	4.73	17.33
S5	3.99	4.21	4.96	19.75
Total	79.25	84.85	100	WT = 396.31
CSI Score = 79.26%				

Table 6 shows that users are satisfied with the website's performance, with a satisfaction level of 79.26%. Therefore, the developer needs to maintain or improve its services' quality.

4.4 Data Analysis Using Importance-Performance Analysis (IPA)

Figure 6 shows the gap between user satisfaction (MSS) and user expectations (MIS), where most attributes have negative gap values. The average performance value in the first test is 3.96, while the average importance value is 4.24, with a gap value of -0.28. These results indicate that although users are satisfied with the service quality, some attributes still do not meet user expectations.
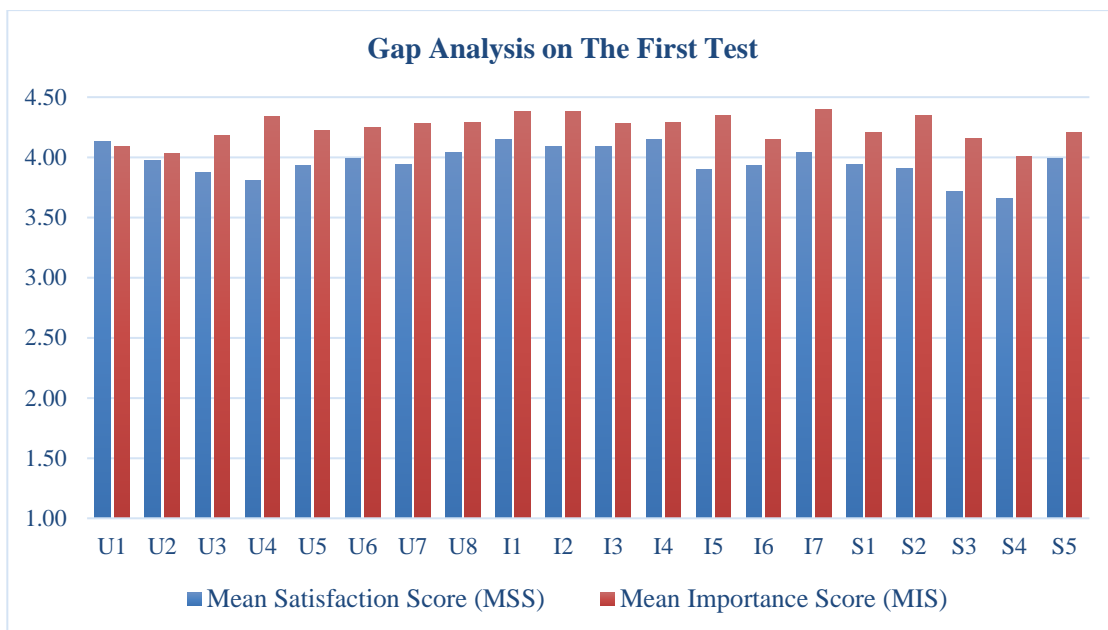
Figure 6. Gap Analysis on The First Test

Furthermore, quadrant analysis is carried out in the first test to determine which attributes need to be prioritized for improvement, and the results of this analysis will be displayed in a Cartesian graph which is divided into four quadrants, where the X-axis indicates reality/performance while the Y-axis indicates expectations/importance. Figure 6 shows the division of each attribute into quadrants:
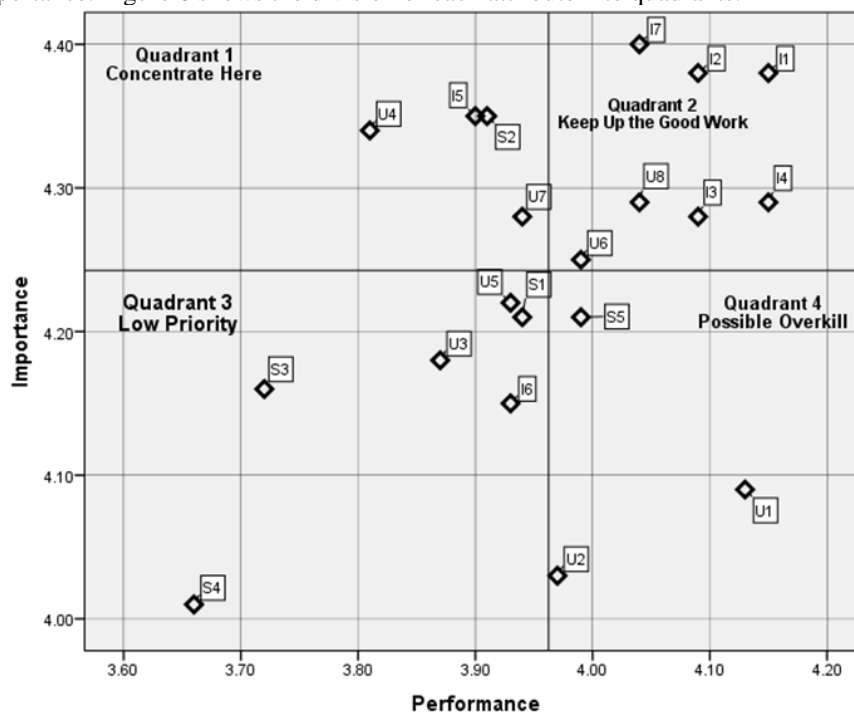

Figure 7. Quadrant Analysis of the First Test

- Quadrant I is a priority for improvement because it has high importance for users, but low performance. Four attributes are in quadrant I: U4, U7, I5, S2.

- Quadrant II is essential for users and has high performance, so it needs to be maintained. In quadrant II. There are seven attributes: U6, U8, I1, I2, I3, I4, I7.

- Quadrant III has low importance and performance, so it does not require special attention. There are six attributes that are in quadrant III: U3, U5, I6, S1, S3, S4.

- Quadrant IV has low importance for users but has high performance, so it can be used to improve other attributes of available resources. Three attributes are in quadrant IV: U1, U2, S5.

4.5 Creating Improvements Based on Analysis Results

The results of the previous analysis were used to increase user satisfaction and improve the quality and performance of this government news website. The improvement proposed in this study is to create a prototype that follows two design guidelines: Research-based Web Design & Usability Guidelines [23] and Web Content Accessibility Guidelines [24]. In addition, to determine the design that suits the problems in the attributes that are prioritized for improvement, the researcher used a paper written by [25] entitled Determinants of successful Website design: relative importance and recommendations for effectiveness, such as provide contact information on each page, use simple background colors and textures, use thumbnails, provide free services or useful information, keep navigation consistent, protect your copyrights, and provide an effective search engine in the site. This helps ensure that the prototype design meets the set standards and criteria and that users have a pleasant experience when accessing the prototype design. Table 7 contains the prioritized attributes for improvement and guidelines for website quality improvement.

Table 7. Improvement Guidelines

Attribute (Code)	Guideline
The site has an attractive appearance (U4)	Use appropriate colors and contrast between background and text (WCAG 2.1 Guideline 1.4.1)
	Use an easy-to-read font size and typeface. (WCAG 2.1 Guideline 1.4.4)
Conveys a sense of competency (U7)	Use good quality images that are relevant to the content (Research-Based Web Design & Usability Guidelines Chapter 14:8)
	Provide a clear and detailed "About Us" page, which explains the vision and mission that will help increase trust and a sense of professionalism for visitors (WCAG 2.1 Guideline 1.3.1)
Information at the right level of detail (I5)	Provide a search feature to help users find the information they need (Research-Based Web Design & Usability Guidelines chapter 17:4)
	Organize information in a clear and logical hierarchy (Research-Based Web Design & Usability Guidelines chapter 16:1)
The site provides a sense of security (S2)	Display clear contact information, including address, phone number, and email address (Research-Based Web Design & Usability Guidelines chapter 10:9)
	Ensure the website uses a trustworthy identifier, such as the website logo (Research-Based Web Design & Usability Guidelines chapter 14:5)

A prototype design was developed using the React.js framework based on the improvement suggestions above. Figure 8 shows an example of a website display that has been improved. The overall improvement, which includes all design prototypes, can be seen through the link https://wartalutim-new-prototype.netlify.app/. These design prototypes are implemented to enhance the overall quality and performance of the website following the suggested design guidelines described earlier.
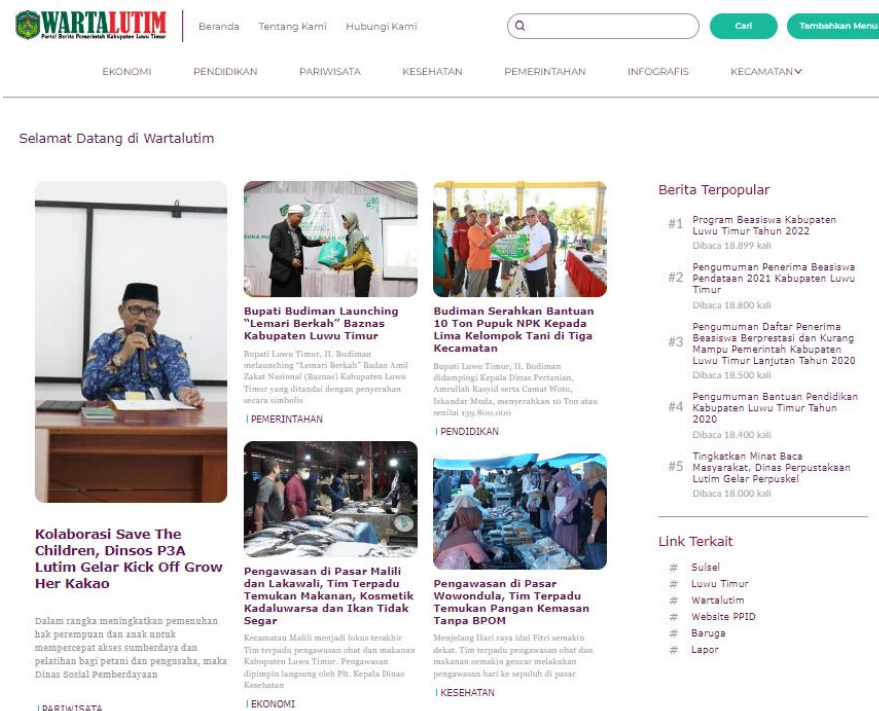
Figure 8. Example of Improvement

- Improvements to the U4 attribute are made by giving a light background color and combined with a dark text color so that readers can easily see the content provided on the website. In addition, the use of fonts and font sizes that are adjusted to the content to make it easier for website users to read.

- Improving the U7 attribute is done by providing high-quality images that can provide a clear and relevant context for the content displayed, as well as adding an "About Us" page that contains a detailed explanation of the website so that it gives a professional impression on the website.

- Improvements to the I5 attribute are made by adding a search feature that can make it easier for users to find the information needed in a short time, as well as organizing information coherently and clearly so that users do not feel confused when accessing the website.

- Improvements to attribute S2 are made by adding a footer element that contains the contact person in charge of the website so that it can increase a sense of security for users and not be confused to make complaints when something unwanted happens. In addition, displaying the website logo to build brand awareness and increase user trust so that they feel more at home on the website to find information.

4.6 Assessing the Improvement Results in the Second Test

After improving the prioritized attributes, the questionnaire was distributed to the same respondents. According to the findings of the CSI analysis in this second test, an increase in user satisfaction was found, namely 83.28%. The improvement results reached the predetermined success category threshold above 80%, this indicates that the improvements made based on the evaluation can meet the needs of users. Table 9 shows the results of the CSI analysis in this second test. Figure 8 shows comparison of gap analysis results between user satisfaction (MSS) and user expectations (MIS) in the first and second tests with an average performance value of 4.16, while the average importance value is 4.21 in the second test with a gap value between the first and second tests is -0.05, this indicates that the improvements that have been made are successful.

Based on this improvement's results, the attributes previously prioritized for improvement (U4, U7, I5, S2) have improved in this second test by moving into quadrant II, as shown in Figure 9. However, in the second test, one attribute falls into quadrant I, namely, Provide information on time (I7). This website prototype was made to test new features or designs before the website was launched. In this prototype phase, the data generated is not yet dynamic, which means that the data is still obtained from predetermined sources and cannot change according to the time or current events.

Table 9. CSI Result on the Second Test

Code Attribute	MSS	MIS	WF	WS

| Code Attribute	MSS	MIS	WF	WS
U1	4.19	4.13	4.90	20.54
U2	4.17	4.13	4.90	20.43
U3	4.13	4.19	4.98	20.54
U4	4.21	4.26	5.05	21.28
U5	4.15	4.06	4.82	20.02
U6	4.09	4.13	4.90	20.02
U7	4.19	4.43	5.25	22.02
U8	4.17	4.23	5.03	20.96
I1	4.19	4.23	5.03	21.07
I2	4.17	4.32	5.13	21.38
I3	4.23	4.28	5.08	21.50
I4	4.26	4.34	5.15	21.93
I5	4.21	4.28	5.08	21.39
I6	4.11	3.98	4.72	19.40
I7	4.06	4.38	5.20	21.15
S1	4.21	4.23	5.03	21.18
S2	4.21	4.36	5.18	21.81
S3	4.23	4.19	4.98	21.07
S4	3.87	3.91	4.65	18.00
S5	4.19	4.17	4.95	20.75
Total	79.06	80.06	100	WT = 416.42
CSI Score = 83.28%				
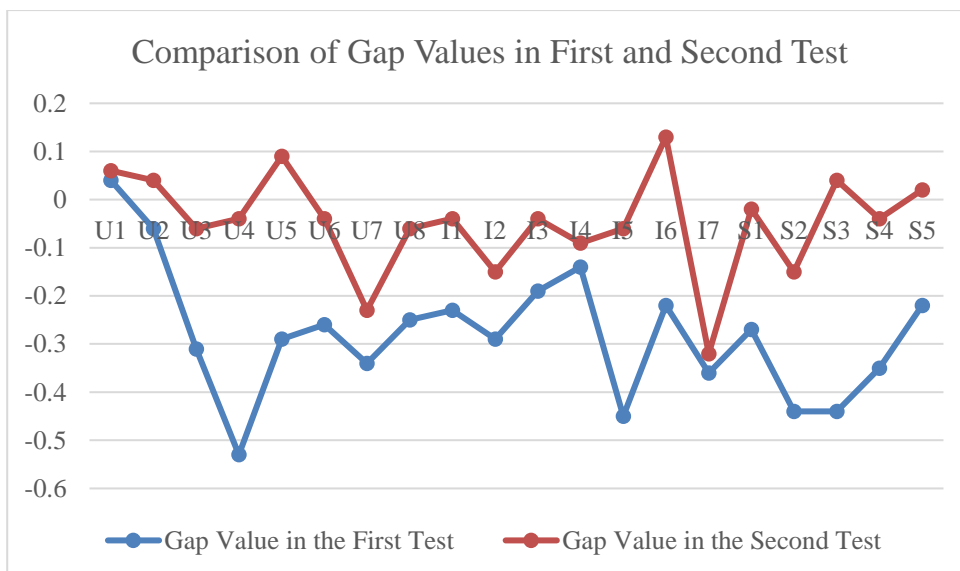
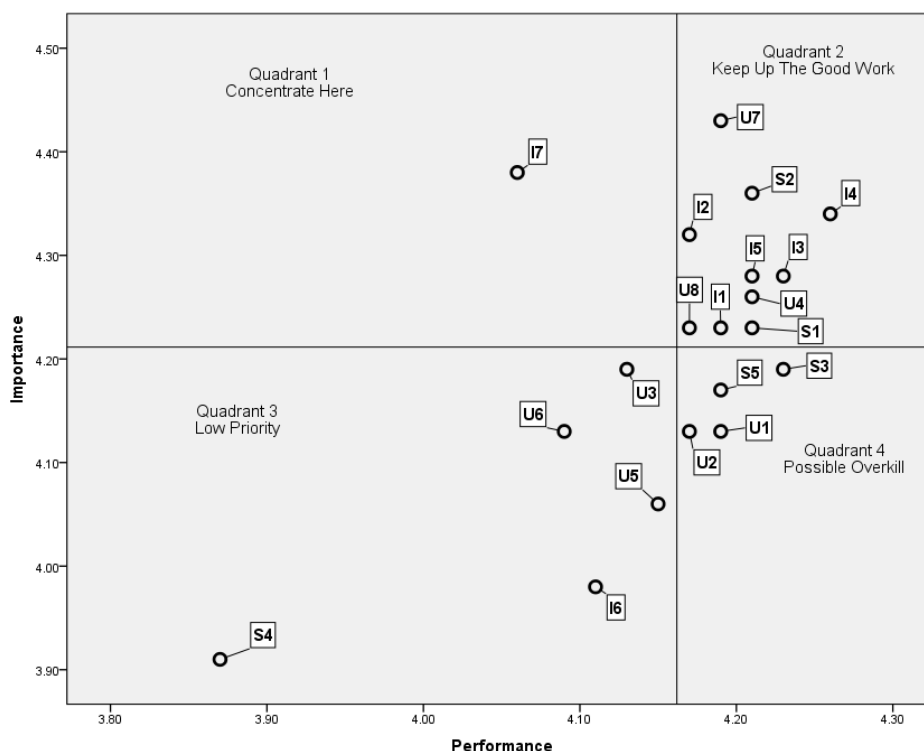**Figure 9. Comparison of Gap Values in First and Second Test**

Figure 10. Quadrant Analysis on the Second Test

5. Conclusion

Based on the findings of this study, it is possible to deduce that the combination of WebQual 4.0, Customer Satisfaction Index (CSI), and Importance Performance Analysis (IPA) are effective in evaluating and improving website quality. The evaluation succeeded in understanding user perceptions of the website, identifying problematic attributes, and determining improvements that meet user needs. Through the implementation of these improvements, there was an increase in the quality of the Wartalutim website and user satisfaction. It shows that it is essential to continuously evaluate government websites to ensure adequate public services and improve user experience accessing information and services. However, this research still has some limitations, such as research only conducted on users limited to specific samples, such as users who have used the website only. In addition, this research only led to two stages of testing, namely the first test and the second test after improvement. Although the results of the second test showed an improvement, more testing stages can provide a more detailed understanding of the effectiveness of improvements.

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