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An Analysis and Measurement of Website Quality Using WebQual 4.0 and Importance Performance Analysis (IPA) Method (A Case Study of Kemiriamba Village Brebes)

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Abstract. Based on the Law of the Republic of Indonesia number 6/2016 regarding villages, it is said that regional governments are obliged to develop village information systems in implementing e-government towards good governance. In Indonesia, e-government continues to increase in number, but it is not accompanied by quality, including the Kemiriamba Village website. This study was aimed to measure the quality of the Kemiriamba Village website using the Webqual 4.0 method and Importance Performance Analysis (IPA) with 4 (four) instruments, namely Usability Quality, Information Quality, Service Interaction Quality and Visual Quality. This study is descriptive with a quantitative approach. The questionnaire data were 132 and were processed with SPSS software. The results of the analysis and measurement stated that the suitability level of the Kemiriamba Village website was 96.63%, and the average value of the gap was negative, which was -0.11, which meant that the performance level of the Kemiriamba Village website still did not meet user satisfaction and expectations, especially in Service Interaction Quality. The main priority that needs to be corrected and improved immediately is the website attribute; it should have a good reputation. Moreover, the questions, suggestions and complaints need to be processed as promised. The results of this study suggested the Kemiriamba Village website to immediately make improvements and development in order to become a qualified website towards good governance.

1. Introduction

Since the reform era of Indonesia in 1998, a new paradigm was born in the Indonesian government system that is an improvement of better service and public participation in the progress of the nation. In Indonesia the paradigm is called good governance. Villages have the rights to access information through the village information system. The local government is obliged to develop a village information system. Governments, the local government in particular should be able to utilize the advances in information and communication technology to process, distribute information and public services [1]. In realizing good governance in terms of accountability and public transparency, so directed policy steps are needed to the achieve a change in the system [2].



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The Kemiriamba Village website was built to convey the important information from villages, provinces and countries to the community. In addition, it is also as a media to promote the potential of the region, providing an easy interaction and administrative services between local governments and the community. Many residents of Kemiriamba Village aside from farmers also work overseas in Jakarta and abroad. With this website it is hoped that people who are now living outside the city and abroad can monitor the development of the village from the information and the agenda of the village event. Moreover, they can also interact with the village through online chat and also easily get other public services. The website of Kemiriamba Village which is www.kemiriamba.desa.id has been formally launched on February 22, 2017 and since then there has been no assessment and improvement.

Implementation of e-government has a positive influence on good governance and is significantly influenced by e-service [3]. E-government initiatives have a direct impact on citizens. Transformation from traditional government to governance leads to good governance [4]. It can be concluded that service factor has an enormous influence on the success of an e-Government. The development of e-government in Indonesia in quantity began to increase but not evenly distributed, but in terms of quality there are still many factors that do not meet the good standard [2]. The challenge of the formation of E-Government is that local governments are able to provide quality public services. The quality of E-Government services should be analyzed and elaborated on what strategies are capable of improving the services provided to improve beneficiary satisfaction [5]. The ultimate goal of e-government implementation is a good governance where the government must be able to provide and deliver public services to the community efficiently and effectively [6], while the other opinion that the ultimate goal of e-government implementation is the government needs to achieve good governance while the success of egovernment requires good governance practices [7]. The role of government towards e-government is as a manager, regulator, controller and supervisor who delivers the latest news, whether it is general information or information about the government, for example information on programs, ongoing and upcoming events, so that people can get information anywhere, anytime [8].

Previous study related to quality measurement website using Webqual 4.0 method and Importance Performance Analysis (IPA) showed that one part of the academic information system needs to be improved in order to get the trust and satisfaction the students [9]. The next study showed that the website of PDAM Surya Sembada Surabaya has never been evaluated so it is still unknown whether the website has met the expectations of users or not. However, the results of his research showed that the website needs improvement [10]. Based on that study, the usability factor has a cognitive effect on website quality. The results suggested to change the look of the website to be more attractive, provide accurate and up-to-date information so that people, businessmen and governments could get information quickly [11]. To measure the quality of Kemiriamba Village website using Webqual 4.0 method there are 4 (four) instruments namely Usability Quality, Information Quality, service interaction Quality and Visual Quality, the result is that in terms of Service Interaction Quality there needs to be an immediate improvement in order to become a quality website [12].

A quality measurement website using Webqual 4.0 can help website managers adjust the quality of the website according to the user's perception of the website [13]. Analysis by combining several evaluation and impact evaluation factors will help decision makers rather than using one approach [14].

This advanced research will add one more method which is Importance Performance Analysis (IPA) method with measurement based on performance level and importance level of user perception. The author aims to know the results of the analysis of each method. The results of analysis and measurement from Webqual 4.0 and IPA can be used as a recommendation for the improvement of Kemiriamba Village website to have good quality in terms of usability,

information, service and visual to user satisfaction. The results of this study will contribute to improve the quality of Kemiriamba Village website.

Meanwhile, in conducting this research, the authors contributed in certain area in accordance to his expertise. As the chief of this research team, Husni Faqih is responsible for the quality of the research content, making sure that the final inscription of the research is well written. Alongside with Warjiyono, the questionnaire as the research instrument was created. Afterwards, the data obtained was analyzed by Sopian Aji and Angga Ardiansyah. Therefore, contributing in the review of literature to support the theory, Fandhillah is in charge to collect related literature complement. Lastly, Fiola Kuhon contributes in diction and translating the inscription of this research.

2. Methodology

This study is a descriptive research with quantitative approach. Quantitative method is a method that can be used for surveys to obtain data that have occurred in the past or present about opinions, behavior, and beliefs to test some hypotheses [15]. This research uses survey technique to get primary data by spreading the questionnaire. In determining the sample or respondent, a random sampling is used.

This study uses questionnaire as the instruments that are composed by using closed questions. Questions in the performance level questionnaire and importance level are made using the 5-point Likert scale, which is scale 1 (strongly disagree / important), 2 (disagree / important), 3 (undecided), 4 (agree / important), and 5 (strongly agree / important).

Webqual is a method used to measure the quality of a website based on the perception of the end user website [16]. IPA is used to compare consumer ratings of the importance of service quality (importance) with the level of service quality performance (performance) is described into the Cartesian diagram [17]. Importance Performance Analysis (IPA) is a method to analyze and compare the level of performance or service to the level of satisfaction [18]. Importance Performance Analysis (IPA) will identify the important factors of performance and produce the priority scale that will be used by the organization in an effort to meet customer satisfaction.

This study examines the quality of the website of Kemiriamba Village from the user's perception of the website by using Webqual 4.0 method and Importance Performance Analysis (IPA) method. Check in Table 1.

Based on table 1, a research instrument for measuring website quality. There are 4 (four) instruments namely Usability Quality, Information Quality, Service Interaction Quality [19] and additional Visual Quality instruments taken from the Design category [20]. Thus, there are 4 (four) instruments to be tested on User Satisfaction. The results of this study will contribute to improve the quality of Kemiriamba Village website.

The research update is on the object of research (website kemiriamba.desa.id) which has never gotten its quality, which in this study uses the WebQual 4.0 Method and Importance Performance Analysis (IPA) from the user's perception.

3. Result and Discussion

The population of this study is 150 respondents who are selected from Kemiriamba Village community who have had an experience in accessing www.kemiriamba.desa.id. After the 150 questionnaires has been collected and the data have been recorded then clearing data sample was carried out to retrieve the questionnaire data that was filled in perfectly. In the clearing process, 132 data were obtained and ready to be processed.

3.1. Webqual 4.0

3.1.1. Validation Test Validation test is done by correlation technique, it is too see the correlation value of r-count, this correlation value is compared to r-table value (table of

Indicator	Description		
Usability Quality	1. Users find it easy to learn to operate		
	2. User interaction with the website is clear and understandable		
	3. Users find it easy to navigate		
	4. Users feel the website easy to use		
	5. Website has an interesting appearance		
	6. Design according to the type of website		
	7. Website conveys competence		
	8. Website creates a positive experience for users		
Information Quality	9. Provide accurate information		
	10. Provide reliable information		
	11. Provide timely information		
	12. Provide relevant information		
	13. Giving easy to understand information		
	14. Provide information at the appropriate level of detail		
	15. Present the information in the proper format		
Service Interaction Quality	16. Website has a good reputation		
	17. Users feel secure to complete the transaction		
	18. Users feel secure regarding his personal information		
	19. Website creates space for personalization		
	20. Website gives space for the community		
	21. Website make it easy to communicate with organizations		
	22. I feel confident that the goods/services will be delivered as promised		
Visual Quality	23. Website using appropriate fonts/letters		
	24. Website use attractive color and styles		



Figure 1. Research Framework

relationship coefficient "r" moment of product), where a measuring instrument is said to be valid if the correlation r-count z r-tabel [21]. In this study 5% significance test is used and from 132 samples (N = 132) r-table value obtained is 0.178. The following is the correlation table and the result of the measurement tool validity analysis of each variable. Check in Table. 2.

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No	Indicator	Pearson Correlation	Value Table-r	Info
1	q1	0,451	0,178	Valid
2	q2	$0,\!628$	$0,\!178$	Valid
3	q3	0,504	$0,\!178$	Valid
4	q4	0,202	$0,\!178$	Valid
5	q5	0,418	$0,\!178$	Valid
6	$\mathbf{q6}$	0,232	$0,\!178$	Valid
$\overline{7}$	q7	0,555	$0,\!178$	Valid
8	q8	0,303	$0,\!178$	Valid
9	q9	0,613	$0,\!178$	Valid
10	q10	$0,\!478$	$0,\!178$	Valid
11	q11	0,406	$0,\!178$	Valid
12	q12	$0,\!450$	$0,\!178$	Valid
13	q13	0,265	$0,\!178$	Valid
14	q14	0,535	$0,\!178$	Valid
15	q15	0,644	$0,\!178$	Valid
16	q16	$0,\!605$	$0,\!178$	Valid
17	q17	0,566	$0,\!178$	Valid
18	q18	0,414	$0,\!178$	Valid
19	q19	0,537	$0,\!178$	Valid
20	q20	1	$0,\!178$	Valid

 Table 2.
 Validation Test

3.1.2. Reliability Test Test reliability is done by checking the value of Cronbach's Alpha. The alpha coefficient is used as a measure of internal consistency. The more the value approaches 1, the greater the internal consistency of the items in the questionnaire [21]. As a rule of thumb, Cronbach's Alpha value above 0.7 is adequate for social science research [22]. Check in Table 3.

Variable	Cronbach's Alpha	Value Table-r	Info
UQ	0,303	0,178	Reliable
IQ	$0,\!692$	$0,\!178$	Reliable
SIQ	0,762	$0,\!178$	Reliable
VQ	$0,\!422$	$0,\!178$	Reliable

Table 3. Reliability Test

Based on table 3, the results of the reliability test stated that 4 (four) indicators, namely Usability Quality, Information Quality, Service Interaction Quality, Visual Quality are declared as reliable and and feasible as an instrument in this study.

3.1.3. Linier Regression Test Based on table 4, the results of linear regression test revealed that the relationship between Usability Quality with User Satisfaction (user satisfaction) with the value of TH = 2.518 and sig 0.018 has a significant relationship. Next is the relationship between Information Quality with User Satisfaction (user satisfaction) with the value of TH = 5.543 and sig 0,000 otherwise have a significant relationship. Furthermore, Visual Quality with User Satisfaction (user satisfaction) with the value of TH = 5.720 and sig 0,000 stated has a

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Variable	Koefisien Regresi	T-Hitung	T-Table	sig.
UQ	0,024	2,518	1,661	0,018
IQ	0,082	$5,\!543$	$1,\!661$	$0,\!000$
SIQ	0,018	-0,060	$1,\!661$	0,952
VQ	$0,\!172$	5,720	$1,\!661$	0,000

 Table 4. Linier Regression Test

significant relationship. While the Service Interaction with User Satisfaction (user satisfaction) with the value of TH = -0.060 and sig 0.952 expressed no significant relationship.

3.2. Importance Performance Analisys

Indicator	Importance	Performance	Gap
1	3,92	3,85	0,07
2	$3,\!85$	$3,\!67$	$0,\!18$
3	4,12	3,01	$1,\!11$
4	$3,\!88$	3,81	$0,\!07$
5	$3,\!67$	$3,\!48$	$0,\!19$
6	$3,\!64$	3,50	$0,\!14$
7	$3,\!68$	3,73	0,03
8	3,82	3,83	0
9	$3,\!41$	$3,\!44$	0,01
10	3,56	$3,\!43$	$0,\!13$
11	3,20	$3,\!10$	$0,\!10$
12	$3,\!28$	3,34	-0,06
13	3,88	3,42	$0,\!46$
14	3,22	$3,\!14$	0,08
15	$3,\!30$	3,33	-0,03
16	$3,\!58$	$3,\!63$	-0,05
17	$3,\!43$	3,51	-0,08
18	$3,\!37$	$3,\!48$	-0,11
19	$3,\!42$	3,41	0,03
20	3,87	3,61	0,24
21	$3,\!90$	3,79	$0,\!12$
22	$3,\!62$	$3,\!63$	-0,02
23	$3,\!89$	3,79	$0,\!10$
24	3,79	3,77	$0,\!02$
Avr	$3,\!64$	$3,\!53$	

Table 5. Weighted Test

3.2.1. Performance and Interest Analisys Based on table 5. Describes comparison of mean calculations of Performance values and Interest values. The average value of Performance is 3.53 while the average value of Interest is 3.64.

3.2.2. Conformity Analisys This analysis is to know comparison of performance score with Kemiriamba Village website interest multiplied 100%. The result is the average suitability of the website of Kemiriamba Village is 96.63%. Because the level of conformity is still below 100% it is stated that the quality of the website of Kemiriamba Village has not fulfilled what is considered important by the users and the service is considered not satisfactory users of Kemiriamba Village website.

3.2.3. Gap Analisys The gap or gap analysis is used to find out the level of quality gap of Kemiriamba Village website between current and actual perceived quality values and expected and important quality values to be developed (Importance). Current or actual quality score (performance) is obtained from the respondents assessment of the quality performance of the website based on the indicator Webqual while the expected and important value of quality to be developed is obtained from the respondent's assessment of the level of importance (Importance). Based on Table 5, we get the result of Qi (gap) = -0.11, because Qi (gap) is negative or j0, it is stated that the performance level of Kemiriamba Village website still not meet user expectation.

3.2.4. Cartesian Diagram Analysis of Important Performance Analysis in the form of Cartesian diagram is used to describe the quality indicator of any website that has been in accordance with the wishes of users and anywhere that has not met the wishes or satisfaction of website users are divided into four quadrant.



Figure 2. Cartesian Diagram

Based on figure 2, it can be concluded :

Quadrant 1: Attributes that are in quadrant 1 are attributes that have a high level of importance or expectation but low performance levels. Attributes that include in quadrant 1 has a top priority or very important for immediate improvement or website development to improve user satisfaction Kemiriamba Village website. Attributes that go into quadrant 1 are attribute 16 = website has a good reputation, and attribute 22 = questions, feedbacks and complaints will be accepted and processed as promised.

Quadrant 2: Attributes that are in quadrant 2 are attributes that have a high level of importance or expectations and a good level of performance according to the expectations of users of Kemiriamba Village website. So it must be maintained to maintain the quality of the website. Attributes that go into quadrant 2 are attribute 1 = the website is easy to operate, attribute 2 = website user interaction is clear and understandable, attribute 4 = website easy to use, attribute 7 = website conveying village competence information, attribute 8 = website creates a positive experience for users, attribute 20 = website gives space for community, attribute

21 =website makes it easy to communicate with the organization, attribute 23 =website using the appropriate letters, and attribute 24 =website using attractive colors and styles.

Quadrant 3: Attributes that are in quadrant 3 are attributes that have low importance and level of performance. This attribute is seemed to have been suitably developed and not a top priority for Kemiriamba Village website improvement. Attributes that go into quadrant 3 are attribute 9 = website provides accurate information, attribute 10 = website provides reliable information, attribute 11 website gives timely information, attribute 12 = website provides relevant information, attribute 14 = website gives detail information, attribute 15 =website provides information in proper format, attribute 17 =User feels safe to transact, attribute 18 =Users feel secure personal information, and attribute 19 =website creates space for personalization.

Quadrant 4: Attributes that are in quadrant 3 are attributes that have low importance but high performance level. This attribute is considered to have exceeded user expectations and can be ignored for not repairing the website of Kemiriamba Village.

Attributes that go into quadrant 4 are attribute 3 = User easy to navigate, attribute 5 = website has an interesting look, attribute 6 = Design website according to Kemiriamba Village, and attribute 13 = Website makes it easy to understand information

4. Conclusion

Based on the result and discussion of Kemiriamba Village website's data analysis by using Webqual 4.0 method and Important Performance Analysis (IPA), it can be concluded as follows. First, the results showed that the suitability level of Kemiriamba Village website is 96.63%, it is stated that the quality of Kemiriamba Village website has not fulfilled what is considered important by the users and the service is considered unsatisfied by the Kemiriamba Village website user. The average value of gap or gap of Kemiriamba Village website is -0.12, because the gap is negative or i0 it is stated that the performance level of Kemiriamba Village website still did not meet user expectation. Therefore, it needs improvement. Second, the result of the analysis by using Important Performance Analysis (IPA) diagram stated that the indicator or attribute need immediate improvement and development according to attribute number 16 that is website has good reputation and attribute number 22 that indicates that question, suggestions and complaints will be accepted and processed as promised. These two attributes should be a top priority for improvement in the near future in order to increase the user satisfaction of Kemiriamba Village website. Third, the attributes that are not a top priority for immediate improvement but should be considered later on for the quality of Kemiriamba Village website are the website provides accurate information, the website provides reliable information, the website provides latest information, the website provides relevant information, the website provides detailed information, the website provides information in the right format, the user feels safe to access it, the user feels secure regarding one's personal information and the website creates space for personalization. The last is, it is hoped that this study provides a result that positively contributes to website of Kemiriamba Village to be better and more qualified, therefore it will have its own value and become a pride for the people of Kemiriamba Village.

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