

ORIGINAL RESEARCH

HYBRID ANALYSIS OF MARRIAGE INFORMATION SYSTEM USING WEBQUAL 4.0, EUCS, AND IMPORTANCE-PERFORMANCE MATRIX METHOD

Muhamad Fauzi | Umi Laili Yuhana*

Dept. of Informatics, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia

Correspondence

*Umi Laili Yuhana, Dept of Informatics, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia. Email: yuhana@if.ts.ac.id

Present Address

Gedung Teknik Informatika, Jl. Teknik Kimia, Kampus ITS Sukolilo, Surabaya 60111, Indonesia

Abstract

Electronic-based governance is a way for Central and Regional Government Agencies to utilize information technology. Ministry of religion created SIMKAH WEB as one of the forms of E-government. This application helps administer marriages and is integrated with other applications by sector. The primary purpose of this application is to improve services and digital data presentation. This study analyzes the quality of SIMKAH WEB based on user perceptions, namely employees of the Ministry of Religion and prospective brides. The method used in this research is Webqual 4.0, EUCS, and Importance Performance Analysis Matrix. We combined the two approaches, Webqual and EUCS, and then analyzed them with the IPA Matrix. The result was compared against the results given by each method when it was carried out separately. Another benefit is providing recommendations for improvement based on each technique. Several methods would show which way has the highest suitability level and provide suggestions for improving the SIMKAH application. Based on the suitability level analysis results, the combined Method obtained a value of 92.85%, EUCS 92.64%, and Webqual 90.13%.

KEYWORDS:

EUCS, E-government, Importance-Performance Analysis, Marriage Registration, Webqual

1 | INTRODUCTION

E-government is an adaptation of information technology aimed at service efficiency, ease of access, and better service quality. Research conducted by Sukmasetya et al.^[1] concludes that many forms of e-government are more concerned with function than user-friendly aspects. Ministry of religion created SIMKAH WEB as one of the forms of E-government. This application helps administer marriages and is integrated with other applications sectorally. The main purpose of this application as part of e-government is to improve services and the digital presentation of data^[2].

The director-general of Islamic Community Guidance released the SIMKAH WEB application, Ministry of Religion of the Republic of Indonesia, with Number B.4708/DJ.III.II.2/HM.00/11/2018, based on the letter SIMKAH Web, is used for marriage administration throughout the region of the Republic of Indonesia. In its implementation, there were many complaints from SIMKAH operators, namely civil servants at the District Ministry of Religion. User complaints often expressed are the frequent disconnection of the SIMKAH application with other ministry applications. The other applications come from the ministry of interior, finance, and religious courts. In addition, this application demands a large network bandwidth so that the bride and groom rarely use it.

This research was conducted to determine the quality of SIMKAH WEB based on user perceptions, namely employees of the Ministry of Religion and prospective brides. Research instruments are Webqual 4.0, EUCS, and Matrix Performance Importance Analysis. The research is different from previous research based on the methodological approach (using three methods), the sample of study (SIMKAH Application), and population characteristics (civil servants and prospective brides).

The WebQual Method is a tool to access a website's information and service quality^[3]. In comparison, the EUCS model is a method used to measure the level of end-user satisfaction with the information system used^[4]. In recent years, the Performance Importance Analysis Importance (IPA) Matrix has been widely applied to various fields in the service industry since it was first introduced by Martilla and James in 1977^[5, 6].

The research results would be compared, and the suitability level would be calculated if the methods are carried out separately. Another benefit is providing recommendations for improvement based on each technique. Several methods would show which way has the highest suitability level and provide suggestions for improving the SIMKAH application.

2 | PREVIOUS RESEARCHES

This literature review would cover previous research on Webqual 4.0, the EUCS method, and Importance Performance Analysis methods. Research conducted by Nilpong and Thanasopon^[3] using the Webqual 4.0 questionnaire method concluded that clear communication and trust are essential for the elderly in Thailand. Further investigation reveals unexpected factors such as trust in accessing websites. This shows the need for other methods. Also, a study conducted by Maryani et al.^[7], concluded that there was a gap in the fulfillment of the level of convenience on the government website. The researchers obtained this after conducting a questionnaire using the Webqual method.

Research using the EUCS method conducted by Prasetyo et al.^[4] concluded that all EUCS variables are important for user satisfaction. Future research is on the use of EUCS on websites other than Tokopedia. A basic understanding of EUCS proposed by Doll and Torkzadeh^[8] stated that EUCS emphasizes the cognitive and belief aspects. Doll laid the foundation for the EUCS questions, widely used in research and engineering with the Likert scale. Research conducted by Zufahri et al.^[9] using the IPA Matrix successfully concludes what things make students satisfied with the school. The following research is on the improvement and implementation of service quality.

Create a list of improvements to evaluate member loyalty and business performance improvements by Chiou et al.^[5] using the IPA Matrix. The research produces recommendations for improvement based on quadrants in IPA. Further research is expected to use a combination of IPA and other methods.

The IPA Matrix method is also used by Marlinda et al.^[10] to see what factors influence female passengers' online transportation in Jakarta. This study resulted in the criteria chosen by women: price, security, trustworthiness, convenience, and speed. The next step is to make an application according to the results of the research.

The combined research of the Webqual and IPA methods was carried out by Hidayah et al.^[6]. Combination of Webqual and Importance Performance Analysis to assess Government websites. This study concludes by adding security variables and reducing service and interaction variables on the government website.

Quality Measurement Research using ISO 9126 was conducted by Dzulfiqar et al.^[11]. The study results stated that ISO 9126 is very important for developing the University Website. Further research is expected to involve users in measuring the quality of the Website.



FIGURE 1 The proposed methodology.

3 | MATERIAL AND METHOD

This section depicts the methodology design for this study. There are four main steps in this study, i.e. data collection through questionnaire, data testing, data measurement, and data comparison. Fig. 1 represents the connection between each steps within the methodology.

3.1 | Questionnaire

According to Singh et al.^[12], a questionnaire is a prepared form that would be readied by researchers before. This form is then distributed for answers and responses. The questions in the questionnaire are factual questions containing certain conditions and practices. The questionnaire recipient must first know what is being surveyed to get this answer. In further explanation, the

Questionnaire is a more flexible research tool because the Questionnaire has advantages compared to others. This advantage can collect qualitative and quantitative information.

The authors use a questionnaire distributed to customers as respondents in this study. To understand the user's wishes, a tool is needed in the form of a questionnaire. The questions in this Questionnaire are prepared based on the Webqual 4.0 and EUCS methods.

3.1.1 | Research Sample Identification

In this study, the sample was taken from the population of users of the SIMKAH WEB application. Random Sampling techniques are used as sample research. They are using a random selection procedure so that all members of the population employed in the study have equal opportunities to be selected as a sample. The Slovin formula in this study is used to calculate the sample size^[6]. Eq. 1 shows the formula.

$$n = \frac{N}{1 + Ne^2} \quad (1)$$

Where:

n = number of subjects included in the research

N = the group contains the element to be studied

E = Mild or inaccurate due to acceptable error

The number of users from July to October 2021 was 4080. Sampling was carried out with a degree of error of 10, namely:

$$n = N = 4080 / (1 + Ne^2) = 4080 / (1 + 4080(0.1)^2) = 97.61$$

3.1.2 | Questionnaire Distribution

Questionnaires were distributed to Simkah Application Users at KUA - KUA Sub-district and prospective brides and grooms. The assessment of respondents using a Likert scale is as follows: very essential is given a value of 5, essential is assigned a value of 4, quite essential is given a value of 3, not too essential is given a value of 2, and lastly not essential is given a value of 1^[13].

3.2 | Validity Test

The validity, according to^[14], indicates the accuracy between actual data on the research object and the information collected by the researcher. The next step is to relate the score of each item and the total number of items. The purpose of this is to verify the validity of an object. The calculation factor between the items and the number of things must be greater than 0.3. It is considered valid if it is more than 0.3, and if the correlation value is less than that, it is irrelevant.

3.3 | Reliability Test

The reliability test^[15] results from the measurement's consistency if the measurement is carried out using the same measuring instrument and different methods. The unit of reliability value was measured using Cronbach's Alpha coefficient. Cronbach's Alpha value is stated using the lowest reliability limit with a value of 0.6. If this value is met, the questionnaire questions can be declared reliable. If not, then the result is the opposite. After the reliability test is carried out, the next step is the selection of data analysis methods and testing research hypotheses. The analysis that would be carried out is a suitability analysis, gap analysis, and quadrant analysis

3.3.1 | Conformity Analysis

After getting the research data, the results would be analyzed. The first time is a conformity analysis, which is a comparison of performance scores and expectations scores. The level of conformity is the result of the comparison of the perception score with

the expected score. This level of conformity would determine the priority order of services provided by the company starting from the order that is very appropriate to not appropriate.

There are two things that can happen in the suitability level. First, the user could be dissatisfied and discouraged if the application's performance is below expectations. Second, if the application's capabilities (perception) match the demand, the user would be satisfied, and if the application's capabilities exceed the need, the user would be pleased^[16].

Satisfaction Rating Criteria:

1. If the value is greater than 100, it means that the perceived level of application performance is substantial
2. If the value is equal to 100, it means that the perceived level of user satisfaction is the same as desired, and therefore the user is declared satisfied
3. If it is less than 100, it means that it does not meet expectations and the user is not satisfied.

Eq. 2 depicts the conformity formula used in this study.

$$Tk_i = \frac{\sum X_i}{\sum Y_i} * 100\% \quad (2)$$

Where:

Tk_i = consumer suitability level

X_i = performance appraisal score

Y_i = Expectation score

Conformity analysis was carried out by first calculating the level of conformity, then calculating the average value of expectations and perceptions for each statement (factor). These factors are ranked and then grouped into four quadrants in a Cartesian diagram.

3.3.2 | Gap Analysis

According to Rangkuti et al.^[17], the gap occurs when users perceive the quality of service (quality of service) they receive is higher than the desired service or lower than adequate service for the customer's interests. Thus, customers can feel very satisfied or very disappointed.^[18], explains that gap analysis needs to be applied to determine the difference between perceived (actual) work value and expected (ideal) value. The true value is indicated by perceived quality with its indicators, while ideal quality is demonstrated by expectations/interests/satisfaction with each indicator. Technical determination of the gap by calculating the difference/difference between perceived quality and expectations/importance/satisfaction.

$$Q(\text{Difference}) = \text{Performance} - \text{Importance} \quad (3)$$

Description:

Difference = grade of the difference (grade of the quality difference)

Performance = Impression of the actual trait (value of current perceived or actual performance)

Importance = ideal value / grade / priority / achievement (value of ideal quality or achievement and need to be improved/priority)

If the positive value of Q equals 0, the actual quality is by the ideal rate predicted by the user. Conversely, if $Q < 0$ or negative, the excellent value cannot meet the user's thinks.

3.3.3 | Quadrant Analysis

In Quadrant Analysis, performance indicators are depicted using the X axis, and the Y axis represents expectation indicators. Fig. 2 shows a Cartesian diagram to map the service quality attributes that have been analyzed.

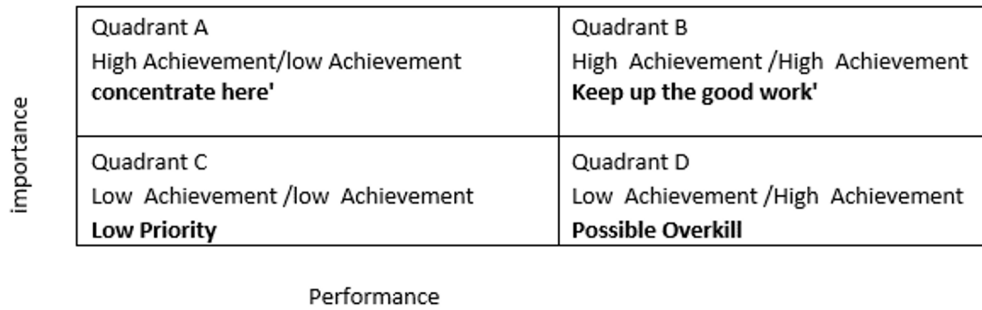


FIGURE 2 The cartesian diagram.

TABLE 1 Questionnaire item.

Attribute	ID	Factors
Usability (Webqual)	Q1	Simkah Web is easy to operate
	Q2	Interactivity with the Simkah Web website is understandable and recognizable.
	Q3	On Simkah Web, it is easy to find the menu (navigation)
	Q4	Simkah Web displays are attractive.
	Q5	Simkah Web display according to the type of Website
	Q6	There is additional knowledge from the Simkah website information.
	Q7	Simkah Web is Appropriate in the preparation of the layout of the information.
	Q8	The website address is easy to find (simkah.kemenag.go.id)
Information Quality (Webqual)	Q9	Simkah Web Provides reliable information
	Q10	Simkah Web Provides up to date information
	Q11	Simkah Web Provides information that is easy to read and understand
	Q12	Simkah Web Provides quite detailed information.
	Q13	Simkah Web Provides relevant information
	Q14	Simkah Web Provides accurate information
Service Interaction Quality (Webqual)	Q15	Simkah Web Presents information in an appropriate format
	Q16	Simkah Web has a good reputation
	Q17	Simkah Web Provides security to complete transactions.
	Q18	Simkah Web provides a sense of security in conveying personal data.
	Q19	Simkah Web has a community atmosphere.
	Q20	Simkah Web makes it easy to attract interest and attention.
	Q21	Simkah Web provides convenience to communicate (other agencies/own)
	Q22	Simkah Web provides a high level of trust in delivering goods/services.
Overall Impression (Webqual)	Q23	The overall appearance of the Simkah Web site is good
Content (EUCS)	Q24	Details on the Simkah Web site point to your demand
	Q25	Details of the data on the Simkah Web site are uncomplicated to recognize
	Q26	Details of the data on the Simkah Web site are perfect.
	Q27	The content of the information on the Simkah Web site is clear
Accuracy (EUCS)	Q28	The Simkah Web site has displayed true and accurate information.
	Q29	Each Link always displays the appropriate Web page
Format (EUCS)	Q29	Simkah Web site display design has attractive colors.
	Q30	Simkah Web site display design has a layout that makes it easy for users.
	Q31	Simkah Web site display design has an easy-to-understand link and menu structure.
	Q32	Simkah Web site display design has an easy-to-understand link and menu structure.
Easy of Use (EUCS)	Q33	Simkah Website Very easy to use
	Q34	Simkah Web Site Easily accessible from anywhere and anytime
Timeline (EUCS)	Q35	Simkah Web can display the information you need quickly.
	Q36	The Simkah website always displays the latest information.

Quadrant A is a variable that results in fulfilling customer needs, including the most influential service factors. Still, the service provider has not implemented it according to the user’s thinking, so it is not fulfilled. Quadrant B is the primary variable that has been completed. Therefore achievement must be maintained. Considered to be immensely fulfilling the user’s wishes, Quadrant C indicates some variables that are not significant to the user. The service provider then implements this. Based on its insignificant, it is considered to have no effect and is not fulfilled. Quadrant D shows variables that affect customer satisfaction but not significantly and are carried out excessively by service users. These variables are not significant but are fulfilled from the user’s point of view^[5].

TABLE 2 The result of validity test for expectation questionnaire.

No.	Question Item	Score	No.	Question Item	Score
1	VAR01	.707**	19	VAR019	.762**
2	VAR02	.620**	20	VAR020	.757**
3	VAR03	.772**	21	VAR021	.647**
4	VAR04	.790**	22	VAR022	.446**
5	VAR05	.824**	23	VAR023	.784**
6	VAR06	.728**	24	VAR024	.715**
7	VAR07	.626**	25	VAR025	.843**
8	VAR08	.860**	26	VAR026	.823**
9	VAR09	.765**	27	VAR027	.746**
10	VAR010	.783**	28	VAR028	.841**
11	VAR011	.825**	29	VAR029	.768**
12	VAR012	.804**	30	VAR030	.827**
13	VAR013	.759**	31	VAR031	.795**
14	VAR014	.705**	32	VAR032	.765**
15	VAR015	.768**	33	VAR033	.811**
16	VAR016	.610**	34	VAR034	.758**
17	VAR017	.690**	35	VAR035	.768**
18	VAR018	.682**	36	VAR036	.796**

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

TABLE 3 The result of validity test for expectation questionnaire.

No.	Question Item	Score	No.	Question Item	Score
1	VAR01	.707**	19	VAR019	.762**
2	VAR02	.620**	20	VAR020	.757**
3	VAR03	.772**	21	VAR021	.647**
4	VAR04	.790**	22	VAR022	.446**
5	VAR05	.824**	23	VAR023	.784**
6	VAR06	.728**	24	VAR024	.715**
7	VAR07	.626**	25	VAR025	.843**
8	VAR08	.860**	26	VAR026	.823**
9	VAR09	.765**	27	VAR027	.746**
10	VAR010	.783**	28	VAR028	.841**
11	VAR011	.825**	29	VAR029	.768**
12	VAR012	.804**	30	VAR030	.827**
13	VAR013	.759**	31	VAR031	.795**
14	VAR014	.705**	32	VAR032	.765**
15	VAR015	.768**	33	VAR033	.811**
16	VAR016	.610**	34	VAR034	.758**
17	VAR017	.690**	35	VAR035	.768**
18	VAR018	.682**	36	VAR036	.796**

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

4 | RESULTS

This segment shows importance-performance- analysis (IPA) for calculating satisfaction levels.

4.1 | Validity and Reliability Test

The Questionnaire is given by measuring the statement by using the Validity Test. The survey form was tested on 100 people, considering the distribution of scores and values that were close to the standard curve. Table 2 shows the correlation calculation results using SPSS v 26 for the expectation validity test, ranging from 0.610 to 0.843.

Table 3 shows the reality validity test ranged from 0.503 to 0.808. The number used to see the validity of a question is 0.3. Questions that produce a score of 0.3 or more are declared as questions with valuable items, and if they are less, they are categorized as invalid and would not be used for further analysis. The outcome of the analysis above indicates that every question is accurate.

Case Processing Summary

		N	%
Cases	Valid	87	87.0
	Excluded ^a	13	13.0
	Total	100	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.964	36

FIGURE 3 The reliability test of expectation.

Case Processing Summary

		N	%
Cases	Valid	100	100.0
	Excluded ^a	0	.0
	Total	100	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.970	36

FIGURE 4 The reliability test of reality.

TABLE 4 The outcomes of suitability degree measurement.

ID	X_i	Y_i	Tk_i	ID	X_i	Y_i	Tk_i
Q1	374	416	89.90	Q19	365	389	93.83
Q2	355	378	93.92	Q20	373	407	91.65
Q3	373	397	93.95	Q21	373	397	93.95
Q4	363	381	95.28	Q22	356	379	93.93
Q5	343	356	96.35	Q23	376	390	96.41
Q6	372	399	93.23	Q24	377	406	92.86
Q7	354	377	93.90	Q25	375	401	93.52
Q8	378	405	93.33	Q26	372	399	93.23
Q9	385	427	90.16	Q27	363	384	94.53
Q10	378	416	90.87	Q28	381	424	89.86
Q11	384	414	92.75	Q29	377	402	93.78
Q12	373	405	92.10	Q30	369	393	93.89
Q13	380	401	94.76	Q31	376	395	95.19
Q14	379	409	92.67	Q32	374	406	92.12
Q15	381	412	92.48	Q33	386	416	92.79
Q16	369	397	92.95	Q34	379	417	90.89
Q17	384	429	89.51	Q34	384	416	92.31
Q18	379	424	89.39	Q36	376	407	92.38
Overall					13436	14471	92.85

Based on the reliability test, the Cronbach Alpha using SPSS v 26 for expectation coefficient is 0.964, and the Alpha reliability for reality coefficient is 0.970. Both are above the standard that has been set, which is 0.6. The value of the reliability coefficient (0.964 and .970) in Fig. 3 and Fig. 4 indicates the Questionnaire is feasible to be used in research.

After compiling the list of questions and their answers, the IPA matrix was measured. The next order in the measurement of the IPA Matrix has been written in section 3. The next stage is calculating the total number for each question related to performance and level of importance. After completion, the next step is to calculate the level of acceptance—the results of the calculation of the suitability value (Tk_i) are shown in Table 4 .

The results of the attributes that affect customer/user satisfaction would be described and divided into four parts of the Importance Performance Matrix. Importance Performance Matrix is based on a table of average performance and importance scores. The effects of mapping the common score of performance and significance can be seen in Fig. 5 .

Question attributes can be grouped into their respective quadrants. Attributes contained in quadrant I are attributes 1,2,12,20 The attributes contained in quadrant II are attributes 9,10,11,14,15,17,18,24,32,33,34,35 The attributes contained in quadrant III are attributes 3,4,5,6,7,16,19,22,25,26,27,30 The attributes contained in quadrant IV are attributes 8,13,21,23,29

Based on Fig. 5, it can be seen that several attributes are scattered in the IPA quadrants. Here are the analysis results using IPA:

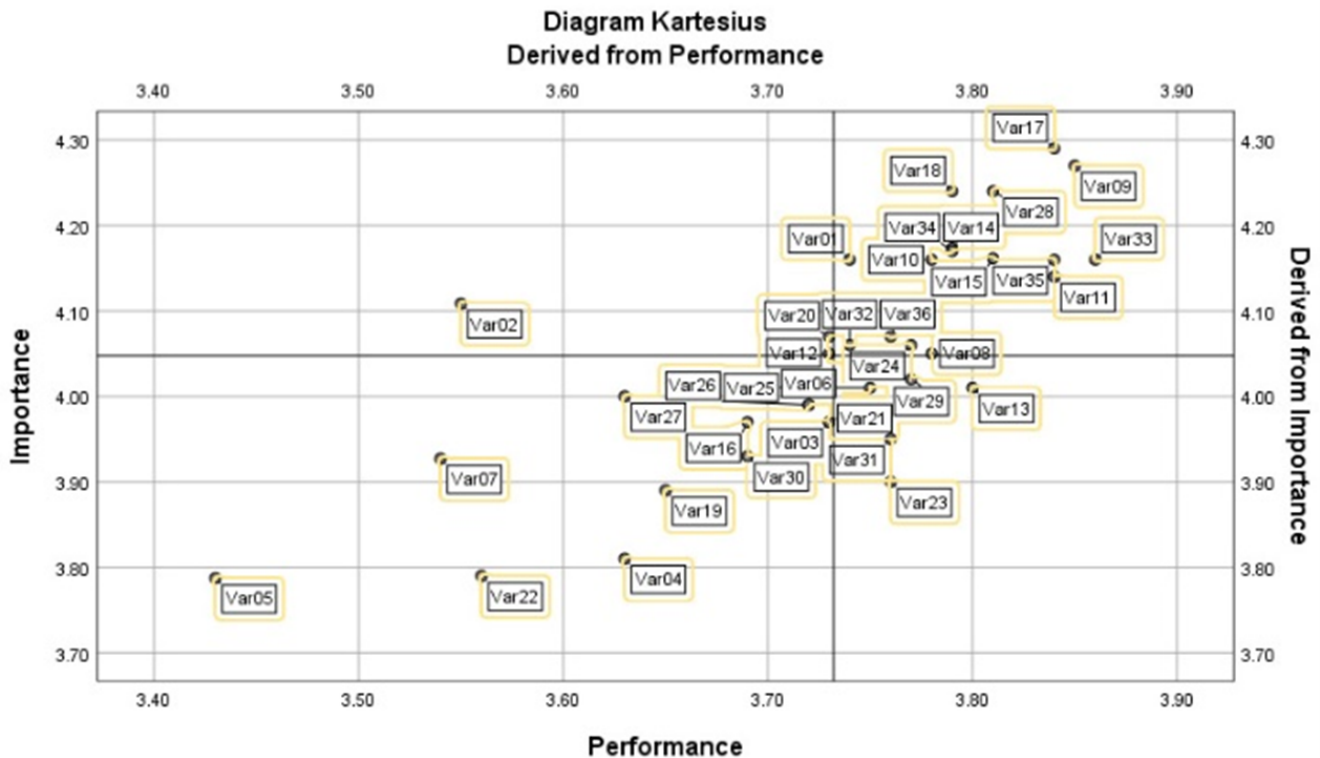


FIGURE 5 The IPA matrix.

4.1.1 | Quadrant I (Focus Here)

Quadrant I carry small/low-performance variables, but the application user state that this variable is significant. Variables in this quadrant can be written as the most critical gap. App makers must put in more effort to fulfill the users' wishes. Quadrant 1 contains the following variables:

- Q1 - Simkah Web is easy to operate.
- Q2 - Interactivity with the Simkah Web website is understandable and recognizable.
- Q12- Simkah Web Provides quite detailed information.
- Q20- Simkah Web makes it easy to attract interest and attention.

4.1.2 | Quadrant II (Keep Up The Good Work)

Quadrant II carries the variables with the best performance values. In addition, users also feel that the variables in this quadrant are vital. Therefore, attributes from Quadrant II are the main attributes, and their performance must be maintained to become a competitive advantage. The only variables in Quadrant II are as follows:

- Q9 - Simkah Web provides reliable information
- Q10 - Simkah Web provides up-to-date information
- Q11- Simkah Web provides information that is easy to read and understand
- Q14 - The library is clean, neat & comfortable
- Q15- Simkah Web presents information in an appropriate format.

- Q17- Simkah Web provides security to complete transactions
- Q18- Simkah Web provides a sense of security in conveying personal data
- Q24- The information on the Simkah Web site matches your needs
- Q32- Simkah Web site display design has an easy-to-understand link and menu structure
- Q33 - Simkah Website Very easy to use
- Q34- Simkah WebSite Easily accessible from anywhere and anytime
- Q35 - Simkah Web can display the information you need quickly

4.1.3 | Quadrant III (Low Priority)

Quadrant III does not carry high-Performance variables, and users evaluate the variables in this Quadrant Quadrant are insignificant. Therefore, the Quadrant Quadrant III variables are not graded for Performance improvement. The variables are as follows.

- Q3 - On Simkah web, it is easy to find the menu (navigation)
- Q5 - Simkah Web display according to the type of Website
- Q6 - There is additional knowledge from the Simkah website information
- Q7 - Simkah Web Appropriate in the preparation of the layout of the information
- Q16 - Simkah Web has a good reputation
- Q19 - Simkah Web has a community atmosphere
- Q22 - Simkah Web Provides a high level of trust in the delivery of goods/services
- Q25 - The content of the information on the Simkah Web site is easy to understand
- Q26 - The contents of the information on the Simkah Web site are complete
- Q27 - The content of the information on the Simkah Web site is clear
- Q30 - Simkah Web site display design has attractive colors

4.1.4 | Quadrant IV (Possible Overkill)

Quadrant IV carries good performance variables, but users evaluate that this quadrant's characteristics are typical. So the application developer must move the surplus asset in this quadrant to the needful quadrant, quadrant I (Concentrate Here). The values in quadrant IV are:

- Q8 - Website address is easy to find (simkah.kemenag.go.id)
- Q13 - Simkah Web provides relevant information
- Q21 - Simkah Web provides convenience to communicate (other agencies/own)
- Q23 - The overall appearance of the Simkah Web site is good
- Q29 - Each Link always displays the appropriate Web page

TABLE 5 The percentage of satisfaction and gap with Webqual Method.

Dimension	Total Score			
	Reality	Expectation	Satisfaction Level	Gap
Usability	2912	3109	93.66%	6.34%
Information Quality	2260	2884	78.36%	21.64%
Service Interaction Quality	2599	2822	92.10%	7.90%
Overall	376	390	96.41%	3.59%
Rata-Rata			90.13%	9.87%

TABLE 6 The percentage of satisfaction and gap with EUCS method.

Dimension	Total Score			
	Reality	Expectation	Satisfaction Level	Gap
Content	1487	1590	93.52%	6.48%
Accuracy	758	826	91.77%	8.23%
Format	1119	1194	93.72%	6.28%
Ease of use	765	833	91.84%	8.16%
Timeline	760	823	92.35%	7.65%
Overall	376	390	96.41%	3.59%
Rata-Rata			92.64%	7.36%

TABLE 7 The different measurements for every method.

Aspect	Webqual	EUCS	Combination
Dimension	Usability, information quality, service interaction, overall	Content, accuracy, format, ease of use, and timeline	combined Webqual and EUCS, the results are processed using the IPA matrix
Improvement	The most significant gap is in the information quality of 21.64%, so the quality of information must be improved.	The most significant gap is in the accuracy of 8.23%, so the quality of accuracy must be improved.	What must be improved in quadrant one is: Q1 - Simkah Web is easy to operate Q2 - Interactivity with the Simkah Web website is understandable and recognizable Q12- Simkah Web provides relatively detailed information Q20- Simkah Web makes it easy to attract interest and attention
Analyzes result	Users are very satisfied with the satisfaction level of 90.13% and the gap difference of 9.8%	Users are very satisfied with the satisfaction level of 92.64% and the gap difference of 7.36%	Users are very satisfied with the satisfaction level of 92.85% and the gap difference of 7.15%

4.1.5 | Comparison of Satisfaction Results with Webqual 4.0, EUCS

From the total variable data collection scores, the next step is to determine the level of user satisfaction by comparing user perceptions and expectations, presented in Table 5 for Webqual and Table 6 for EUCS.

Based on Table 3, users' satisfaction level using the Webqual 4.0 method is 90.13%, with a gap difference of 9.8%.

Based on Table 6, the level of satisfaction felt by users using the EUCS approach is 92.64%, with a gap difference of 7.36%.

Based on Tables 5 and Table 6, the satisfaction measurement is very satisfactory. But there are some differences which would be described in Table 7.

4.2 | Discussion

This research aims to apply IPA for calculating user achievement points with Webqual and EUCS methods. In this assessment method, the point of suitability got a total of 92.85%. It can be determined that the joint Method is better than running it only using Webqual or EUCS.

5 | CONCLUSION

It can be concluded that SIMKAH's performance has been good, as expected, and exceeding the expectations of application users. The evaluation outcomes are capable of demonstrating which service values underachievement. Hence, the recommendation for Simkah Web needs to be easier to operate, Interactivity with the Simkah Web website needs to be more understandable and recognizable, Simkah Web needs to provide detailed information, Simkah Web needs to make it easier to attract interest and attention. Applying Webqual, EUCS, and IPA to calculate user satisfaction points offers an impression of variables most significant from the user's view. So the essential calculated variables' quality can be upgraded by the application developer. Therefore, this method would help create more user satisfaction levels.

Our next step is comparing the result with different importance-performance measurement methods, e.g. Ishikawa diagram method, technology acceptance model (TAM), or unified theory of acceptance and use of technology (UTAUT). Another direction would be exploring different quality attributes, such as reliability, security, maintainability, and technology acceptance. As for practical implication of our findings, the developer could improve the services and digital data presentation quality of the website based on the user's perspective.

ACKNOWLEDGMENT

We thank Umi aili Yuhana, Dr, for assisting with methodology and comments Muhamad Fauzithat significantly improve ailimanuscript.

6 | CREDIT

Muhamad Fauzi: Conceptualization, Methodology, Writing - Original Draft Preparation, Formal Analysis and Investigation, and Resource. **Umi Laili Yuhana:** Conceptualization, Methodology, Writing - Review and Editing, Supervision, and Funding Acquisition.

References

1. Sukmasetya P, Santoso HB, Sensuse DI. Current E-Government Public Service on User Experience Perspective in Indonesia. In: 2018 International Conference on Information Technology Systems and Innovation (ICITSI) IEEE; 2018. p. 159—164. <https://doi.org/10.1109/icitsi.2018.8695962>.
2. Meiyanti R, Utomo B, Sensuse DI, Wahyuni R. e-Government Challenges in Developing Countries: A Literature Review. In: 2018 6th International Conference on Cyber and IT Service Management (CITSM) IEEE; 2018. p. 3–8. <https://doi.org/10.1109/citsm.2018.8674245>.
3. Nilpong R, Thanasopon B. Factors Affecting Intention to Use of Government Websites in Thai Elder: The Webqual Model. In: 2020 12th International Conference on Information Technology and Electrical Engineering (ICITEE) IEEE; 2020. p. 146–151. <https://doi.org/10.1109/icitee49829.2020.9271711>.
4. Prasetyo B, Yulia RWE, Felisia. Measuring end-user satisfaction of online marketplace using end-user computing satisfaction model (EUCS Model) (Case study: Tokopedia.com). In: 2017 4th International Conference on Computer Applications and Information Processing Technology (CAIPT) IEEE; 2017. p. 1–5. <https://doi.org/10.1109/caipt.2017.8320710>.
5. Chiou KC, Su HH, Hsieh YY, Tien CH. Application of simultaneous importance-performance analysis to evaluate customer loyalty towards corporation: A case study of direct selling company S. In: 2017 IEEE 8th International Conference on Awareness Science and Technology (iCAST) IEEE; 2017. p. 210–214. <https://doi.org/10.1109/icawst.2017.8256447>.
6. Hidayah NA, Subiyakto A, Setyaningsih F. Combining Webqual and Importance Performance Analysis for Assessing A Government Website. In: 2019 7th International Conference on Cyber and IT Service Management (CITSM) IEEE; 2019. p. 297–302. <https://doi.org/10.1109/citsm47753.2019.8965408>.

7. Maryani, Mahesworo B, Perbangsa AS, Hendarti H. User Interface Evaluation on Government Knowledge Management Portal Using Webqual 4.0. In: 2019 International Conference on Information Management and Technology (ICIMTech) IEEE; 2019. p. 244–249. <https://doi.org/10.1109/icimtech.2019.8843780>.
8. Doll WJ, Torkzadeh G. The Measurement of End-User Computing Satisfaction. *MIS Quarterly* 1988 jun;12(2):259. <https://doi.org/10.2307/248851>.
9. Zulfahri AF, Widodo CE, Gernowo R. Implementing Importance-Performance Analysis (IPA) for Measuring Students Satisfaction Levels. In: 2019 International Seminar on Research of Information Technology and Intelligent Systems (ISRITI) IEEE; 2019. p. 363–367. <https://doi.org/10.1109/isriti48646.2019.9034615>.
10. Marlinda L, Durachman Y, Indrarti W, Zuraidah E, Kristiyanti DA. Election Public Transport Based Online For Women Using Importance Performance Analysis (IPA). In: 2018 6th International Conference on Cyber and IT Service Management (CITSM) IEEE; 2018. p. 287–291. <https://doi.org/10.1109/citsm.2018.8674247>.
11. Dzulfiqar MD, Khairani D, Wardhani LK. The Development of University Website using User Centered Design Method with ISO 9126 Standard. In: 2018 6th International Conference on Cyber and IT Service Management (CITSM) IEEE; 2018. p. 7–10. <https://doi.org/10.1109/citsm.2018.8674325>.
12. Singh A, , Sethi D, Singh K, Sharma L, Narang P, et al. Symbolic classification for multivariate time series. *International Journal of Advanced Research* 2017 may;5(5):1982–1987. <https://doi.org/10.21474/ijar01/4338>.
13. Dalimunthe YK, Anugrahadi A, Sugiarti L. The Effect of Renewable Energy Socialization, Especially Biomass for Residents in Tambora Flat, West Jakarta. In: 2019 IEEE 3rd International Conference on Green Energy and Applications (ICGEA) IEEE; 2019. p. 199–203. <https://doi.org/10.1109/icgea.2019.8880786>.
14. Pinasthika SJ, Bukhori S, Prasetyo B. Hybrid Lean SERVPERF-WebQual-IPA for Measuring IT Service Quality. In: 2019 International Conference on Computer Science, Information Technology, and Electrical Engineering (ICOMITEE) IEEE; 2019. p. 13–18. <https://doi.org/10.1109/icomitee.2019.8921252>.
15. Rahayu NW, Andika DD. Assessing the quality of rail ticket reservation systems: Cases from Indonesia. In: 2014 International Conference on Computer and Information Sciences (ICCOINS) IEEE; 2014. p. 382–396. <https://doi.org/10.1109/iccoins.2014.6868416>.
16. Supranto J. Pengukuran tingkat kepuasan pelanggan untuk menaikkan pangsa pasar. Rineka Cipta; 2011.
17. Rangkuti FRS, Fauzi MA, Sari YA, Sari EDL. Sentiment Analysis on Movie Reviews Using Ensemble Features and Pearson Correlation Based Feature Selection. In: 2018 International Conference on Sustainable Information Engineering and Technology (SIET) IEEE; 2018. p. 88–91. <https://doi.org/10.1109/siet.2018.8693211>.
18. Shia BC, Chen M, Ramdanyah AD. Measuring Customer Satisfaction toward Localization Website by WebQual and Importance Performance Analysis (Case Study on AlixPress Site in Indonesia). *American Journal of Industrial and Business Management* 2016;06(02):117–128. <https://doi.org/10.4236/ajibm.2016.62012>.

How to cite this article: Fauzi M., Yuhana U.L. (2022), Hybrid Analysis of Marriage Information System Using Webqual 4.0, EUCS, and Importance-Performance Matrix Method, *IPTEK The Journal of Technology and Science*, 33(3):140-152.