

Evaluation of e-Government Service Quality Using e-GovQual Dimensions

Case Study Regional Office Ministry of Law and Human Rights DIY

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Abstract—Regional Office of the Ministry of Law and Human Rights DIY organizes a variety of public services using information technology, including correctional services, immigration services, general legal administration services, intellectual property services, communication services, data and information services, and other administrative services. None of these services can be separated from the role of information technology to provide services that are fast, cheap, effective and reliable to the public. This study was conducted to assess the quality Ministry of Law and Human Rights DIY e-Government service using e-GovQual dimensional framework as a best practice. This study includes quantitative research involving a number of respondents for the survey. Research questions are based on the dimensions of e-Govqual and represent the attributes of each dimension of e-GovQual to assess the quality of Ministry of Law and Human Rights DIY e-Government service. The question must pass the validation test using Cronbach's α . The processing of data using confirmatory factor analysis to obtain the main factors that affect each of the dimensions of e-GovQual. The Importance Performance Analysis (IPA) method helps e-GovQual to measure the level of importance and level of performance of each e-GovQual attribute by classifying it in the Cartesian quadrants, which can help ensure the quality of e-Government services according to the needs and expectations of citizens as service user. Values in IPA (concentrating here, keeping up the good work, low priority, and possible overkill) will be the value of quality e-Government services. The results of this study are expected to give priority as a recommendation for Information and Communication Technology to the development of e-Government services in order to improve service quality.

Keywords—e-Government; e-GovQual; services; IPA

I. INTRODUCTION

The level of service quality can be measured by various methods of measuring service quality. Quality of service places more emphasis on the word service user, service, quality, and level. Required methods that can be used to measure the level of service quality. One method for measuring service quality is e-Government Quality (e-GovQual)[1]. Before approving e-GovQual, in previous years, the most common quality of service was approved using the Servqual method or service quality. Servqual developed by Parasuraman in 1988 Support has the ability to achieve the best grades. Servqual refers to five dimensions of measurement; reliability, responsiveness, assurance, tangibles, and empathy. Consumer ratings are conceptualized as what consumers expect from services and the value consumers give for services that are actually received[2].

Stuart Barnes developed the Webqual method in 2000. Webqual is one of the quality measurement methods shown to measure website quality. Webqual measurement technique is done based on the perception of the end user. Webqual is a further development of the Servqual method.[2] Websqual is used to measure internal websites such as; integrated service center, human resource services, etc.

Slightly different from Webqual or Servqual, e-GovQual is more devoted to measuring the quality of government-based electronic services or e-Government. e-GovQual is a service quality measurement concept in terms of electronic services that focus on government sites or portals[1]. Papadomichelaki in his discovery divides the e-GovQual measurement scale into four dimensions, namely; efficiency, trust, reliability, and citizen support. Researchers to measure service quality will use these dimensions in the e-GovQual method by using the attributes that exist in the four dimensions of e-GovQual as measurement variables in research. When the value of each e-GovQual attribute has been found, a method is needed to measure the importance and performance level of each attribute. Importance Performance Analysis (IPA) is a data analysis method that is expected to find out the quality of e-Government services at the Ministry of Law and Human Rights DIY. The Importance Performance Analysis approach is depicted in a Cartesian diagram consisting of the X-axis representing the level of performance and the Y-axis representing the level of importance. With the help of Importance Performance Analysis (IPA), it can be found how the value of these attributes, whether classified as concentrated here; keep up the good work, low priority, or possible overkill.

The increasing need for quality services provided by the government encourages every government agency to strive to meet these needs through a process of transformation towards e-Government. Through the e-Government transformation process, government agencies can optimize and utilize the advancement of Information and Communication Technology (ICT) to provide the widest access to information and services that are public demands. This is also the implication of the rapid development of ICT and its potential for widespread use in the era of globalization.

This change requires a government that is clean, transparent and able to respond effectively to the demands of change. The government must be able to utilize the potential of Information and Communication Technology to improve the ability to process, manage, distribute and distribute quality information and services to the public. In turn, all government institutions, the public and the business world are able to make optimum use of government information and services[3].

The implementation of the government sector required factors that will be the key success factors (CSF) of e-Government implementation. These success factors are key areas that must be accommodated by government agencies to support the successful implementation of e-Government and one of the key success factors (CSF) that has been successfully formulated is quality service[3]. Therefore, the quality of services provided by the government (e-Government service quality) through e-Government becomes important to be considered and continuously improved where fast and transparent services are expected to reduce processing time and costs. Quality public services are part of good governance[3].

Several studies have conducted about e-service quality measurement and analysis activities such as research that measures the quality of Ogan Ilir District Government website based on the user's perspective. The study uses the Webqual (Web Quality) method to find out what factors contribute to the quality of the website. The results showed that the dimensions of Webqual namely information quality, service interaction quality and usability had a significant and positive effect on website quality[4]. Another research to assess the quality of e-Government services using the e-GovQual dimension at the Ministry of Communication and Information. The e-GovQual instrument is modified and adapted to organizational conditions so that it represents e-Government in the Ministry of Communication and Information. In this study, the Confirmatory Factor Analysis approach is used to obtain the most dominant factors in the results of website quality assessment through Communalities values. The results showed that all of the indicator variables measured were evidently not entirely satisfying or meeting public expectations. Recommendations are given on several dimensions to improve the quality of e-Government implementation in the Ministry of Communication and Information[5].

The Ministry of Law and Human Rights DIY provides public services in the DIY region including correctional services, immigration services, general legal administration services, intellectual property services, and other office administration services. None of these services can be separated from the role of information technology to provide services that are fast, cheap, effective and reliable to the public.

As one of the requirements to get the *WBK (Wilayah Bebas dari Korupsi)* title for the Ministry of Law and Human Rights DIY is to increase public satisfaction with services. Based on that background, this study has a purpose to evaluate the quality of e-Government in the Ministry of Law and Human Rights DIY using the e-GovQual approach. The e-GovQual instrument was



developed to measure the quality of services provided by the government through websites from a public perspective.

II. METHODOLOGY

A. Research methodology

The methodology used in this study has several stages of research that are in Figure 1. This research will first conduct a literature study on matters related to this research such as, e-Government, Quality of e-Government, and Importance Performance Analysis. After that, the data collection process will be carried out using the attributes of the e-GovQual method as in Figure 1.



Figure 1. Research methodology workflow

The method used in this study is a survey aimed at the public municipal government Regional Office of the Ministry of Law and Human Rights DIY to know public perceptions of the quality of e-Government services provided. The tool used is a questionnaire designed based on an e-GovQual approach to measure perceived quality of e-Government services based on six dimensions such as efficiency, trust, reliability, citizen support, content & appearance of information and functionality of the interaction environment. Thus, it can be obtained whether the service provided by the government has met citizen need or expectation. The questionnaire was designed on the e-GovQual framework consisting of four dimensions and 20 indicators.

E-GovQual is a framework developed to measure public perceptions of the quality of services from websites or e-Government portals[1]. We use e-GovQual because this framework can compare between user expectations and performance very well. E-Government portal is a media where people could obtain information or services needed. The e-GovQual model surveys a large number of literature related to website quality and e-service quality. The study found several service quality attributes might be applicable for e-Government

while on the other hand there are attributes that are only appropriate for some attributes suitable for e-Government.

B. Method of Collected Data

In this study, the data collection method was carried out by conducting a survey in the form of a questionnaire using the attributes of the e-GovQual dimension as a research variable. E-GovQual is a model developed to measure people's perception of service quality from e-Government websites or portals[3]. An e-Government website or portal is a place where people can get information or services [1]. E-Government Quality (e-GovQual) which will be used in this study has 4 dimensional scales that are used as factors for measuring the quality of e-Government services. Figure 2 shows the 4 dimensions of the e-GovQual model, namely:

- 1) *Efficiency (EF)*: the value of the variable is seen from the level of service convenience. In this dimension, there are six attributes.
- 2) *Trust (TR)*: the value of the variable is seen from the level of consumer confidence in using services. In this dimension, there are four attributes.
- 3) *Reliability (RE)*: the value of a variable is seen in terms of the usability or service capabilities (accessibility, availability, and accuracy) provided. In this dimension there are five attributes.
- 4) *Citizen Support (CS)*: the value of the variable is seen from how the ability of services can help consumers to solve their problems. In this dimension there are five attributes.

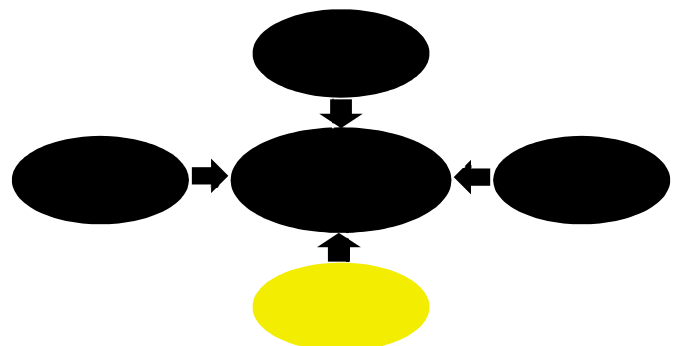


Figure 2. Dimensions of e-GovQual

The e-GovQual scale into 20 pieces of attributes in 4 main scale dimensions of the measurement of the quality of e-Government services as in Table 1. These attributes are used as variables in this research questionnaire.



TABLE I. ATRIBUT IN THE E-GOVQUAL DIMENSION

No	Item
1	e-Government site address is easy to remember (EF1)
2	The information displayed is update (EF2)
3	This e-government site's sitemap is well organized (EF3)
4	This e-Government site's structure is easy to follow (EF4)
5	This e-government site's search engine is effective (EF5)
6	The information displayed is appropriate detailed (EF6)
7	Data provided by users are archived securely (TR1)
8	Acquisition of username and password is secure (TR2)
9	Data provided are used only for the reason submitted (TR3)
10	Maintain the confidentiality of the use of personal data (TR4)
11	This site is available and accessible whenever you need it (RE1)
12	This e-Government site provides services in time (RE2)
13	e-Government site's pages are downloaded quickly enough (RE3)
14	This site works properly with your default browser (RE4)
15	The ability to perform promised services accurately (RE5)
16	Employees showed a sincere interest in solving problem (CS1)
17	Employees have the knowledge to answer users' questions (CS2)
18	Employees give prompt replies to users inquiries (CS3)
19	Employees can convey trust and confidence (CS4)
20	There is contact information (CS5)

Based on Table 1 above, there are 20 variables or attributes of quality assessment of e-Government services that will be used in this study. The attributes are the key that will be used to assess the extent to which users of public services feel e-Government service quality. In other words, this research will find out how far the level of satisfaction of service users with e-Government services, and how is the compatibility between the performances of e-Government services with the level of interest of citizens in using e-Government services.

C. IPA Approach

The Importance Performance Analysis (IPA) approach is used during the data analysis process in this study. Importance Performance Analysis (IPA) is an easy method applied to identify which attributes should be improved to add the average value of community satisfaction as expected[6]. The basis of science is the level of performance and level of importance. These two bases will show the level of community satisfaction with public services carried out at the Ministry of Law and Human Rights DIY.

To answer the problems in this study, an analysis process is needed that can assess the level of conformity between the expectations of service users and the performance of public services, namely Importance Performance Analysis (IPA)[7]. Questionnaire data that has been collected using the e-GovQual approach will be analyzed by the IPA method to determine the quality level of e-Government services based on the perspective of service users.

The analysis carried out in the IPA is the suitability level analysis, gap level analysis and quadrant analysis by mapping

the priority scale to each quadrant according to the perspective of interest and performance produced[3]. After that, it can determine recommendations for priority attributes. The results of the IPA analysis by calculating the average value (mean) of each attribute in each dimension of e-GovQual. GAP analysis between service performance and interests shows in general the actual service performance[3].

The IPA approach is depicted in a Cartesian diagram consisting of the X-axis representing the level of performance and the Y-axis representing the level of importance.

In Figure 3 there are four quadrants, namely:

- 1) *Concentrate here (quadrant A)*: This quadrant shows aspects or attributes that are considered to affect customer satisfaction including service elements that are considered very important, but have not been implemented according to customer expectations. As a result the service is disappointing or the customer is not satisfied. Services in this quadrant are the organization's top priority for improvement.
- 2) *Keep up the good work (quadrant B)*: This quadrant indicates that the service has been successfully provided by the organization and is considered to have satisfied the customer or met customer expectations. Service in this quadrant is considered important by the customer so that quality must be maintained.
- 3) *Low priority (quadrant C)*: The government is considered low in providing services, but service users do not consider the features of the service to be very important. So the expectation value is low and the performance value is also low. This means that there are attributes that are lacking but do not need more attention,
- 4) *Possible overkill (quadrant D)*: This quadrant shows aspects that affect customers are less important but in excessive implementation. The resources used need to be transferred to services that are considered more important such as quadrant A and quadrant B[6].

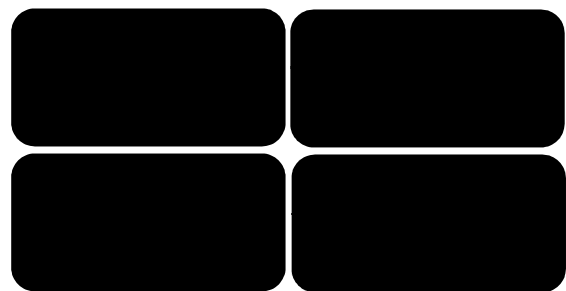


Figure 3. Quadrant in Importance Performance Analysis (IPA)

III. RESULT

Based on the survey conducted, the questionnaire was distributed to 90 respondents who used the Ministry of Justice



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and Human Rights DIY services. Selected respondents meet the criteria of people who have used e-Government websites to search for information or services. Data collection was carried out in December 2019 and January 2020. The data that can be processed are only 82 questionnaires where incomplete data will not be included in the analysis process. Figures 4-6 show statistics about respondents based on gender, age and education level.

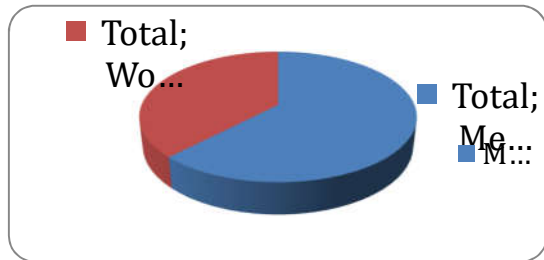


Figure 4. Respondent statistics by gender

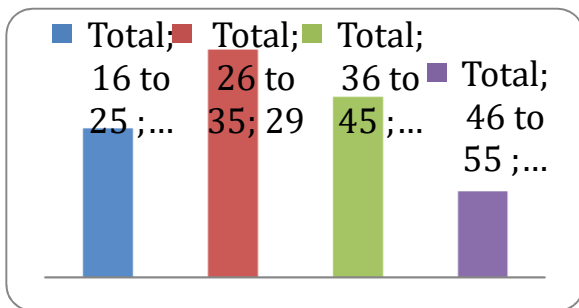


Figure 5. Respondent statistics by age

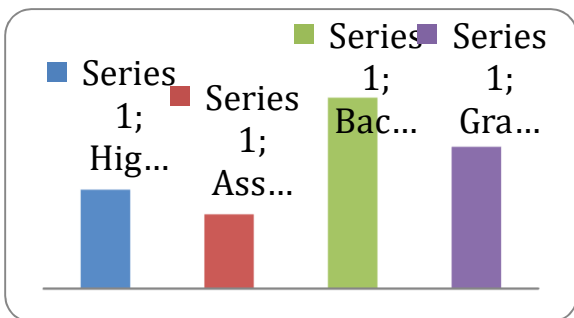


Figure 6. Respondent statistics by education level

Before the results of the questionnaire data are processed and analyzed, the validity and reliability of the questionnaire will be tested first. The instrument is said to be valid and reliable if the instrument can measure data accurately and the measurement results are consistent if it is repeated. An instrument is said to be good if it is valid and reliable. Validity consists of content validity, construct, empirical. Criteria for a valid or invalid item are based on r-table and r-count values. The results of the validity and reliability tests can be presented in Table 2 and Table 3 as follows:

TABLE II. VALIDITY TESTING

Variable	r
Efficiency Dimension	
e-Government site address is easy to remember (EF1)	0.574
The information displayed is update and fresh (EF2)	0.538
This e-government site's sitemap is well organized (EF3)	0.680
This site's structure is clear and easy to follow (EF4)	0.513
This e-government site's search engine is effective (EF5)	0.621
The information displayed is appropriate detailed (EF6)	0.814
Trust Dimension	
Data provided by users are archived securely (TR1)	0.718
Acquisition of username and password is secure (TR2)	0.745
Data provided are used only for the reason submitted (TR3)	0.691
Maintain the confidentiality of the use of personal data (TR4)	0.800
Reliability Dimension	
Site is accessible whenever you need it (RE1)	0.692
This e-Government site provides services in time (RE2)	0.609
Pages are downloaded quickly enough (RE3)	0.731
This site works properly with your default browser (RE4)	0.647
The ability to perform promised services accurately (RE5)	0.778
Citizen Support Dimension	
Employees showed a sincere interest in solving problem (CS1)	0.757
Employees have knowledge to answer users' questions (CS2)	0.815
Employees give prompt replies to users inquiries (CS3)	0.816
Employees can convey trust and confidence (CS4)	0.707
There is contact information (CS5)	0.703

The results of the instrument validity and reliability test for 82 respondents where r count (corrected item-total correlation) must be greater than r table (r count > r table) and r table for 82 respondents is 0.215. From table 2, it can be seen that in the Corrected Item-Total Correlation column, each variable value is more than 0.215. Thus, it can be said that all questionnaire variables are said to be valid because they meet the minimum requirements (> 0.215). Cronbach Alpha used a combined item consistency reliability for dichotomous item scores and successive item political scores. In addition, the results of reliability testing using Cronbach Alpha (> 0.6) per dimension and all dimensions are as follows:



TABLE III. RELIABILITY TESTING

Dimension	Cronbach's Alpha	Amount of Variables
Efficiency	0.838	6
Trust	0.896	4
Reliability	0.842	5
Citizen Support	0.884	5

Seeing the results of the validity tests in Table 2 and the reliability tests in Table 3, the results of the questionnaire can be continued in the Importance Performance Analysis process. As mentioned previously, the data from the questionnaire using the e-GovQual approach will be analyzed with the help of IPA (Importance-Performance Analysis) to determine the quality of e-Government services of the Ministry of Law and Human Rights DIY based on the perspective of the user or the public. Furthermore, what is the level of conformity between perceived performance and actual public expectations of e-Government services. The results of the IPA analysis are done by calculating the average value (mean) of each item measured related to service quality that can be presented in Figure 4. Based on Figure 4 it can be seen that in general for each measurement item, the gap between performance and expectations has a negative value with a range between -0.049 to 0.000. This means that the quality of e-Government services perceived (perception) of respondents can be said to have not met what was expected by the public.

After obtaining the value of performance and interests in each attribute, it is necessary to do the process of mapping the results into the perspective of performance and interests according to its quadrant with the Importance Performance Analysis (IPA), so that the results obtained as in Figure 7.

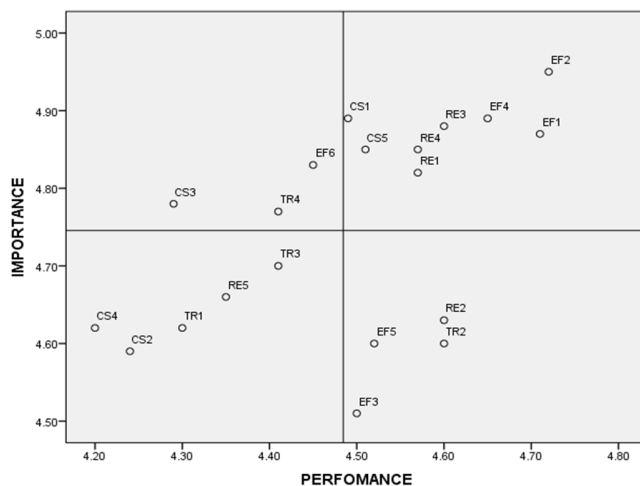


Figure 7. Calculation Results with IPA Method

With the IPA analysis as shown in Figure 4, it can be explained which service factors need to be improved as follows:



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1) *Quadrant A (Concentrate here)*: Quadrant A are the main priority factors for improving the quality of e-Government services based on public perspectives because these factors are considered important by the public but their performance is still felt to be less or not meeting expectations. The attributes contained in quadrant A, namely:

- Employees give prompt replies to users inquiries
- Maintain the confidentiality of the use of personal data
- The information displayed is appropriate detailed

2) *Quadrant B (Keep up the good work)*: The attributes contained in quadrant B, namely:

- e-Government site address is easy to remember
- The information displayed is update and fresh
- This site's structure is clear and easy to follow
- This site is accessible whenever you need it
- Pages are downloaded quickly enough
- This site works properly with your default browser
- Employees showed a interest in solving problem
- There is contact information

3) *Quadrant C (Low priority)*: The attributes contained in quadrant C, namely:

- Data provided by users are archived securely
- Data provided are used only for the reason submitted
- Employees have the knowledge to answer questions
- The ability to perform promised services accurately
- Employees can convey trust and confidence

4) *Quadrant D (Possible overkill)*: Quadrant D are factors of public service that are considered less important by the public but are in fact given too much by the government. Thus, this causes services to be inefficient because the available resources are focused on improving the performance of public services. The attributes contained in quadrant D, namely:

- This e-government site's sitemap is well organized
- This e-government site's search engine is effective
- Acquisition of username and password is secure
- This site provides services in time

Based on the mapping of the quality factors of e-Government services above, it can help the government especially the Regional Office of the Ministry of Law and Human Rights DIY to make improvements based on priority scale especially the factors of service quality that are still weak but are considered important by the public. Recommendations for improvement will be given to the attributes that are in quadrant A, so the attributes that need to be improved include:

1) *Quadrant A Recommendation (Concentrate Here)*

- Employees give prompt replies to users inquiries
- Maintain the confidentiality of the use of personal data
- The information displayed in this e-Government site is appropriate detailed

Based on the results of this study, the Ministry of Law and Human Rights DIY generally meeting user expectations about the quality of e-Government services, there are only three variables that need to be refined.. The obstacles include the limited number of human resources with the ability of Information Technology both in Regional Offices and at UPT. Information Technology training needs to be held for employees thoroughly so that all are able to support e-Government programs.

Some recommendations are given to overcome the existing obstacles from the results of research conducted. The recommendation on the *Citizen Support* dimension is to increase the knowledge and skills needed through training and certification for employees. Some of the training that can be taken are a web designer, web developer, webmaster and editor. The recommendation for the *Trust* dimension is to use LDAP (Lightweight Directory Access Protocol) for authentication and user security. LDAP is able to secure information on the server from illegal access. LDAP also provides data security services (integrity and confidentiality). The recommendation for the *Efficiency* dimension is to add the role of UPT officers to upload content related to work unit activities to the Regional Office website.

IV. CONCLUSION

The study was conducted to see the quality of e-Government service in the Regional Office of the Ministry of Law and Human Rights DIY using the e-GovQual approach which consists of 4 dimensions, namely efficiency, trust, reliability, and citizen support with a total of 20 valid measurement variables and reliability.

Analysis of the gap between service performance and public expectations shows that in general the performance of e-Government services has run very well even though there is still a slight gap between performance and expectations. From the results of the IPA analysis, it is found that there are 3 (three) e-Government service *Concentrate Here* factors which are the top

priority for improvement. These factors are related to non-technological factors, namely Employees give prompt replies to users' inquiries, Maintain the confidentiality of the use of personal data, and the information displayed in this e-Government site is appropriately detailed. The recommendation on the *Citizen Support* dimension is to increase the knowledge and skills needed through training and certification for employees. The recommendation for the *Trust* dimension is to use LDAP (Lightweight Directory Access Protocol) for authentication and user security. While the recommendation for the *Efficiency* dimension is to add the role of the UPT so that news will be more detailed for each work unit.

Generally can be concluded that the quality e-Government service based on user perspective was good enough and met the citizen needs or expectation according to e-GovQual framework. However, government institutions must continue to improve the quality of services to the public in order to realize good governance.

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