Planning to improve the quality of public services using servqual and Quality Function Deployment integration

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Abstract. *Service is any activity that is intended or intended to provide satisfaction to customers, but in fact, there are still several service systems that are always complained about by the community, including the problem of family cards (KK) and identity cards (KTP) because these services are the most dominant in the Sepee District Office. This study aims to obtain the quality of service in the district so that it can be repaired or improved the service system. This study uses the integration of Service Quality (Servqual) with a 5-dimensional approach to service quality, namely Tangibles, Reliability, Assurance, Responsive, and Empathy with the integration of Quality Function Deployment (QFD) to create a development and planning process in setting specifications for community needs and evaluating strengths and weaknesses on the service process. The results of Servqual and QFD integration in this study can be seen from the Q value which is not in accordance with service quality standards, the Q value shows 0.86 meaning that service quality cannot be said to be good because 0.86 ≤ 1. Based on the Cartesian diagram, 8 attributes are found. In quadrant A high-expectation value and low-performance value). According to the community, the highest attribute whose perceived value is low but whose expectation value is high is that service facilities and infrastructure are complete and sophisticated.*

Keywords: service system, service quality, Quality Function Deployment.

1. Introduction

Service is an activity carried out by the organization concerning the needs of the consumer which will create a distinct impression (Kurnia et al., 2021). Public services have received many complaints from the public, which is dominated by the local government (PEMDA), as many as 25 reports during 2020 were obtained from the Indonesian Ombudsman oversight agency in South Sulawesi. Based on the presentation of the Regent of Barru H. Suardi Saleh, M.Sc during a virtual Focus Group Discussion (FGD) by the Ministry of Administrative Reform and Bureaucratic Reform Barru Regency itself until the end of August 2020. People who want to get the best service from the government, especially government agencies areas such as sub-districts which are inseparable from the basic concept of service which must be carried out quickly and precisely because seeing the level of community needs which is increasing every year, so that District employees are required to improve their abilities, skills, and knowledge to be able to serve the community well, this requirement aims to provide maximum service to the community when carrying out administrative arrangements at the District office.

Data obtained from the Sepee District office recorded 47 cases of public complaints relating to the very long introduction service for making KTPs and Family Cards (KK), 27 cases of public complaints about administrative services that took a long time to get a response, 22 cases regarding unfriendly employee services. in services, and 53 cases of complaints that employees perform services by discriminating between status and social groups. The service that most people complain about is related to the issue of family cards (KK) and identity cards (KTP) even though these services are most dominant in the Sepee District Office. Complaints about services at the Sepee District office include (1) service facilities and infrastructure, (2) supporting facilities are considered incomplete, (3) service system (Ahmad et al., 2018), (4) service completion time, (5) not implementing SOP (Ahmad & Herdianzah, 2022), (6) employees are not ready to serve, (7) not responsive, (8) not friendly, (9) discriminate between status/class, (10) have not yet implemented an e-government system. Therefore it can be repaired and improved service quality based on problems that occur continuously. By using the integration of the Service Quality (Servqual) and

Quality Function Development (QFD) methods, it is hoped that service speed and service quality improvement will be able to meet quality standards according to Key Performance Indicators (KPI) (Apriani & Nurcahyo, 2021; Aprianto & Fatah, 2021; Kurniawan et al., 2021).

This research is different from previous studies which only used the Servqual method to improve service systems. Meanwhile, this study integrates the Servqual method using 5 dimensions of service quality, namely Tangibles, Reliability, Assurance, Responsiveness, and Empathy (Li & Shang, 2020; Yulianto & Ginanjar, 2019) with QFD integration to create a development and planning process in determine the specifications of community needs and evaluate the advantages and disadvantages of the service process (Babbar & Amin, 2018; Fargnoli & Haber, 2019; Jafarzadeh et al., 2018; Yazdani et al., 2019). Based on the problems that occur in the Sepee District, this study aims to analyze and evaluate the gap in public services provided by the Sepee District office so that the service system can be improved by providing suggestions for improvements based on service indicators that are considered to be weaknesses. By integrating Servqual and QFD, it will provide effective and efficient solutions so that services can be optimized.

2. Method

The object of this research is the service system at the Sepee District Office, Barru District, Barru Regency. This study tries to identify and evaluate service systems that need to be improved to meet the level of community satisfaction. The research focused on the community's needs for the service quality of the Sepee District Office. The subjects in this study were (1) Headman Sepee, (2) Secretary to the Headman, (3) Head of the Social and Community Empowerment Section, (4) Receptionists, and (5) Communities served in the district.

The research data consists of primary data and secondary data. Secondary data were obtained from agencies related to this research such as documentation from the Sepee District or demographic data in the District, and stakeholders in the environment who could support the data in the research. While the primary data was obtained from the results of filling out questionnaires by research respondents. The questionnaire used is the Expectations and Reality/Perception/ Actual Performance questionnaire. Operational research variables are presented in Table 1.

Table 1 Operational variables

No	Variable	Definition	Measurement	Data Type
1	Tangibles	Describes the physical facilities, equipment, and appearance of personnel and the presence of users.	A1. This means and complete and sophisticated service infrastructure is available A2. Complete supporting facilities are available A3. Spacious and secure parking space A4. The waiting room is clean, comfortable, and spacious A5. ChannelService procedures and service conditions are clearly attached A6. The bathroom is clean and comfortable	Primary
2	Reliability	Refers to the ability to provide the promised service accurately and reliably.	A7. Service completion time is in accordance with the target time A8. Services are carried out in accordance with SOP A9. Readiness employee in service A10. Accuracy in input data	Primary
3	Responsive-ness	Willingness to assist participants and provide appropriate attention.	A11. Speed and responsiveness of employees in serving A12. Employees able to understand the needs of society A13. Employees follow up on public complaints A14. Employees are responsive to questions A15. Quick service information delivered	Primary
4	Assurance	The polite and knowledgeable workforce conveys trust and confidence.	A16. Employees are friendly and polite A17. Employees are always in the office A18. Employees have a good work ethic A19. Employee able to explain the terms of service A20. Security in getting service A21. Establish communication between the public	Primary

No	Variable	Definition	Measurement	Data Type
			and employees	
5	Empathy	Care and individual attention to the users.	A22. Employees are patient in serving the community A23. It does not discriminate between status/class in serving A24. Ease of getting service A25. Employees use different languages to understand A26. Employees are easy to get along with and easy to get along with	Primary

Determining the number of samples or research respondents is carried out using the following Slovin formula:

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

Where n = number of samples, N = number of populations, and e = error (error)
The size of the population in the Sepee District is seen from the total population aged ≥17 years, namely 2,258 people. Thus, the number of respondents required in this study amounted to 96 people, following the calculation:

$$n = \frac{2.258}{1 + 2.258x(0,1)^2}$$

$$= 95,75$$

Besides the results of filling out the questionnaire, primary data was also collected from the results of interviews with the management of the Sepee District Office.

After all the data is collected, then the data is processed using the Servqual and QFD methods. The stages in using this method are (1) collecting service dimension attributes, (2) attribute weighting, (3) testing the validity and reliability of the questionnaire results, (4) determining community perceptions and expectations, (5) determining GAP, and (6) determination of service improvement priorities (Hamzah, 2021). Figure 1 is a framework for thinking in this study.

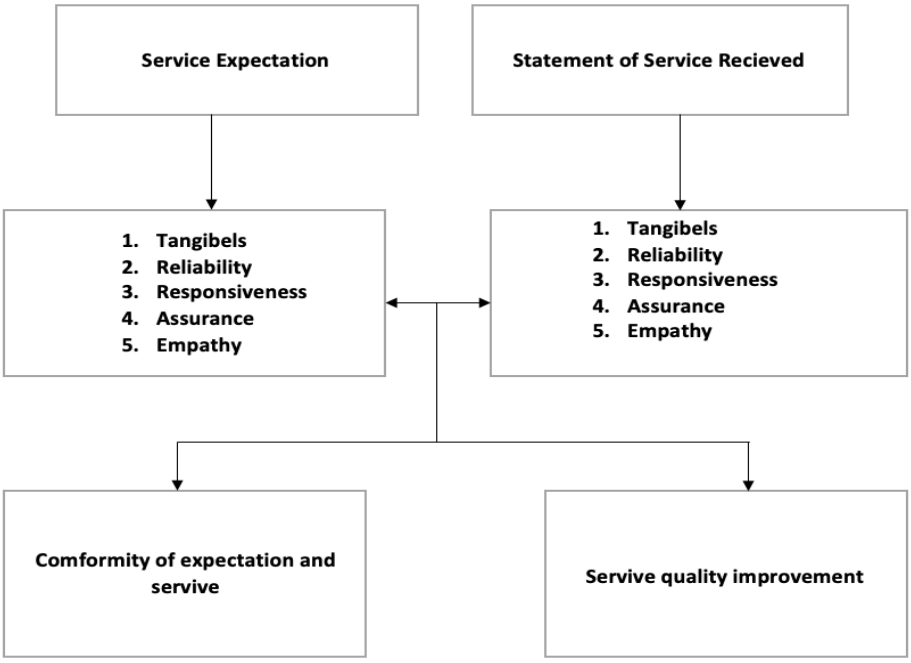

Figure 1 Research framework.

3. Results and Discussion

Test the Validity, Reliability, and Normality of the Data

This study uses the integration of Servqual and QFD to improve service quality (Alam & Mondal, 2019; German et al., 2022; Haktanır & Kahraman, 2019; S. Li et al., 2019; Luke & Heyns, 2020; Yanti & Murni, 2019; Kusumah & Hasibuan, 2019). The validity test used is the correlation technique, which compares the value of r-count and r-table (Pearson product-moment. The r-table value for α=0.05 and df (degree of freedom) = n-2 = 96-2 = 94 is 0.2006. All statement attributes have an r-count value ≥ 0.2006 so it can be concluded as valid.

The reliability test was carried out with Cronbach Alpha, the questionnaire was said to be reliable if the minimum CA coefficient value was 0.60. The results of data processing using SPSS software obtained Cronbach Alpha values> 0.60 in all statement items so that the questionnaire was declared reliable.

Normality test results with Kolmogorov-Smirnov. Data is said to be normally distributed if the significant value of Asiymp.Sig (2-tailed) > 0.05. The normality test in this study used the SPSS program and obtained a significant value of Asiymp.Sig (2-tailed) on the perception questionnaire of 0.183 and for the expectation questionnaire, 0.074. Thus, the data can be said to be normally distributed.

Service Quality Gap Analysis

For each servqual dimension at the level of customer perception and expectation, the average value of each question attribute is calculated. Then each question is searched for what then becomes the GAP on that question. The results of the evaluation of perceived values, expectations, and service gaps can be seen in Table 2.

Table 2 The Value of Perceptions, Expectations, and Gaps for Each Attribute

Dimensions	Number Attribute	Statement Attributes	Mark Perception	Expected Value	GAP 5
Tangibles	A1	Available with complete facilities and infrastructure according to standards	2,31	4.72	-2.41
	A2	Complete supporting facilities	2.34	4.69	-2.34
	A3	Security and ample parking space	4.08	1.77	2,31
	A4	Comfort, spaciousness, and cleanliness in the waiting room	2.58	4.56	-1.98
	A5	Service procedures and service conditions are clearly attached	2.74	4,43	-1.69
	A6	Cleanliness and comfort in the toilet	3,23	1.81	1.42
Reliability	A7	Conformity of service time with a predetermined target time	2.53	4,42	-1.89
	A8	SOP is applied at the time of service	2.78	4.46	-1.68
	A9	Readiness of employees in serving	2.55	4,33	-1.78
	A10	Accuracy in inputting data	2.73	4,22	-1.49
Responsive	A11	Employees are fast and responsive	3,16	4,15	-0.99
	A12	Employees are able to understand every community's need	3,24	3.94	-0.70
	A13	Follow up on any public complaints	3,14	3.93	-0.79
	A14	Employees are responsive to questions raised by the public	3,25	4.00	-0.75
	A15	Fast delivery of service information	3,14	3.84	-0.71
Assurance	A16	Friendly and polite attitude carried out by employees	3,18	3.94	-0.76
	A17	Employees are always in the office	3.07	4.00	-0.93
	A18	The work ethic of the employees is good	3,16	3.85	-0.70
	A19	The terms of service are well explained by the employee	3,31	3.84	-0.53
	A20	Communities get a sense of security when serving	4.01	1.88	2,14
	A21	Communication relations between the community and employees are well established	3.88	1.78	2.09

Dimensions	Number Attribute	Statement Attributes	Mark Perception	Expected Value	GAP 5
Empty	A22	The community is served patiently by employees	3.91	3.96	-0.05
	A23	Employees do not discriminate between status and class when serving the community	3.94	3.96	-0.02
	A24	Communities get convenience in services	4.06	3.96	0.10
	A25	The language used by employees is easily understood by the public	4,14	2.04	2.09
	A26	People and employees are easy to get along with	4,17	4,23	-0.06

Furthermore, the calculation of the quality (Q) of each dimension is carried out using the formula Q = (P/E). If the Q value ≥ 1, then the quality of service can be said to be good. As an illustration, the Q value for the Tangibles dimension = 2.88/3.66 = 0.79. Table 3 shows the final result value in service quality for each dimension.

Table 3 Value of Service Quality Perceptions, Expectations, GAP, and Q for Each Dimension

No	Dimensions	Perception (P)	Hope (H)	GAP	Q = P/E
1	Tangibles	2.88	3.66	-0.78	0.79
2	Reliability	2.65	4.36	-1.71	0.61
3	Responsiveness	3,18	3.97	-0.79	0.80
4	Assurance	3,43	3,22	0.21	1.07
5	Empty	4.04	3.63	0.41	1.11
	Means	**3,24**	**3.77**	**-0.53**	**0.86**

The calculation of the Q value does not yet show that it has met the standards or conformity in service quality, the average Q value is 0.86, which means that service quality cannot be said to be good because 0.86 ≤ 1. After obtaining the results from the gap between perceptions and community expectations, to then an analysis was carried out using a Cartesian diagram to determine the top priority matters to be addressed immediately. The cartesian diagram can be seen in Figure 2.

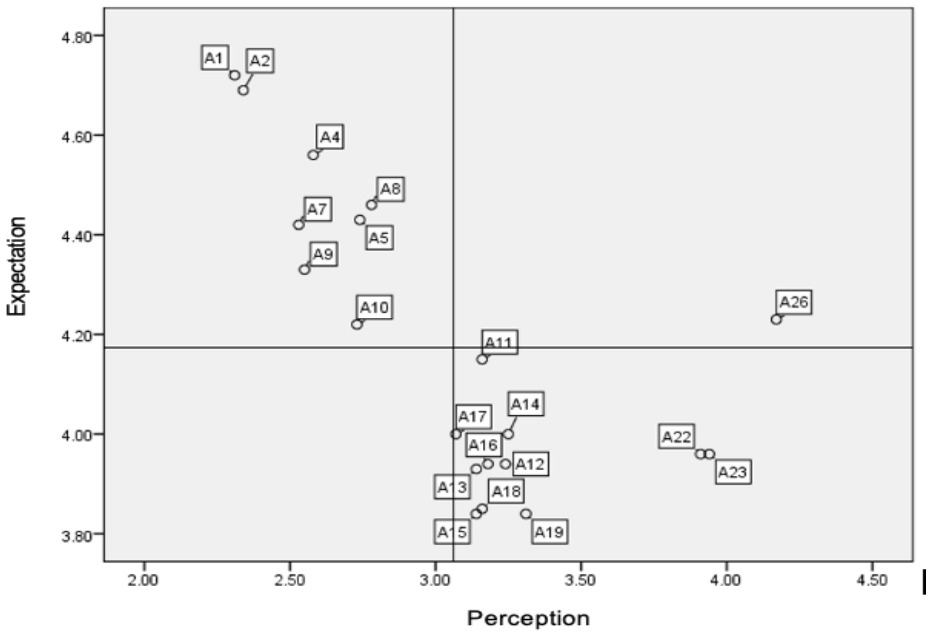

Figure 2 Cartesian Diagram

Based on the Cartesian diagram, there are 8 attributes that are in quadrant A (high expectation value and low performance value). According to the community, the highest attribute with a low perceived value but a high expectation value is that the available service facilities and infrastructure are incomplete and sophisticated.

Service Quality Improvement Plan

The Quality Function Deployment (QFD) uses a matrix in the form of a House of Quality (HoQ), which is used to describe the needs and expectations of the community as well as the technical capabilities of the Sepee District Office to design services according to the wishes of the community. In HoQ there are several stages in its manufacture, namely analyzing the Voice of the Customer (VoC), making a Planning Matrix, and making a Technical Response.

House of Quality (HoQ)

In Figure 3 you can see a summary of the HoQ which contains plans to improve the service quality of the Sepee District Office, the input from this HOQ is the wants and needs of the community. The matrix format is used to record important information that allows analysis and determination of technical responses. The output of QFD is a technical response or main action to increase community satisfaction based on voices from the community. Table 4 below is a technical response.

Table 4 Technical Response, Value of Contribution, Normalized Contribution, and Priority

No	Technical Response	Contribution	Normalized Contribution	Priority (ranking)
1	District must regularly conduct training for employees	56.85	14.93	3
2	Criticism and suggestion box should be available in District	12.51	3,29	9
3	District must make banners regarding the terms and flow of services	58,89	15,47	2
4	Information boards must be available in the service room	24.03	6,31	8
5	Facilities and infrastructure must be checked periodically	73,71	19.36	1
6	Tools and equipment must be added, updated and equipped	37,53	9.86	4
7	Smile, Greet, Greeting, Polite (4S) must be applied when providing services	11.67	3.07	10
8	Adequate cleaning staff and cleaning equipment	35,91	9,43	5
9	Making websites and social networks for information	34,56	9.08	7
10	Implementation of a good work culture	35.01	9,20	6

Integration of Servqual and QFD Methods

Integrating Servqual and QFD has the goal of providing service satisfaction to the community by providing services that are in accordance with what the community expects. The advantages of QFD compared to Servqual are that QFD will provide a structured way of fixing weaknesses in services. Improving service quality with servqual must be followed by applying QFD to clarify the action plan that must be carried out to cover the weaknesses that occur, with the integration of the two methods it can also take advantage of the gap in perceptions and expectations from servqual measurement to become a level of importance in the HOQ.

The relationship between the integration between the two methods is exploiting the gap in perceptions and expectations from society. The gap value obtained from the Servqual calculation is that 20 service attributes have a negative (-) gap score which is then mapped in a Cartesian Diagram where the result is that there are 8 attributes that are top priority to be addressed immediately, so these 8 attributes are prioritized to be used as VoC to define Customer Needs in the House of Quality at QFD. The Importance to customer value is obtained from the results of the Gap 5 analysis on the Servqual calculation which then Interpolates the Gap 5 to the Importance Level. Following the results of the integration in Tables 5 and Table 6.

Table 5 Before Servqual and QFD Integration

Priority	Code	Statement Attributes	GAP 5
1	A1	Available with complete facilities and infrastructure according to standards	-2.41
2	A2	Complete supporting facilities	-2.34
3	A4	Comfort, spaciousness and cleanliness in the waiting room	-1.98
4	A8	SOP is applied at the time of service	-1.68
5	A5	Service procedures and service conditions are clearly attached	-1.69
6	A7	Conformity of service time with a predetermined target time	-1.89
7	A9	Readiness of employees in serving	-1.78
8	A10	Accuracy in inputting data	-1.49

Table 6 After Integration of Servqual and QFD

Priority	Code	Statement Attributes	Weight	Technical Response
1	A1	Available with complete facilities and infrastructure according to standards	8.59	Facilities and infrastructure must be checked periodically
2	A2	Complete supporting facilities	8.36	1. Tools and equipment must be added, updated and equipped 2. Criticism and suggestion box should be available in District 3. Districts must make banners regarding the terms and flow of services 4. Information boards must be available in the service room
3	A4	Comfort, spaciousness and cleanliness in the waiting room	7.06	1. Facilities and infrastructure must be checked periodically 2. Adequate cleaning staff and cleaning equipment
4	A8	SOP is applied at the time of service	6.88	District must make banners regarding the terms and flow of services
5	A5	Service procedures and service conditions are clearly attached	6,61	1. District ce periodically must conduct training for employees 2. Smile, Greet, Greeting, Polite (4S) must be applied when providing services 3. Implementation of a good work culture
6	A7	Conformity of service time with a predetermined target time	6,21	1. District must make banners regarding the terms and flow of services 2. Making websites and social networks for information 3. Information boards must be available in the service room
7	A9	Readiness of employees in serving	6,16	District periodically must conduct training for employees
8	A10	Accuracy in inputting data	5.79	District periodically must conduct training for employees

Follow-Up Service Quality Improvement

Based on the results of the HoQ analysis, the Sepee District Office needs to immediately follow up to improve service quality. The steps needed to improve service quality, (1) For facilities and infrastructure must be checked periodically (2) District must make banners regarding terms and flow of services, (3) District must periodically conduct training for employees, (4) Tools and equipment must be added, updated and equipped, (5) Adequate cleaning staff and cleaning tools, (6) Implementation of a good work culture (7) Making websites and social networks for information, (8) Information boards must be available in the room services, (9) Criticism and suggestion box must be available in District, (10) Smile, Greet, Greeting, Polite (4S) must be applied when providing services.

4. Conclusion and Suggestion

Based on Servqual analysis, the quality of services provided by the Sepee District is still not satisfactory to the community. This can be seen from the Q value which does not meet standards or suitability in service quality, the Q value is obtained at 0.86 which indicates that service quality is not good because there are still gaps in service. Based on the Cartesian diagram, there are eight attributes that are in quadrant A (high expectation value and low performance value). Service facilities and infrastructure are complete and sophisticated. The availability of facilities and infrastructure is an attribute that has the largest gap and has the highest level of importance from the results of the raw weight calculation using the QFD method. By integrating the Servqual and QFD methods, it was successful to recommend various improvement efforts that need to be prioritized to be carried out by the Sepee District Office in order to improve service quality. There are 10 technical responses that need to be followed up by the Sepee District Office where the highest technical response is checking facilities and infrastructure on a regular basis.

The analysis of people's expectations and perceptions has not considered the characteristics of the people served. For further research development, it is recommended to consider the services provided to people who have diplomas below junior high school/equivalent, people who cannot read and write, have disabilities, or who are elderly.

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