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Analysis of IT Service Desk Applications Using the Servqual Method at The Republic of Indonesia National Library

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ABSTRACT

The National Library has implemented an Electronic-Based Government System (SPBE) so that library service operations and operations for the national library staff have used a computerized system which results in the PERPUSNAS requiring centralized management of IT problems, namely the IT Service Desk. As an IT problem service, IT Service Desk needs to be analyzed to measure the level of user satisfaction to determine the quality of its services. In this study, the measurement of the level of satisfaction of IT service desk service users was carried out to determine the quality of service using the Servqual method which has 5 dimensions of service quality, namely Tangible, Reliability, Responsiveness, Assurance, and Emphaty by looking for the value of the gap between the value of perception and the value of expectations from users. The results of the IT Service Desk measurement at PERPUSNAS RI obtained a gap of -0.78 with the category "Good Enough".

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INTRODUCTION

The growth of information and communication technology (ICT) requires the government to follow the flow of digitalization developments by implementing an Electronic-Based Government System (SPBE) or E-Government, which is government administration that utilizes ICT to provide maximum services to stakeholders, namely fellow government agencies, state civil apparatus, business people, the community and other parties. The National Library of the Republic of Indonesia as a non-departmental government institution that has duties in the library sector has implemented SPBE which is adjusted to its capacity and function. The implementation of SPBE aims to realize clean, effective, transparent, and accountable governance as well as quality and reliable public services, as well as to increase the integration and efficiency of the electronic-based government system.

With the implementation of SPBE, library service operations and staff operations at PERPUSNAS currently use a computerized system which results in the need for problem management management in the event of ICT (Information and Communication Technology) problems or damage, namely a single contact of centralized ICT mass complaints that serve as problem solfing for ICT problems in the National Library of the Republic of Indonesia. In 2019, the procurement of an IT service desk application was carried out which aims to facilitate incident management in information technology services, which previously still used conventional methods (Nur Aini & Khasanah, 2023).

A service desk is a single contact service owned by an organization that functions to receive reports of disruptions or problems, as well as receive requests from users of a service and coordinate to resolve the problem (Utomo & Syamsuddin, 2020), In other words, a service desk is a single contact service for all IT users who want to log an incident, report an event, make a change request, make a service request or ask questions regarding services provided by the IT Department (Dewi et al., 2023).

The purpose of the IT Service Desk is as a communication center in handling various incidents and requests between IT service users and ITSM who have special responsibilities including: recording all incidents and requests, categorizing and prioritizing them, as the front line of investigation and diagnosis, managing the cycle of incidents and requests,

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escalating them as needed and closing them when users are satisfied and ensuring users are informed of the following. Status of services, incidents, and requests. In this case, to support the implementation of IT Service Desk services, the National Library uses tools that are in accordance with the needs of ISO 2000-1: 2018 standards, namely the iTop application.

iTop is an open source IT Service and Management tools (ITSM) software developed by a company called Combodo. The software is website-based and can be used on different types of devices such as computers, laptops, tablets, and smartphones. iTop is an option because it is open source, because it has implemented an ITIL (Information Technology Infrastructure Library) framework, and can help to meet ISO 20000-1: 2018 standards.

Currently, the iTop application under the auspices of the Data and Information Center Work Unit and service implementers and IT service desk operators is under the ICT Data and Operational Service Management Group (Maladotik) which has a function to support IT service management such as receiving reports related to IT problems, recording, then analyzing them and escalating according to the type of problem and coordinating with related parties.

IT service desk as a service system IT problems need to be made a measurement of the level of service user satisfaction to find out the quality of service provided whether it has met the wishes of users. Information system user satisfaction is an important indicator in assessing the success of the application or use of an application or information system, a good or bad assessment of the performance of an information system can be assessed from the level of user satisfaction, satisfaction assessment also includes how the suitability between the information system used and the needs / goals of its users (Azhara & Santi, 2023). If the results obtained from the user's assessment are below his expectations then it can be said that the user is not satisfied with the service, if the assessment results meet the user's expectations then it is concluded that the user is satisfied with the services that have been obtained, if the assessment results exceed the user's expectations then it can be interpreted that the user feels very satisfied (highly satisfied) with the services obtained. So from the explanation above, it can be concluded that the level of service user satisfaction is the perception or impression of service users on the results of services that have been provided by the service desk in the agency/organization (Kurniawan et al., 2022; Murdianto et al., 2019).

One of the techniques for measuring user satisfaction is by looking for gaps between user desires (expectations) and current conditions (perceptions) in the existing system. Therefore, in this study, an analysis of the level of satisfaction of service users will be carried out with the servqual method.

The Servqual method is a method of measuring service quality from various aspects by determining the gap or difference between the user/consumer assessment of the currently accepted service system and its expectations of the system (Poceratus & Mammu, 2022). The questions asked contain five dimensions of quality, namely tangibles, reliability, responsiveness, assurance, and empathy (Dewi et al., 2023).

The calculation of measuring the assessment results from the questionnaire given to service users can be done by comparing the average perception and expectations of each attribute of the question given. Then the result of the gap (Gap) is the difference between perception and expectation. If the results can be >-1 then the service can be said to be good; The result of <-1 then the service is considered not good (Luh et al., 2018).

This research was conducted to answer several problem formulations such as: what is the current condition of the IT service desk (iTop) system implemented at the National Library of the Republic of Indonesia?, how is the current performance of the IT service desk (iTop) application, what is the gap analysis between expectations and perceptions of current IT service desk services when viewed from the servqual dimension?, how is the level of service user satisfaction with the current conditions of IT service desk services when viewed from the dimension servqual?, what are the recommendations for iTop IT service desk services from the analysis results using servqual dimensions?

By using the servqual method, it is expected to be able to answer the formulation of the problem above and can find out the quality of the IT service desk by measuring the level of user satisfaction.

This research is expected to provide input on the quality of IT Service Desk applications and as a reference for improving the quality of applications expected by users in the future.

RESEARCH METHOD

The research methodology can be illustrated by the diagram in Figure 1:

From the diagram above, it shows the flow of research implementation starting from observations of current conditions carried out with interviews and case studies on the application to find out the business process of the iTop application, from the results of these observations, problem formulation is carried out to be a reference in the implementation of research. Then literature studies are needed to be a reference for the author in conducting data analysis, writing and reporting scientific papers.

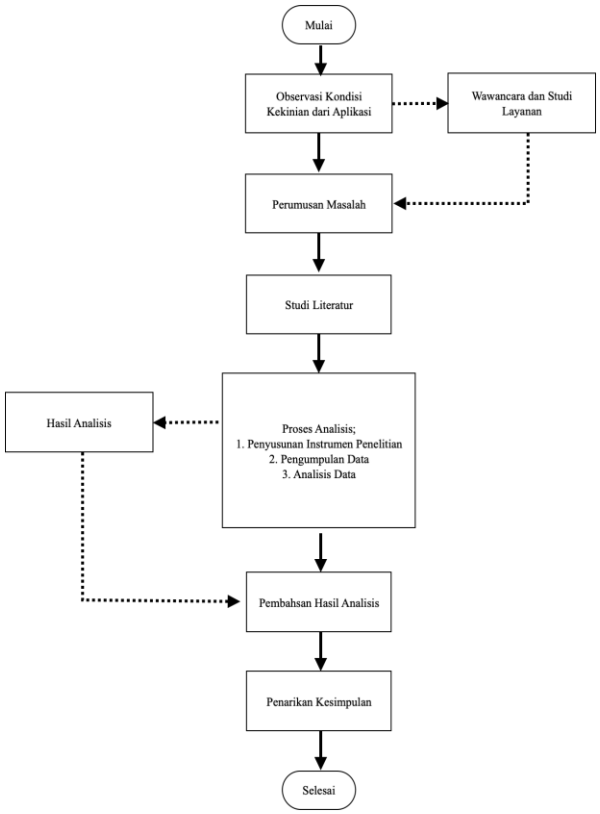


Figure 1. Research Methodology Diagram

Furthermore, the analysis process which will be carried out at this stage is the preparation of research instruments, data collection and data analysis.

In the preparation of research instruments, it is carried out by selecting indicators that are relevant to the case study of this research and also in accordance with the method used, namely the servqual method, the indicators must meet the 5 dimensions of the servqual method, namely tangible, reliability, responsiveness, assurance and empathy where each dimension includes aspects of process, people and technology. And here are some research instrument grids that will be used in the questionnaire:

Table 1. Research Instruments

Dimension	Research Instruments
Tangible (Measurable Evidence)	T1 Application Easily accessible through different browser applications and devices T2 Speed of access to applications T3 The number of IT service desk personnel is sufficient T4 The reporting app interface is easy to understand T5 Convenience in filling ticketing complaint incidents on the app
Reliability (Keandalan)	RB1Speed of IT Service desk officers in handling problems RB2The application provides convenience in the process of reporting problems / incidents RB3IT Service desk officers provide services consistently, accurately, on time and on target RB4IT Service desk personnel can resolve any problem reports RB5How often the app experiences glitches and errors RB6The application can accommodate various types of incident/problem reporting
Responsiveness (Daya Tanggap)	RP1.Speed of IT Service desk officers in responding to problem reports RP2.Readiness of IT Service desk officers in handling problems RP3.The application can provide service status notifications either through email or online chat applications (Whatsapp) automatically
Assurance (Jaminan)	A1. Customer trust in IT Service desk in troubleshooting A2. The ability and knowledge possessed by IT service desk officers in handling problems A3. The level of courtesy of IT service desk officers when performing problem services A4. Customers can submit responses / responses to services that have been received through the application
Emphaty (Empati)	E1. IT Service desk officers provide comfort in their services E2. IT Service desk officers are able to communicate well to explain problems to reporters E3. IT Service desk officers are able to understand the conditions and needs of the reporter E4. The application provides periodic reports of problems that have been resolved as information for service users

The research instrument above will be used as a question on the questionnaire which will be used as a data collection tool. Which of each question attribute will be divided into 2 questions, namely user perception and expectations. The method of measuring each question is to use the Likert scale. Likert scale is

a measurement scale using 5 response categories, namely "Very Not Good" with a value of 1, "Not Good" with a value of 2, "Enough" with a value of 3, "Good" with a value of 4 and "Very Good" with a value of 5.

The object of data collection is the staff of the National Library of the Republic of Indonesia located in the Service Building on Jl. Merdeka Selatan No. 11 with a population of 225 so that the number of sample respondents using the slovin calculation formula is 144 respondents. The questionnaire will be distributed to respondents using a google form that is distributed through the online chat application (whatsapp).

After the data is successfully collected, then a validity and reliability test is carried out on the research instrument to find out whether the instrument used is valid and reliable. Then calculate the gap value using the servqual method with the formula (Hidayat, Wahyu et al., 2017):

$$\text{SERVQUAL Score} = \text{PERCEPTION Score} - \text{Expectation Score}$$

Next, determine the importance of each attribute with a cartesian chart and calculate the level of user satisfaction with the Customer Satisfaction Index method. Which calculation steps are as follows (Saputra, 2019):

1. Calculate the Mean Importance Score (MIS) which is the average of user expectations and Mean Satisfaction Score (MSS) which is the average of user perceptions obtained by the formula below

$$MIS = \frac{\sum_{i=1}^{n} Y_i}{n} \quad MSS = \frac{\sum_{i=1}^{n} X}{n}$$

Information:
MIS = Mean Importance Score
MSS = Mean Satisfaction Score
Yi = average value of user expectations per attribute
Xi = average value of user perception per attribute

2. Calculate the Weight Factor (WF) which is the value of the MIS of each attribute against the Total MIS obtained by the formula below:

$$WF = \frac{MIS_i}{\sum MIS} \times 100\%$$

Information:
WF = *Weight Factor*
MIS = *Mean Importance Score*

3. Calculating Weight Score is the multiplication between Weight Factor (WF) and Mean Satisfaction Score (MSS) obtained by the formula below:

$$WS_i = WF_i \times MSS$$

Information:
Village = Weight Score per atribut
WFi = Weight Factor by attribute
MSS = Mean Satisfaction Score

4. Calculating Customer Satisfaction Score is by dividing the weight score value by the highest scale obtained by the formula below:

$$CSI = \frac{WS}{HS}$$

Information:
CSI = Customer Satosfaction Index / Service User Satisfaction Level
WS = Weight Score
HS = Height Score / highest scale value

CSI score criteria are divided into 5, namely Very Satisfied, Satisfied, Quite Satisfied, Dissatisfied, Very Dissatisfied. The criteria for satisfaction index values can be seen in the following table.

Table 2. Satisfaction Level Scale

CSI Value	CSI Criteria
81% - 100%	Very satisfied
66% - 80,99%	Satisfied
51% - 65,99%	Quite Satisfied
35% - 50,99%	Less Satisfied
0% - 34,99%	Not Satisfied

Based on the results of the analysis, recommendations and inputs will be given to improve the existing system

RESULTS AND DISCUSSION

Currently incident reporting and requests can be done using telephone, short message with chat application (Whatsapp) and using iTop application. In its implementation, users or reporters who report via telephone or chat will be directed to fill in their incident reports to the iTop application by filling in incident report tickets or requests so that the report can be recorded.

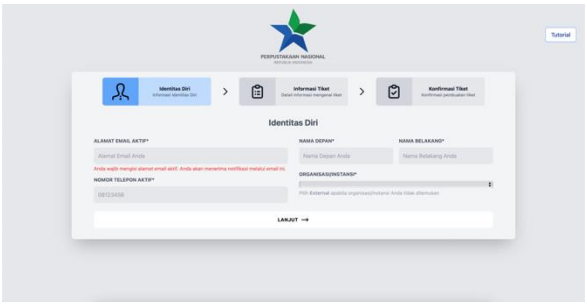
In the reporting process using the iTop application, the first user or reporter can access the iTop application at https://itservicedesk.perpusnas.go.id web address. The following is what the login page looks like for the IT service desk application of the National Library of the Republic of Indonesia (iTop).

Source: Portal IT Service Desk

Figure 2. IT Service Desk Application Login Page

On this login page, users or reporters who already have an account on the IT service desk application can immediately log in. But for users or reporters who do not have an account can go directly to

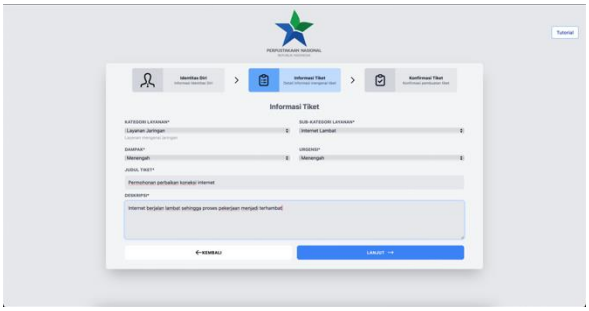
the complaint ticket creation form by pressing the button "Don't have an account? Submit tickets here". And here is the initial display of the form for making an incident or application complaint ticket.



Source: Portal IT Service Desk

Figure 3. Reporting identity filling form

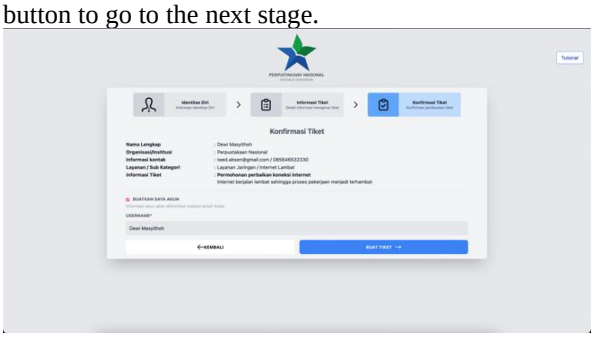
In this form, the reporter is asked to fill in their email address, First Name, Last Name, Active Phone Number and Organization / Agency. If the data has been filled in, then the reporter can press the "CONTINUE" button to go to the next stage.



Source: Portal It Service Desk

Figure 4. Filling in complaint or request ticket information

In the complaint ticket information filling form, the reporter is asked to fill in information related to Service Category, Service Sub-Category, Impact of disruption, Urgency, Ticket Title, and Description of the problem or application. If the data is already complete, the reporter can press the "CONTINUE" button to go to the next stage.



Source: Portal IT Service Desk

Figure 5. Ticket creation confirmation

This form displays information related to the complaint to be reported so that the reporter can double-check the report information whether it is correct. If it is appropriate, the reporter can enter his complaint report by pressing the "Create Ticket" button. If the reporter wants to create an account, they can check the "Create Me Account" button then fill in the Username data in the "USER NAME" field. After the ticket making is complete, the reporter receives the following information.

Source: Portal IT Service Desk

Figure 6. Complaint ticket information has been saved

After the complaint is successfully stored, then the IT service desk management staff will analyze and escalate the incident/request according to the level of difficulty of the problem.

1. Demographic Analysis Results

From the distribution of questionnaires to 144 respondents, the results of demographic analysis with position criteria can be seen with the following diagram:

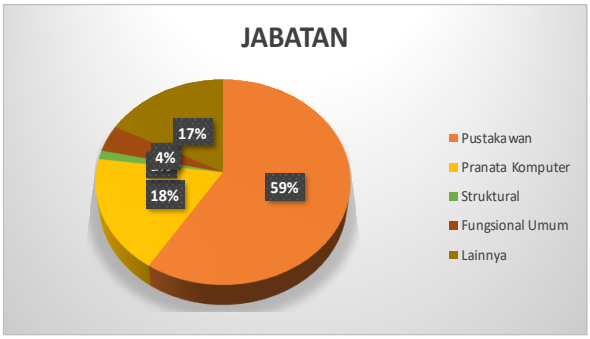


Figure 7. Job Title Demographic Information Diagram

From the diagram above, it can be seen that as many as 59% or 85 respondents have functional positions of librarians, 18% or 26 respondents have functional positions of Computer Institutions, 2% or 2 respondents have structural positions, 4% or 6 people have general functional positions and 17% or 25 people have other positions such as planners, planning analysts, financial institutions, financial analysts, auditor, financial analyst, widyaiswara, and media diverter.

While the results of demographic analysis for work unit criteria can be seen in the diagram below.

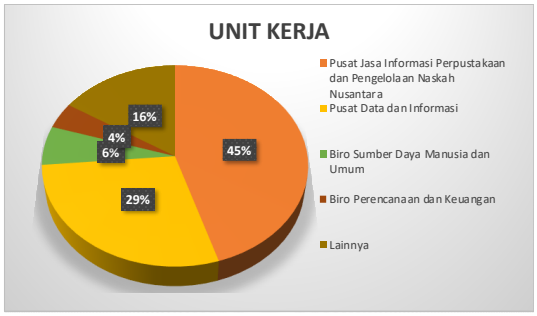


Figure 8. Work Unit Demographic Information Diagram

Respondent data obtained by Work Unit are as follows:

a. 45% or as many as 65 respondents came from the Work Unit of the Center for Information Services and Management of Nusantara Manuscripts.
b. 28% or as many as 41 respondents came from the Data and Information Center.
c. 6% or as many as 9 respondents came from the Bureau of Human Resources and General Affairs
d. 4% came from the Planning and Finance Bureau or as many as 6 respondents.
e. 16% or as many as 23 respondents came from several other Work Units in the National Library of the Republic of Indonesia.

2. Validity Test

The validity test is carried out by finding r count using the pearson correlation coefficients formula then the result of the calculation of the correlation value then r count compared to r table. To find out the r table can be seen in the distribution table of r values table (simple correlation coefficient) with a significance level of 5% (0.05) with free degrees df = n-2, where n is the number of respondents. To find out the value of r table can also be done by calculating with the calculation formula r table. So that the table r value for the number of respondents 144 is 0.1637. An instrument is said to be valid if the value of r is calculated > r table. The following is the result of calculating the calculated r value (pearson correlation coefficients).

Table 3. Validity Test Results

Instruments	Persepsi		Harapan	
	R value	V	R value	V
T1.	0,559	VALID	0,748	VALID
T2.	0,638	VALID	0,741	VALID
T3.	0,516	VALID	0,708	VALID
T4.	0,562	VALID	0,713	VALID
T5.	0,576	VALID	0,728	VALID
RB1.	0,507	VALID	0,757	VALID
RB2.	0,638	VALID	0,771	VALID
RB3.	0,580	VALID	0,773	VALID
RB4.	0,602	VALID	0,755	VALID
RB5.	0,467	VALID	0,544	VALID
RB6.	0,591	VALID	0,661	VALID
RP1.	0,520	VALID	0,711	VALID
RP2.	0,579	VALID	0,720	VALID
RP3.	0,512	VALID	0,689	VALID
A1.	0,633	VALID	0,745	VALID
A2.	0,639	VALID	0,696	VALID
A3.	0,720	VALID	0,728	VALID
A4.	0,419	VALID	0,673	VALID
E1.	0,795	VALID	0,762	VALID
E2.	0,762	VALID	0,768	VALID
E3	0,693	VALID	0,734	VALID
E4.	0,444	VALID	0,724	VALID

3. Reliability Test

Reliability tests are needed in a study with quantitative methods in order to find out whether the question items on the questionnaire have a level of consistency. Where the purpose of reliability measurement is to find out whether the measuring instrument used in a study has the accuracy of measurement results on the same sample at different times.

For reliability tests in this study, the author uses Alpha's Cronbach method because this method is most commonly used by researchers in instrument testing in quantitative research. In the Cronbach Alpha test method, a measuring instrument is declared consistent or reliable if the result of the calculation of the Cronbach Alpha's reliability coefficient is > 0.70.

The following are the results of reliability testing calculations on questionnaire data. It is known that the calculation of the variance value of each Item is as follows.

Table 4. Cronbach Alpha Reliability Test

Case Processing Summary

		N	%
Cases	Valid	144	98.0
	Excludeda	3	2.0
	Total	147	100.0

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

Reliability Statistics

Cronbach's Alpha	N of Items
.966	44

In the calculation of reliability tests with Alpha's Cronbach the first thing to know is the number of respondents, the number of questions, the value of the variance of each item. The variance value of each item is the result of calculating the variance value from the number of questionnaire data results per item (question). If the variant value per item is known, then the sum of all variant values per item is carried out. Next to know is the total variance value, this total variance value is the result of calculating variance from the total of the number of questionnaire data results per subject (respondent). After everything is known, the reliability coefficient of Alpha's Cronbach can be calculated, and the results of the reliability test calculation in Table 4 above get the value of the Cronbach Alpha's coefficient is 0.966, which from this

value can be stated that the instrument or measuring instrument used in this research questionnaire has a level of "Very Good Reliability"

4. Servqual Analysis

Technical measurement with the servqual method is by calculating the gap value of each of the 2 attributes by subtracting from the user perception score to the user expectation score of each question which will later be obtained as a reference for assessing the level of service user satisfaction.

From the results of the distribution of questionnaires, the calculation between perception scores and expectation scores from each question on the questionnaire related to IT service desk services at the National Library of the Republic of Indonesia, the results of gap values from each dimension can be presented in the following table:

Table 5. Gap Calculation Results

Code	Average Score		GAP	GAP by dimension
	P	H		
T1.	4,06	4,37	-0,31	-0,61
T2.	3,91	4,35	-0,44	
T3.	3,15	4,17	-1,02	
T4.	3,69	4,32	-0,63	
T5.	3,67	4,34	-0,67	
RB1.	3,25	4,31	-1,06	-0,87
RB2.	3,62	4,34	-0,72	
RB3.	3,33	4,29	-0,97	
RB4.	3,49	4,37	-0,88	
RB5.	3,37	4,19	-0,82	
RB6.	3,56	4,33	-0,76	
RP1.	3,31	4,32	-1,01	-1,03
RP2.	3,44	4,37	-0,93	
RP3.	3,21	4,35	-1,15	
A1.	3,46	4,35	-0,90	-0,69
A2.	3,85	4,43	-0,58	
A3.	4,08	4,43	-0,35	
A4.	3,40	4,35	-0,95	
E1.	3,82	4,39	-0,57	-0,71
E2.	3,88	4,40	-0,53	
E3.	3,77	4,41	-0,64	
E4.	3,22	4,31	-1,10	
Average Gap				-0,78

From the results of the gap calculation obtained, it is stated that if satisfaction or quality is worst if the perception is far below expectations, namely when the smallest perception value (1) and the expectation value is in the highest position (5), then the value is 1-5 = -4. And vice versa the highest quality if the perception far exceeds expectations, that is, when the perception value is at the highest position (5) and the expectation value is at the smallest position (1) then the value is 5-1 = 4 [38]. The range of quality categories or gap values from -4 to 4 can be described by the following table.

Table 6. Quality Gap Range

Interval	Quality
(-4) – (-2,4)	Very Not Good
(>-2,4) – (-0,8)	Bad
(>-0,8) – (0,8)	Good enough
(>0,8) – (2,4)	Good
(>2,4) – (4)	Excellent

Source: (Sinollah & Masruro, 2019)

On the table. 4 shows the result that the value of the gap between the perception and expectations of each dimension is negative. This is because the value of expectations / expectations from users for IT service desks is higher than the results of user assessments of the condition of services that have been obtained which is also called perception. This negative value indicates that the services provided by the IT service desk are still unable to meet the expectations of its users, so it can be concluded that IT Service desk services still do not meet the level of satisfaction from its users as evidenced by the average gap of the five servqual dimensions of -0.78. Refer to Table 5. then the IT service desk of the National Library can be said to be "Good Enough"

In table 4, it can be seen that the results of obtaining gaps from each of the 2 dimensions sorted from largest to smallest are Responsiveness (-1.03), Reliability (-0.87), Empaty (-0.71), Assurance (-0.69) and Tangible (-0.61).

In the tangible dimension, it gets a gap of -0.61 with the category "Good Enough" and the attribute that has the largest gap is the attribute T3 with a gap value of -1.02 with the category "Not Good". Therefore, the recommendation that can be given for the T3 attribute is that the IT Service Desk management Work Unit can add the number of human resources in accordance with current service needs and also determine policies related to the determination of the IT Service Desk team along with the organizational structure as well as the main tasks and functions aimed at providing a clear impact and responsibility to each personnel for each incident handling, problems and requests.

The Reliability dimension gets a gap value of -0.87 with the "Not Good" category, where in the reliability dimension there are 3 attributes in the "Not Good" category, namely RB1 with a gap value of -1.06, RB3 with a gap value of -0.97 and RB4 attribute with a gap value of -0.88. The recommendation to improve these three attributes is to create a policy that regulates the quality standards of IT services that contain service parameters such as Service Level Agreement (SLA). They can be used as recommendations for RB1 and RB 3 attributes. While the recommendation for RB 5 is for the IT team to monitor the running of the IT service desk application portal regularly, improve application security and make application updates to overcome problems that cause interference with applications.

The Responsiveness dimension obtained the largest gap value of the other dimensions with a magnitude of -1.03 with the "Not Good" category, where the three attributes were also in the "Not Good" category with gaps for RP1 -1.01, RP2 0.93 and RP 3 -1.15. Recommendations for improving these three attributes are as follows:

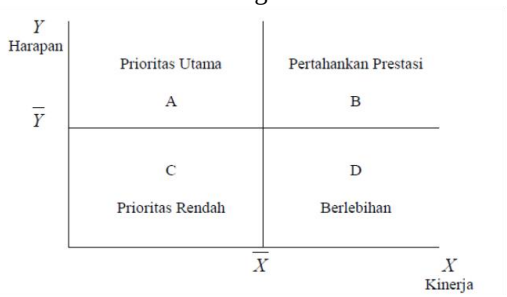
a. The RP1 Attribute recommendation is that the IT service desk management work unit makes rules or staff scheduling at the service desk analyst level who are assigned to monitor reports that enter the application, so that on the day the staff who get the schedule only has the task to focus on monitoring incoming reports in the IT service desk application so that with the focus of officers, problem reports will be quickly responded.
b. The recommendation of RP2 is for the IT service desk management work unit to be able to complete service support equipment and also provide socialization or training to IT service desk personnel regularly to be able to increase the insight and knowledge of personnel so that it will be able to help the readiness of IT service desk team personnel in handling problems received.
c. RP3's recommendation is that the work unit managing the IT service desk system can immediately develop the IT service desk system, namely the addition of a notification feature on the status of services that have been reported either via email or online chat application (Whatsapp).

As for the Assurance dimension, it gets a gap value of -0.69 with the "Good Enough" category, which is safe in this dimension, there are 2 attributes that are in the "Not Good" category, namely A1 with a gap value of -0.90 and A4 with a gap value of -0.95. The recommendation for the improvement of these two attributes is for attribute A4 as the attribute that has the largest gap value in the assurance dimension, the improvement is by developing the application to add response features and assessment responses when receiving service notifications have been completed. It is hoped that this development can improve the quality of IT service desk services in accordance with ITSM standards and increase user satisfaction. And the recommendation to improve the A1 attribute is to fix all the shortcomings that exist in the IT service desk. With these improvements, it is expected that the level of user trust in the IT service desk can also increase.

In the emphaty dimension, it gets a gap value of -0.71 with the category "Good Enough". The attribute that has the largest gap value in the Emphaty dimension is E4 with a gap value of -1.10 with the category "Not Good". The recommendation for the E4 attribute is to display a recap of service history information that has been completed by the IT service desk team so that the presence of service history information can increase the level of user trust in the IT service desk.

5. Cartesian Diagram

Cartesian diagram is a depiction of an object placed on a coordinate system based on values on the x-axis and y-axis which will be the meeting point so that coordinates are formed (Wahju Wibowo and Imam Nuryanto, 2022). Cartesian diagrams have a function to map the average performance score to determine the priority of problems (Suhermi et al., 2019). Here is an overview of a cartesian diagram.



Source: (Wahju Wibowo and Imam Nuryanto, 2022)
Figure 9. Cartesian Diagram

Information:

a. Attributes in this quadrant are attributes that are considered to have a level of importance to affect customer or user satisfaction, but are still not implemented in accordance with the expectations of users so that they are not satisfactory.
b. Attributes that are in this quadrant are attributes that are considered important that have been implemented well by the organization, so they must be maintained, so that these attributes can be said to be very important and have met user expectations.
c. Shows attributes that are considered less important to users than other attributes and are implemented in a casual manner. Considered less important and less satisfactory.
d. Shows attributes that are considered less important than other attributes but get satisfactory values so they are considered excessive.

Data analysis of questionnaire results with cartesian diagrams aims to determine the level of importance of the attribute components in this study.

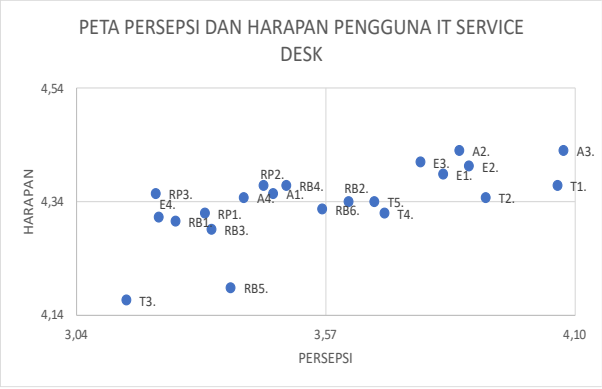


Figure 10. Cartesian Diagram Map of IT Service Desk User Perceptions and Expectations

6. Customer Satisfaction Index (CSI)

The results of the calculation of the level of satisfaction of IT Service Desk service users of the National Library of the Republic of Indonesia are explained in the table below.

Table 7. User Satisfaction Value Calculation

Attribute	MSS	THAT	WF	WS
T1.	4,06	4,37	4,57	18,59
T2.	3,91	4,35	4,55	17,80
T3.	3,15	4,17	4,36	13,73
T4.	3,69	4,32	4,52	16,71
T5.	3,67	4,34	4,55	16,70
RB1.	3,25	4,31	4,51	14,66
RB2.	3,62	4,34	4,55	16,45
RB3.	3,33	4,29	4,49	14,95
RB4.	3,49	4,37	4,57	15,95
RB5.	3,37	4,19	4,39	14,77
RB6.	3,56	4,33	4,53	16,14
RP1.	3,31	4,32	4,52	14,99
RP2.	3,44	4,37	4,57	15,73
RP3.	3,21	4,35	4,56	14,63
A1.	3,46	4,35	4,56	15,77
A2.	3,85	4,43	4,64	17,88
A3.	4,08	4,43	4,64	18,92
A4.	3,40	4,35	4,55	15,46
E1.	3,82	4,39	4,60	17,56
E2.	3,88	4,40	4,61	17,87
E3.	3,77	4,41	4,62	17,42
E4.	3,22	4,31	4,52	14,52
SUM	**78,52**	**95,48**	**WT**	**357,18**
			CSI	**71,44**

In the table above, it can be seen that the value of the Customer Satisfaction Index or the Level of User Satisfaction of IT Service Desk Services of the National Library of the Republic of Indonesia is in the "Satisfied" category.

CONCLUSION

The results of the questionnaire that has been analyzed using the servqual method which is divided into five dimensions, namely Tangible, Reliability, Responsiveness, Assurance and Emphaty produces a total gap value of -0.78 which can be interpreted that the quality of the IT service desk of the National Library of Indonesia is in the category "Good Enough". The results of the gap value are obtained from the average gap of each dimension sorted from the largest to smallest gap as follows: Responsiveness (-1.03) with the quality category "Not Good", Reliability (-0.87) with the quality category "Not Good", Empaty (-0.71) with the quality category "Good Enough", Assurance (-0.69) with the quality category "Good Enough" and Tangible (-0.61) with the quality category "Good Enough". The results obtained show that the IT service desk of the National Library of the Republic of Indonesia can be used as reference material by the IT service desk team that the IT Service desk application still needs some improvements so that in the future it can meet the quality expected by its users. the level of user satisfaction of the IT service desk of the National Library of the Republic of Indonesia obtained a CSI score of 71.44 which with this score can be concluded the level of user satisfaction is in the "Satisfied" category. The object of this research is the front end module of the IT Service Desk application, in the future it is expected that further research will be carried out on measuring the level of satisfaction of IT Service desk service users with the scale of the research object of all modules in the application and using a more appropriate method.

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