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Development of a Service Quality Analysis Information System with the Importance Performance Analysis Method

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Abstract

Service is an activity where a company helps customers solve their problems. Good service quality can make customers loyal to the company. To maintain service quality, service performance is measured. *The Importance Performance Analysis (IPA)* method is one method that can be used to measure service performance from a customer perspective. Qanaah Carpet Shop is a business that operates in the field of goods and services. By using the IPA method, Toko Qanaah Karpet measures its service performance manually using paper media, which makes analysis ineffective and inefficient. This research aims to build an information system that can analyze service quality using the IPA method. The analysis was carried out by measuring 30 service attributes which were divided into 5 dimensions, namely: Tangible (Physical evidence), Reliability (Reliability), Responsiveness (Responsiveness), Assurance (Guarantee), and Empathy (Empathy). Data collected through a questionnaire involved 50 respondents. The results of this research show that there are 6 attributes in quadrant A, 10 attributes in quadrant B, 8 attributes in quadrant C, and 6 attributes in quadrant D. Companies can take action to maintain and improve service attributes in accordance with the recommendations from the results of this research.

Keywords : Information Systems, Importance Performance Analysis Method, Service Quality, Quadrants.

1. Introduction

Service is a way of serving, a way of helping other parties as a means of realizing consumer satisfaction [1]. Good service quality is not only based on the point of view or perception of the service provider, but also based on the point of view or perception of the community [2].

Qanaah Carpet Shop is a business unit that operates in the field of goods and services, this shop not only sells carpets, but also sells various room decorations. Apart from that, this shop also provides carpet cleaning services. In measuring the quality of its service, the Qanaah Carpet Shop has so far measured the quality of its service manually , where a survey distributes a sheet of question paper to customers, and then the answers are calculated without using computer technology, which makes the analysis process slow and sometimes errors occur.

Based on the problems above, the Qanaah Carpet Shop needs an information system application that can help in analyzing customer satisfaction. Where the application stores respondents' answers, calculates the performance and importance of each service attribute and displays the analysis results in easy-to-understand diagram form. The method used in the analysis process is Importance Performance Analysis (IPA).

Importance Performance Analysis (IPA) is a descriptive analysis technique introduced by Martilla and James in 1977. This technique is an analytical technique used to identify important performance factors that must be demonstrated by an organization in meeting consumer satisfaction . 3]

The Importance Performance Analysis method or abbreviated as IPA is a simple technique and is used to identify the attributes of a product or service that are most needed from a development or are candidates for conditions where cost savings are possible without significant loss to overall quality [4][5]. The IPA method has the main function of displaying information on service factors which according to consumers greatly influence their satisfaction and loyalty as well as service factors which according to consumers need to be improved because they are currently not satisfactory [6] [7]. The interesting thing about IPA is that the research results are presented in the form of 2-dimensional quadrants which are graphic and easy to interpret [8]. IPA is very good and precise in analyzing customer satisfaction. The IPA method analysis process is quite detailed, from determining overall customer satisfaction to obtaining service attributes that need to be improved and attributes that must be maintained, so the IPA method does not need to be combined with other methods [9].

This research aims to build an information system that analyzes customer satisfaction with services at the

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Qanaah Karpet Store using the Importance Performance Analysis (IPA) method.

An information system is a system within an organization that meets the needs of daily transaction processing, supports operations, is managerial and strategic activities of an organization and provides certain external parties with the necessary reports, providing all information that affects all organizational operations [10] . A good and appropriate information system can help an organization to maintain the stability of its existence [11]. Information systems are a collection of elements that are interconnected with each other which form a single unit for integrating data, processing and storing and distributing information [12].

According to Kotler, service quality can be determined by comparing consumers' perceptions of the service they actually receive or obtain with the service they actually expect or want regarding the service attributes of a company.

2. Research methodology

In the IPA analysis, 4 quadrant mapping was carried out for all variables that influence service quality. The division of quadrants in IPA can be seen in Figure 1

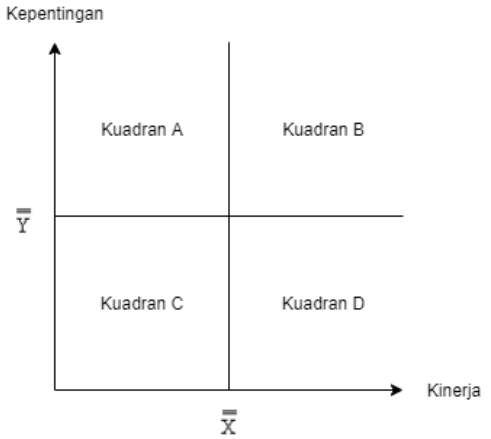

Figure 1 Cartesian diagram of the Natural Science Method

The meaning of each quadrant in the image above is:

1. Quadrant A - Top Priorities (Concentrate Here)

Factors located in this quadrant are considered to be very important factors compared to other factors, management is obliged to provide more resources and pay more attention to factors located in this quadrant.

2. Quadrant B - Maintain Achievement (Keep up the good work)

Factors located in this quadrant can be considered important and are expected to be supporting factors for customer satisfaction, so that top parties or management are obliged to ensure that the performance processes managed can continue to maintain the achievements that have been achieved.

3. Quadrant C - Low Priority (Low Priority)

Factors in this quadrant have a lower priority level than other factors, so management does not need to prioritize this factor.

4. Quadrant D - Possible Overkill

Factors in this quadrant are considered not very important, so management needs to allocate factors related to this quadrant to other factors that require more priority handling.

3. Results and Discussion

3.1 *Importance Performance Analysis* (IPA)

Data collected through distributing questionnaires online or offline involving 50 respondents will then be processed using the IPA method. By assessing performance and importance, followed by calculating the level of suitability, and depicting it in a 4 quadrant Cartesian diagram.

Conformity Level

The following are the results of calculating the level of conformity from the distributed questionnaire data, which can be seen in Table 1

Table 1 *Hold* and *Action*

Items	Conformity Level	Decision Score	*Hold* and *Action*
1	95,495	94,641	H
2	94,400	94,641	A
3	92,683	94,641	A
4	93,600	94,641	A
5	91,870	94,641	A
6	94,262	94,641	A
7	100,893	94,641	H
8	99,153	94,641	H
9	96,522	94,641	H
10	98,333	94,641	H
11	98,276	94,641	H
12	101,709	94,641	H
13	92,857	94,641	A
14	96,694	94,641	H
15	95,082	94,641	H
16	95,690	94,641	H
17	95,833	94,641	H
18	87,903	94,641	A
19	91,597	94,641	A
20	93,651	94,641	A
21	97,368	94,641	H
22	90,244	94,641	A
23	90,323	94,641	A
24	90,984	94,641	A
25	88,618	94,641	A
26	92,241	94,641	A
27	100,000	94,641	H
28	93,548	94,641	A
29	96,552	94,641	H
30	92,857	94,641	A

Cartesian diagram

The aim of the Cartesian diagram is to see in more detail the attributes that need improvement. The results of mapping the above values to the Cartesian diagram can be seen in Figure 6 below.

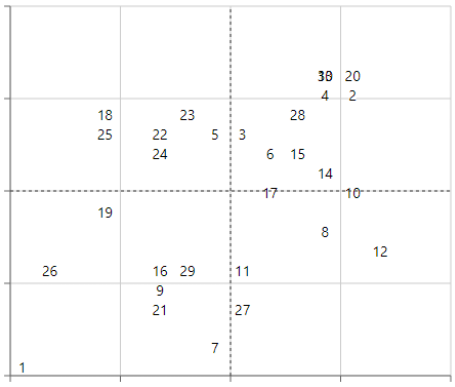

Figure 3 Cartesian diagram results

After carrying out calculations and mapping to the Cartesian diagram above, the results obtained are that the attributes that need to be corrected are those in quadrant A. The attributes in quadrant A can be seen in Table 2.

Table 2 Attributes in Quadrant A

Attribute	Statement
5	Neatly arranged parking
18	Server speed in responding to needs
22	Product quality guarantee
23	Easy to reach telephone contact
24	Comfort when in the shop environment
25	Guarantee of safe delivery of goods to their destination

The attributes that must be maintained because customers think they have met their expectations are in quadrant B. The attributes in quadrant B can be seen in Table 3.

Table 3 Attributes in Quadrant B

Attribute	Statement
2	Shop cleanliness
3	Employees have a neat appearance
4	Large parking area
6	Clean toilets
13	Suitability of the desired item
14	Ease of transactions
15	Diversity of products offered
20	Dexterity of employees in serving
28	Good communication between waiters and customers
30	Special treatment for special customers

Attributes that are not considered important by customers and companies do not pay special attention because they do not have a big impact on the company. The attributes contained in quadrant C can be seen in Table 4.

Table 4 Attributes in Quadrant C

Attribute	Statement
1	The shop location is easy to reach
7	Availability of chairs for rest
9	There is a price tag on the product
16	Completeness of the products offered
19	The accuracy of the waiter in providing information
21	Be thorough and precise in returning refunds to customers
26	Parking lot security
29	Employee's ability to explain

Attributes in quadrant D are attributes that are considered not very important to customers, but the company provides excessive service. The attributes contained in quadrant D can be seen in Table 5.

Table 5 Attributes in Quadrant D

Attribute	Statement
8	The neatness of the cashier's desk
10	Neat arrangement of items
11	Comfortable waiting room
12	Services provided
17	Waiter's ability to solve customer needs
27	Employee friendliness and politeness

From the results of calculations using the IPA method at the Qanaah Carpet Shop, where the level of importance and service performance was mapped onto a Cartesian diagram, 6 attributes were obtained which were in quadrant A positions which were the main focus for improvements, including: Neatly arranged parking (5) , Speed of service in responding to needs (18), Guarantee of product quality (18), Easy telephone contact (23), Comfort when in the shop environment (24), Guarantee of safe delivery of goods to their destination (25).

In quadrant B, which contains attributes that customers consider important and performance that is in accordance with their perceptions, consisting of: Store cleanliness (2), neat appearance of employees (3), spacious parking area (4), clean toilets (6), suitability of goods. desired (13), Ease of transactions (14), Diversity of products offered (15), Dexterity of employees in serving (20), Good communication between waiters and customers (28), Special treatment for special customers (30).

Attributes that are considered important by consumers and whose performance is not too special are found in quadrant C, including: The location of the shop is easy to reach (1), Availability of chairs for resting (7), There is a price tag on the product (9), Completeness of the product offered (16), Accuracy of the waiter in providing information (19), Thorough and precise in returning change to customers (21), Security of the parking lot (26), Ability of employees in explaining (29).

The attributes that are considered not very important for customers but the company provides excessive service are in quadrant D, consisting of: The neatness of the cashier's desk (8), Neat arrangement of goods (10), Comfortable waiting room (11), Service provided (12), Ability of waiters to resolve customer needs (17), Friendliness and politeness of employees (27).

3.2 System Testing

System testing is carried out with the aim of seeing whether the system that has been previously designed is as desired or not. By testing, the quality of this system can be seen.

1. Main Page Display

The main page display is the initial display when the user accesses this application program. The main page display can be seen in Figure 7 below.

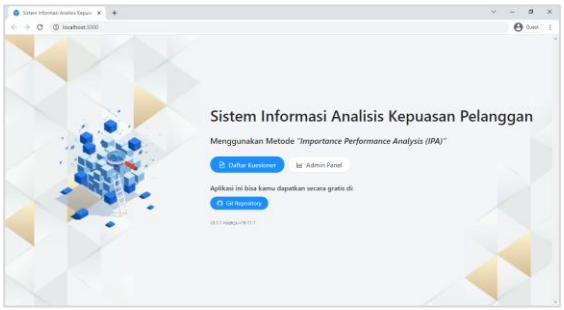

Figure 7 Main page display

2. Questionnaire List View

The questionnaire list display is a page where users can see a list of questionnaires stored in the database.

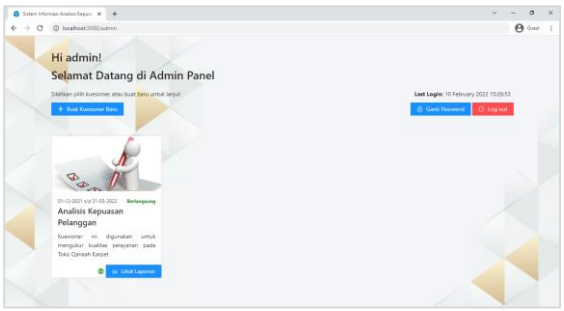

Figure 8 Questionnaire List Display

3. Questionnaire View

The questionnaire display is a page where users can answer statements from a questionnaire.

Figure 9 Questionnaire display

4. Admin Login View

form display is a form page if an admin wants to enter the admin page. Figure 10 below is an appearance of the login *form* .

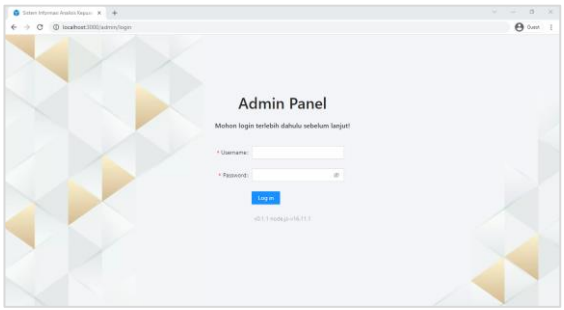

Figure 10 Admin Login Display

5. Analysis Report View

Data on respondents' answers to a questionnaire will be processed and presented on the analysis report page. Where the display of the analysis report consists of respondent data, statements and conclusions which are mapped onto a Cartesian diagram.

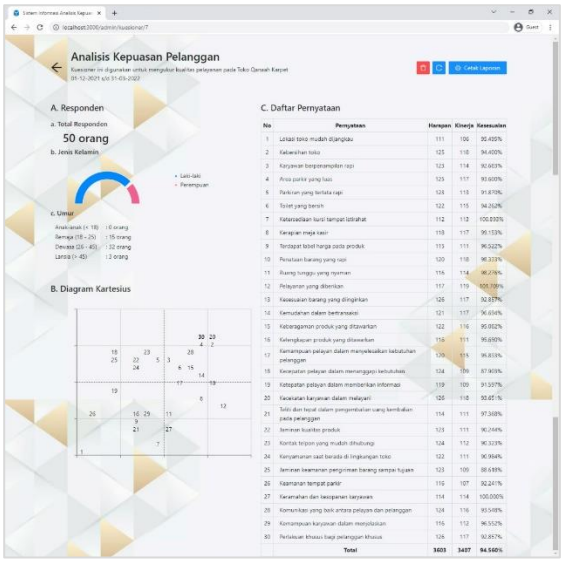

Figure 11 Display Analysis Report

4. Conclusion

After building and implementing a customer satisfaction analysis information system using the importance performance analysis method, it can help the Qanaah Carpet Shop to measure the quality of its service easily. Where data can be stored safely and structured in a MySQL database, so that data can be easily presented in the form of information that is useful for management.

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