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Revving up customer satisfaction: Important Performance Analysis and Customer Satisfaction Index methods in auto repair service evaluation

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ABSTRACT

A company that repairs automotive vehicles is facing several problems regarding customer satisfaction. The aim of this research is to enhance the quality of services offered to customers. To determine customer dissatisfaction, an analysis of five quality dimensions is conducted: tangibles, reliability, responsiveness, assurance, and empathy. The methods used to improve service quality are Importance Performance Analysis (IPA) and Customer Satisfaction Index (CSI). The IPA method focuses on the level of importance and performance, while the CSI measures consumer satisfaction. The results of the analysis show that the level of consumer satisfaction with services, based on CSI, is 50.30%. According to the IPA method, there are six attributes in Quadrant A that require improvement: the mechanic's ability to respond quickly to customer complaints, timeliness in service, cleanliness and comfort of the facilities provided, providing fast, accurate, and satisfactory service, and the orderly arrangement of vehicle parking areas.

1. Introduction

In this era of globalization, cars are motorized vehicles that are very important in daily human activities. As time goes by and society develops, cars are no longer considered luxury items or difficult to find [1]–[3]. Therefore, regular maintenance and repairs are needed at workshops so that vehicles can run safely and comfortably [4]. To satisfy customers, various methods are used to ensure that they are pleased with the services provided, encouraging them to return for future repairs [5]. This is also the case for PT Workshop Gading Prima Perkasa. Consumer satisfaction will be achieved if the quality of the products and services provided meets their needs [6]. The development and improvement of company services are increasingly becoming a public concern, as evidenced by the intense competition between many companies.

PT Gading Prima Perkasa, better known as Honda Bintaro, is an Authorized Honda Dealer or the official representative of Honda. It was founded on January 18, 1997. Operating in the automotive sector, Honda Bintaro provides sales, maintenance, and repair services for motor vehicles, especially Honda cars, adhering to dealer quality standards and using genuine Honda spare parts. Our service offerings include General Repair and Body Repair, with a team of experts who are highly skilled and experienced in addressing any issues that arise with your vehicle.

Companies operating in the service sector must continuously improve the quality of their services. Similarly, automotive companies are also required to innovate and attract as many consumers as possible from the existing market share. Therefore, companies must have their own advantages, especially in satisfying customers. If customers are not satisfied with a service provided, the service is certain to be ineffective and inefficient [7], [8].

In this research, the author will examine service aspects for company business development. Every company must strive to provide optimal service because creating customer satisfaction can yield benefits [7], [9], [10]. The benefits include establishing good relationships between the company and customers and fostering loyalty. Since Importance Performance Analysis (IPA) and Customer Satisfaction Index (CSI) are generally easy-to-apply techniques for measuring attributes of importance and performance, which are useful for developing effective marketing programs, producers must pay attention to what is important to consumers [3], [11], [12].

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Based on the initial research survey, customer arrivals indicate that the level of customer satisfaction at PT Gading Prima Perkasa fluctuates from time to time, with unstable customers who feel dissatisfied with repair services. Service quality is the expected level of excellence and control over the level of excellence to fulfill consumer desires [13]–[15]. In providing services, the company also adjusts and improvements in various areas to increase customer satisfaction, including planning and training, both theoretical and practical, for the customer service department. Problems that customers often complain about include the quality of workshop services, such as limited public facilities, long service durations, mechanics who are not yet reliable in handling services, guarantees when purchasing spare parts, and others. However, the company always strives to provide the best service, but the number of complaints or customer dissatisfaction persists, as shown in Table 1.

It can be observed that while the number of customer complaints has decreased, there are still some who feel dissatisfied. To improve service quality, a service quality analysis method is necessary. Quality is considered a crucial component for companies, as it can attract new consumers and reduce the likelihood of existing customers switching to competitors [16], [17]. This can be achieved by providing excellent service through methods such as Importance Performance Analysis (IPA) and Customer Satisfaction Index (CSI) [18]–[20]. These models aim to measure the relationship between service performance and consumer expectations [21], [22]. Based on the initial research survey, the level of consumer satisfaction needs improvement. Therefore, the aim of this research is to identify the main sources of customer complaints and to develop improvement strategies to reduce customer service dissatisfaction at PT Gading Prima Perkasa.

2. Material and method

The data used in this research are primary data obtained directly from respondents through questionnaires, observations, or direct interviews. The primary data include a review of PT. Gading Prima Perkasa's company profiles and activities.

Table 1.
Customer data for January-December 2022

Month	Customer	Satisfied	Not satisfied
Jan	756	740	16
Feb	750	732	18
Mar	743	729	14
Apr	812	792	20
May	682	666	16
Jun	735	725	10
Jul	654	640	14
Aug	675	663	12
Sep	655	640	15
Oct	755	742	13
Nov	786	769	17
Dec	726	714	12
Total	8.729	8.552	177

Additionally, primary data obtained from external sources related to the research object are also utilized. The secondary data used in this research consist of journals from previous researchers and reference books. The data collection technique employed in this research is a library study, which involves collecting information from books and journals related to Importance Performance Analysis (IPA) and Customer Satisfaction Index (CSI) [23], [24].

Observation is conducted to obtain a comprehensive understanding of the problems or events faced, providing material for evaluating the company's service quality. Information gathered from observations includes the physical environment (location), individuals involved, activities, objects, actions, incidents, timeframes, and emotions. Interviews are conducted with key individuals to gather in-depth information regarding service quality issues and customer satisfaction challenges. Interviews can be conducted face-to-face, over the phone, or via teleconference. The sources for data collection through interviews include the Customer Care Officer (CCO) Manager, Workshop Manager (Head of Workshop), and Assistant Manager of the Honda Bintaro workshop division.

Data analysis is a stage in the research process to process the data that has been obtained to answer the problem formulation [6], [25]. The data analysis method used in this research is as follows:

1. Look for the causes of factors that influence customer satisfaction with service quality;
2. Distribute service research questionnaires that refer to dimensions, namely, Reliability, Responsiveness, Assurance, Empathy, Tangible;
3. Compare the results of customer perceptions and expectations to obtain customer satisfaction scores for the services they receive;
4. Process the data obtained using Analysis (IPA) and Customer (CSI) methods;
5. Provide recommendations for action on factors that influence customer satisfaction with service quality.

3. Results and discussions

3.1. Respondent characteristics

The demographic information of respondents is crucial for market segmentation, as it provides insights into consumer behavior. The respondents in this study were customers who had their vehicles serviced at Honda Bintaro. A total of 385 respondents participated in the study by completing questionnaires. The research revealed characteristics of the respondents. According to the data analysis, there were 231 male respondents and 154 female respondents, indicating that the majority of Honda Bintaro's customers are male. The demographic data based on gender are summarized in Table 2. Based on the collected data, it was found that there were 197 respondents aged 20-30 years, 154 respondents aged 30-40 years, and 34 respondents aged over 40 years. For a clearer overview, please refer to Table 3.

Table 2.
Gender-based demographic data

No	Gender	Respondent	Percentage (%)
1	Male	231	60
2	Female	154	40
	Total	385	100

Table 3.
Age-based demographic data

No	Age	Respondent	Percentage (%)
1	20-30 year	197	51,2%
2	30-40 year	154	40%
3	>40 year	34	8,8%
	Total	385	100

Table 4.
Validation of performance items

No	Indicator	Result
A	Reliability	
1	Determination of time in service transaction services	valid
2	Providing fast, accurate and satisfying service	valid
3	The orderly arrangement of vehicle parking areas	valid
B	Responsiveness	
4	Mechanic's responsiveness to customer complaints and car issues	valid
5	Give information, help, and suggest alternative solutions, including approving the replacement of spare parts	valid
C	Assurance	
6	Employees' ability to serve customers in a friendly, polite, enthusiastic and deft manner	valid
7	Ease and speed in making claims	valid
8	Customer safety and comfort while in the workshop	valid
9	Reliable and skilled mechanics	valid
D	Empathy	
10	Employees' ability to meet customer needs and interests	valid
11	Attention to the information customers need	valid
E	Tangibles	
12	Complete and modern equipment, reliable mechanics and original spare parts	valid
13	Completeness of spare parts	valid
14	The prices of spare parts offered are quite competitive with competitors	valid
15	Cleanliness and comfort of the facilities provided by the workshop	valid

Table 5.
Reliability test

Testing Criteria		
Score	Score *Cronsbach's alpha*	Result
0,70	1.1102	Reliable

3.2. Validation test

The validity of a measuring instrument (questionnaire) indicates its accuracy and effectiveness in measuring. A questionnaire item is considered valid if the calculated r value (product moment) is greater than the r table value (r result > r table), which is 0.113 in this case. The validity test in this research was conducted using Microsoft Excel. Below is the validity test using the formula: =CORREL(Total first variable questions; Total Questions).

The validity test results on 385 respondents indicated that the Pearson product-moment correlation coefficient (r count) for each question item related to the five independent variables was greater than the r table value. This implies that each question item used to assess the respondent's response to service quality was valid.

3.3. Reliability test

Reliability indicates the consistency of measurement results when the same subject is measured repeatedly. It is related to sampling error, which refers to the degree of inconsistency in measurement results when measurements are repeated on different groups. In this study, the reliability test used Cronbach's alpha, and the results are presented in Table 5. Based on the reliability test shown in Table 5, it is evident that the Cronbach's alpha value exceeds 0.70, indicating high reliability for all variables. This leads to the conclusion that the research instruments used are dependable and consistent.

Table 6.
Recapitulation of MISS and WF

No	MIS	WF (%)
1	4,394	6,835%
2	4,174	6,493%
3	4,327	6,731%
4	4,171	6,488%
5	4,316	6,714%
6	4,298	6,686%
7	4,293	6,678%
8	4,171	6,488%
9	4,194	6,524%
10	4,368	6,795%
11	4,361	6,784%
12	4,363	6,787%
13	4,483	6,974%
14	4,296	6,683%
15	4,077	6,342%
	Total	100%

Table 7.
Recapitulation of WS

No	WF (%)	MSS	WS
1	3,792%	2,436	0,092
2	3,602%	2,420	0,087
3	3,734%	2,488	0,093
4	3,599%	2,322	0,084
5	3,724%	2,259	0,084
6	3,709%	2,436	0,090
7	3,704%	2,407	0,089
8	3,599%	2,914	0,105
9	3,619%	2,397	0,087
10	3,769%	2,472	0,093
11	3,763%	2,561	0,096
12	3,765%	2,387	0,090
13	3,868%	2,875	0,111
14	3,707%	2,477	0,092
15	3,518%	2,407	0,085
	Total		1,378

3.4 Customer Satisfaction Index (CSI)

The next stage of processing data on expectations and the reality of this service is measuring the level of consumer satisfaction by creating a Customer Satisfaction Index (CSI). CSI is used to determine the overall level of consumer satisfaction by looking at the level of reality of each variable in the service quality statement. The next step is to create Weight Factors (WF). The next step is to create Weight Score (WS) or weighted score is a multiplication of WF with the average level of satisfaction or Mean Satisfaction Score (MSS). The following is a recapitulation of the Weight Score (WS) calculation, as shown in Table 7.

The CSI percentage value is calculated by dividing the weighted score by the maximum scale used, which resulted CSI = 50.30%.

3.5. Importance Performance Analysis (IPA)

In the Importance Performance Analysis (IPA) method, calculations are used to determine the order of service priorities, which are measured by the level of suitability to determine the best service improvement priorities to achieve customer satisfaction.

After calculating the level of suitability, the decision-making score is derived from the average level of suitability itself, resulting in a decision-making score of 58.374. This score is then compared with the level of suitability. If the suitability level is lower than the decision-making score, the attribute requires improvement (Action); if the suitability level is higher, then the attribute needs to be maintained (Hold). Specifically:

1. If the level of suitability is less than 58.374, improvements are needed, marked with the letter A (Action).
2. If the level of suitability is greater than 58.374, the company needs to maintain the attribute, marked with the letter H (Hold).

After grouping each attribute into those needing correction (Action) and those needing maintenance (Hold), it is evident that for the Reliability dimension, service improvements are needed in each attribute; the Responsiveness dimension requires improvement at point 7; the Assurance dimension requires improvement at points 9, 10, and 12; the Empathy dimension needs improvement at point 16; and the Tangibles dimension requires improvement at points 17, 18, 19, 26, and 27. These service improvements are essential to meet customer expectations.

3.6. Cartesian diagram

The purpose of using a Cartesian diagram is to see in more detail the attributes that need to be improved and the attributes that need to be maintained by PT Gading Prima Perkasa, where this Cartesian diagram is divided into 4 quadrants, namely quadrants A, B, C, and D. The steps before mapping the data to this Cartesian diagram, are to first determine the average value of each attribute, namely $\bar{y}$ and $\bar{x}$, where we have obtained the calculated value from the calculations carried out previously. The calculation results can be seen in the following Table 8. The results of dividing each attribute into each quadrant are shown in Fig. 1. There are several things that should be done to make improvements or adjustments to several things that are priorities, can be seen Table 9.

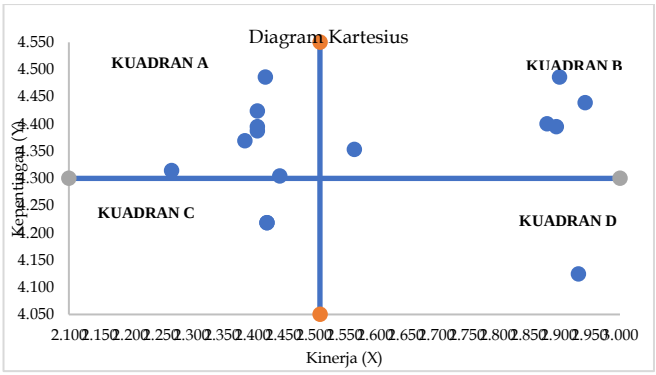

Figure 1. Cartesius diagram

Table 8.
Cartesian diagram values

No	Indicator	Perform	Interest
1	Determination of time in service transaction services	2,408	4,395
2	Providing fast, accurate and satisfying service	2,387	4,369
3	The orderly arrangement of vehicle parking areas	2,444	4,304
4	Mechanic's responsiveness to customer complaints and car issues	2,421	4,486
5	Give information, help, and suggest alternative solutions, including approving the replacement of spare parts	2,881	4,400
6	Employees' ability to serve customers in a friendly, polite, enthusiastic and deft manner	2,943	4,439
7	Ease and speed in making claims	2,423	4,218
8	Customer safety and comfort while in the workshop	2,566	4,353
9	Reliable and skilled mechanics	2,901	4,486
10	Employees' ability to meet customer needs and interests	2,423	4,218
11	Attention to the information customers need	2,408	4,423
12	Complete and modern equipment, reliable mechanics and original spare parts	2,896	4,395
13	Completeness of spare parts	2,268	4,314
14	The prices of spare parts offered are quite competitive with competitors	2,932	4,124
15	Cleanliness and comfort of the facilities provided by the workshop	2,408	4,387

Table 9.
Results of improvements to the Paperius diagram in quadrant A

No	Indicator	Improvement
4	The mechanic's ability to quickly respond to customer complaints and problems with the car to be serviced	Provide direction to mechanics regarding the importance of information about customer complaints and problems with the vehicle to be repaired
1	Determination of time in service transaction services	Speed up transaction service time by adding payment counters
15	Cleanliness and comfort of the facilities provided by the workshop	Implementing 5S in the company environment
2	Providing fast, accurate and satisfying service	Reduce waiting time for registration and payment for services by adding counters
3	The orderly arrangement of vehicle parking areas	Create a parking line for cars that will be serviced and have completed the service

4. Conclusions

Based on the analysis conducted, it can be concluded that the level of customer satisfaction with the quality of workshop services at PT Gading Prima Perkasa falls into quadrant B, indicating factors that need to be maintained as they align with customer expectations and are currently well executed by the company. The factors in this quadrant include reliable and skilled mechanics (57.45%), employees' ability to serve customers in a friendly, polite, enthusiastic, and deft manner (56.79%), providing information explanations, not hesitating to offer assistance, and suggesting alternative solutions to customers, as well as approving replacement of spare parts (52.56%), having complete and modern equipment, reliable mechanics, and original spare parts (54.64%), and ensuring customer safety and comfort while in the workshop (71.10%).

The level of service quality provided by PT Gading Prima Perkasa, as seen from quadrant C, is considered less important by customers but is balanced by the company. This quadrant includes ease and speed in processing claims (53.97%). Efforts to maintain the level of customer satisfaction at PT Gading Prima Perkasa involve improving the factors in quadrant A. The attributes that need improvement, as they are considered unsatisfactory by PT Gading Prima Perkasa customers, include providing direction to mechanics regarding the importance of understanding customer complaints and problems with vehicles to be repaired, expediting transaction service times by adding payment counters, implementing 5S in the company environment, reducing waiting times for registration and service payments by adding more counters, and creating a designated parking area for cars awaiting service and those whose service has been completed.

Declaration statement

Agus Nurrokhman: **Conceptualization, Methodology, Supervision, Project administration, Funding acquisition**. **Resources, Validation, Formal analysis**. **Visualization, Investigation**. Aod Abdul Jawad: **Data curation, Validation**. **Writing - Original Draft**, **Resources, Validation**. **Writing - Review & Editing**.

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The authors report there are no competing interests to declare.

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Data availability statement

The data that support the findings of this study are available from the corresponding author, [EF], upon reasonable request.

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