ANALYSIS SERVICE OF SATISFACTION OF INTERCITY BUS WITH IPA AND CSI METHOD

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ABSTRACT

Sharp competition among companies in intercity bus services needs improvement of the quality of service for keeping the customer loyal. This study aims to improve the quality of inter-city bus services in order to increase the customer satisfaction. Importance Performance Analysis (IPA) and methods Customer Satisfaction Index (CSI) were used for analysis. IPA measures the level of service quality based on five dimensions: tangibles (7 service attributes), reliability (5 service attributes), responsiveness (4 service attributes) , assurance (7 service attributes), and empathy (5 service attributes). CSI measures the level of overall customer satisfaction. Unsatisfied service quality attributes of intercity bus were facilities in the bus (passenger seats, air conditioner, toilet, TV, air freshener, wi-fi), the material brochures services, other facilities provided (such as mineral water / snacks, souvenirs, membership card), leisure facilities (such as bus, terminal), departure and arrival punctuality, ability to assist customers difficulties, intention or effort to build customer interest and willingness to accept criticism and suggestions.

Key words: *customer satisfaction, importance performance analysis, customer satisfaction index*

1. INTRODUCTION

The competition on business of transportation services continues to increase, so inter-city bus companies require to improve the quality of service for keeping the customer does not move to other transportation services. The quality of service becomes crucial in maximizing the company's customer satisfaction. The quality of good services viewed from the service provider and the user service itself. There are five dimensions that are designed to measure the quality. There are tangibles, reliability, responsiveness, assurance, and empathy (Kotler, 1998). The measurement is based on the difference between the expected value and the performance value of consumer. Importance Performance Analysis (IPA) is an analytical method to assess the extent of importance rate and service rate of customer satisfaction. Customer Satisfaction Index (CSI) is a measurement method to determine the level of overall customer satisfaction taking into account the importance of the attributes quality of service.

Many experts define services, including according to Kotler (1998) service is any act or performance offered by one party to the other party that the intangible and not cause any transfer of ownership. Quality of service is a dynamic condition that affects the products, services, people, processes and environments that meet or exceed expectations (Tjiptono, 2001). So the definition of service quality can be interpreted as an effort to fulfill the needs and desires of customers as well as the delivery accuracy to compensate customer expectations. Customer satisfaction is a condition in which the desires, expectations and customer requirements are met or exceeded over the lifetime of the product or service. Achieving customer satisfaction leads to company loyalty.

2. METHODS

This study was conducted in a public bus transportation company called the PO, in Juliy 2012. The variables in this study based on five dimensions of service quality are tangibles, reliability, responsiveness ,

assurance, and empathy. Prior to data collection, pre-study was conducted by tracking the attributes that affect the quality of service at inter city bus companies. Data for analysis was obtained by providing a list of questions to the respondent. In this measurement, each respondent was asked of their opinion on a statement in 5 level Likert scale. Sample collection was conducted by using systematic random sampling. Determination of minimum sample size was determined using the following formula:

$$N = \frac{(Za/2)2\ p.q}{e^2} \quad (1)$$

Where:
N = number of samples required
p = Opportunities for questionnaires that can be processed
q = Opportunities for questionnaires that can not be processed
Za = value of normal distribution table
e = rate of error (5%)

Validity test is used to calculate the value of correlation (r) between the data on each of the statements and the total score. A variable is declared invalid if counted r overall indicator is positive and greater than table r. Excel 2007 and Statistical Product and Service Solutions (SPSS) 16 for windows program was use for analysis.

Importance Performance Analysis (IPA) is the concept of multi-attribute models to identify the strengths and weaknesses of market supply by using two criteria: the relative importance of attributes and customer satisfaction. It is initially conducted by identify attributes that are relevant to the situation observed choices. List of attributes can be developed with reference to the literature, conducting interviews, and using managerial judgment. After determining the proper attributes, consumers were asked with two questions. One is the attribute that stands out and the second is the performance of companies that use these attributes. Using mean, median or measurement ranking, attribute importance and performance scores were collected and classified into categories of high or low, then pair the two sets of rankings. Each attribute is placed into one performance of the four quadrants of performance ranked. Mean score performance and interest are used as coordinates to plot the individual attributes of the two-dimensional matrix shown in Figure 1.

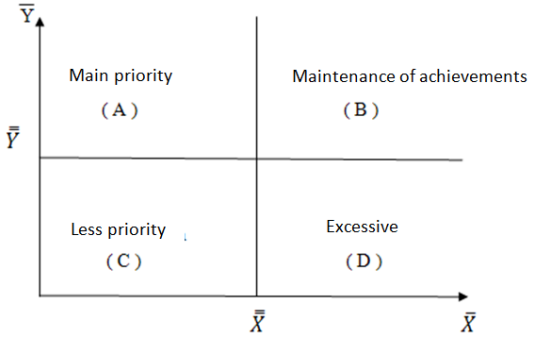

Figure 1. Diagram Importance level and Performance Levels.

$\overline{X}$ is "weighted average respondents score of the level of product performance attributes; $\overline{Y}$ is "weighted average respondents score of the degree of importance of product attributes; $\overline{\overline{X}}$ is "The average of the weighted average of respondents' assessment of the performance attributes product; $\overline{\overline{Y}}$ is "The average of the weighted average of respondents' assessment of the importance of product attributes. A: Indicates factors or attributes that are deemed to affect the customer, including the elements of services that are considered very important, but the products / services are not satisfactory so that customers are not satisfied. B: Shows the basic elements that already exist in the product / service that shall be maintained and considered very important and satisfying. C: Shows the effect of factors that are less important to the customer, mediocre existence and considered less important and less satisfactory. D: Indicates the factors that affect customers less important but redundant implementation, considered less important but very satisfying.
Analysis of the Importance level and performance level was measured using a Likert scale (5 levels). Likert scale is used to measure the attitudes, opinions and perceptions of a person or group or event social phenomena (Table 1). Based on the analysis of the level of interest and the level of satisfaction, it is obtained two variables (X and Y) for performance levels and consumer importance level.

Table 1. Score of importance and performance Levels

Score	Importance level	Performance Levels
1	very unimportant	Very bad
2	Unimportant	bad
3	Ordinary	ordinary
4	Important	Good
5	Very important	very Good

The next step is to map the level of customer satisfaction into the Cartesian diagram. There are two variables: the variable $\overline{X}$ shows average scores of consumer assessment of the level of performance while variable $\overline{Y}$ indicated by an average score of importance of the attribute. The value of X and Y is used as a coordinate pair attribute points that positioned the existence of an attribute in the diagram.

$\overline{X}_t = \frac{\sum X_i}{n}$

$\overline{Y}_t = \frac{\sum Y_i}{n}$

$\overline{\overline{X}} = \frac{\sum \overline{X}_t}{k}$

$\overline{\overline{Y}} = \frac{\sum \overline{Y}_t}{k}$

Where :
Xt = Score average every attribute t
Yt = Score average every attribute t
n = Total respondents
k = number of attributes that can affect customer satisfaction

Customer Satisfaction Index (CSI) was used to determine overall customer satisfaction with the approach that considers the level of expectation of service quality attributes measure. CSI measurement method according to Stratford in Hannie (2008), includes the following calculation steps:

1. Weighted factors (WF): change the value of the average level of expectation into percentage of the total value of the average level of expectations for all tested attributes
2. Weighted scores (WS): the value of the multiplication of the performance (satisfaction) average levels of each attribute by weighted factors (WF) of each attribute.
3. Weighted total (WT): quantifies the weighted score (WS) of all attributes of service quality.
4. Statisfaction index: the weighted total (WT) is divided by maximum scale (5), and then multiply by 100%.

Satisfaction level of the respondents can be seen from the level of consumer or customer satisfaction criteria (Table 2).

Tabel 2. Criteria Customer Satisfaction

No	CSI Value	CSI Criteria
1	0,81 – 1,00	very Satisfied
2	0,66 – 0,80	Satisfied
3	0,51 – 0,65	quite Satisfied
4	0,35 – 0,50	Less Satisfied
5	0,00 – 0,34	Dissatisfied

3. RESULTS AND DISCUSSION

The data in Table 3 are attributes that were used in the questionnaire for customers of inter city bus.

Table 3. Questionnaire of Service attributes

Service Quality Dimension	Service attribute
Tangible	1. Facilities in the bus (passenger seat, air conditioner, toilet, TV, room fragrances, Wi-fi)
	2. The type and sophistication of the equipment of bus
	3. Brochure material which introduces the facilities
	4. Another provided facilities (mineral water, snacks, souvenirs, member card)
	5. Completeness of supporting provided facilities (office, waiting room, toilets)
	6. Leisure facilities (Bus, Terminal)
	7. Employee appearance overall.
Reliability	8. Clarity and detail of provided information
	9. Timeliness of departure and arrival
	10. Ability to assist customers difficulties
	11. Accuracy of keeping promise
	12. Affordability of price
Responsive-ness	13. The speed and accuracy of the presented work
	14. Response to customer demand
	15. Speed of administrative services
	16. Ease of access for booking / ticketing
Assurance	17. 17.Employee loyalty and honesty
	18. Given the company confidence
	19. Feel safe and comfortable in using the services
	20. Competencies, skills and knowledge of employees
	21. Friendliness and employee comfort
	22. insurance
	23. The company's reputation in the customer perception

Table 3. Questionnaire of Service attributes (cont.)

Service Quality Dimension	Service attribute
Empathy	24. Communication between employees and customers
	25. Understanding the wants and needs of enterprise customers
	26. Conformity hours with customer needs
	27. Intention effort to build customer interest
	28. Willingness to accept criticism and suggestions

All the variables in questioners can be used and can be trusted to obtain the necessary data, because they have a correlation coefficient of > 0.2385. Reliability test of all items or questions used in this study were using Cronbach alpha formula, where in general the data are considered reliable if the alpha value cronbachnya> 0.6 (Table 4).

Table 4. Reliability Test

Variable	*Croanboach alpha*		information
	Performance Level	Importance level	
Tangible	0,651	0,641	RELIABLE
Reliable	0,652	0,605	RELIABLE
Responsiveness	0,685	0,692	RELIABLE
Assurance	0,683	0,638	RELIABLE
Empathy	0,788	0,624	RELIABLE

Based on Table 4. the reliability test results obtained Cronbach alpha> 0.61, so that the variables used in the questionnaire is very reliable.

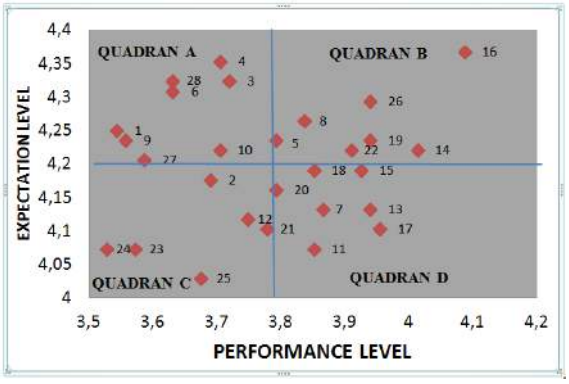

Figure 2. Diagram Cartesian Attributes Quality Service inter-city bus

Based on the analysis of the IPA diagram in Figure 2., efforts to improve the quality of service should be transferred to some very important factors considered by consumers but the performance is still lacking, as factors shown in quadrant A. Business improvements should be carried out in intercity bus, as follows:

1. Adding the toilet facilities in the bus, always use TV / DVD, more fragrant, and adding wi-fi network.
2. Adding information on the service quality brochure or bulletin board.
3. Providing of mineral water / snack on each departure, and to retain customers that are loyal to the card member, discount prices, as well as souvenirs from the company.
4. Arrival timeliness at the destination in order to get more attention.
5. Employees more serious in resolving the difficulties of customers
6. Should pay attention to customer needs for rebuilding the company's interest
7. Adding box of criticisms and suggestions to evaluate the performance improvement of service quality.

By the business improvement of service quality, the intercity bus company will be better than it competitor. The customers are satisfied and automatically become loyal customers, and became profitable for company.

Based on the data analysis of Customer Satisfaction Index (CSI) to attribute the quality of service of intercity bus was 75.56%. This means that the level of total satisfaction lies between the interval of 66% - 80%, which means the customers were satisfied with the whole performance attribute of quality of service. However, companies should improve customer service of performances that were considered lacking in quadrant A of Cartesian diagram IPA in order to improve customer satisfaction.

4. CONCLUSIONS AND SUGGESTIONS

Conclusions

Based on the analysis results can be concluded as follows:

1. Unsatisfied service quality attributes of intercity bus were facilities in the bus

(passenger seats, air conditioner, toilet, TV, air freshener, wi-fi), the material brochures services, other facilities provided (such as mineral water / snacks, souvenirs, membership card), leisure facilities (such as bus, terminal), departure and arrival punctuality, ability to assist customers difficulties, intention or effort to build customer interest and willingness to accept criticism and suggestions.

2. Improvement efforts should be made on service attributes in quadrant A (top priority):
   a. Adding the toilet facilities in the bus, always use TV / DVD, more air freshener, and adding internet wi-fi network
   b. Adding information on the service quality brochure or bulletin board.
   c. Providing of mineral water / snack on each departure, and to retain customers that are loyal to the card member, discount prices, as well as souvenirs from the company.
   d. Arrival timeliness at the destination in order to get more attention.
   e. Employees more serious in resolving the difficulties of customers
   f. Should pay attention to customer needs for rebuilding the company's interest
   g. Adding box of criticisms and suggestions to evaluate the performance improvement of service quality.

Suggestions

1. Attributes that have shown good performance, should maintained so that customers feel satisfied with the performance of the company, because satisfied customers will be automatically loyal to and profitable for company.
2. Further research should be conducted to determine the effect on the level of customer loyalty.
3. Companies should do regular surveys on customer satisfaction with the objective of identifying the needed services and following by upgrading or improvement.

5. REFERENCES

(a) Ghozali, (2006), Multivariate Analysis with Applications SPSS Program, National Publisher Diponegoro University in Semarang.
(b) Kotler, P., (1998), Fundamentals of Marketing Edition Indonesian, PT Prehalindo, Jakarta.
(c) Kotler, P., (1997), Marketing Management Analysis, Planning, Implementation and Control, 9th. Edition, Prentice-Hall, New Jersey.
(d) Manullang, I., (2008), Effect of Service Quality Toward Customer Satisfaction PT Garuda Indonesia Airlines at Polonia Airport, Medan, the Master of Science Thesis Management, Department of Management Sciences, Graduate School of USU Medan.
(e) Nasution, A, H., (2006), Industry Management, Publishers Andi, Yogyakarta.
(f) Payne, Adrian, (2000), Marketing Services (The Essence of Service Marketing), more Fandy Tjiptono, First Edition, First Printing, Publishing Andi, Yogyakarta.
(g) Rangkuti, F., (2003), Measuring Customer Satisfaction, PT Scholastic Press, Jakarta.
(h) Tjiptono, Fandy, (2001), Marketing Strategy, Publisher Andi, Yogyakarta.
(i) Tjiptono, Fandy, and Chandra, (2005), Service: Quality Satisfacton, Publisher Andi, Yogyakarta.
(j) Umar, H., (2003), Market Research and Consumer Behavior, PT Scholastic Press Main, Jakarta.
(k) Usman, H., and Setiady, P., (1995), Introduction to Statistics, Earth Literacy, Jakarta.
(l) Yamit, Z., (2004), Management of Quality Products and Services, Publisher Ekonisa, Yogyakarta.
(m) Walpole, R, E., (1995), Introduction to Statistics, 3rd edition, PT Scholastic Press, Jakarta.
(n) Wikipedia, (2012), Service, http://id.wikipedia.org/wiki/Jasa, accessed May 2012.
(o) Zeithami, Valarei, A., Bitner, M., (2004), Service Marketing Integrating Customer Focus Across The Fim, 3rd Edition, Mc Graw Hill, New York.