

QUALITY MEASUREMENT CUSTOMER SATISFACTION INDEX (CSI) METHOD AND IMPORTANCE-PERFORMANCE ANALYSIS (IPA) DIAGRAM PT. ASDP INDONESIA FERRY (PERSERO) Merak – Banten

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Abstract Service quality is a very important aspect to be considered to retain consumers. PT. ASDP INDONESIA FERRY (PERSERO) Merak Banten its duties as providers and services in the field of crossings. Measurement of customer satisfaction by using the method of the Customer Satisfaction Index (CSI) and Importance-Performance Analysis (IPA) diagram, Customer Satisfaction Index (CSI) value is 80,68% which is the priority of improvement to improve customer satisfaction of PT ASDP INDONESIA that is in dimension of attributes intangible dimension is about toilet facility, this attribute need to be repaired because in its implementation there are still complaints from passengers and attributes that are contained in the dimensions responsiveness is regarding the speed and responsiveness in serving the passengers, responsiveness of the officer in providing information in providing the arrival and departure time , and the attributes contained in the assurance dimension is about the security level of the port area.

Keywords: Service Quality, Customer Satisfaction Index (CSI), Importance-Performance Analysis Diagram (IPA)

1. Introduction

Along with the development of the era, competition among service companies is getting tighter, In the service sector, service is a very important aspect to be considered to retain consumers. If a company is not able to provide good service, then the company will lose customers. Especially if there are competitors who offer better service and satisfaction and with more adequate facilities. Based on this, if the company still wants to survive in the midst of such a tight competition, then the service company must make an improvement or innovation from time to time one of which can be done by providing good service. Good service is that can understand the wants and needs of consumers and strive to provide more value to consumers. In line with that, Kotler (1987) in Sriwidodo (2010) said that service quality is a form of consumer assessment of the level of service received (perceived services) with the level of service expected. The best services provided by a service company can be something that can be seen in physical form (tangible) or anything

that can only be felt (intangible), which is like a guarantee, satisfaction and sense of security that can be perceived by consumers. PT. ASDP INDONESIA FERRY (PERSERO) Merak Banten is a State Owned Company engaged in services and services crossing for the wider community, its duty as a provider and service in the field of crossing service always try to provide maximum service in order to achieve satisfaction from service users in this case to passengers who enjoy crossing services provided by PT. ASDP INDONESIA FERRY (PERSERO) Merak Banten. But in the implementation of service activities provided to service users there is still the possibility of service users feel less satisfied with feeling the services provided by the PT. ASDP INDONESIA FERRY (PERSERO) Merak Banten. Implementation of service activities provided to service users there is still the possibility of service users feel less satisfied with feeling the services provided. To know the level of service user satisfaction with services of PT. ASDP INDONESIA FERRY (PERSERO) Merak Banten. Knowing the attributes (tangibles, reliability, responsiveness,

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assurance and empathy) which should be the priority of service for the satisfaction of service users of PT. ASDP INDONESIA FERRY (PERSERO) Merak Banten. five dimensions of services that are Direct evidence (tangibles), including physical facilities, equipment, employees, and communication facilities. Reliability (reliability), namely the ability to provide services promised immediately, accurately and satisfactorily. Responsiveness, the desire of staff and employees to assist customers and provide responsive service. (assurance), including knowledge, skills, courtesy and credibility of staff; free from danger, risk and doubt. Empathy includes the ease of connecting, good communication, personal attention, and understanding the needs of the customers.

The word service in general is to provide services to others who need the service but by definition the service is any action or activity and not objects, which can be offered by a party to another party, which is basically intangible (intangible physical), consumers are actively involved in the production process and do not generate ownership of something (Nugraha, 2014). services constitute any action or activity which may be offered by a party to another party, which is substantially intangible and does not result in any ownership. Production may be attributed or not associated with a physical product. the quality of services is everything that focuses on efforts to meet the needs and desires of the consumers are accompanied by accuracy in delivering it so as to create a match that is balanced with consumer expectations (Nugraha, 2014).

Customer satisfaction can only be achieved by providing quality services to its customers. Good service is often assessed by consumers directly from employees as a person who serves or is also called as a service producer, because it takes an effort to improve the quality of service systems provided in order to meet the desires and increase customer satisfaction. So the quality of service is an important thing that must be considered by the company in order to achieve customer

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satisfaction. Quality of service has a close relationship with customer satisfaction. Quality provides an impetus to consumers to establish strong relationships with companies. In the long run this bond allows the company to understand carefully the expectations of consumers and their needs. CSI is an index to determine the overall level of customer satisfaction with an approach that considers the importance of the attributes being measured. The Consumer Satisfaction Index (CSI) is very useful for internal corporate purposes. Customer Satisfaction Index is used to measure the level of customer satisfaction with service performance. The stages of CSI measurement are : *Weighting Factor (WF)*, *Weight Score*, *Weight Total*. Importance-Performance Analysis are measure the suitability level to find out how much customers are satisfied with the company's performance, and how much the service provider understands what the customer wants for the services they provide.

2. Methodology

Customer satisfaction research needs to be done, so that less satisfactory service can be minimized can even be eliminated. Research methodology conducted include: Customer satisfaction is the main thing that must be considered for companies engaged in services. Since the first and main customer needs in the service business are the direct acquisition of service and rewards from service providers or service providers, designing and compiling questionnaires as a means of measuring research, then establishing samples to disseminate questionnaires, Test Validity and Reliability, measuring customer satisfaction with use of the Customer Satisfaction Index (CSI) method and Importance-Performance Analysis (IPA) Diagram. The results of the questionnaire have calculate the average value of the level of satisfaction (performance) and the average value of the importance level (importance). Then calculated the value of the gap, and then calculate the Customer Satisfaction Index (CSI) and create a diagram of IPA, Analysis done by looking at the value

of the service index obtained. Then each element of service views the value of service index, if still low, then the element of service needs to be improved or improved, the analysis is done by looking at the value of service index obtained. Then every element of service views the value of service index, if still low, then the element of service needs to be improved or improved Can be seen from the flowchart below:

Table . Customer Satisfaction Index Interpretation

Indeks Number	Interpretation
$X \leq 64\%$	Very Poor
$64\% \leq X \leq 71\%$	Poor
$71\% \leq X \leq 77\%$	Cause For Concern
$77\% \leq X \leq 80\%$	Borderline
$80\% \leq X \leq 84\%$	Good
$84\% \leq X \leq 87\%$	Very good
$87\% < X$	Excellent

Ket: X = Costumer satisfaction Indeks Number

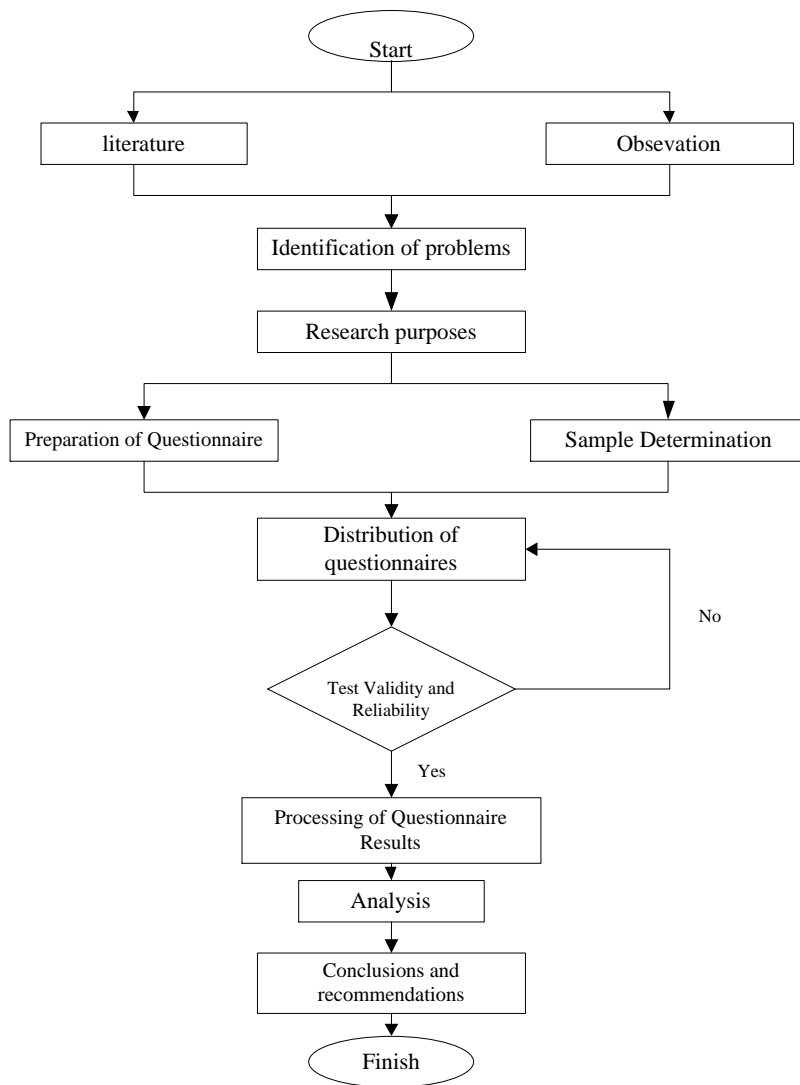


Fig. 1 Flowchart Troubleshooting

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3. Result and Discussion

Data collection is everything that is collected to support this research which is, questionnaire analysis of service dimension at PT. ASDP INDONESIA FERRY (PERSERO) Merak Banten and the result of questionnaire of service dimension analysis at PT. ASDP INDONESIA FERRY (PERSERO) Branch of Merak Banten. Testing the adequacy of data in this questionnaire is to use the method of Bernoulli equation with a level of accuracy of 5% and 95% confidence level. in this study the

distribution of questionnaires are as many as 50 pieces, then the required sample is as follows:

$$p = \frac{\text{Number of Return}}{\text{Number of Distribute}} = \frac{50}{50} = 1$$

$$q = \frac{\text{Number of not return}}{\text{number of distribute}} = \frac{0}{50} = 0$$

$$n_0 = \frac{(Z_{\alpha/2})^2 pq}{d^2} = \frac{1,96^2 \times 1 \times 0}{0,05^2} = 0$$

Table 2 Questionnaire Data 12 respondents Customer Satisfaction PT. ASDP INDONESIA FERRY MERAK

Respondent Data For Customer Satisfaction Variables																						
Question Number																						
No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Amout
1	3	3	4	1	4	4	2	1	1	3	3	2	1	1	2	2	3	3	3	3	3	52
2	5	5	3	5	4	4	4	4	3	3	4	4	4	3	3	4	3	3	4	4	5	80
3	4	4	4	4	3	3	4	3	3	3	4	3	3	3	3	4	4	5	4	4	4	76
4	4	4	5	5	4	4	4	5	5	4	4	4	5	5	4	4	4	4	4	5	5	92
5	4	4	4	4	4	4	4	4	5	5	4	4	4	4	4	4	4	4	4	4	5	87
6	4	4	5	3	4	4	4	4	5	4	3	4	5	5	4	4	5	4	4	4	5	88
7	5	5	5	4	4	4	3	4	4	4	3	4	4	4	4	4	5	5	5	4	5	89
8	4	4	4	4	3	4	4	4	4	4	3	4	4	4	3	4	5	5	4	4	4	83
9	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	84
10	4	4	4	3	3	4	3	3	3	3	4	4	3	4	3	3	3	3	4	5	4	74
11	5	4	4	4	3	4	3	3	3	5	4	4	4	3	3	3	3	3	5	5	5	80
12	4	4	3	4	4	4	4	3	3	4	4	4	3	3	3	4	3	3	4	4	4	76
13	3	4	4	3	3	3	4	4	4	3	3	3	3	4	3	4	3	3	4	4	4	73
14	4	4	3	4	3	4	4	3	4	4	4	4	5	4	4	4	3	4	4	3	3	79
15	3	3	4	5	4	5	3	4	3	3	3	3	4	4	4	5	4	4	4	4	4	80
16	4	4	4	4	4	3	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	82
17	5	5	5	5	5	4	4	4	5	4	5	4	4	4	4	5	5	5	5	4	5	96
18	3	4	3	4	4	4	3	3	4	4	4	4	4	3	3	4	3	4	4	3	4	76
19	4	4	4	4	4	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	85
20	4	4	5	5	5	4	5	5	4	5	5	5	5	5	5	4	4	5	5	5	5	99
21	5	5	5	5	5	5	5	5	5	4	5	4	4	5	5	5	5	5	5	5	5	102
22	4	4	4	4	4	4	4	4	5	4	4	4	4	4	4	4	5	5	4	4	5	88
23	4	4	5	5	5	4	5	4	3	4	4	4	4	5	4	4	5	4	5	4	4	90
24	4	5	4	4	4	4	5	4	4	4	4	5	4	4	4	4	5	4	4	4	4	88
25	4	4	4	4	4	4	5	4	4	5	4	5	4	5	4	5	5	5	4	4	4	91
26	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	4	4	5	86
27	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4	5	4	4	4	5	85
28	4	4	4	4	3	5	4	5	5	3	5	4	3	3	3	4	5	4	4	4	4	84
29	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	105
30	4	4	4	4	4	5	4	5	4	4	5	4	5	4	5	4	5	4	4	4	5	91
31	5	5	5	4	4	4	3	4	4	4	3	4	4	4	4	4	5	5	5	4	5	89
32	5	5	5	4	5	4	5	5	4	5	5	5	4	4	5	5	4	5	5	5	5	99
33	5	5	5	4	5	5	5	5	4	5	5	5	4	4	5	5	4	5	5	5	5	100
34	3	3	3	4	3	4	4	3	4	4	3	4	3	3	4	3	5	5	4	4	4	77
35	4	3	3	3	3	4	4	3	4	4	3	4	4	4	3	4	3	5	3	4	4	76
36	5	4	4	3	4	5	4	4	3	5	4	4	5	4	4	5	4	5	5	3	5	89

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Respondent Data For Customer Satisfaction Variables																						
Question Number																						
No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Amount
37	4	4	4	4	4	4	4	4	4	5	4	4	5	4	4	5	4	4	5	4	5	90
38	3	4	4	4	4	5	4	3	4	4	3	3	3	4	3	4	3	4	4	4	3	77
39	4	3	4	4	3	4	4	3	4	4	5	4	4	3	4	4	4	5	4	4	5	83
40	3	4	3	3	4	4	4	3	3	3	4	3	4	4	3	3	4	5	4	4	3	75
41	4	4	3	3	4	3	3	3	4	3	4	4	4	3	4	5	4	3	4	3	4	76
42	4	4	3	4	3	4	3	3	4	4	3	4	3	3	4	5	4	5	3	4	3	77
43	4	3	4	3	4	4	4	3	4	4	3	4	4	5	4	5	4	5	4	4	4	83
44	4	3	3	4	4	4	4	3	3	3	4	4	4	4	4	4	4	3	3	4	5	78
45	5	4	5	5	4	5	4	4	4	4	5	4	4	4	4	5	5	4	4	5	5	93
46	3	4	4	4	5	3	4	4	5	3	4	4	4	4	4	5	4	5	4	3	4	84
47	3	4	4	4	4	3	3	4	4	4	4	3	3	3	4	4	4	5	5	5	4	81
48	4	3	4	4	4	3	4	5	5	4	4	3	4	4	4	5	5	5	5	4	4	87
49	5	5	5	4	5	4	5	5	4	5	5	5	3	3	4	3	5	5	4	4	4	92
50	5	5	4	5	3	4	4	4	3	4	4	3	4	4	4	4	5	5	5	3	4	86

Table 3 Validity Test of Customer Satisfaction

$\sum x$	$\sum y$	$\sum xy$	$\sum x^2$	$(\sum x)^2$	$\sum y^2$	$(\sum y)^2$	N	rCount	rtable	Information
204	4233	17457	854	41616	362407	17918289		0,630		Valid
203	4233	17342	843	41209	362407	17918289		0,566		Valid
203	4233	17396	847	41209	362407	17918289		0,692		Valid
199	4233	17065	819	39601	362407	17918289		0,659		Valid
197	4233	16851	797	38809	362407	17918289		0,596		Valid
202	4233	17194	832	40804	362407	17918289		0,365		Valid
199	4233	17057	815	39601	362407	17918289		0,688		Valid
191	4233	16484	763	36481	362407	17918289		0,855		Valid
197	4233	16895	807	38809	362407	17918289		0,615		Valid
199	4233	17022	811	39601	362407	17918289		0,631		Valid
198	4233	16947	808	39204	362407	17918289		0,593		Valid
198	4233	16957	804	39204	362407	17918289		0,685		Valid
193	4233	16560	773	37249	362407	17918289	50	0,656	0,279	Valid
193	4233	16568	773	37249	362407	17918289		0,679		Valid
192	4233	16494	758	36864	362407	17918289		0,827		Valid
208	4233	17782	888	43264	362407	17918289		0,570		Valid
209	4233	17893	901	43681	362407	17918289		0,598		Valid
217	4233	18536	969	47089	362407	17918289		0,497		Valid
211	4233	18031	907	44521	362407	17918289		0,648		Valid
203	4233	17315	841	41209	362407	17918289		0,495		Valid
217	4233	18561	963	47089	362407	17918289		0,648		Valid

Test Reliability with Customer Satisfaction the Manual At PT. ASDP INDONESIA FERRY

MERAK BANTEN. Below is a table of calculation results of reliability test with

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manual level of customer satisfaction in PT. ASDP INDONESIA FERRY MERAK BANTEN:

Table 4 Value of Reliability with Manual Level of Customer Satisfaction Against Service Level At PT. ASDP INDONESIA FERRY MERAK CILEGON

No	σ_{bj}^2	$\Sigma\sigma_{bj}^2$	σ_t^2	R
1	0,4336			
2	0,3764			
3	0,4564	9,2904	80,8244	0,929307
4	0,5396			
5	0,4164			
6	0,3184			
7	0,4596			
8	0,6676			
9	0,6164			
10	0,3796			
11	0,4784	9,2904	80,8244	0,929307
12	0,3984			
13	0,5604			
14	0,5604			
15	0,4144			
16	0,4544			
17	0,5476			
18	0,5444			
19	0,3316			
20	0,3364			
21	0,4244			

Table reliability test on the level of customer satisfaction in PT. ASDP INDONESIA FERRY MERAK CILEGON obtained $\Sigma\sigma_{bj}^2$ value is 9.2904 and the value of σ_t^2 is 80,8244 to get r about 0,929307 and included into a value having good reliability. This is because the r value is still greater than 0.6 ($r > 0.6$).

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The CSI value obtained is 80.68%. It describes the customers of PT. ASDP INDONESIA FERRY MERAK BANTEN satisfied with the service performance, and overall good feel. To provide more satisfaction in the future, then the PT. ASDP INDONESIA FERRY MERAK BANTEN should improve service performance to the customer's users. With the description of the table below:

Table 5 Results Of Customer Satisfaction Index (CSI)

Dimensi	Interests (I)	Pleasure (P)	Important Weight Factor (%)	Weighted Score
	Scale 1-5	Scale 1-5		
Tangible	4,29	4,03	20,20	0,813
Reliability	4,08	3,91	19,20	0,751
Responsiveness	4,26	3,94	20,02	0,789
Assurance	4,36	4,08	20,51	0,836
Empathy	4,27	4,21	20,07	0,844
Total	21,26	20,16	100,00	
Weighted Total				4,034
Satisfaction Index				80,68 %

Results of Importance-Performance Analysis (IPA) PT. ASDP INDONESIA FERRY MERAK CILEGON is presented in the IPA diagram below:

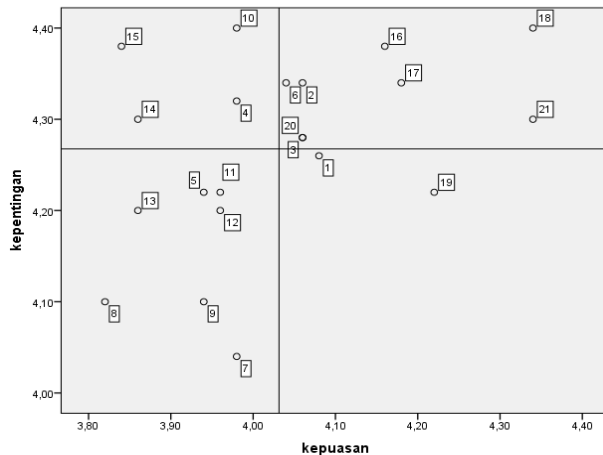


Fig. 2 Result *Importance-Performance Analysis* (IPA) PT. ASDP INDONESIA FERRY MERAK BANTEN ANALYSIS

By using the method of Customer Satisfaction Index (CSI) and Importance-Performance Analysis (IPA) diagram can be known to what extent the level of appropriateness between satisfaction (performance) and importance (importance) in each dimension. So obtained data processing obtained that the average value of satisfaction (performance) and importance (importance) customers per dimension. Where the average value of the satisfaction (performance) on the dimensions Tangible 4.03, Reliability 3.91, Responsiveness 3.94, Assurance 4.08 and Empathy 4.21. And on the importance of Tangible 4.29 dimensions, Reliability 4.08, Responsiveness 4.26, Assurance 4.36 and Empathy 4.27. Then we get the value of Important Weight Factor (%) and Weighted Score of satisfaction (performance) and importance on Tangible Important Weight Factor (%) dimension by 20,20 and Weighted Score 0,813, Reliability Important Weight Factor (%) equal to 19,20 and Weighted Score 0,751, Responsiveness Important Weight Factor (%) equal to 20,02 and Weighted Score 0,789, Assurance Important Weight Factor (%) equal to 20,51 and Weighted Score 0,836 and Empathy Important Weight Factor (%) equal to 20.07 and Weighted Score 0,844 . Having obtained the value of Important Weight Factor (%) and

Weighted Score from each dimension on the satisfaction (performance) and importance (important) obtained a Total Weighted amount of 4,034.

Results of Importance-Performance Analysis (IPA) PT. ASDP INDONESIA FERRY MERAK CILEGON, the results of this study obtained each dimension of the satisfaction (performance) and importance (important) occupies the quadrant contained in the diagram resulting from the method of Importance-Performance Analysis (IPA), where the dimensions are included in

Quadrant I (Top Priority).

The variables that enter in this quadrant should be increased. Where the variables included in this quadrant are tangible, assurance and responsiveness dimensions. And the attribute contained in the tangible dimension is about toilet facilities. And attributes included in the responsiveness dimension are the speed and responsiveness of the officer in serving the passengers, the speed and responsiveness of the officer in providing information in providing the arrival and departure time of the vessel, and the attributes contained in the assurance dimension are about the security level of the port area passenger baggage security.

Quadrant II (Maintain Achievement)

The variables included in this quadrant must be maintained as these variables make the product or service superior to the customer. The dimensions included in quadrant 2 in PT. ASDP INDONESIA FERRY MERAK BANTEN is the dimension of assurance, empathy and tangible. Where the attributes contained in the assurance dimension such as the safety facility on the ship owned by PT. ASDP INDONESIA FERRY MERAK BANTEN, guarantee to get passenger seat, and insurance for passengers. For the attributes contained in the dimensions of empathy is like the attitude of officers in serving the passengers, and the sensitivity of the officer in serving the complaints submitted passengers.

And attributes contained intangible dimensions such as the environmental cleanliness of PT. ASDP INDONESIA FERRY MERAK BANTEN, about the comfort in the ship, and about the comfort of the waiting room

Quadrant III (Low Priority)

The dimensions included in quadrant 3 are the dimensions of reliability, responsiveness, and tangible dimensions. Where attributes in the dimensions of reliability in it are like to get a ticket at the counter, then about the facility where the beaker, and the information system. And the attributes contained in the dimensions of responsiveness are about the speed and responsiveness of the officers in the process of ship ticket service, regarding the responsiveness of field officers in providing information to passengers, regarding the speed and responsiveness of field officers in resolving customer complaints. And the attributes contained in the tangible dimension is about the placement of trash in the environment of PT. ASDP INDONESIA FERRY.

Quadrant IV (Overrated).

The variables included in this quadrant can be reduced in order for the company to save costs. The dimension contained in quadrant 4 is the cleanliness and tidiness of clad officers, regarding the attitude of the officers.

4. Conclusion

Based on the results of data processing and analysis that has been done, then the conclusions of this study are: The value of customer satisfaction index (CSI) of PT ASDP INDONESIA FERRY MERAK BANTEN is 80.68% The average value of satisfaction and interest obtained in each dimension is Tangible dimension satisfaction = 4.03 and importance = 4.29, dimensions Reliability satisfaction = 3.91 and importance = 4.08, Responsiveness dimension satisfaction = 3.94 and importance = 4.26, Assurance dimension satisfaction = 4.08 and interests =

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4.36, Emphaty dimensions satisfaction = 4.21 and interests = 4.27.

Service dimension is a priority improvement to improve customer satisfaction PT. ASDP INDONESIA FERRY MERAK BANTEN is on dimension of tangible dimension, assurance and responsiveness. And attributes that are contained in the tangible dimension is about toilet facilities, this attribute needs to be improved because in its implementation there are still complaints from passengers or service users about the facilities that are in the port and which are in the ship is not good in terms of cleanliness and for the at the harbor on the presence of a toilets paid with a box to pay for the toilet. And attributes included in the responsiveness dimension are the speed and responsiveness of the officer in serving the passengers, the speed and responsiveness of the officer in providing information in providing the arrival and departure time of the vessel, and the attributes contained in the assurance dimension are about the security level of the port area passenger baggage security. The variables included in this quadrant contain factors that are considered important by the customer, but in fact, these factors are not in accordance with customer expectations (the level of satisfaction obtained is still low)

REFERENCE

- [1] Ainu, Siti Husna. Application of Customer Satisfaction Index (CSI) and Gap Analysis on Quality of Trans Jogja Service. 2014. Vol. 13 No. 2
- [2] Dwiwinarsih Rina. Analysis of Customer Satisfaction Level on Customer Satisfaction Survey Traditional Market of Medan City Page 72. 2009.
- [3] Griselda, G. and T, Panjaitan, 2007. Analysis of Service Quality Influence Consumer Satisfaction Restaurant Pulau Dua. DeReMa Journal Management, Vol 2, No. 1

- [4] Ikhwan, Ayip Muhammad. 2007. Analysis of Customer Satisfaction Level Gumati Café Bogor. Essay. Faculty of Economics and Management. Bogor Agricultural Institute.
- [5] Lodhita, Heru Eka. Analysis of Effect of Service Quality on Consumer Satisfaction Using IPA (Importance-Performance Analysis) Method And CSI (Customer Satisfaction Index) Case Study At Toko Oen, Malang. 2014. Brawijaya University.
- [6] Maiyanti S. I. Applied Customer Satisfaction Index (CSI) and Importance-Performance Analysis (IPA) to know Student Satisfaction Level of Sriwijaya University Library Services. Sriwijaya University. 2009.
- [7] Moenir. Management of General Services Indonesia. Jakarta: Earth Literacy. 1998.
- [8] Oyong Novareza, Chindy Elsanna Revadi, Remba Yanuar Efranto, Risk Analysis By Combining Fault Tree Analysis (FTA) and Analytic Hierarchy Process (AHP) Method Applicable to Cane Cutter Machine. 2017. JEMIS. Vol 5, No 1
- [9] Rahmi Yuniarti, Ihwan Hamdala, Rangga Damar Bagaskara, Performance Evaluation Of Bran Sppliers With ANP and OMAX Methods. JEMIS. 2017. Vol 5, No 1
- [10] Nugraha, Rijal. Proposed Service Quality Improvement At "X" Workshop Based on Matrix Importance-Performance Analysis. National Institute of Technology (Itenas) Bandung. 2014. Vol. 01 No. 03
- [11] Oscar, Johan Customer Satisfaction Analysis With Importance-Performance Analysis at SBU Laboratory Cibitung PT Sucofindo (PERSERO). 2014. Vol. IX No. 1
- [12] Widi Ristya. Test of validity and reliability in research epidemiology dentistry university jember, 2011. Vol. 8 No. 1
- [13] A Gunawan, N Wahyuni. Smartphone Use Analysis For Student to Increase Education Productivity. Prosiding SENIATI 3 (2), 4-1-4
- [14] Supranto, J. Measurement of Customer Satisfaction Level. Rineka Cipta. Jakarta. 1997.
- [15] Tjiptono Fandy. Principles of Total Quality Service. Yogyakarta: Andi. 2006.
- [16] Tjiptono, F., dan Chandra, G. *Service Quality and Satisfaction*. Andi Yogyakarta. 1997.

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