APPLICATION *OF IMPORTANCE PERFORMANCE ANALYSIS* (IPA) AND *CUSTOMER SATISFACTION INDEX* (CSI) METHOD TO ANALYZE INDONESIAN NAVAL 2ND FLEET COMMAND MATERIEL SERVICE PERFORMANCE

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ABSTRACT

Indonesian naval 2nd fleet command materiel service (Dismatbek) is responsible for fulfilling all Indonesian warship (KRI) spare parts material, distribution of individual equipment and distribution of oil and lubricant fuel needs for KRI and other user. In order to increase the services, a research is needed to analyze the performance of service attributes provided by Indonesian naval 2nd fleet command materiel service. By using the Importance Performance Analysis (IPA) method, will be known the service attribute position in quadran analysis , and to know the satisfaction level of the user, it can use the Customer Satisfaction Index (CSI) method, the result get a value of 71.4%, even if it is in the category of satisfied (66% - 80%) there are still 4 attributes from 12 service attributes located in the first quadrant wich means it is need to be fixed immediately so the level of satisfaction level will be better.

Keywords: *Service Attributes, Importance Performance Analysis, Quadran Analysis, Customer Satisfaction Index*

1.   INTRODUCTION

Logistical support is essentially an effort and activity to maintain the operating units is always in combat-ready conditions, in order to maintain the continuity of the implementation of capacity building activities and use of force activities, where logistics support functions include maintenance support, logistic support and base facility support. The supply support is directed at the readiness of material support provisions consisting of:

a.   Material support provisions for maintenance

b.   Material support provisions for operations

c.   Material support provisions for personnel

This is in accordance with the General Publication of the Indonesian Armed forces (TNI) (PUM-7) on the master manual of logistics coaching of the Indonesian Navy, Indonesian naval 2nd fleet command materiel service is an implementing element of 2nd fleet command in charge of fostering, organizing and carrying out all activities related to the supply of materiel and personnel for the elements of 2nd fleet both training and operation. In carrying out the tasks, Indonesian naval 2nd fleet command materiel service held functions such as:

a.   To compile and implement plans and programs for the provision of materiel supplies and personnel supplies for the elements of 2nd fleet.

b.   To compile and prepare technical instructions of material supply and personnel of 2nd fleet.

c.   To compile a materiel requirements and personal supplies requirements plan in the context of maintenance and procurement.

d.   Coordinate and cooperate with another unit inside or outside 2nd fleet command.

e.   Supervise, control and evaluate the implementation program of Indonesian naval 2nd fleet command materiel service, to ensure the achievement of the program objectives successfully and effectively.

f.   Submit considerations and suggestions to Commander of the 2nd, fleet especially regarding things related to his duty.

In carrying out its duties and functions, Indonesian naval 2nd fleet command materiel service can take policy of supply in preparing on board spares for KRI, meet the needs of fuel and lubricant for KRI of 2nd fleet command that are in or outside the base, meet the needs of individual equipment for operations and training. Policy in budget planning by prioritizing supporting procurement activities by sharpening the scale of budget priorities in accordance with the received budget.

Material guidance is the readiness of spare and non-spare parts in adequate quantities and conditions with the form of implementation of materiel procurement activities based on request to receive (PUT). In carrying out the daliy activities a Head of Material Service (kadismat) has several staff consisting of planning staff, procurement staff, inventory staff and a warehouse head who all perform their respective functions and roles in order to perform the duties and functions Indonesian naval 2nd fleet command materiel service.

Looking at its duties and functions that are quite Importance in supporting the readiness of the 2nd element in carrying out the main duties of the Indonesian Navy, then it takes a good service in order to support logistics to all elements of KRI and the bases can be done well. 2nd fleet command has more KRI or naval base than 1st fleet and 3rd fleet, so that the burden of duty received by Indonesian naval 2nd fleet command materiel service is more than the others.

from the explanation above a scientific study is needed to find out the level of performance Indonesian naval 2nd fleet command materiel service from the side of users and how much Indonesian naval 2nd fleet command materiel service understands what users want in order to be used as evaluation this service will certainly affect the readiness of the KRI or the naval base located at 2nd fleet.

2. MATERIALS AND METHODS

2.1 Importance Performance Analysis

Martila and james (1997) introduced the Importance Performance Analysis (IPA) method which is a multi-attribute model and can be used to analyze the performance of the organization, this concept contains how to translate what customers want measured in relation to what service providers
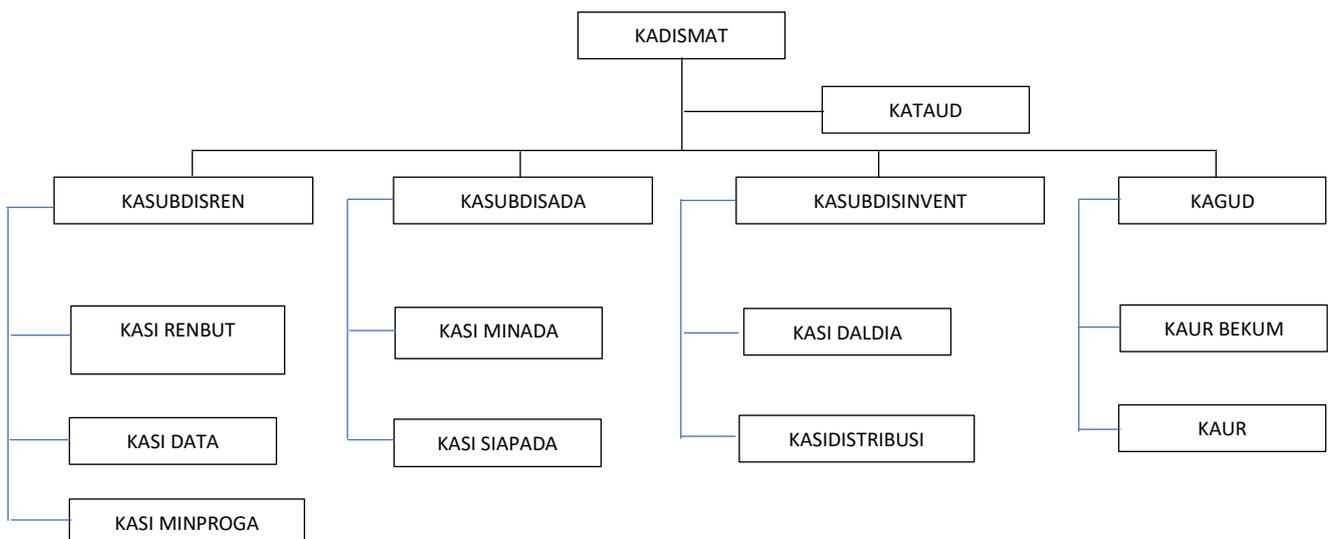

Figure 1. Indonesian naval 2nd fleet command materiel service Organization Chart

Table 1. Activities of Indonesian naval 2nd fleet command materiel service in the last three years

No	Activity	amount of activity/year		
		2017	2018	2019
1	Procurement of spare part for Indonesian warship	190	185	170
2	Receipt and Distribution of supplies material from Indonesian Naval headquarters to Indonesian warship and bases	88	65	72
3	Fuel Distribution for Indonesian warship	71.000.0500 Liter	79.345.000 Liter	69.925.300 Liter
4	Distribution of Indonesian warship lubricants	805.690 Liter	750.465 Liter	547.848 Liter
5	Receipt of material to remove from another user	90	95	105

have to do in order to produce quality products, intangibles or intangibles (Supranto, 2001). Respondents were asked to assess the level of peformance and Importance about service attributes that is shown .The scale used is a scale of one to five.

Table 2. Performance and importance level assessment scores

Value	Performance	Importances
1	Very dissatisfied	Very unImportance
2	Not satisfied	Not Importance
3	Quite satisfied	Quite Importance
4	Satisfied	Importance
5	Very satisfied	Very imporyant

This study used two variables X and Y, where X is the level of performance and Y is the level of Importance / expectation from users Indonesian naval 2nd fleet command materiel service, after the data is collected then the data is processed to assess the level of performance and level of Importance / expectations. The formula:

$$Tki = \frac{Xi}{Yi} \ x \ 100\% \qquad (1)$$

Description :

Tki = Respondent's level of conformity

Xi =Performance scoring scores

Yi =Importance assessment score

then the service attribute is mapped into quadran Analysis where the horizontal axis (X) will be populated by the performance value and the upright axis (Y) will be filled with the Importances value:

$$x = \frac{\sum xi}{n} \qquad (2)$$

$$y = \frac{\sum yi}{n} \qquad (3)$$

Description :

X = Average performance score

Y = Average Importance score

n = number of Respondents

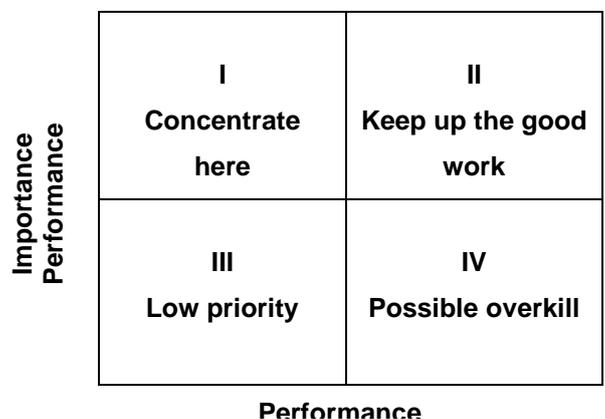|		
Importance Performance	**I** Concentrate here	**II** Keep up the good work
	III Low priority	**IV** Possible overkill

Performance

Figure 2 Importance Performance Quadran Analysis

a. The first quadrant (I), requires handling that needs to be prioritized by the management level due to high importance, while the satisfaction level is low.

b. The second quadrant (II), indicates the area to be maintained due to the high level of importance, while the level of performance is also high. .

c. The third quadrant (III), as a low priority area due to low Importance rates while performance satisfaction levels are also low. In this quadrant there are several factors that are less Importance influence for customers. But the company should always display something better among other competitors.

d. The fourth quadrant (IV), is categorized as redundant because there are factors that for customers are not Importance, but by the company is implemented very well. In addition, due to the low level of Importance while the level of satisfaction of performance is high so it is not a priority that is improved.
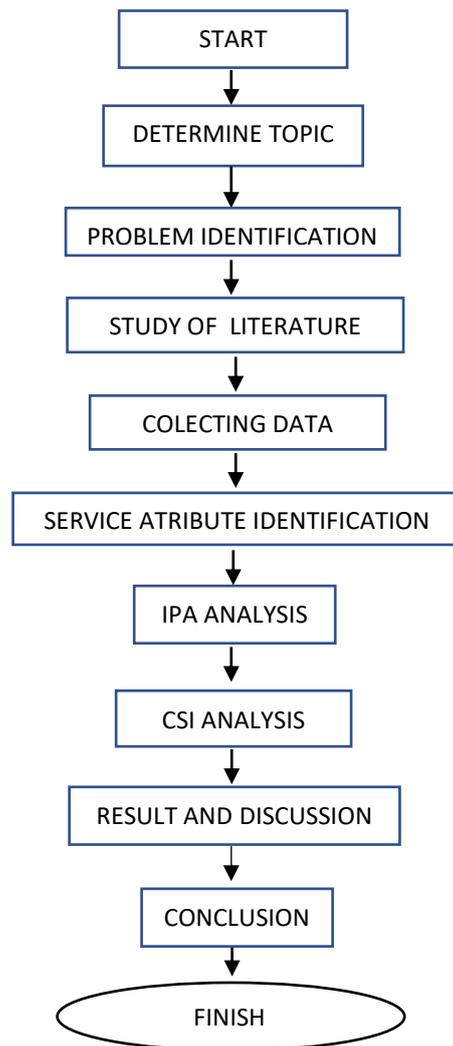
2.2 Customer Satisfaction Index (CSI)

Customer satisfaction is the customer's perception that his expectations have been met or exceeded (Gerson, 2004). Customer satisfaction also means a comparison between what consumers expect and what consumers feel when using the product, Consument Satisfaction Index (CSI) is a quantitative analysis of the overall percentage value of consumers who are satisfied with the service of a product, the steps in calculating CSI are as follows (Stratford, 2004 in Nurmalia and astuti, 2012) :

a. Calculating weight factor (WF) that is to convert the average value of Importance into a percentage number.

b. Calculating weight score (WS) which is multiplication value between WF value and Mean satisfaction Score (MSS)

c. Collecting Total Weight (WT) by summing all WS values

d. Calculating satisfaction index by dividing WT with the maximum scale used is 5

Table 3. CSI Values and Criteria

CSI Value	CSI Criteria
0,81 – 1,00	Very satisfied
0,66 – 0,80	Satisfied
0,51 – 0,65	Quite satisfied
0,35 – 0,50	Less satisfied
0,00 – 0,34	Not satisfied

2.3 Experimental procedure

START

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DETERMINE TOPIC

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PROBLEM IDENTIFICATION

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STUDY OF LITERATURE

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COLECTING DATA

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SERVICE ATRIBUTE IDENTIFICATION

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IPA ANALYSIS

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CSI ANALYSIS

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RESULT AND DISCUSSION

↓

CONCLUSION

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FINISH

3. RESULT AND DISCUSSION

3.1 Performance Analysis of Dismatbek Second Fleet

The data obtained is primary data in the form of questionnaires to user of Indonesian naval 2nd fleet command materiel service. KRI represented by 55 officers of chief engginer (Kepala Departemen

mesin), 6 task force 2nd fleet command represented by 6 Officers of the Material Maintenance Unit (Pasharmat) and the officers of Indonesian naval 2nd fleet command materiel service represented by 5 officers..the data is analyzed using IPA (Importance Performance Analysis) method,. The service attributes provided by Indonesian naval 2nd fleet command materiel service are obtained from literature studies and interviews with the officers so that 11 service attributes are obtained, namely:

a.   Administrative services request for spare part.

b.   Timely procurement of spare part.

c.   Procurement of the right type of spare part.

d.   Procurement of the right quantity of spare part.

e.   Fuel administration services and Individual equipment.

f.   Timely distribution of fuel and the quantity

g.   Timely distribution of individual equipment and quantity.

h.   Fuel filling monitoring service at the base.

i.   Timely distribution of supplies and the quantity.

j.   Storage facilities in the warehouse.

k.   Administration services for taking goods and delivery of goods to be removed and destruction at Indonesian naval 2nd fleet command materiel service warehouse.

From the results of data collection continued data processing to get the result of the value of the conformity of attributes between performance and the importance of each attribute.

Table 4. Assessment of the importance and performance level of Dismatbek 2nd fleet

No	Service Atribut	Performance	Importance	Level of conformity
1	Administrative services request for spare part.	3,45	4,42	78,2
2	Timely procurement of spare part.	3,70	4,40	84,1
3	Procurement of the right kind of spare part.	3,72	4,43	83,83
4	Procurement of the quantity of spare part.	3,42	4,38	72,8
5	Fuel administration services and Individual equipment.	3,79	4,36	87,01
6	Timely distribution of fuel and the quantity	3,45	4,36	72,72
7	Timely distribution of individual equipment and quantity.	3,30	4,38	71,12
8	Fuel filling monitoring service at the bases	3,64	4,23	86,16
9	Timely distribution of supplies and quantity.	3,72	4,36	81,38
10	Storage facilities in the warehouse	3,70	4,30	78,5

11	Administration services for the collection of goods and delivery of goods to be removed in Indonesian naval 2nd fleet command materiel service warehouse.	3,40	4,23	87,94
	Total	39,28	47,83	

The results are then mapped into quadran analysis, by determining the X and Y axes first

$$x = \frac{jtotal\ amount\ of\ performance}{number\ of\ attributes} \qquad \frac{38,42}{11} = 3,57$$

$$Y = \frac{jtotal\ number\ of\ Importance}{number\ of\ attributes} \qquad \frac{48,3}{11} = 4,35$$
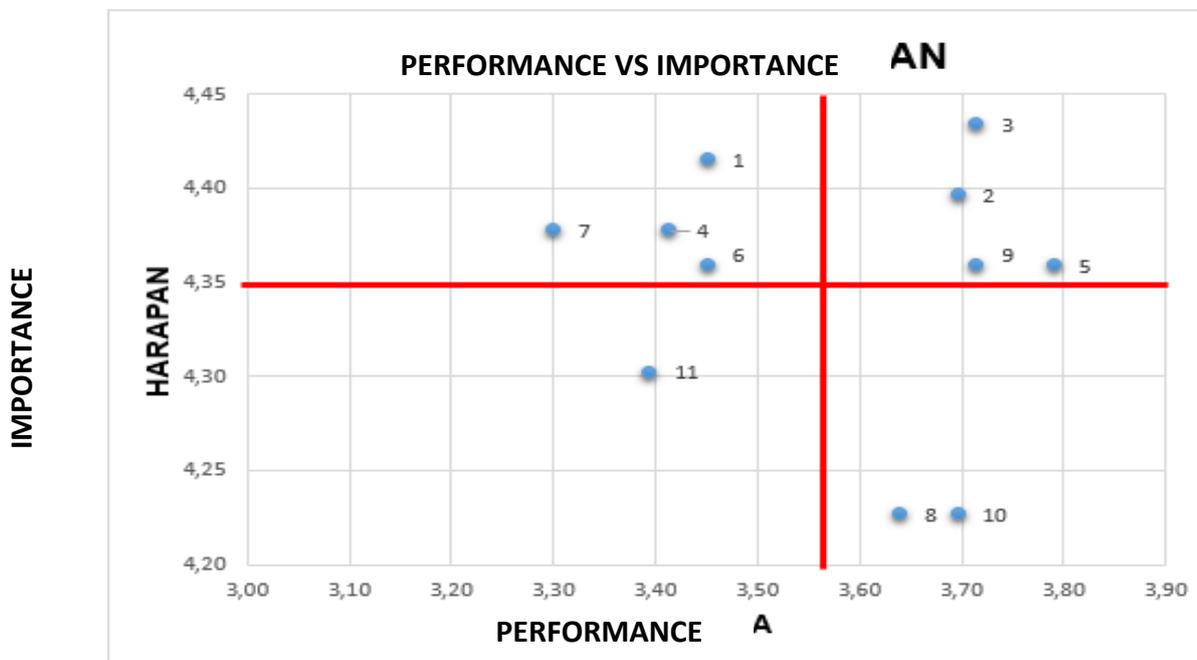

Figure 3. Quadran Analysis service Indonesian naval 2nd fleet command materiel service

3.2 Consument Satisfaction Index (CSI)

The satisfaction index is used to measure the overall level of user satisfaction based on the attributes of the service attributes of a product or service assessed.

Table 5. CSI Calculation of Indonesian naval 2nd fleet command materiel service Service

Atribut	Level of Importance	Importance weighting factor (%)	Level of performance	Scoring Average
	(a)	(b)=(a/Sa)x100	(c)	d=(bxc)
A	4,42	9,23	3,45	0,32
B	4,40	9,19	3,70	0,34
C	4,43	9,27	3,72	0,34
D	4,38	9,15	3,19	0,32
E	4,36	9,11	3,79	0,35

F	4,36	9,11	3,17	0,32
G	4,38	9,15	3,11	0,30
H	4,23	8,84	3,64	0,32
I	4,36	9,11	3,55	0,34
J	4,30	8,99	3,70	0,30
K	4,23	8,44	3,40	0,33
Total	39,28	100		
Total average				3,57
Satisfaction index				71,4

Based on the calculation shown in the table above obtained the value of satisfaction index (CSI) of 71.4 %, from the value obtained shows the position of the value in the range of 0.66 – 0.80. it means over all users are satisfied.

4. CONCLUSION

From the results of the analysis using IPA method to the services provided by Indonesian naval 2nd fleet command materiel service, it's mapped into Quadran Analysis to see the main priority that must be made improvements in the performance of Indonesian naval 2nd fleet command materiel service are : Administrative services request for spare part. (A). Procurement of the quantity of spare part (D), Timely distribution of fuel and the quantity (F) and Timely distribution of individual equipment and quantity (G) is looks from the level of expectations assessed by the user considerable but the performance given is still below average. While the performance for fuel distribution supervision services to KRI and spare parts storage services in warehouses (H and J) is good even though the expectations of user are not so high.

Overall user served by Indonesian naval 2nd fleet command materiel service are satisfied, this is seen from the value of satisfaction index that is worth 71.4 %, nevertheless it is necessary to improve the service so that the satisfaction value can increase, this can be seen with the provision of some services attributes that are in the position of 1st quadrant.

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