

## ORIGINAL ARTICLES

### Improvement priorities And Targets In Quality Of Services Of Public Transport terminal (A Case Study in Purabaya Terminal, Surabaya Indonesia)

<sup>1</sup>Agung Sedayu, <sup>2</sup>Harnen Sulistio, <sup>2</sup>Agos Soehardjono, <sup>3</sup>Achmad Wicaksono

<sup>1</sup>Student at Doctoral Program, Department of Civil Engineering, Faculty of Engineering, University of Brawijaya,

<sup>2</sup>Professor at Department of Civil Engineering, Faculty of Engineering, University of Brawijaya, <sup>3</sup>Lecture at Department of Civil Engineering, Faculty of Engineering, University of Brawijaya.(Indonesia)

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#### ABSTRACT

The quality of service of public transport terminal in Indonesia is getting lower over time. This condition is caused by declining of people interest to public transport. This study aims to determine the priorities and targets in improvement and enhancement on the service quality of public transport terminal of Purabaya, Surabaya City Indonesia. Purabaya is one of the largest terminal types in Indonesia and Surabaya is the largest city in province East Java Indonesia. The research method is extracting information of customers' needs that called voice of customer (VoC). The customers are passengers who use terminal and its facilities. The analyzing that are applied consist of importance performance analysis (IPA) and quality function deployment (QFD). IPA is applied to get level of importance customer, and QFD with house of quality (HoQ) is used for technical response from terminal management institution. IPA result explained that the highest priority attributes are requirement to get transport modes. While QFD analysis result technical response to improve transport services to become high target with the highest town performance score is 798.118. While the technical response of providing banking facilities, ATM and money changer being low target because they have the lowest town performance score that is 746.429. With the two analyzing methods that were identified improvement priorities and targets of Purabaya terminal service based on level of importance, satisfaction, and expectations customer.

**Key words:** improvement, quality of service, transport terminal

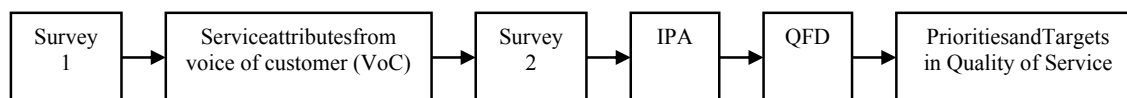
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#### Introduction

Terminal is one of transportation infrastructure has influence and contribution to the success of public transport performance improvement program. To date, public transport is a solution of transportation problems in Indonesia. Meanwhile, the performance and quality of terminal services are also influenced by the effectiveness and performance of public transport. Until now, the condition that is many people use private vehicles and left the public transport. The performance of public transport has significant effect on the terminal performance. Along with the declining in the performance and effectiveness of the terminal services, public transport services are also low because of less enthused by people (Rauf, Nurhayati, 2002). The problems to become more complex because of the high interest of the public on private vehicles, for example for the city of Surabaya, which is one of the major cities in Indonesia increased 455% use of private vehicles from 1976 to 1998 (Sulistio, Harnen., Silitonga, Sutan, 2010). Most of passengers didn't go into and use terminal after transit from public transport modal, but they prefer go down out site of terminal and move to another public transport modal (Ismail, Siddik, 2008). That factors make terminal weren't effective and efficient. This conditions need improvement, because the transportation infrastructure effect on the macro transport system that are needed by the community (Tamin, Ofyar, Z., 2008). The solution need comprehensive studies and analysis by involving many variables, for example voice of customer (VoC), because many previous studies and researches only consider the technical aspects without involving the user or customer needs. The Issues that will be examined are improvement priorities and targets in quality of Purabaya terminal service and Purabaya is located in Surabaya city that is the capital of East Java province. Some previous research has been done merely to identify terminal service attributes such as Constantine (Constantine, K.O.H., 1999) who identifies the level of interest and needs so to be obtained the results of private car users and public transport users have high levels of the same importance and needs to terminal facilities. V.Dragu, E.Rosca, and F. Rusca (2001). who determines terminal parameters to meet the users needs, so to be obtained complementary relationship between the customer requirements with terminal services.

## Materials And Methods

The framework based on the concept of Performance Based Design of Buildings (PeBBu), Final Report Domain. CIBdf in the year (Spekkink, Dik, 2005), that was providing the concept of quality of service in an infrastructure based on performance by considering the similarity between the technical aspects of the terminal to the customer needs. It is expected that there is no discrepancy between the technical and function aspects according to the user. Terminal in Indonesia has been widely researched, studied, and planned with technical aspects like queues, vehicles flow modeling, vehicle parking capacity, passenger capacity, passenger and vehicle circulation. The studies still are rare consider customer satisfaction aspects. The focus of this study is the determination of the quality of terminals service form customer satisfaction aspects. The location of this research is Purabaya terminal in Surabaya City Indonesia. Purabaya is the largest terminal type A in East Java Indonesia. Terminal Type A according to the regulation of the Ministry of (Transportation KM.31/1995) with definition that is the terminal has function to serve public transport for inter-city and inter-provincial transportation, state boundary transportation, transportation between cities in the province, and urban and rural transportation. So method to identify the attributes of terminal services with surveys technique to customers through voice of customer (VoC) (Wijaya, Tony, 2011). The method that is developed in this study is shown in Figure 1.



**Fig. 1:** Research method development

Survey 1 is an preliminary survey (see Figure 1). The Step before survey 1 is preparing to arrange preliminary questionnaire by combining some variables from theory and previous research. Table 1 shows the variables from previous research with the method had been carried out and developed.

**Table 1:** The previous researches

No	Researcher	Year	Variables	Methods
1	Constantine	1999	Security, information, facilities availability, and aesthetics	Survey method and factor analysis
2	Dragu, Rosca, dan Rusca	2001	Security, reliability, frequency, accessibilities, commodities, information, comfort, and aesthetics	Survey method and simulation
3	Rauf	2002	Facilities availability and performance, comfort, and safety	Survey method, IPA, QFD, and Benchmarking
4	Harsanto	2007	Reliability, Responsiveness, Assurance, Empathy, and Tangible	Survey and QFD
5	Rini	2007	Security, facilities availability, services and management, parking services, bus service, ticketing, cleanliness and comfort, pedestrian facilities and access roads to shelter, accessibility, safety, and service operators.	Survey method and factor analysis
6	Marliana	2008	employees ability, comfort, punctuality, speed and accuracy of employees service to passengers, the number of bus routes, shelter facilities, bus density, and disabled facilities	Servqual and QFD
7	Purba	2009	Facilities and management, accessibility, level of service, safety, and environment comfort.	Analytical Hierarchy Process (AHP)
8	Weningtyas	2009	Reliability, physical aspects, and responsiveness	Servqual and survey
9	Pati	2009	Time, flexibility of tickets payment, passengers and goods safety, and the ease of telephone service	Survey method and linear regression analysis
10	Saputra	2010	Arrival and departure time, services information systems, brokers and baggage employees regularity, road conditions, and terminal facilities.	Survey method, Customer Satisfaction Index (CSI), and IPA

Table 1 show variable and the methods were used in previous studies. It shows that the variables to be concern by terminal customer are security, safety, comfort, facilities availability, public transport reliability, terminals management, and other amenity facilities for terminal customer. This suggests terminals in Indonesia and other countries assuming the variables to become important service attributes for customers who are passengers using the terminal facilities. This research methods are survey, IPA, and QFD. The third methods are an effective method to explore customer needs to terminal services.

Stages of analysis in this study consists of :

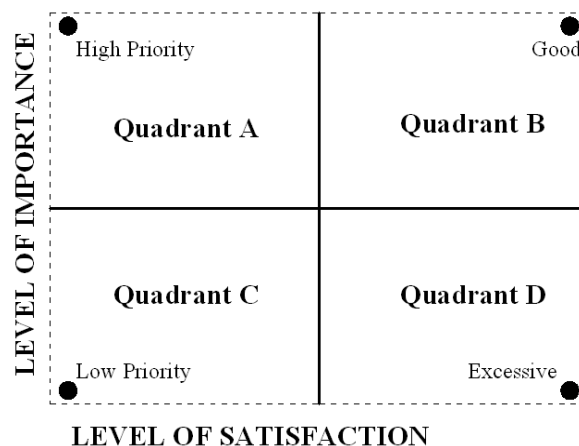
1. Arrange voice of customer (VoC)

First step of this research is exploring terminal service attributes to become voice of customer (VoC) with survey and interview method. The survey and interviews method are shown in Table 2.

## 2. Importance Performance Analysis (IPA)

IPA is used to get the importance of customer to service attributes. The level of importance is described in the importance diagram that is divided into four quadrants (Figure 2) with description as follows,

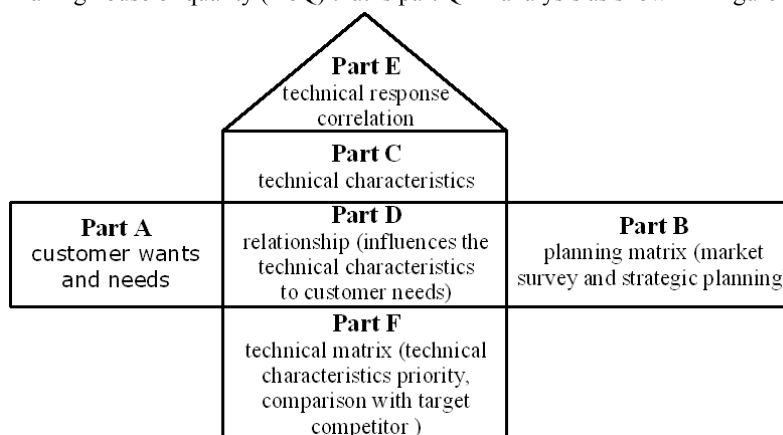
- Quadrant A, the area that contains the attributes are considered important by customers but not as expected (levels of customer satisfaction are still very low). In this area the management institution perform improvements continuously in order to increase performance in this quadrant.
- Quadrant B, the area that contains the attributes are considered important by customers and the attributes are assumed in accordance with the perceived so the level of satisfaction is high.
- Quadrant C, the area that is contains attributes are considered less important by the customer and in fact have less special performance.
- Quadrant D, the area that contains the attributes are considered less important by the customer and assumed excessive.



**Fig. 2:** Importance Classification Diagram Reference: Wijaya, (2011)

## 3. Quality Function Deployment (QFD)

QFD is method to determine priorities and targets to improve the quality of terminals service according to customer needs by making house of quality (HoQ) that is part QFD analysis as shown in Figure 3



**Fig. 3:**House of Quality in QFD Reference: (Rauf, 2002)

The respondents are passengers of public transportation are divided into:

- Passengers who regularly or often use the terminal and its facilities
- Passengers who rarely use the terminal and its facilities

The reason of using this sampling type, because the population components have heterogeneous characteristics, and the heterogeneity have significance to the achievement of the research goals. The determination of this research sample is sought by the Bernoulli equation:

$$N \geq \frac{\left(Z_{\alpha/2}\right)^2 p \cdot q}{e^2} \quad (1), \quad \text{so that become } N \geq \frac{(1.96)^2 \cdot 0.95 \cdot 0.05}{(0.05)^2} \rightarrow N \geq 72.99 \approx 73$$

To avoid lacking of data because of mistake of filling or the questionnaires are not return, the number of respondents to be used by 200 peoples with the details:

- Passengers who regularly or often use the terminal and its facilities = 100 peoples
- Passengers who rarely use the terminal and its facilities = 100 peoples

Stages in QFD analysis include:

a) Customer Satisfaction Performance: user assessment about how well the management institution or employees give services to the customer.

$$\text{Weight Average Performance} = \frac{\sum \text{Performance Weight}}{\text{Number of Respondent}} = \frac{\sum (\text{Level of satisfaction}) \times \text{Number of respondent}}{\text{Number of respondent}} \quad (2)$$

b) Customer Expected Performance: part of the customer expected performance,  $\text{Weight Average Performance} = \frac{\sum \text{Expected Performance Weight}}{\text{Number of Respondent}} = \frac{\sum (\text{Level of expected performance}) \times \text{Number of respondent}}{\text{Number of respondent}} \quad (3)$

c) Negative gap indicates the problems faced by the management institution so that the necessary corrective action in order to improve the quality of services.

d) Goal: how much the level of expected satisfaction performance can be achieved by the management institution or employees to meet every customer needs.

e) Improvement Ratio (IR): a parameter of efforts that should be done by the management institution or employees to improve the quality of services. IR formula:

$$IR = \frac{\text{Goal}}{\text{Customer Satisfaction Performance}} \quad (4)$$

f) Sales Point is determined by the management institution, this value reflects the ability to sell services and products based on how well each user or customer wishes can be fulfilled. Scale for Sales Point is:

- 1.0 Indicates no selling point
- 1.2 Indicates medium selling point
- 1.5 Indicates strong selling point

g) Raw Weight contains the calculation values from data and decisions were made during the preparation of the planning matrix. Value of raw weight for each customer needs is:




$$\text{Raw Weight} = (\text{Importance to Customer}) \times (\text{Improvement Ratio}) \times (\text{Sales Point}). \quad (5)$$

h) Normalized Raw Height contains the Raw Weight value that is scaled in design between 0 to 1 or expressed in percentage.  $\text{Normalized Raw Height} = \frac{\text{Raw Weight}}{\text{Raw Weight Total}} \quad (6)$

i) Technical Response is discussions result between researchers with management employees that should have been by public transport terminal according to customer input.

j) Relationships and priorities matrix will be described how the technical response influenced the handling and controlling what the customer needs and customer satisfaction performance.

**Table 2:** The relationship matrix symbols

Definition	Symbol	Numerical value
No relationship	Empty	0
There is relationship		1
Moderate Relationship		3
Strong Relationship		9

Source: Rauf, 2002 [1]

The priority value describes the contribution from technical responses to customer fulfillment. Contribution (cont) =  $\sum \text{Normalized Raw Height} \times \text{Relationship Matrix Numerical Value}$  (7)

Contribution value: priority and technical responses in scale 0 to 1 that indicates the percentage to be obtained from: Normalized contribution (NC) =  $\frac{\text{Contribution}}{\text{Total Contribution}} \quad (8)$

k) Own Performance can be calculated by this formula below :

$$\text{Own Performance (OP)} = \frac{\sum (\text{Customer Satisfaction Performance} \times \text{Numerical Value})}{\sum \text{Numerical Value}}$$

l) Arrange and make affinity diagram that describe the classification of a terminal service attributes.

## Results And Discussion

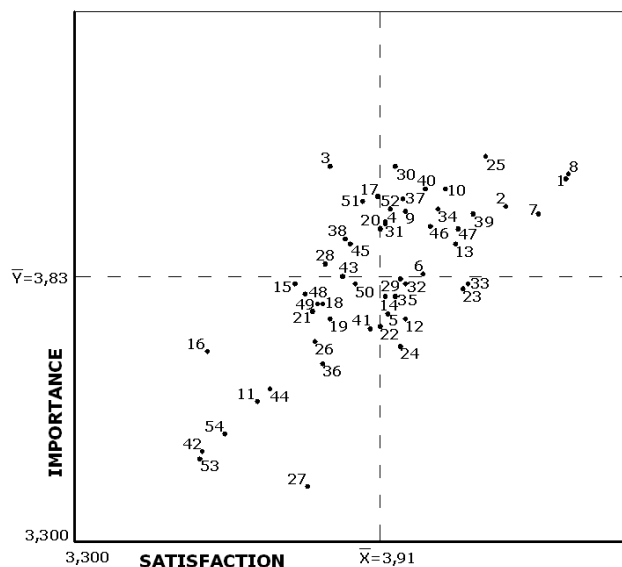
### a. Stage of IPA

Table 3 shows mean values for the level of satisfaction (LS) and the level of importance (LI) on Purabaya terminal services. The results are plotted on Importance Classification Diagram of Purabaya Terminal (Figure 3).

**Table 3:** The mean values of level of importance and level of satisfaction in Purabaya Terminal

No	Service Attributes	Notation	Mean Values	
			Satisfaction	Importance
1	Security and safety protection	A-1	4,280	4,025
2	Providing Health help and aid	A-2	4,160	3,970
3	Obtaining necessary transport modes	A-3	3,810	4,050
4	Clarity Assurance in travel destinations selection	A-4	3,920	3,940
5	Employees attention to all customer complaints	A-5	3,925	3,755
6	Employees responsive to all customer problems	A-6	3,995	3,835
7	Employees serving with polite, friendly, and neat	A-7	4,225	3,955
8	Employees have sufficient skills and abilities	A-8	4,285	4,035
9	Functioning of lighting (natural and artificial)	A-9	3,960	3,960
10	Functioning of bathroom facilities	A-10	4,040	4,005
11	Functioning of air circulation	A-11	3,665	3,580
12	Good road performance	A-12	3,960	3,745
13	Good parking performance	A-13	4,060	3,895
14	Waiting room aesthetically	A-14	3,920	3,790
15	Corridor aesthetically	A-15	3,740	3,815
16	Arrival and departure gate aesthetically	A-16	3,565	3,680
17	Garden and landscape aesthetically	A-17	3,905	3,990
18	Amenity and Easy accessibility in location	A-18	3,795	3,775
19	Amenity and Easy in room or space circulation	A-19	3,810	3,745
20	Easy for getting ticket	A-20	3,910	3,925
21	Reaching prices such as ticket, taxes, food, and drinks	A-21	3,775	3,760
22	Ease of getting information	A-22	3,910	3,730
23	Ease of getting facilities	A-23	4,075	3,805
24	No additional charges or payment (extortion)	A-24	3,950	3,690
25	Arrival and departure time	A-25	4,120	4,070
26	No long waiting time	A-26	3,780	3,700
27	Ticketing service on time	A-27	3,765	3,410
28	Durability of facilities services	A-28	3,800	3,855
29	Durability of transportation services	A-29	3,950	3,825
30	Normal Queuing for passenger ticketing	A-30	3,940	4,050
31	Passenger densities inside and outside of terminal	A-31	3,920	3,935
32	No vehicle flow congestion occurs	A-32	3,960	3,815
33	Free from cigarette smoke, vehicles smoke, and odors	A-33	4,085	3,815
34	Free from noise, glare, and unfavorable view	A-34	4,025	3,965
35	Cleanliness interior and exterior	A-35	3,940	3,790
36	No ticket brokers	A-36	3,795	3,655
37	Regularity in roads, parking, circulation, and space organization	A-37	3,955	3,985

38	Availability of adequate parking space	A-38	3,840	3,905
39	Availability of adequate waiting room space	A-39	4,095	3,955
40	Availability of number of kiosk and retail facilities	A-40	4,000	4,005
41	Availability of adequate waste facilities	A-41	3,890	3,725
42	Availability of adequate lodging facilities	A-42	3,555	3,480
43	Availability of canteen, restaurant, and food store	A-43	3,835	3,830
44	Availability of travel information board	A-44	3,690	3,605
45	Availability of information and complaint center	A-45	3,850	3,895
46	Availability of safety goods repository	A-46	4,010	3,930
47	Availability of adequate tariffs board and list per route	A-47	4,065	3,925
48	Adequate on number of bathrooms and space for cleanbathroom	A-48	3,760	3,795
49	Clean religious facilities : place for pray	A-49	3,785	3,775
50	There are transportation routessigns	A-50	3,860	3,815
51	Availability of telecommunication facilities (telephone,internet,TV)	A-51	3,875	3,980
52	Availability of travel agent counters	A-52	3,930	3,965
53	Availability of health aid centre	A-53	3,550	3,465
54	Availability of bank facilities, ATM center, and money changer	A-54	3,600	3,515



**Fig. 3:** Importance classification diagram of Purabaya terminal

From the importance diagram in Figure 3, it can be described that attribute numbers 3, 17, 20, 28, 38, 43, 45, and 51 are the top priority to be repaired by the terminal management institution according to the level of customer importance and satisfaction. The results can be seen in Table 4.

**Table 4:** Priority classification of service attributes of Purabaya terminal

Quadrant	Service Attributes (A-x)
A	: High priority
B	: Good
C	: Low priority
D	: Excessive

#### b. Stage of QFD

The first step in the QFD analysis is to determine gap value between customer satisfaction (CS) and customer expectations (CE) as shown in Table 5.

**Table 5:** Gap values between customer satisfaction and expectations in Purabaya terminal

Service Attributes	Mean values		Gap	Service Attributes	Mean values		Gap
	CS	CE			CS	CE	
1	4,020	4,280	-0,260	28	3,915	3,800	0,115
2	3,940	4,160	-0,220	29	3,915	3,950	-0,035
3	4,165	3,810	0,355	30	3,950	3,940	0,010
4	3,985	3,920	0,065	31	4,030	3,920	0,110
5	3,895	3,925	-0,030	32	3,850	3,960	-0,110
6	3,925	3,995	-0,070	33	4,040	4,085	-0,045
7	4,070	4,225	-0,155	34	3,915	4,025	-0,110
8	4,075	4,285	-0,210	35	3,835	3,940	-0,105
9	4,040	3,960	0,080	36	3,910	3,795	0,115
10	4,105	4,040	0,065	37	3,895	3,955	-0,060
11	3,745	3,665	0,080	38	3,940	3,840	0,100
12	3,920	3,960	-0,040	39	3,960	4,095	-0,135
13	3,930	4,060	-0,130	40	4,020	4,000	0,020
14	3,775	3,920	-0,145	41	3,835	3,890	-0,055
15	4,005	3,740	0,265	42	3,835	3,555	0,280
16	3,780	3,565	0,215	43	3,925	3,835	0,090
17	4,040	3,905	0,135	44	3,815	3,690	0,125
18	3,865	3,795	0,070	45	3,935	3,850	0,085
19	3,865	3,810	0,055	46	3,850	4,010	-0,160
20	4,000	3,910	0,090	47	3,945	4,065	-0,120
21	3,835	3,775	0,060	48	3,960	3,760	0,200
22	3,835	3,910	-0,075	49	3,890	3,785	0,105
23	4,045	4,075	-0,030	50	3,830	3,860	-0,030
24	3,865	3,950	-0,085	51	3,940	3,875	0,065
25	4,010	4,120	-0,110	52	4,010	3,930	0,080
26	3,720	3,780	-0,060	53	3,575	3,550	0,025
27	3,580	3,765	-0,185	54	3,465	3,600	-0,135

A negative Gap indicates the problems faced by the management institution so that need corrective actions to improve quality of service. To create a house of quality (HoQ) that need measure Goal, Improvement Ratio (IR), Sales Point (SP), Raw Weight (RW), Normalized Raw Weight (NRW), Contribution (cont), Total Numerical Value (num), and Own Performance (OP). The next step, could made technical response (technical characteristics) to answer top priority of level of importance from IPA and Gap values (see Table 5) as follows,

1. Improving safety and security protection (R-1)
2. Adding facilities and health employees (R-2)
3. Improving service and performance employees (R-3)
4. Improving road facilities (R-4)
5. Adding parking facilities (R-5)
6. To make aesthetic for waiting room (R-6)
7. Adding information facilities (R-7)
8. Increase the number and performance of the facilities (R-8)
9. Eliminating illegal levies (R-9)
10. Providing timely service (R-10)
11. Provide ease and timeliness of ticketing service (R-11)
12. Improving quality of transport services (R-12)
13. To make easy for vehicles flow (R-13)
14. Providing comfort inside and outside of terminal (R-14)
15. Supporting terminal cleanliness (R-15)
16. Setting regularity the terminal arrangement (R-16)
17. Increasing waiting room capacities (R-17)
18. Adding waste facilities (R-18)
19. Provide a safe deposit box facility (R-19)
20. Adding tariffs list and board per route (R-20)
21. Adding signs transport (R-21)
22. Providing banking facilities, ATM and money changers (R-22)

After obtain the technical response from management institution, then performed analysis by create house of quality (HoQ). All service attributes are plotted into house of quality (Figure 4). In the house of quality is calculated and analyzed using equation 2 to 4 to obtain technical correlation between technical response with service attributes and target value of terminal service improvement.

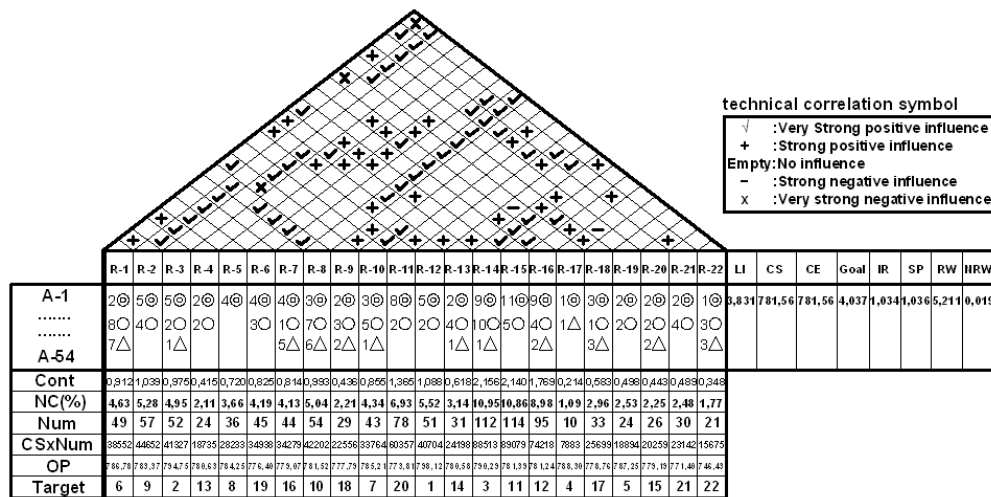


Fig. 4: HoQ of Purabayaterminals service

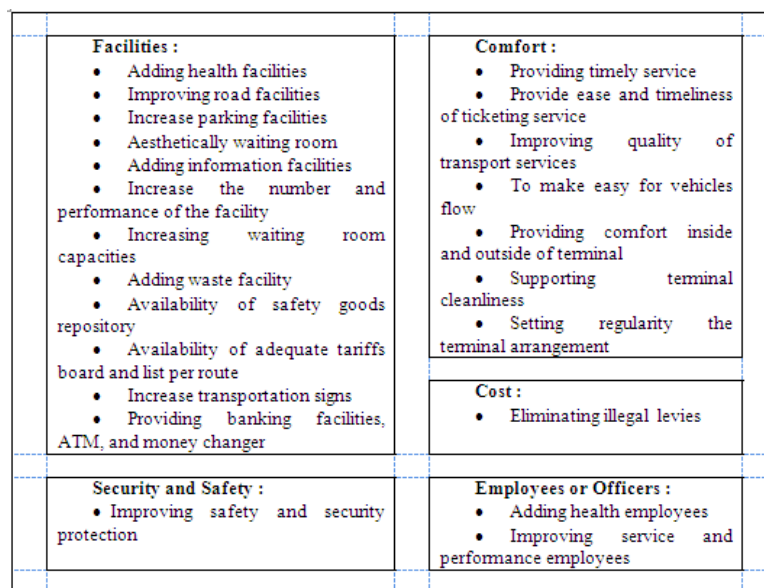
Figure 4 show correlation between technical response, where every relationship has symbols such as very strong positive influence (√), Strong positive influence (+), no influence (empty), Strong negative influence (-), and very strong negative influence (x). From house of quality (Figure 4) that are obtained technical response targets that must be improve by the management institution of Purabaya terminal, as shown in Table 6. Target value can be seen from the value of own performance (OP) that is produced by every technical response. Management institution must have attention to relationships between technical response, because there is relationships with very strong negative influence and strong negative influence. It can be described as a conflict between technical response, and need strategy to choose top priority of technical response.

Table 6: Results of QFD analysis with HoQ for Purabaya terminal

Technical Response	Own Performance (OP)	Target
R-1	786,776	6
R-2	783,368	9
R-3	794,750	2
R-4	780,625	13
R-5	784,250	8
R-6	776,400	19
R-7	779,068	16
R-8	781,519	10
R-9	777,793	18
R-10	785,209	7
R-11	773,808	20
R-12	798,118	1
R-13	780,581	14
R-14	790,295	3
R-15	781,395	11
R-16	781,242	12
R-17	788,300	4
R-18	778,758	17
R-19	787,250	5
R-20	779,192	15
R-21	771,400	21
R-22	746,429	22

Table 6 shows that the technical response to improve the quality of transport services (R-12) became the highest target of own performance with the highest score (798.118). While the technical response providing banking facilities, ATM and money changers (R-22) became the lowest target because it has the lowest performance score (746.429). The management needs to do in order of increasing and improving according to technical response target rank as shown in Table 6. To illustrate the technical response as in Table 6, it is necessary to be made affinity diagram as shown in Figure 5, where technical responses are classified to facilities, comfort, security and safety, and employee or officer in the Purabaya terminal management institution.





**Fig. 5:** Affinity diagram of technical response of Purabaya Terminal

#### Conclusion:

The process of a preliminary survey (survey 1) and previous studies produce 54 items of service attributes. The analysis results states that the performance and quality of service of Purabaya terminal still need repair and improvement. It can be seen from voice of customer (VoC) from survey process, IPA, and QFD. IPA result explained that the attributes obtain the highest priority is Obtaining necessary transport modes (A-3), Garden and landscape aesthetically (A-17), Easy for getting ticket (A-20), Durability of facilities services (A-28), Availability of adequate parking space (A-38), Availability of canteen, restaurant, and food store (A-43), Availability of information and complaint center (A-45), and Availability of bank facilities, ATM center, and money changer (A-54). While QFD analysis with creating house of quality (HoQ) produced 22 technical response of Purabaya terminal management institution. The results demonstrate the quality of technical response to Improving quality of transport services (R-12) became the highest target of own performance score (798.118). While the technical response providing banking facilities, ATM and money changers (R-22) became the lowest target because it has the lowest performance score (746.429). Affinity Diagram of QFD explained that technical responses to be classified to facilities comfort, security and safety, and employees or officers in terminal management institution. The 22 technical responses is the target of improving and enhancing quality of service to be performed by the Purabaya terminal management institution in accordance with the level of target value of technical responses. Management institution must have attention to relationships between technical responses, because there is relationships with very strong negative influence and strong negative influence. It can be described as a conflict between technical response, and need strategy to choose top priority of technical response.

#### References

- Anonymous. KM 31/1995 about Transport Terminal. *Ministry of Transportation*, Jakarta-Indonesia, pp: 3.
- Constantine, K.O.H., 1999. An Exploratory Study into The Desired Amenities In Public Transport Terminals By Central Business District Workers. *MMUTIS Technology Report, School of Urban and Regional Planning, University of The Philippines*. pp: 2-4.
- Dragu, V., E. Rosca, F. Rusca, 2001. *Service Quality in the Terminal Joining Magistral and Urban Transport*. Transportation faculty, Politehnica University of Bucharest, Rumania., pp: 5-7.
- Harsanto, Budi, 2007. Application of Quality Function Deployment in Argo Wilis Train. *Journal of Business and Management, Master of Management College of Business Management. Bandung-Indonesia*, pp: 60-66.
- Ismail, Siddik, 2008. Optimalization of Pasenger Terminal Operational in Bandar Raya Payung Sekaki-Pekanbaru City. *Research and Development Unit, Province Riau-Indonesia*, pp: 2.

- Marliana, Sonya, 2008. SERVQUAL and QFD integration Improving Mass Transportation Services, Trans Jogja. *National Seminar on Application of Science and Technology IST AKPRIND*, Yogyakarta-Indonesia. pp: 71-76
- Pati, Rhony, 2009. *Passenger Perceptions on Service Quality of Travel Routes of Muara Teweh, Banjarmasin city*. PetraChristianUniversity, Surabaya-Indonesia, pp: 1621-1633.
- Purba, Djamahaen, 2009. Priority Analysis of Influencing Factors on Sarantama Terminal Effectiveness. *Postgraduate of North Sumatera University*, Medan-Indonesia, pp: 80-84.
- Rauf, Nurhayati, 2002. Application of Quality Function Deployment in Improving Public Transport Terminal Services Quality: A Case Study In Public Transport Sungguminasa Gowa Terminal - Indonesia. *Postgraduate of Industrial Engineering of Sepuluh Nopember Institute of Technology*, Surabaya - Indonesia, pp: 1-3
- Rini, Indri Nurvia Puspita, 2007. Passenger Perception Analysis of the Bus Way Service (Case Study of Trans Jakarta Corridor I). *Postgraduate of Civil Engineering, Diponegoro University*, Semarang-Indonesia. pp: 27-34
- Saputra, M., 2010. User Satisfaction Analysis on Service Performance of Metro Makassar Terminal. *Postgraduate of Civil Engineering of Sepuluh Nopember Institute of Technology*, Surabaya - Indonesia, pp: 1-11.
- Spekkink, Dik, 2005. Performance Based Design of Buildings, Final Report Domain, CIBdf-Netherlands, pp:18-20
- Sulistio, Harnen., Silitonga, Sutan, 2010. Scenario of Modal Split and Public Transport Utility in Palangkaraya, Malang, and SurabayaCities of Indonesia. *Journal of Mathematics and Technology*, Azerbaijan. pp: 101-104
- Tamin, Ofyar, Z., 2008. *Planning, Modeling, and Transportation Engineering: Theory, Problem Example, and Applications*. Bandung Institute of Technology - Indonesia, pp: 62.
- Weningtyas, Widyarini, 2009. *Evaluation of Minimum Service Standards (MSS) for Toll Road Infrastructure*. PetraChristianUniversity, Surabaya -Indonesia, pp: 6-12.
- Wijaya, Tony, 2011. *Services Management Quality: SERVQUAL Design, QFD and Kano with Application in Research Cases*. Index, Jakarta-Indonesia, pp: 13-14.