

Integrating SERVQUAL with KANO into Quality Function Deployment (QFD) for Better Quality of Services Case Study: PT Pos Indonesia, Branch Office of Sidoarjo

Moses L. Singgih* and Nurita Ardhiyani

Department of Industrial Engineering
Institut Teknologi Sepuluh Nopember
Kampus ITS Keputih Sukolilo, Surabaya 60111, Indonesia

ABSTRACT

PT Pos Indonesia is currently still lacking in serving and satisfying customers, this company has little attention to customer complaints and this will have an impact on customer loyalty. Fulfillment of customer expectations yields the customer satisfaction and brings benefit to the company especially PT Pos Indonesia as this project's object. Knowing the level of customer satisfactions is not enough because new phenomenon indicates that customer satisfaction levels can be distinguished into categories one dimensional, must be and attractive. To understand this customer behavior very well, an integrated SERVQUAL and Kano into QFD is necessary to be implemented. Needed information is obtained from the distributed questionnaires through SERVQUAL questionnaires and Kano questionnaires to the customers who ever experienced the service of the company and its competitor. Collected data then processed with SERVQUAL method and grouped into Kano's category then QFD as improvement design. From this research, several aspects need to be improved by the management are complaint handling, safety and cleanliness on shipment and delivery process, safety and security in office, warehouses and parking lots, customer relation and satisfaction, employee Behaviour, employee training, employee's knowledge about company's service, automated facilities, simple bureaucracy and process flow.

1. INTRODUCTION

In global and highly competitive market, it is essential for the survival of any firm involved in the service industry to be adaptive, responsive to changes, proactive and has the capability to deliver high quality products according to diverse customer requirements. Therefore, awareness is needed to determine the quality of services that has been and will be given to understand whom their customers are as well as assessment and consumer expectations of provided services facilities. To support the achievement of customer satisfaction so that the profit would be increased, then evaluation of the quality of services provided to its customers is necessary to be executed. Various frameworks have been introduced service quality with another method, for example Tan [7] Integrating Kano's Model in the Planning Matrix of Quality Function Deployment. However, as Zisis et al [11] states, it is impossible to construct a 'global measurement approach' of SQ, as each organization is unique and as a result, altered practices are employed. This integrated model provides information to management regarding the factors supporting what customers expect and at the same time to evaluate the quality of services. Thus, management is able to understand consumer behavior very well so that appropriate policies can be formulated based on valid information to achieve optimal results.

2. LITERATURE REVIEW

2.1. SERVQUAL

Quality of service can be defined as difference or gap between consumer perception of services provided with the hope that customers use these services [5]. One example of the available methods to determine quality service is

* Corresponding author: Tel.: (+62) 811315235; Fax: (+6231) 5966067; E-mail: moses@ie.its.ac.id; moseslsinggih@gmail.com

SERVQUAL method. SQ provides a key competitive weapon in the attempts of enterprises to growth and to differentiate their offerings contrary to their competitors. SQ concept defined into five dimensions, they are :

- Tangibles : including performance of physical facilities, tools and employees
- Reliability : the ability of an organization to deliver the service on time, enhancing accuracy in the process
- Responsiveness : the aptitude of an enterprise to confront with customer's as well as to speed up the delivery process
- Assurance : the employee's knowledge, skill and good manner and ability to deliver comfortness and faithfulness to the customers
- Empathy : company's ability to approach and contact customer easily and to create freedom from risk, danger and doubt for customer

2.2. KANO

The model developed by Dr. Noriaki Kano [2] is a model that aims to categorize the attributes of the product based on how well it is able to satisfy customer needs, they are:

- Attractive : The fulfillment of this category would lead to increased customer satisfaction but if not met will not cause the decrease in consumer satisfaction.
- One dimensional : If his attributes is given then the customer satisfaction will increase and so does the opposite.
- Must be : In many ways, must-be requirements is a factor that must be competitive and if not met, customers would not be interested in the products offered.
- Indifferent : An attribute whose presence or absence does not cause any satisfaction or dissatisfaction to customers; and
- Reverse : An attribute whose presence causes customer dissatisfaction and whose absence results in customer satisfaction

Kano questionnaires on customer demand are designed in positive and negative questions for each aspect of customer demands. Every answer has five options then classified into six categories (Table 1)

Table 1 The Kano Evaluation Table

Positive Questions	Reverse Questions				
	Happy	Must be	Indifferent	Acceptable	Unhappy
Happy	Q	A	A	A	O
Must be	R	I	I	I	M
Indifferent	R	I	I	I	M
Acceptable	R	I	I	I	M
Unhappy	R	R	R	R	Q

The steps of data processing with the Kano model are as follows:

1. The answers to functional and dysfunctional statements are classified into six categories in the Kano evaluation table (Table 1)
2. The answers from each respondent for each questionnaire that has been classified are then tabulated. Using Blauth's formula, grade column can be obtained for each customer requirement as follows :
 - If (one dimensional+attractive+must be) > (indifferent+ reserve+questionable) then grade could be obtained from the biggest value of (one dimensional, attractive, must be)
 - If (one dimensional+attractive+must be) < (indifferent+ reserve+questionable) then grade could be obtained from the biggest value of (indifferent+ reserve+questionable)

3. Kano's weight line then determined numerically as follows: Attractive = 3; One Dimensional = 2; Must be = 1

2.3. QFD

QFD was first developed in Japan by Mitsubishi Kobe Shipyard in 1972, which was later adopted by Toyota, Ford Motor Company and Xerox brought this concept to the United States in 1986 [8]. The most common analogy used to describe the structure of QFD is a matrix of the shape of a house, House of Quality, as stated by Vonderembse [9]. The traditional QFD process assumes that the customers : (1) are capable of evaluating the importance and satisfaction of the product's requirement; (2) have ever experienced with the product; (3) that the relationship between importance and satisfaction are linear and independent [8].

3. THE INTEGRATED POINT OF INTEREST IN THE MODEL

In traditional QFD, it expresses how customers rank importance of certain quality attributes in planning matrix from the importance value in SERVQUAL questionnaires for common. Applying SERVQUAL alone into QFD does not tell us how to close gaps occurred between customer perceived and expect. This weakness requires integration of SERVQUAL with kano model to adjust the importance value in QFD. The Voice of Customer (VOC) priorities reflect what customers want most but the real information needed in QFD is to know which customers we want to satisfy most and how to meet their requirements [7]. A total customer satisfaction is the ultimate goal of QFD therefore merely listening to the VOC is not enough. What the management should do is to understand deeply the characteristics of the VOC and then obtain the useful information from them. The kano model provides an effective approach to categorize customer attributes and to help understand the nature of them. Thus, applying SERVQUAL alone into QFD is not enough but integrate it with Kano model is a plus one to make the implementation of QFD effectively.

The integrated point in this model is the determination of final importance by integrating weight of service quality and kano's weight line [6] as stated in Equation (1). Weight of service quality could be obtained from SERVQUAL questionnaire while kano's weight line could be obtained from Kano questionnaire.

$$\text{Weights of Service Quality} = \text{I GAP} \times \text{Importance of service quality} \quad (1)$$

$$\text{Final Weighted Importance} = \text{Weights of Service Quality} \times \text{Kano's Weight Line} \quad (2)$$

Note : absolute value of GAP is the absolute value of the difference between the average satisfaction score with the average expected value of SQ.

4. APPLICATION

4.1. RESEARCH METHODOLOGY

Case study methodology was used in this research as drawn in Figure 1 Research Methodology. Determination of VOC for the delivery package service in the studied firm (PT Pos Indonesia) based on customer perspective was first conducted through interview the management, observation of moment of truth, literature review, the customer complaint database and distribution of pre questionnaires for a total of 30 key customers. As a result, 33 quality attributes of the delivery package service were developed for the study in the final questionnaires. The final questionnaire itself divided into SERVQUAL and Kano questionnaires distributed for 200 respondents. 127 respondents were chosen to be analyzed because they ever experienced the delivery package service of the studied firm and that of the competitor (PT CV Titipan Kilat). This analysis is very useful as benchmark in competitive assessment in QFD to know each service quality performance based on the two companies' customer perspective.

The authors then integrate the data processing for SERVQUAL questionnaire with Kano questionnaire to determine the final weighted importance. This value then become basis for the rank of importance that affect the raw weight rank in planning matrix. Development of QFD then conducted to know what aspects to be improved. Value analysis is used to consider the cost factor of implementing technical aspects as written in technical matrix. Uses of

pareto diagram then executed to make priority to be logical because the management does not need to improve all aspects to win the competition but only several of them by considering cost factor as done in value analysis. This is the final step that needs to be done to know what aspects to be improved.

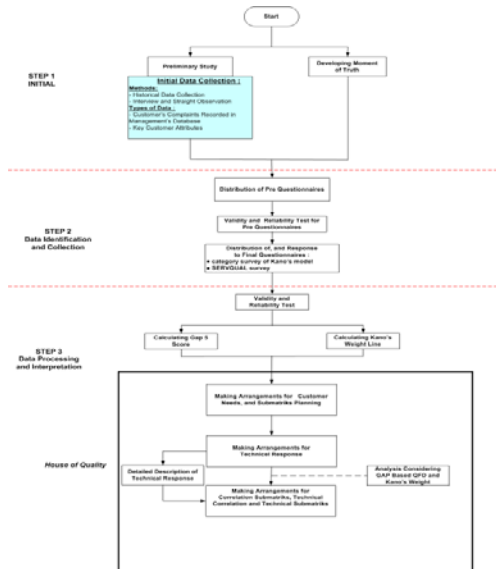


Figure 1: Research Methodology

4.2. RESULT AND DISCUSSIONS

From the calculation of gap 5 score, it can be seen that the gap values for all attributes a negative value indicates that the management services provided by PT Pos Indonesia is not as expected based on customer perceptions. After ranking it can be seen that the provision for refunds immediately deficiencies has the largest gap among 38. Ranked second gap until the fourth complaint related to the handling of management indicating that the complaint handling management of PT Pos Indonesia is very bad. Correction needs to be done because the input complaint from customers is one way to evaluate the performance of PT Pos Indonesia. If the handling of complaints not good this will have an impact on customer loyalty. Giving refund and complaint handling has a strong relationship because it indicates that the management of PT Pos Indonesia is not responsive to customer complaints related to employee performance error of PT Pos Indonesia. An error in the employee's performance can be ascertained from a large gap value of the attribute ratings of refunds due to lost packages or damaged.

From the kano questionnaire analysis, it is known that customers categorize: No limitations for the products being shipped; Easy payment and; The company knows the customer's needs and always extends new information for the services as attractive attributes. Three attributes customers consider it as an interesting aspect. Customers do not expect these three criteria are met all but if it fulfilled all the customer satisfaction will increase. For example, for the criterion of "No limitations for the products being shipped", customers consider when there is no limit to the package, then it will the satisfaction will increase, but if the rules remain in place so this will not affect customer satisfaction. Both companies are of concern in this study impose the same rules for this attribute.

Attractive requirement is a hidden criteria that has the greatest influence on how satisfied a customer will be with a given products [10]. It could be said that a product that exceed customer expectation and are classified as attractive requirement will enhance customer's perceived value and their satisfaction. For instance, a postal company that offers easy payment and has good promotion may provide a value enhancement to customers. Yet the absence of this service will not necessarily result in customer dissatisfaction or lost customers.

Management of PT Pos Indonesia should consider these three attributes to increase their customer loyalty but in reality the performance of PT Pos Indonesia is worse than the competitor so that more attention should again mainly to attribute "The company knows the customer's needs and always extends new information for the services" because this attribute has a large gap value in SERVQUAL analysis.

The sales point in QFD contains information characterizing the ability to sell product based on how well each customer need is met. Cohen [3] states that guidance in deciding where to be aggressive can come from Kano analysis. Again, the added value of this integrated model is the application of Kano analysis in determination of sales point in planning matrix. This helps management to consider the hidden attribute, attractive requirement, as attributes that have high sales point thus set to be high in planning matrix.

Benchmark information on the planning matrix is very useful for management to evaluate current management performance compared to competitors. Deros et al [4] in his research include the formulation used to measure the service quality performance of an industry. Formulation of the stipulation will be used in this study to determine the performance level of the quality of services provided by PT Pos Indonesia than CV Titipan Kilat. In order to be able to benchmark then data taken from the respondents who have already experienced both services of the companies. From the questionnaires, it was found that there are 127 respondents who have already experienced services of two companies.

Service quality performance for the studied firm is calculated in terms of qualitative values by dividing the total maximum service level performance to the total actual service quality performance. These steps are clearly defined on below formulation:

Actual performance is identified from the questionnaires administered to the firm's customers.

Maximum performance is the maximum performance of the firm could perform which is excellent and ranked with numerical number (5).

Actual service performance = final weight of importance each customer requirements x Σ value relationship between WHAT and HOW technical requirements for the technical requirements x actual performance

Maximum service performance = final importance weight of each customer requirements x Σ value relationship between WHAT and HOW for the technical performance requirements x maximum performance

Total actual service performance = Σ actual service performance

Total Maximum service = Σ Maximum service performance

Service quality performance = Total actual service performance / Total maximum service performance (3)

Referring to the overall QFD matrix structure that has been developed then the service quality performance for each firm is:

Service quality performance of PT Pos Indonesia:

$$= 21076.67 / 31434.56$$

$$= 0.67049$$

$$= 67.05 \%$$

Service quality performance of PT CV Titipan Kilat:

$$= 25667.85 / 31434.56$$

$$= 0.816549$$

$$= 81.65 \%$$

From the calculation above, it is known that generally the service quality performance of PT Pos Indonesia is lower than the competitors. Even though the efforts of management to make corrections since 2005, especially in the field of information technology and increased delivery reliability through expanding cooperation with PT Gading Sari Indonesia, still it has not improved the service quality itself significantly. In addition to cargo operations, as well as

infrastructure development cooperation support other logistics services, namely the construction of warehouses that have direct access to aircraft at airports in order to support the operation of cargo aircraft, cargo sales marketing and cargo aircraft, marketing and sales transportation sea, air and ground, as well as freight forwarding and warehousing.

However, the difference between the service quality of the two companies is significant, so the management of PT Pos Indonesia has to be more aware to try to improve the quality of services currently considering similar companies have to grow to compete with PT Pos Indonesia.

From the analysis of Pareto diagrams, 9 technical responses are selected to be improved, they are:

1. Complaint Handling
2. Safety and cleanliness on shipment and delivery process
3. Safety and Security in office, warehouses and parking lots
4. Customer relation and satisfaction
5. Employee Behavior
6. Employee Training
7. Employee's knowledge about company's service
8. Automated facilities
9. Simple bureaucracy and process flow

5. CONCLUSION

Based on the data processing and data analysis, then conclusion could be conducted as follows :

1. According to service quality analysis it is found that overall service quality performance of PT Pos Indonesia and CV Titipan Kilat are have negative gap meaning there are differences between expectancy and perception belief.
2. Customers categorize the attributes as attractive, one dimensional and must be requirements. The attractive attributes are potential attributes that need to be improved , they are :
 - No limitations for the products being shipped
 - Easy payment
 - The company knows the customer's needs and always extends new information for the services
3. To reach better quality of services, the management of PT Pos Indonesia should improve several aspects in its technical response, they are :
 - Complaint Handling
 - Safety and cleanliness on shipment and delivery process
 - Safety and Security in office, warehouses and parking lots
 - Customer relation and satisfaction
 - Employee Behavior
 - Employee Training
 - Employee's knowledge about company's service
 - Automated facilities Automated facilities
 - Simple bureaucracy and process flow
4. Service quality performance of PT Pos Indonesia is lower than that of the competitor.

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