International Business Management 9 (4): 358-366, 2015
ISSN: 1993-5250

The Improvement Priorities Required for Customer Satisfaction Using Kano Model Towards IPA Method in Service Business

[1]Haeryip Sihombing, [2]Paramananthan Balakrishnan and [2]Kannan Rassiah
[1]Fakulti Kejuruteraan Pembuatan (FKP), Universiti Teknikal Malaysia Melaka (UTeM), Hang Tuah Jaya, 76100 Durian Tunggal, Melaka, Malaysia
[2]Department of Mechanical Engineering, Politeknik Merlimau Melaka (PMM), KB1031, Pejabat Pos Merlimau, 77300 Merlimau, Melaka, Malaysia

Abstract: The customer satisfaction is the fundamental of effective service deliveries. However, the overall service quality needs and on what of the factors affected are, in facts, asymmetric to the attribute level performance and overall satisfaction. Therefore, the focus of this study is to examine what the extent of services performance and facilities offered to their customers. This study conducts the survey through the distribution of questionnaires developed using Kano Method and Importance-Performance Analysis (IPA) approach towards SERVQUAL factors applied in the company of courier service delivery and post office in Melaka. Through, the 25 questions that represented 5 factors of SERVQUAL asked to 200 respondents, the results show that the factors of 'skilled/Knowledgeable' of workers (K17) and 'confident and trust' (K19) are the improvement priorities required by a courier service company and post office to satisfy their customers. This study also proposed the method on how to justify the finding of quality attributes based on the Kano Method (for consistencies and Cartesian State) as well as the combination of Kano Method with IPA for measuring the customer satisfaction into a graph.

Key words: Kano Model, IPA, customer satisfaction, consistencies, cartesian

INTRODUCTION

Today's, Malaysian courier service providers has concerned with the guaranteed, fast and reliable, on demand, world-wide, integrated and door-to-door movement of shipments which can be tracked and controlled throughout the journey of their service given to customers. Refers to the Industry Performance Report 2007 which is officially released by MCMC (2008) there are 109 courier licensees in Malaysia. In order to capture the market, the courier service providers faced with the business challenges such as to provide a comprehensive range of physical, financial and electronic connections for business, domestic and international and who are not business users where the approaches related are for and/or based on economic growth. Sokol (2003) clearly stated in his study that a robust service system of delivery services involved air and ground transport, distribution centers, delivery management and the use of advanced technologies in all facets of its business to track items and provide information are required, especially towards the express delivery services. World Trade Organization (WTO, 2010) stated, "Postal services have undergone radical changes from a regulatory, operational and technological perspective throughout the world."

In facts, the greatest current challenges for the delivery service business are on how to make technology benefit for the customer where security and reliability should also continue to be emphasized. First, this awareness was as a main concern related to the hyper competitive market where the service offered to customers need to be always focused on the attention of how to simplify and speeds up the process of transporting goods. In detail, Chan *et al.* (2006) propose the measurement with benchmarking towards the aspects such as reliability, lead time, convenience, flexibility, cost, return on assets, relationship, innovativeness, improvement, cost, time, capability, integration with the existing system, willingness and constraints. On this issue, it can be said that a key success and competitiveness factor of courier service business is about saving time of the distribution process. In addition, the guarantee of service quality and customer satisfaction in order to attract the customers related to the services provided by the company.

Corresponding Author: Haeryip Sihombing, Fakulti Kejuruteraan Pembuatan (FKP), Universiti Teknikal Malaysia Melaka (UTeM), Hang Tuah Jaya, 76100 Durian Tunggal-Melaka, Malaysia

Viewing on this reason, Collier (1994) discussed about how the providers to achieve the customer satisfaction by providing their service quality that match with the specifications, i.e., consumer requirements, fair exchange of a value at a price and potential utilization in order to achieve customer satisfaction in service. The development of effective customer relationships should be placed as an essential component of marketing strategies in service industries (Lymperopoulos *et al*., 2006). Also, the development of long-term relationships which offers detailed and useful knowledge as well as deeper understanding of the entire value chain based on the holistic needs in satisfaction to decrease the possibilities of defection (Kandampully and Duddy, 1999). The attributes that the firm should strengthen are, therefore, on those which are over-performing given the current customer evaluations (Arbore and Busacca, 2011). Here, attribute-level performance and overall satisfaction is asymmetric (the fulfillment of customer needs on the performance of the product or service) and believed will affect to the overall service quality needs and on what of the factors affected (Matzler *et al*., 1996). Therefore to examine the extent to which performance of services and facilities offered to their customers, this study will use the criteria of importance and experience toward the customer perception and expectation of satisfaction based on the model of satisfaction (IPA) which will be measured using SERVQUAL and Kano Model.

Literature review

Customer satisfaction: Farner *et al*. (2001) discussed about the various practical applications that had emerged in many aspects related to the management of the service quality in order to increase the companies' performance to compete with competitors. Parasuraman *et al*. (1985) discussed about the customer satisfaction related to the service perceptions and expectations provided. Through, the high service quality delivered to the customer, Akbar and Parvez (2009) stated about how the company can generate the customer satisfaction, customer loyalty and growth of market share by soliciting new customers and improve the productivity. The way how to manage the quality of service is however, lie on how the organizations are able to change themselves in order to manage and operate the available resources against the challenges of globalization, beside the customer satisfaction as a main concern of the service delivered process. Here, the combination of customer preferences and behavioral intelligence should be more emphasized through a comprehensive view on how decision-making made (Liewehr and Laplante, 2011), especially on the level of loyalty and value of the existing customers.

In addition, since the customer satisfaction is the fundamental to the effective delivery of services (Yuksel and Rimmington, 1998) therefore, the level of performance provided by an organization should be explored from the experiences of variety situations which connected to both of goods and services (CSSP, 2007; Cengiz, 2010). Kotler (2003) said that the customer satisfaction is feeling happy or upset someone appears after comparing the performance of service or products considered against the expected performance, then the customer satisfaction also can be viewed as multi-dimensional concept of cost, convenience facilities, technical and interpersonal aspects and the product. Here, Hsu and Cai (2009) proposed the model of customer satisfaction as a function of disconfirmation arising from discrepancies between prior expectations and actual performance where the expectation as a critical antecedent of satisfaction becomes a determinant of attitude. To satisfy the customers are as a multi-dimensional concept, they also need to involve the customer interaction, store environment, marketing communication and price/value. In service sectors, this is due to the customers usually involve and play a role in providing input directly and/or indirectly in terms of time, physical and mental. Hence, service quality and productivity of a service delivery are not only can be seen as the service provider's performance but also the performance shown to the customer.

Service quality as customer satisfaction: According to Gianesi and Correa (1994), the evaluation of the quality made by the customer either during or after the process of delivering the service is through the comparison between the customers' expectation towards the service and perceived of service provided. Gronroos (1993) said that a good quality is obtained when the experienced quality meets customer expectations. The total perceived quality is a result of the difference between the expected quality and quality experienced in the moment of using the service (Gronroos, 1988) while the degree of superiority of services business involves both tangible and intangible features of the service (Boone and Kurtz, 1998). The critical elements that determine a positive dynamics in customer satisfaction are to making the intangible or tangible to make visible the results, develop a group of customers satisfaction and increase the process of client references. Here, Zeithaml *et al*. (1990) stated about an attribute the quality of services as the gap between customer expectations and perceptions related to service experienced. The key to ensure a good quality of service occurs when perceptions exceed customer expectations. The process is on a "service encounter" that consists of several moments of the interactions that will impact the overall perception of quality service. These moments of

contact between the customer and the service provider are called "moments of truth" and these interactions between symbolize of buyer and supplier. Specifically, towards the dimensions of the quality service, Parasuraman *et al.* (1985) identified it such as reliability, responsibility, competence, access, courtesy, communication, credibility, security, tangibility and knowledge of the consumer.

Quality attributes towards customer satisfaction: Kano *et al.* (1984) classified the characteristics of products based on customer perceptions and impressions to customer satisfaction (Fig. 1). To understand the customer needs and what the impact on customer satisfaction, they categorized the different customer requirements based on how well on achieving customer satisfaction into a model that describe the quality attributes as follows:

Must be or basic needs (M): In this category, the customer becomes dissatisfied when the performance of the attributes becomes low concerned. This is a necessity (must be) requirements of (basic needs). The customer satisfaction will not increase above the neutral despite the high performance of this attribute.

One-dimensional or performance needs (O): In this category, the customer satisfaction is linear to the performance needs characteristic until the high performance characteristics will result in satisfied customers increased.

Attractive or excitement needs (A): In this category, the rating of customer satisfaction will raise performance properties. This is an attractive or excitement needs or expectation. The decline in performance properties will not lower the level of satisfaction.

According to Shiba *et al.* (1997), Kano's Model divides product attributes into another three types which is to achieve customer satisfaction, namely:

Indifferent attributes (I): This category represents the condition when the customer does not care about this feature. This is meant that the customer is not concerned with this product attribute and is not very interested whether it is present or not.

Questionable attributes (Q): This category represents the condition when it is unclear whether this attribute is expected by the customer or not. This situation occurs if there is a contradiction in the customers' answers to the paired questions. A questionable rating indicates incorrectly phrased question, misunderstanding of a question or an incorrect response.

Reverse attributes (R): This category represents that some of the respondents' satisfaction decreases with the existence of this requirement but they also expect the reverse of it.

Also, Kano categorize the customer satisfaction through the evaluation table based on the combination of customer responses to both questions (functional and dysfunctional question). Table 1 shows how to determine the Kano category for a customer requirement according to responses in the Kano questionnaire.

To measure a user satisfaction level index which is for "better" as the vertical axis while "worse" as the horizontal axis and distinguished the attributes of quality characteristic through the matrix graphics, Berger *et al.* (1993) proposed the equation below on how to calculate value of customer satisfaction and dissatisfaction.

Table 1: Kano's attributes evaluation

	Dysfunctional				
Functional	Like	Must-be	Neutral	Live with	Dislike
Like	Q	A	A	A	O
Must-be	R	I	I	I	M
Neutral	R	I	I	I	M
Live with	R	I	I	I	M
Dislike	R	R	R	R	Q

A = Attractive; M = Must-be; R = Reverse; O = One-dimensional; I = Indifferent; Q = Questionable

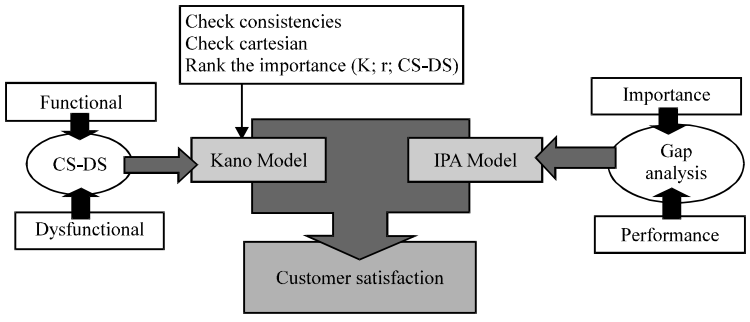


Fig. 1: Customer satisfaction model

$$\text{Satisfaction index based on CS} = \frac{(A+O)}{(A+M+O+I)}$$

$$\text{Dissatisfaction index based on DS} = -\frac{(M+O)}{(A+M+O+I)}$$

They classified the Customer Satisfaction Index (CSI) based on the rate of CS (satisfied customers) if the attribute is present and DS (dissatisfied customers) if the attribute is absent or insufficient. The quality attribute is classified as 'A' (Attractive) if CS>0.5 and DS<0.5; 'M' (Must-be) if DS≥0.5 and CS≤'O' (One-dimensional) if CS>0.5 and DS>0.5 and Indifferent (I) or Neutral if CS<0.5 and DS<0.5. The improvement ratio is m = max (|CS|,|DS|) where the Kano category are found through CS-DS plot (Tontini, 2007).

Based on the classification of Kano's category at each customer requirement, it can be concluded that customer requirement determined in Must-be category must be given attention to further analysis in improvement service of quality in courier service. This is referring to that decision making M>O>A>I (Berger *et al*., 1993; Matzler *et al*., 1996).

Xu *et al*. (2007) proposed the importance index where $\bar{x}_i$ is the average levels of dissatisfaction for the dysfunction and $\bar{y}_i$ is the average levels of satisfaction for the functional attributes of quality. Due to the value pair $(\bar{x}_i, \bar{y}_i)$ can be plotted in a two dimensional diagram, therefore, the characteristics of a functional requirement (f_i) can be represented as a vector where:

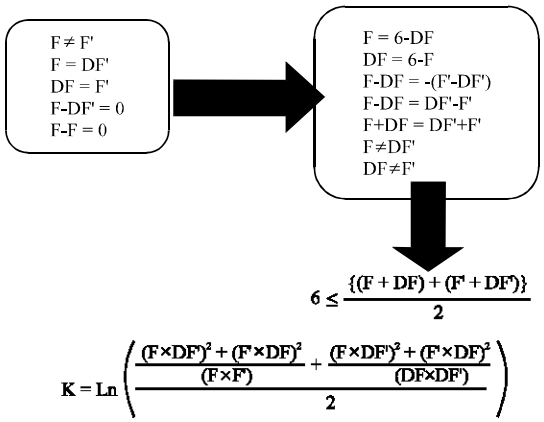
$$r_i = \left|\bar{r}_i\right| = \sqrt{\bar{x}_i^2 + \bar{y}_i^2}$$

The length of $\bar{r}_i$ is called as importance index based on as follows:

$$\bar{x}_i = \frac{\sum_{j=1}^{N_k} X_{ij}}{N_k}, \quad \bar{y}_i = \frac{\sum_{j=1}^{N_k} Y_{ij}}{N_k}$$

$$\alpha_i = \tanh \bar{X}_i / \bar{Y}_i$$

Since, the quality attributes represented into a graph is an asymmetric and non-linear, K formula of Kano Manipulating Graph (KMG) (Sihombing *et al*., 2012) to approach the quality attributes values as follows:



MATERIALS AND METHODS

Table 2 shows the attributes of service delivered by the post office and courier service provider. By using SERVQUAL criteria for the analysis conducted towards 25 factors of service quality provided by post office and courier services in Melaka, the target of this study is to investigate how the service quality given, response and feedback from the customers and what the system running in their business. The survey is conducted through observation and questionnaires towards 138 respondents as a direct customer of the post office and courier service provider while the data collected were then analyzed and interpreted by using SPSS software. In order to know the difference between services given by the provider as the experience of the customer towards performance of provider related to

Table 2: Attributes of service

Attributes	Service criteria
Tangibles	Online services
	The latest equipment
	Easily accessible areas
	Facility
	Suitable appearance
	Transportation vehicles
Reliability	Systems/procedures delivery
	Fulfilling promise
	Time scale
	Right every time
	The assurance on product
Responsiveness	Compensation
	Feedback on complaints
	Offenses against zero
	Polite and friendly attitude
	Peak-time services
Assurance	Skilled/knowledgeable
	Service charge
	Confident and believe
	Latest information
Empathy	The individual attention
	Business hours
	Identification requirements
	Communication
	Understanding feelings

service provided, the gap analysis was used to find out the importance of service given related to customer expectation. In this study:

- The correlation of Kano criteria results related to customers satisfaction towards the importance and performance of service delivered to customer will depict as follows:
  - How satisfied the customer towards the company performance of their service given?
  - What priorities are required by the provider related to the importance of customer's view in order to improve the service given?
- The characteristics of service delivered to customer based on functional and dysfunctional criteria towards the importance and performance of service delivered will depict as follows:
  - What are the elements of functional that customer's view as the importance of service delivered to them?
  - What are the elements of dysfunctional that customer's view as not important to them and how the performance of service are delivered to them?

Data analysis includes the identification of Kano Model attributes and IPA matrix. To achieve customer satisfaction, the analysis is carried out through service quality provided for the customers related to Kano Model and importance-performance attributes against customer satisfaction (Fig. 1).

The consistencies and Cartesian assessment as follows:

- Attractive [A] $^{TM}F_i = \{i \div i \times P, i = 1\} \leftrightarrow DF_j = \{j \div j \times P, 1<j<4\}$
- Must-be [M] $^{TM}F_i = \{i \div i \times P, 1<i<5\} \leftrightarrow DF_j = \{j \div j \times P, j = 5\}$
- One dimensional [O] $^{TM}F_i = \{I \div i \times P, i = 1\} \leftrightarrow DF_j = \{j \div j \times P, j = 5\}$
- Indifferent [I] $^{TM}F_i = \{i \div i \times P, 1<i<5\} \leftrightarrow DF_j = \{j \div j \times P, 1<i<5\}$
- Questionable [Q] $^{TM}F_i = \{i \div i \times P, i = 1\} \leftrightarrow DF_j = \{j \div j \times P, j = 1\} \times F_i = \{i \div i \times P, i = 5\}; Df_j = \{j \div j \times P, j = 5\}$
- Reverse [R] $^{TM}F_i = \{i \div i \times P, i>1\} \leftrightarrow DF_j = \{j \div j \times P, j= 1\} \times F_i = \{i \div i \times P, i = 5\} \times DF_j = \{j \div j \times P, j<5\}$

While to interpret Kano's attributes evaluation from the functional and dysfunctional value is as follows: $F_i = \{i \div i \times P, i = 5\}; Df_j = \{j \div j \times P, j = 5\}$; X= {A,M,O,I,Q,R} is:

I/j	1	2	3	4	5
1	1, 1	1, 2	1, 3	1, 4	1,5
2	2, 1	2, 2	2, 2	2, 4	2,5
3	3, 1	2, 3	2, 3	3, 4	3,5
4	4, 1	2, 4	2, 4	3, 5	4,5
5	5, 1	2, 5	2, 5	3, 5	5,5

If $i_{max = MAX} (\Sigma i_1, \Sigma i_2, \Sigma i_3, \Sigma i_4, \Sigma i_5)$ and if $j_{max = MAX} (\Sigma j_1, \Sigma j_2, \Sigma j_3, \Sigma j_4, \Sigma j_5)$. Therefore:

$$i_{max} \times j_{max} \equiv \sum (i, j)_{max} = \text{Cartesian (C)}$$

$$i_{max} \times j_{max} \equiv \sum (i, j)_{max} = \text{not Cartesian (C)}$$

$$\text{If Kano}_{max} = \sum A \cap \sum M \cap \sum O \cap \sum I \cap \sum R \cap \sum Q$$

Therefore:

$$\text{Kano}_{max} = \sum (i, j)_{max} = \text{Consistent (C)}$$

$$\text{If Kano}_{max} \neq \sum (i, j)_{max} = \text{Not consistent (N)}$$

$$\text{If Kano}_{max} = \sum (i, j)_{max} = \sum i_{max} \times \sum j_{max} = \text{Consistent (C) and Cartesian}$$

$$\text{If Kano}_{max} \neq \sum (i, j)_{max} \equiv \sum i_{max} \times \sum j_{max} = \text{Not consistent (N), however Cartesian}$$

$$\text{If Kano}_{max} = \sum (i, j)_{max} \equiv \sum i_{max} \times \sum j_{max} = \text{Consistent (C) but not Cartesian}$$

$$\text{If Kano}_{max} \neq \sum (i, j)_{max} \equiv \sum i_{max} \times \sum j_{max} = \text{Not Consistent (C) and not Cartesian}$$

RESULTS AND DISCUSSION

Table 3 shows the results of survey conducted based on Kano using functional and dysfunctional questions and IPA (Importance-Performance Analysis) approach.

Since, some of the data related to Kano quality attributes resulted from survey were different due to the 'inconsistencies' (N) and 'Not Cartesian' (N) based on maximum values, then some adjustments are required to make it consistent towards the graph. The 'Inconsistencies' and 'Not Cartesian' state of Kano results are K2, K3, K5, K7, K9, K12, K13, K17, K21, K22 and K24 (Table 3). This condition effect to K4, K8, K12 and K 15 (that all are "Must-be" attributes) in the wrong position (quadrant 3 that represents "One-dimensional")

Table 3: Kano and IPA survey results

No. of Kano	Customer requirement	Kano Model: Kano Consistencies (N/C)		Kano Cartesian (N/C)		CS-DS*	K	$\bar{\xi}$	Rank: CS-DS	Rank: K	Rank: $\bar{\xi}$	Importance Performance (IPA): I	P	Gap	Rank*
Tangibles															
K1	Online services	O	C	C	O	-0.04	4.10	4.80	24	1	20	4.01	3.84	0.17	3
K2	The latest equipment	I	N	C	M	-0.18	3.87	4.87	19	14	12	3.98	3.47	0.51	24
K3	Easily accessible areas	M	N	C	O	-0.25	4.07	4.90	15	3	8	3.94	3.57	0.37	18
K4	Facility	M	C	C	M/O	-0.27	3.95	4.86	12	9	15	4.07	3.71	0.36	17
K5	Suitable appearance	I	N	C	M	-0.26	3.85	4.74	13	17	23	4.04	3.65	0.38	19
K6	Transportation vehicles	M	C	C	M	-0.31	3.91	4.84	9	11	16	4.02	3.71	0.31	15
Reliability															
K7	Systems/procedures delivery	M	N	C	O	-0.19	4.09	4.87	18	2	13	4.02	3.74	0.28	11
K8	Fulfilling promise	M	C	C	M	-0.33	4.00	5.00	4	5	2	4.04	3.66	0.38	20
K9	Time scale	M	N	N	O	-0.28	4.00	5.00	10	6	4	4.08	3.68	0.40	22
K10	Right every time	M	C	C	M	-0.32	3.93	4.89	7	10	10	4.07	3.92	0.15	1
K11	The assurance on product	M	C	C	M	-0.39	3.96	4.98	1	8	3	4.14	3.71	0.43	23
Responsiveness															
K12	Compensation	M	N	N	O	-0.31	3.84	4.90	8	18	7	3.98	3.30	0.68	25
K13	Feedback on complaints	I	N	C	M	-0.34	3.78	4.93	2	21	5	3.91	3.51	0.39	21
K14	Offenses against zero	I	C	C	I/M	-0.03	3.46	3.97	25	25	25	4.11	3.84	0.27	8
K15	Polite and friendly attitude	M	C	C	M	-0.34	3.96	4.89	2	7	11	3.93	3.59	0.34	16
K16	Peak-time services	I	C	C	I/O	-0.16	3.76	4.81	21	23	19	3.79	3.52	0.27	8
Assurance															
K17	Skilled/knowledgeable	I	N	C	M	-0.25	3.85	4.91	14	16	6	3.97	3.72	0.25	7
K18	Service charge	M	C	C	M	-0.33	3.89	5.01	5	13	1	3.78	3.49	0.28	12
K19	Confident and trust	M	C	C	M	-0.32	3.89	4.84	6	12	17	3.92	3.72	0.20	5
K20	Latest information	M	C	C	M	-0.22	3.84	4.82	16	19	18	3.95	3.71	0.24	6
Empathy															
K21	The individual attention	I	N	N	O	-0.14	3.73	4.74	22	24	24	3.93	3.64	0.28	12
K22	Business hours	I	N	N	A/O	-0.16	3.83	4.76	20	20	21	3.93	3.75	0.19	4
K23	Identification requirements	I	C	C	I/A/O	-0.11	3.78	4.75	23	22	22	3.92	3.75	0.17	2
K24	Communication	M	N	C	O	-0.21	4.02	4.86	17	4	14	3.99	3.72	0.28	10
K25	Understanding feelings	M	C	C	M	-0.28	3.85	4.90	11	15	9	3.99	3.68	0.30	14

(Fig. 2). Based on the adjustment graph, since the position of K2 and K9 move to the new location, this is consistent to make the repositioning of K4, K8, K12 and K15 (Must-be) into quadrant 4. In addition for K3, K24 and K7 that are previously non-consistent and attributed with "Must-be" to become consistent in quadrant 3 (One-dimensional) and also K5, K13 and K17 that are "Indifferent" (Table 3) becoming consistent in quadrant 4 as "Must-be" attribute. The rest are K21 and K2 that previously attributed with "Indifferent" becoming consistent in quadrant 1. This is meant that the consistencies assessment will reposition the quality attributes of Kano data into the right quadrant while the Cartesian state is not.

Moreover by repositioning the quality attributes of Kano Model into a graph will requires a certain value of CS and DS as a center point that distinguish each data into 4 quadrants rather only using the average values of CS and DS (Fig. 2). Figure 3 and 4 show this justification when the graph use factors of K and/or (importance index).

In addition, Table 3 shows that the ranking between 'CS-DS' and 'Gap' is different (i.e., the rank no.1 of CS-DS is K11 while of Gap is K10, etc.). By assuming the values of CS- DS represent the importance of factors considered, the priorities should be given to the highest of negative values. This is also to the values of gap that represent the values of performance against importance. The priorities should be given first to the highest of negative values due to they are less than what of the customer expected. In order to improve the service given by company using IPA approach, Fig. 5 shows that K17, K19, K20, K22 and K23 in quadrant 4 (To be improved).

Since, K22 and K23 are "One-dimensional" attributes and K17, K19 and K20 are "Must-be" attributes, the approaches for improvement priorities required using Kano Model and IPA produce the different perspectives that somehow will potentially make confusing. Therefore, the justification is required by multiplying the values of the Performance (P) and/or the importance to values of CS and DS. Figure 6a and b show the graph of CS versus DS with value of the Performance (P) and the Importance (I). These graphs are similar to Fig. 2 where the allocated position of each quality attributes data based on the quadrant represent Kano quality attributes.

By assuming that the Performance (P)~CS+DS and the Importance (I)~CS-DS, we can generate the values of the performance is as:

$$P = \sum P_i \sqrt{(CS_i + DS_i)^2}$$

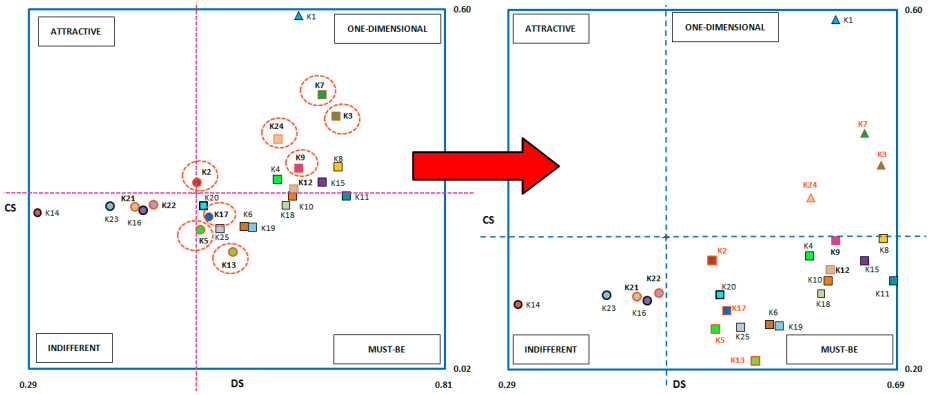


Fig. 2: Kano graph

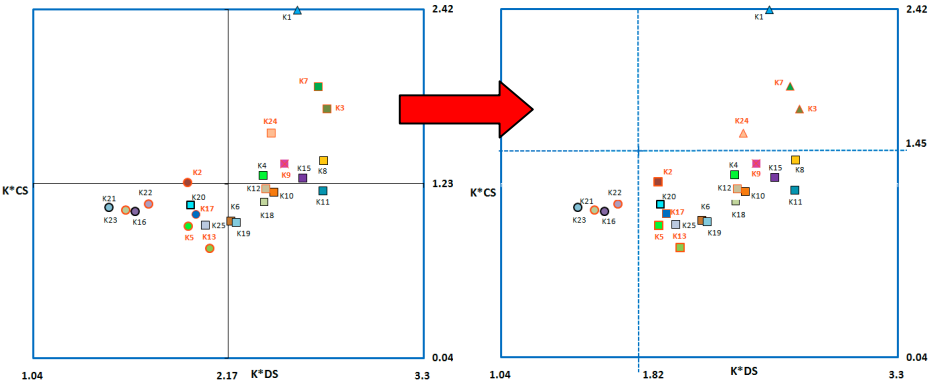


Fig. 3: Repositioning the quality attributes data based on attributes location (Quadrant) using K values

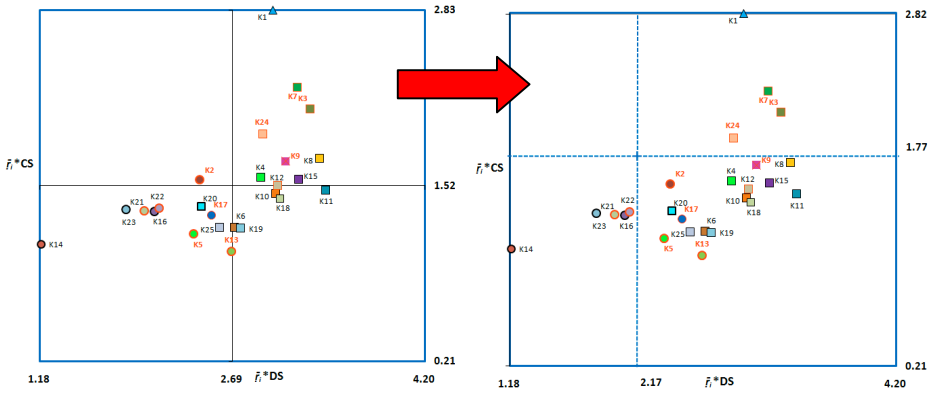


Fig. 4: Repositioning the quality attributes data based on attributes location (Quadrant) using $\bar{f}_i$ values

while for the importance is as:

$$I = \sum I_i \sqrt{(CS_i - DS_i)^2}$$

Figure 7 shows the graph of performance versus importance based on CS and DS. In the quadrant 4 (To be Improved), we can see that all of the quality attributes data (K5, K6, K13, K17, K18, K19 and K25) are "Must-be". Based on this finding by comparing with the results in Fig. 2 (quadrant 4; 'To be improved'), we can conclude that K17 (Skilled/knowledgeable) and K19 (Confident and trust) are the factors in services for courier service industry that need to be focused for improvement required as the priorities by a company.

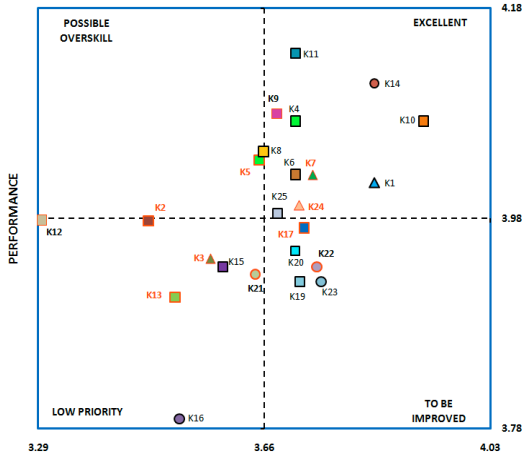


Fig. 5: Importance vs. Performance (IPA) graph

Fig. 7: Importance vs. Performance (IPA) graph with CS and DS manipulation values

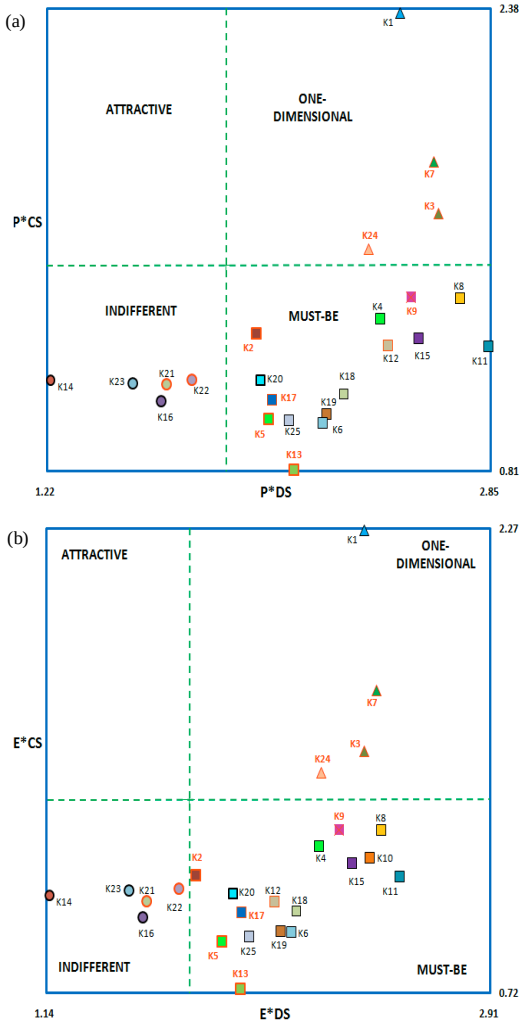


Fig. 6: a) Kano graph with the Performance (P) values; b) Kano graph with the Importance (I) values

CONCLUSION

This study shows that the factors of 'skilled/ knowledgeable' of workers (K17) and 'confident and trust' (K19) are as the improvement priorities by a courier service company to satisfy their customers. These factors are the part of assurance in the SERVQUAL Method.

The function of Kano Model that articulated the customer requirements and the approach of IPA Method are limited to detail what the factors of services that should be taken priorities for improvement. In this study, both approaches when it is used to rank the factors for the priority improvement required (between CS-DS and Gap of the performance to importance) are not in the same values. This condition will make the difficulties to decide which of the factors that should be given priorities. Therefore, this study proposed the combination of Kano Model with IPA Method to find the priority factors required for improvement.

In addition, this study also proposed the adjustment required towards Kano quality attributes related to the graph based on consistencies and Cartesian. By considering the consistencies and Cartesian state of quality attributes data based on Kano Model, the graph will depict of each factor in the right position based on 4 quadrants of Kano quality attributes. Also by combining the Kano Model with IPA Method will give more clearly information that are useful for decision making rather than not.

Since, this study conducted is limited on a case of measuring the services delivered by the company using SERVQUAL towards customer satisfaction, the further investigation of the combination between Kano Model and IPA approach as a measurement model is, however, required towards the others method of customer satisfaction.

REFERENCES

Akbar, M.M. and N. Parvez, 2009. Impact of service quality, trust and customer satisfaction on customer loyalty. ABAC J., 29: 24-38.

Arbore, A. and B. Busacca, 2011. Rejuvenating importance-performance analysis. J. Serv. Manage., 22: 409-429.

Berger, C., R. Blauth, D. Boger, C. Bolster and G. Burchill *et al*., 1993. Kano's methods for understanding customer-defined quality. Center Qual. Manage. J., 2: 3-35.

Boone, L.E. and D.L. Kurtz, 1998. Contemporary Marketing: Wired. 9th Edn., Dryden Press, Orlando, FL., ISBN-13: 9780030185977, Pages: 742.

CSSP., 2007. Customer satisfaction: Improving quality and access to services and supports in vulnerable neighbourhood: What the research tells us. Center for the Study of Social Policy, February 2007, pp: 1-35.

Cengiz, E., 2010. Measuring customer satisfaction: Must or not? J. Naval Sci. Eng., 6: 76-88.

Chan, F.T.S., H.K. Chan, H.C.W. Lau and R.W.L. Ip, 2006. An AHP approach in benchmarking logistics performance of the postal industry. Benchmarking: Int. J., 13: 636-661.

Collier, A., 1994. Critical Realism: An Introduction to Roy Bhaskar's Philosophy. Verso, New York, USA., ISBN-13: 978-0860916024, Pages: 292.

Farner, S., F. Luthans and S.M. Sommer, 2001. An empirical assessment of internal customer service. Manag. Serv. Qual., 11: 350-358.

Gianesi, I.G.N. and H.L. Correa, 1994. Strategic Management of Services: Operations to Customer Satisfaction. Atlas Group, London, UK.

Gronroos, C., 1988. A Service Quality: The Six Criteria of Good Service Quality. St. John's University Press, New York, USA.

Gronroos, C., 1993. Marketing, Management and Services, Competition for Services in the Moment of Truth. Campus, Rio de Janeiro, Brazil.

Hsu, C. and L.P. Cai, 2009. Brand knowledge, trust and loyalty: A conceptual model of destination branding. International CHRIE Conference-Referee Track, Paper No. 12, University of Massachusetts, Massachusetts, USA., July 2009, pp: 1-8.

Kandampully, J. and R. Duddy, 1999. Competitive advantage through anticipation, innovation and relationships. Manage. Decis., 37: 51-56.

Kano, N., N. Seraku, F. Takahashi and S. Tsuji, 1984. Attractive quality and must-be quality. J. Jap. Soc. Qual. Control, 14: 39-48.

Kotler, P., 2003. Marketing Management. 11th Edn., Prentice Hall, New Jersey, USA., ISBN-13: 9780130336293, Pages: 738.

Liewehr, S. and M. Laplante, 2011. Global digital engagement: Leveraging opportunities to increase impact and reduce complexity. White Paper, Outsell's Gilbane Services, Providence, RI., USA., April 2011, pp: 1-18.

Lymperopoulos, C., I.E. Chaniotakis and M. Soureli, 2006. The importance of service quality in bank selection for mortgage loans. Manag. Serv. Qual., 16: 365-379.

MCMC., 2008. Industry performance report (2007). Malaysian Communications and Multimedia Commission, Collaboration Towards Enhancing National Competitiveness, Suruhanjaya Komunikasi dan, Multimedia Malaysia, Malaysia.

Matzler, K., H.H. Hinterhuber, F. Bailon and E. Sauerwein, 1996. How to delight your customers. J. Prod. Brand Manage., 5: 6-18.

Parasuraman, A., V.A. Zeithaml and L.L. Berry, 1985. A conceptual model of service quality and its implications for future research. J. Market., 49: 41-50.

Shiba, S., A. Graham and D. Walden, 1997. TQM: Four Revolutions in Quality Management. 1st Edn., Bookman, New York, USA.

Sihombing, H., M.Y. Yuhazri, S.H. Yahaya, M.Z.A. Yuzrina and A.A.Z. Azniza, 2012. Revisited the Importance and Performance Analysis (IPA) and Kano model for customer satisfaction measurement. Global Eng. Technol. Rev., 2: 40-57.

Sokol, D.D., 2003. Express delivery and the postal sector in the context of public sector anti-competitive practices. Northwestern J. Int. Law and Bus., 23: 353-382.

Tontini, G., 2007. Integrating the Kano model and QFD for designing new products. Total Qual. Manage. Bus. Excellence, 18: 599-612.

WTO., 2010. Postal and courier services. Report No. S/C/W/319, World Trade Organization, Council for Trade in Services, August 2010.

Xu, Q.L., R.J. Jiao, X. Yang, M.G. Helander, H.M. Khalid and O. Anders, 2007. Customer requirement analysis based on an analytical kano model. Proceedings of the IEEE International Conference on Industrial Engineering and Engineering Management, December 2-4, 2007, Singapore, pp: 1287-1291.

Yuksel, A. and M. Rimmington, 1998. Customer-satisfaction measurement. Cornell Hotel Restaurant Admin. Q., 39: 60-70.

Zeithaml, V.A., L.L. Berry and A. Parasuraman, 1990. Delivering Quality Service: Balancing Customer Perceptions and Expectations. The Free Press, New York, USA., ISBN-13: 9780029357019, Pages: 226.