Expedition Service Product Development Strategy with Quality Function Deployment Method

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ARTICLE INFORMATION

ABSTRACT

This study assesses the quality of Express Post service provided by PT Pos Indonesia with Quality Function Deployment Method (QFD). Approximately 90 customers of Express Post in Boyolali were selected through systematic sampling to gather their opinions. In the meantime, PT Pos Indonesia's Jakarta Central Office's Research and Development Department is involved to collect technical responses or activites. This study has identified 12 attributes of Express Post that require improvement. To solve the problems related to those attributes, this study has identified training on Express Post service standard operating procedure for new employees as the priority activity to be undertaken by PT Pos Indonesia since it has the most significant influence on the quality of Express Post. In addition, the study also suggests two other technical responses to be taken into consideration including ensuring service cut of time of and ensuring delivery reception not disrupting the service cut off time.

1. Introduction

The development of business which is increasingly dynamic with a high level of uncertainty forces a company to make quality improvements in order to survive competitions (Kosasih et al., 2013). Innovation processes by changing, adding, and reformulating some of the main characteristics of products and services which constitute product and service development is the key to the success of a business (Rini, 2013). One of the processes in product and service development and improvement is capturing the voice of consumers. This method is considered capable of strengthening business success (Yunsepa, 2017).

PT Pos Indonesia is the first courier service company in Indonesia which has an extensive network throughout Indonesia. Along with its development, many other shipping services have sprung up to compete with it. Compared to the postal service products of other postal companies, PT Pos Indonesia's service products are still below its competitors (Annisa & Utama, 2016; Singgih & Ardhiyani, 2010). This requires PT Pos Indonesia to innovate to develop its services in order to survive in the competition of expedition business.

Express Post is one of PT Pos Indonesia's superior delivery services for documents and goods. The coverage of this service has reached various provinces in Indonesia. Track and trace facilities accessible online for 24 hours add to the excellence of this service. In 2012, the Express Post service was the highest demanded service compared to other PT Pos Indonesia's services (Aziz, 2012). During 2017, the dynamics of expedition using Express Post, both for goods and documents, compared to other PT Pos Indonesia's products is shown in Figure 1.

The Express Post documents has higher trend compared to other service products from PT Pos Indonesia. However, the number of provided Express Post services for goods is the smallest among other services. Products can be less attractive to consumers because of many factors, one of which is customer satisfaction. Satisfaction is defined as consumers' feelings resulted from differences between expectations and goods or services performance that are felt in response to the goods and services they have consumed (Imawan, 2009). Customer satisfaction will be achieved if goods or services performance meets and even exceeds consumer expectations.
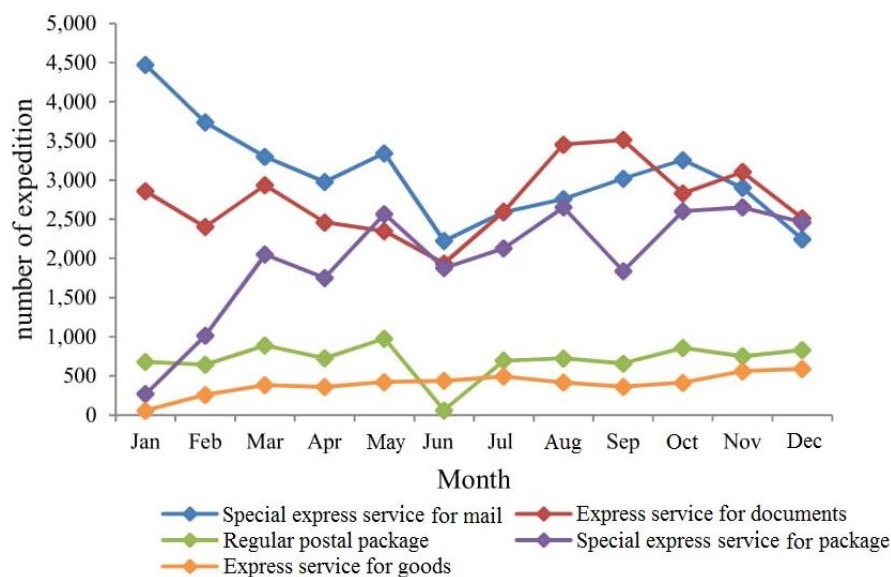
Figure 1. Number of expeditions in PT Pos Indonesia in 2017

As in the process of improving service quality by looking at the gap between expectations and reality in the concept of service quality (Mastrogiacomo, 2018), consumers are the starting point in the product development process with QFD (Yustian, 2015). The voices of consumers are captured in order to improve the quality of their services and service products that will provide satisfaction to customers (Dsouza et al., 2018; Lumenta et al., 2014). Satisfaction with PT Pos Indonesia's services will affect customers' loyalty (Hadiyati, 2010).

Previous research on the services of PT Pos Indonesia have been conducted. Wahyuningsih (2013) only used the Servqual variable to identify customer satisfaction at PT Pos Indonesia in Bandung city. The use of Servqual alone only captures customers' expectations and needs that have not been fulfilled by a company in its technical resolution. Meanwhile, Suwandi et al. (2015) and Dimyati & Subagio (2016) identify that service quality and price variables affect satisfaction which in turn also affects loyal Express Post customers. Meanwhile, Putra & Yulianto (2015) conducted research on the effects of the marketing mix, including price, on the decision to use PT Pos Indonesia's services. Previously, Singgih and Ardhiyani (2010) had used QFD combined with Servqual and KANO variables to compare the service performance of PT Pos Indonesia and CV Titipan Kilat. By combining Servqual, QFD, and Kano, a diagram on consumer expectations and how to realize them can be established.

Several studies suggested that there are several attributes to PT Pos Indonesia that must be addressed. Wahyuningsih (2019) conducted a study to identify strategies for increasing the PT Pos' network in increasing productivity to be able able to compete with other postal services. Apart from the network factor, zip code inclusion on mails sent by customers also contributes to the accuracy of mail delivery to the intended addresses. About 60 percent of PT Pos Indonesia's customers who were involved in Wahyuningsih and Suryanto's (2011) research said that the inclusion of zip code in a mail is not important. While in fact, zip code inclusion is significantly necessary because it can help accelerate the sorting of outgoing mails. If any error occurs in the sorting process, a mail may not be delivered to the correct address. In addition, provision of information services is also very important to provide customers easy access to services and products of PT Pos Indonesia. A study from Aziz (2012) revealed that high demand from users are received for services applying information technology because of faster process and convenience in tracing goods sent. However, such services are offered at expensive prices. This became obstacle for people who do not have sufficient purchasing power to access such services.

In this research, QFD method is used to identify Express Post customers' needs and expectations in order to improve PT Pos Indonesia' performance as well as to attract more customer. This method is chosen because QFD is able to improve product quality based on the voice of the consumer and describe

the voice of the consumer in technical terms for real actions. In addition, the QFD method can be used by companies to reduce design costs, improve communication, increase productivity and company profits (Trenggonowati, 2017). In the case of PT Pos Indonesia, even though at the end of 2017 the Express Post had higher trend than Special Kilat service, PT Pos Indonesia considered that the Express Post has not reached its optimum potential. Therefore, PT Pos Indonesia made efforts to make improvements. This study will provide an analysis of which the results are expected to be able to contribute to improvements made to the Express Post. The method to be applied is Quality Function Deployment (QFD) method.

2. Literature Review

2.1. Product Development

Product development is a planned and conscious effort made by companies to improve existing products or to increase the variety of produced and marketed products (Ato'Illah, 2015). Product development is not only about improving existing products, but also creating new, similar products in the market with different styles and packaging.

Yustian (2015) added that product development can be in the form of improvements to existing products or creation of new products to be processed and marketed with changes that occur in the current market. In developing products desired by consumers, companies must first consider customer satisfaction, so that the products developed can be accepted in the market by consumers.

2.2. Product Development within Quality Function Deployment (QFD) Framework

QFD is a structured method used in product planning and development processes to determine specifications for consumer needs and desires, as well as systematically evaluate the capabilities of a product or service in meeting consumer needs and desires (Cohen, 1995). Similarly, Yustian (2015) stated that the starting point of QFD is the customer desires and needs. QFD is called the voice of the customer, so that the working mechanism of QFD is to hear the voice of the customer. By listening to what consumers desire, companies will be able to customize product development. The main focus of QFD is to involve customers in the product development process as early as possible (Tutuhatunewa, 2010).

According to Cohen (1995), QFD is implemented in several phases, namely the voice of customer (VOC) collection phase, the house of quality (HOQ) building phase, and the design phase, and product development. All activities in each phase can be carried out as a project implementation,

QFD method involves compiling one or more matrices called HOQ matrix. This matrix describes what customer needs and expectations are and how to meet them. This matrix consists of several parts or sub-matrices that are combined in several ways, each of which contains related information.

2.3. QFD Implementation in delivery service products

QFD is generally applied to goods to design various products such as cameras (Lin et al., 2004), softwares (Barnett & Raja, 1995), and mineral water (Moldovan, 2014). Furthermore, QFD is also applied to the case of development and improvement in service industries such as hotels (Wu et al., 2018) and education (Hwarng & Teo, 2001).

Chuang (2002) used QFD to determine goods distribution locations. Ding (2009) has successfully applied QFD to identify problems in the shipping system at the port of Kaohsiung, Taiwan, with the help of customers' suggestions, he was able to solve the problem at the port. The results of the research by Shahin and Nikneshan (2008) which used the concept of customer relationship management in QFD found that the main problem in the delivery of goods lies in the quality of human resources. Meanwhile Lam and Lai (2014) used QFD to develop sustainable shipping. It was the concept of customer-based sustainability that he explored in order to satisfy them.

3. Research Method

This study aims to find out which quality attributes of PT Pos Indonesia's Express Post that needs to be addressed to improve the quality of Express Post in order to attract more consumers. The framework to solve the study question is the Quality Function Deployement (QFD) method and the QFD flow chart which is shown in Figure 2.

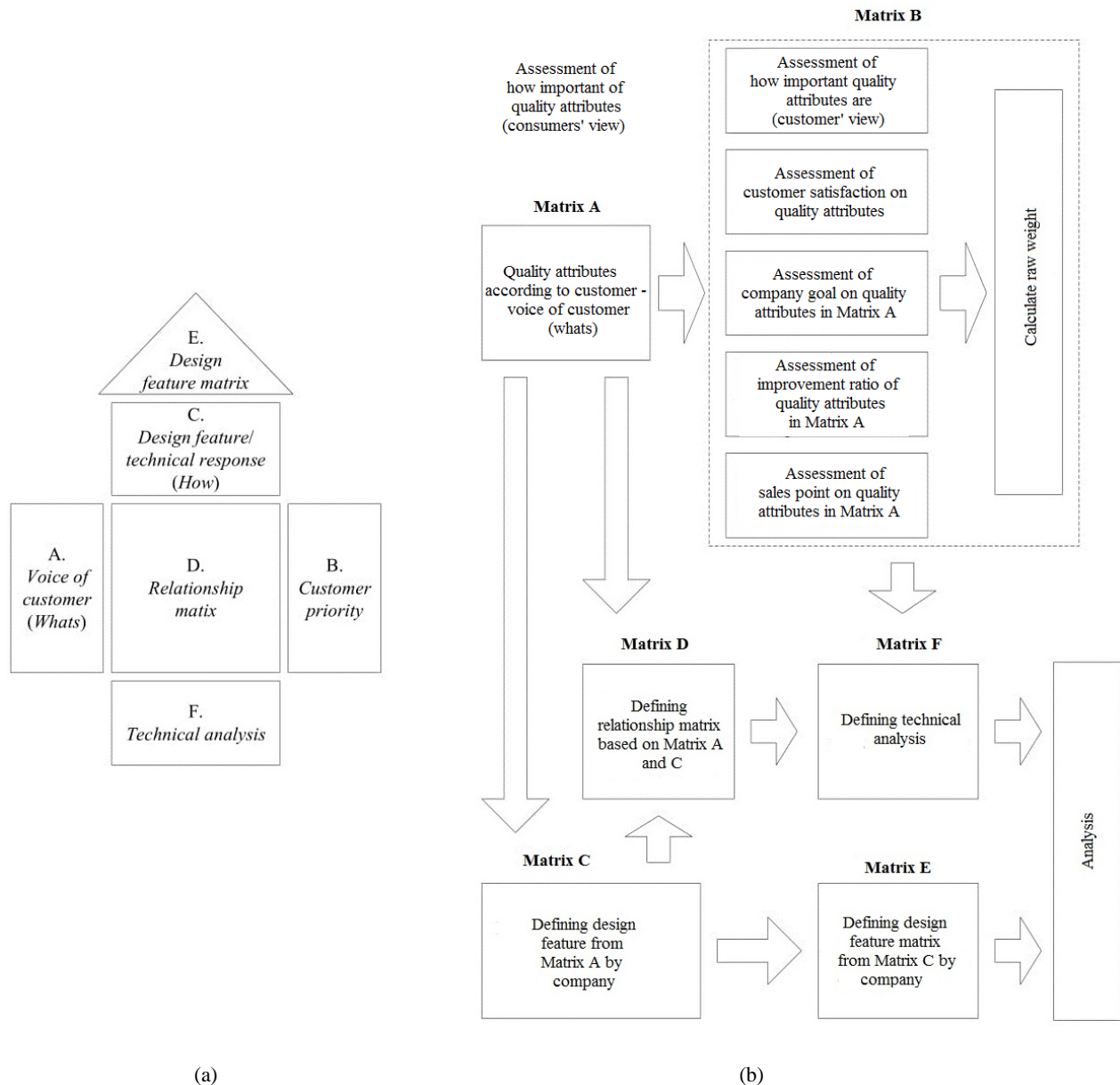(a)   (b)

Figure 2. (a) QFD House of Quality (b) explanation of QFD framework in this study

In implementing QFD, data of voice of consumers (A) and data of PT Pos Indonesia's development team opinion (C, D, and E) are required. Data of voice of consumers (A) is taken at PT Pos Indonesia Boyolali Branch. There are two types of data of voice of consumers, namely data of quality attribute or what the voice of consumers are (what) and data of consumer assessment on these attributes. To gather information on the quality attributes (what), 15 Express Post consumers were interviewed. The list of attributes is included in Matrix A. Meanwhile, to assess the quality and how important the attributes (what) is, a sample of Express Post consumers coming to PT Pos Indonesia Boyolali Branch is taken. The attribute quality data is entered into matrix B in the customer satisfaction performance (CSP) column. Data of the importance to customers attributes are also included in the matrix B, in the important to customer

(IC) column. Both are measured using a Likert scale of 1 to 5. The IC scales range from 1 which means very insignificant up to 5 which means very important. Meanwhile, CSP scales range from 1 which means very dissatisfied up to 5 which means very satisfied. This scale is subjective and vague. Therefore, fuzzy logic theory is applied to find CI and CSP measurements closest to the truth. The combination of fuzzy logic theory in QFD follows Ramasamy dan Selladurai (2004).

This study appies the triangular fuzzy number (TFN). Where TFN Ã is Ã = (l, m, u) where l ≤ m ≤ u membership function is presented in equation (1).

$$\mu_{\tilde{A}}(x) = \begin{cases} \dfrac{x - l}{m - l} & l \le x \le m \\ \dfrac{u - x}{u - m} & m \le x \le u \\ 0 & \text{others} \end{cases} \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 1)$$

Subject of this study is Express Post customers, so that the population of the study is all Express Post customers. The number of populations of Express Post customers is unknown. Samples are taken at Boyolali Branch office of Pos Indonesia. Sampling is taken with the systematic sampling method, in which samples are taken based on a time span or sequence range. This type of sampling is chosen to increase the randomness of the data. In this study, the interval for the systematic sampling is time intervals, more specifically every one hour. Thus, respondents coming at a predetermined hour are chosen as the sources for the study. The sampling period is two weeks, from 15 January 2018 to 26 January 2018.

To determine the number of samples to be taken, the study alpplies the Bernoulli concept which follows equation (2).

$$n = \frac{(Z_{\alpha/2})2. p. q}{e^2} \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 2)$$

n in Equation 2 is the minimum number of samples that must be taken, *Z* is the normal distribution value, α is the level of significance which in this study uses a value of 0.05, *p* is the proportion of the number of questionnaires answered correctly, $q = 1 - p$ is the proportion of the number of questionnaires answered incorrectly, and *e* is error tolerance.

For the first stage of the study, questionnaires are distributed to 32 respondents. Two of these questionnaires are not filled in correctly. By using α = 0.05, the number of samples taken in this study is a minimum of 88 respondents. This study gains 90 respondents who are willing to be involved. Therefore, the required minimum sample is fulfilled.

In addition to data on customers, data on the voice of PT Pos Indonesia's development team at the Jakarta Head Office were also entered into Matrix C. From the development team, the goal (G) or the value of the possible goals that can be achieved by the company and sales points (SP) for the quality attributes voiced by consumers are found. The goal value uses a Likert scale of 1 to 5, where 1 means the target achievement is low and not optimistic, while 5 means the target achievement is high and it is highly possible to be achieved. Meanwhile, the sales point value is in accordance with the provisions of Cohen (1995), namely 1.0; 1.2; and 1.5, which means no sales points, medium sales points, and high sales points respectively. Meanwhile, improvement ratio (IR) and raw weight (RW) are found using the equation (3) and (4).

$$IR = \frac{G}{CSP} \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 3)$$

$$RW = IC \times \frac{G}{CSP} \times SP \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 4)$$

where

IR	:	*improvement ratio* is the possible increase in value
G	:	*goal* the optimum goal value of the company that may be achieved
RW	:	*raw weight* the weight of each attribute in each row
IC	:	*important to customer* is a customer's assessment of how important an attribute is
CSP	:	*customer satisfaction performance* the performance of customer satisfaction for each attribute
SP	:	*sales point* the company's assessment of the selling power of an attribute

Then the raw weight value is normalized to make it easier to see the assessment ranking using the equation (5).

$$\text{Normalized } RW = \frac{RW_i}{\sum_{i=1}^{m} RW_i} \quad \text{……………………………………………………………………5)}$$

m is the number of attributes obtained from the voice of the consumer.

To create a House of Quality (HOQ), a technical response matrix, relationship matrix, and technical correlation are needed. The relationship matrix which measures the relationship between voice of customer (VOC) and the technical response uses the numbers of 0, which means there is no relationship; 1, which means a weak relationship; 3, which means a moderate relationship; and 9, which means strong relationship. In HOQ, 1, 3, and 9 are denoted by the signs Δ, ○, and ●. While the HOQ technical correlation is the roof symbolized by symbols and relationship direction sign as shown in Table 1. Technical correlation as a design feature (Matrix E) in QFD functions to identify the relationship between technical responses (Matrix C). If an activity is considered important to be carried out, it is necessary to see if it is related with other activities.

The right arrow sign for technical solution x and y means technical solution x affects technical solution y. Conversely, left arrow sign means that technical solution y affects the technical solution x.

Table 1. signs for technical correlation

Sign	relationship
$\overrightarrow{vv}$	Strong positive correlation
$\vec{v}$	Positive correlation
Blank	No connection
$\overleftarrow{vv}$	Strong negative correlation
$\overleftarrow{v}$	Negative correlation

4. Results and Discussion

The 90 respondents who are willing to be involved in this study have an age distribution as shown in Figure 3. In this study, most of the respondents were consumers aged between 19 and 25 years. About 60% of the respondents are female.

The first stage of the study is defining which attributes need improvement. Thus, data is taken from 15 respondents as input for matrix A resulting in 12 quality attributes desired to be improved. The twelve attributes are shown in Table 2 which can be grouped into four Service Quality variables (Fauziah et al., 2019), namely reliability, responsiveness, assurance, and empathy. First, consumers expect improvements in employees' reliability variable including delivery speed, delivery accuracy, delivery time certainty, and speed of packing of goods to be shipped, for these variables affect delivery time. Second, empathy variable

such as attributes of friendliness, politeness, and patience shown by employees to consumers. Third, the attributes that are included in the assurance variable such as product information and its facilities. Fourth, the attribute of the ease of contacting the company (PT Pos Indonesia) when making a complaint is a responsiveness variable. In this study, the respondents do not mention the attributes of tangible variables desired and expected to be improved.
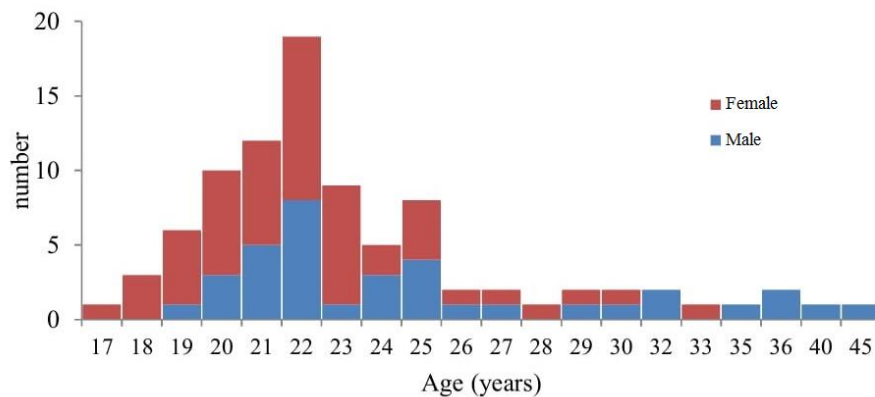

Figure 3. distribution of consumer respondent

Table 2 shows that there are three attributes that have greater CSP values than IC. The three attributes are delivery time certainty, guaranteed security in delivery, and low packing prices. This means that respondent feels service satisfaction with the three attributes having greater values.

For nine other attributes, the average IC value is greater than the CSP. This means that customers dissatisfaction is more dominant than their satisfaction. Of the nine attributes to which respondents expressed their dissatisfaction, three attributes having the smallest CSP were availability of product facility information, inexpensive packing prices, and speed of packing of goods. However, respondents scores not so high IC values on these attributes. In fact, packing goods has the lowest level of importance (IC) among the twelve attributes. There is also no significant difference between ICs and CSPs of the three attributes.

Table 2. Voice of Customers (VOC) in Matrix A, important to customer (IC) and customer satisfaction performance (CSP) in Matrix B, and T-test

Code	Quality attribute (VOC)	average			T-test
		IC	CSP	Gap	t (p-value)
x_1	Friendliness of employees to consumers	4.11	3.93	-0.18	2.510 (0.014)
x_2	Courtesy of employees to consumers	4.09	4.02	-0.07	0.945 (0.347)
x_3	Patience of employees in serving	4.03	3.90	-0.13	1.917 (0.058)
x_4	Delivery speed	4.14	3.77	-0.37	4.355 (0.000)
x_5	Delivery accuracy	4.10	3.76	-0.34	3.632 (0.000)
x_6	Certainty of delivery time	3.97	4.16	0.19	-3.109 (0.003)
x_7	Availability of information on product facilities	3.77	3.66	-0.11	1.379 (0.171)
x_8	Security assurance in delivery	3.81	3.87	0.06	-0.731(0.467)
x_9	Affordable shipping prices	4.10	3.70	-0.40	5.079 (0.000)
x_{10}	Inexpensive packing prices	3.66	3.68	0.02	-0.289 (0.773)
x_{11}	Speed of packing of goods	3.76	3.72	-0.04	0.516 (0.607)
x_{12}	Ease of contacting PT Pos Indonesia for complaints	3.95	3.89	-0.06	0.548 (0.585)

Instead of focusing on attributes with highest customer dissatisfaction (the smallest CSP), this study focuses on the attributes having the most significant difference between their ICs and CSPs as considerations for decision making in development. Attributes that are considered to have poor performance (low CSP) yet are considered very important attributes (high IC) are the very attributes that must be considered for improvement by the development team. By using the t-test, a significant difference

can be identified between IC and CSP of the five attributes. The five attributes are employee friendliness, delivery speed, on time delivery, certainty in delivery time and affordable prices. In the process of product improvement and development, these five attributes must be taken into account by the product development team.

The following step is to obtain Goal and SP scores from the Express Post development team. This is done by calculating IR and RW using equations (1) and (2). The results of the assessment from the development team are shown in Table 3. The table shows that there is only one attribute that has a goal value of 3, namely the speed of packing goods to be sent. A fairly low score is given considering challenges which are remained faced in packing process. Moreover, the sales point value of this attribute is only 1. It is different from the speed, accuracy and certainty of delivery time with high sales points. In these three attributes, goal setting must be optimal because it determines sales. However, in terms of speed of delivery on the Express Post service, PT Pos Indonesia did not provide optimal goals. This means, PT Pos Indonesia realizes that they are still facing challenges in achieving targets on this attribute so that they do not give optimal score for the optimism for its achievement.

Table 3. Goal and sales point

Code	Consumer desire and need attribute (VOC)	Goal	Sales point
x_1	Friendliness of employees to consumers	5	1.5
x_2	Courtesy of employees to consumers	5	1.5
x_3	Patience of employees in serving	5	1.2
x_4	Delivery speed	4	1.5
x_5	Delivery accuracy	5	1.5
x_6	Certainty of delivery time	5	1.5
x_7	Availability of information on product facilities	5	1.2
x_8	Security assurance in delivery	5	1.2
x_9	Affordable shipping prices	4	1.2
x_{10}	inexpensive packing prices	4	1
x_{11}	Speed of packing of goods	3	1
x_{12}	Ease of contacting PT Pos Indonesia for complaints	5	1.5

Table 4. Technical response from development team

Consumer desire and need attribute (what)	Technical response (how)
Friendliness of employees to consumers (V1) Courtesy of employees to consumers (V2) Patience of employees in serving (V3)	• Daily/weekly performance evaluation (T1) • Training on service SOPs held quarterly & for new employees (T2) • Selective in officer recruitment (T3) • Imposing rewards and punishments, a competition assessment system among front liner employees (T4)
Delivery speed (V4) Delivery accuracy (V5) Security assurance in delivery (V6)	• Dissemination of service processing methods (T5) • Providing certainty in the transportation system and cut-of time service (T6) • Counter clerk understanding on zip code (T7) • Dissemination of information to officers to double-check zip codes of the destination of the shipment (T8) • Ensuring receipt of shipments to not violate the service cut of time (T9)
Availability of information on product facilities (V7)	• Giving dissemination on *product knowledge* (T10) • Providing product introduction through social media (T11)
Security assurance in delivery (V8)	• Dissemination of information on product packaging and product packaging standards (T12)
Affordable shipping prices (V9)	• Calculation of processing costs (T13) • Efficiency & effectiveness of each line (to reduce the burden on the company and effectively assess the eachemployee's workload) (T14)
inexpensive packing prices (V10)	• Procurement of *packing corner* at counters (T15) • Officers ability in packing (T16)

Consumer desire and need attribute (what)	Technical response (how)
Ease of contacting PT Pos Indonesia for complaints (V12)	• Intensive dissemination via social media (T17) • Minimizing company communication media constraints (telp, email, fax, etc.) (T18) • Update information on communication media on public networks and the internet (T19) • Banner and social media include company communication media (T20)

The language of the voice of customer (whats) is then translated by the development team into technical responses (hows). The results of the interviews with the Express Post development team from PT Pos Indonesia headquarters in this study are shown in Table 4. The twelve respondents' voices were translated into twenty technical solutions by the development team. One consumer voice can be translated into one or more technical solutions. Conversely, several consumer voices can be resolved only in one or more of the similar technical solutions. In this research, the problem of speed, accuracy, and certainty in the delivery of goods share similar technical solutions which are translated into five technicalities. Three of the five solutions are dissemination of service processing methods, counter officers' mastery of zip code and procedure for re-checking zip codes to ensure delivery to the correct address.

Next, the development team identifies the relationships and assesses their closeness to the technical solution. Based on the HOQ in Figure 4, the speed in delivery (V4) is closely related to the activities of ensuring the transport system and service cut of time (T6) and the activities of ensuring the receipt of shipments does not violate the service cut of time (T9). In addition, the demand for speed in delivery is addressed by evaluating officer performance (T1), periodic SOP training for employees (T2), reward and punishment systems, frontliner employee appraisal systems (T4), dissemination of information on of service processing methods (T5), counter clerks' mastery on zip code (T7) and dissemination of information to double-check the destination zip code (T8), and dissemination of information of product knowledge to employees (T10). The speed problem in delivery also has a relationship with dissemination of informaiton on social media (T17) regarding delivery time. Thus, in order to fulfill consumer demand in terms of speed of delivery, these technical solutions must be considered. In this case, one attribute is solved

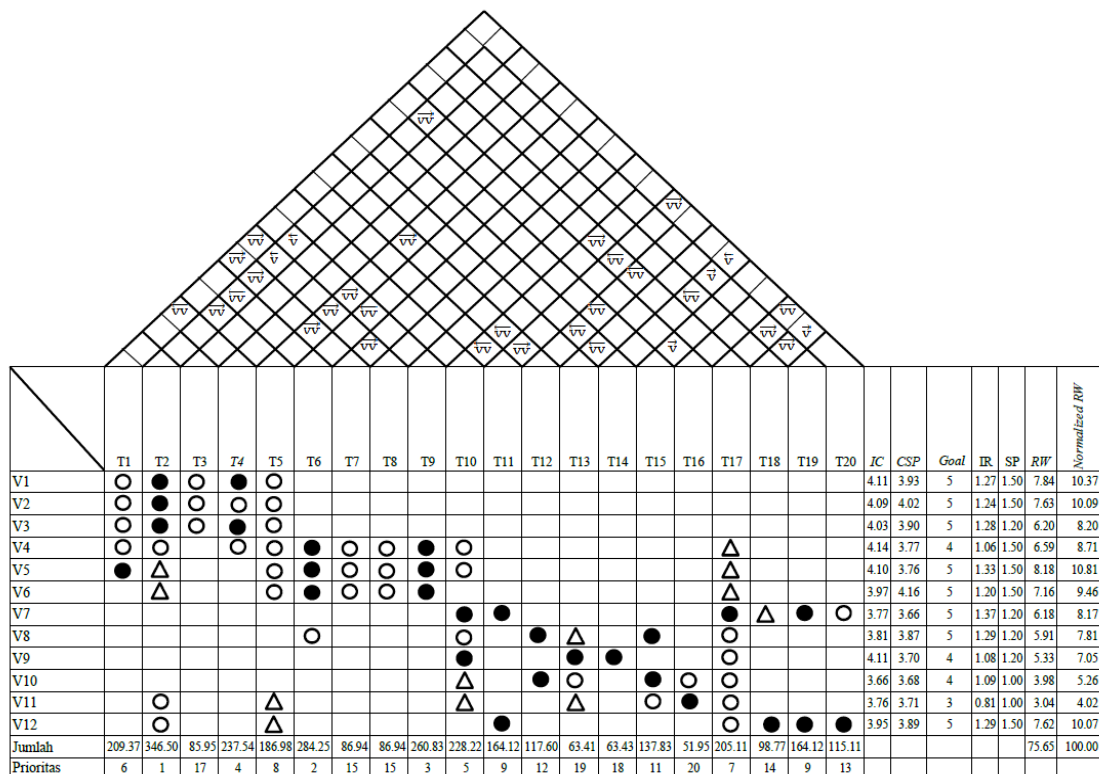|	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17	T18	T19	T20	IC	CSP	Goal	IR	SP	RW	Normalized RW
V1	O	●	O	●	O																4.11	3.93	5	1.27	1.50	7.84	10.37
V2	O	●	O	O	O																4.09	4.02	5	1.24	1.50	7.63	10.09
V3	O	●	O	●	O																4.03	3.90	5	1.28	1.20	6.20	8.20
V4	O	O		O	O	●	O	O	●	O							△				4.14	3.77	4	1.06	1.50	6.59	8.71
V5	●	△			O	●	O	O	●	O							△				4.10	3.76	5	1.33	1.50	8.18	10.81
V6		△			O	●	O	O	●								△				3.97	4.16	5	1.20	1.50	7.16	9.46
V7										●	●						●	△	●	O	3.77	3.66	5	1.37	1.20	6.18	8.17
V8						O				O		●	△		●		O				3.81	3.87	5	1.29	1.20	5.91	7.81
V9										●			●	●			O				4.11	3.70	4	1.08	1.20	5.33	7.05
V10										△		●	O		●	O	O				3.66	3.68	4	1.09	1.00	3.98	5.26
V11		O			△					△			△		O	●	O				3.76	3.71	3	0.81	1.00	3.04	4.02
V12		O			△							●					O	●	●	●	3.95	3.89	5	1.29	1.50	7.62	10.07
Jumlah	209.37	346.50	85.95	237.54	186.98	284.25	86.94	86.94	260.83	228.22	164.12	117.60	63.41	63.43	137.83	51.95	205.11	98.77	164.12	115.11						75.65	100.00
Prioritas	6	1	17	4	8	2	15	15	3	5	9	12	19	18	11	20	7	14	9	13							

Figure 4. Express Post HOQ development

in 10 technical solutions. However, there are attributes for which the technical solution is uncomplicated. For example, consumer demand for affordable shipping prices (V9). This attribute is closely related to three technical solutions, namely dissemination of information on product knowledge (T10) so that consumers understand service features for better understanding on service prices, calculation of processing costs (T13) by the company, and efficiency and effectiveness enhancement in each line (T14) to minimize costs. Issues on prices are also related to dissemination of information carried out through social media (T17) to inform public on service costs to avoid disappointment when using it.

HOQ resulting in recommended activities based on ranking in the priority line. From these results, a summary of activities that should be prioritized is illustrated in Figure 5. The first recommended activity is to conduct SOP training every three months for new employees (T2). Activities are held to avoid procedural errors during shipping processing. SOP training activities are closely related to the dissemination of information on service processing methods (T5) and the counter clerk's mastery of zip codes (T7). SOP trainings will include dissemination of information on the importance of double-checking the zip code (T8). These activities will ensure the on-time delivery.

The second activity that must be carried out is to ensure the transportation system and cut-of time service (T6). This activity is related to the activity of ensuring the receipt of the shipment by the recipient that does not violate the cut of time of service (T9). This activity is also the third recommended activity to be carried out after completion of the previous two activities. As these activities are related with the other
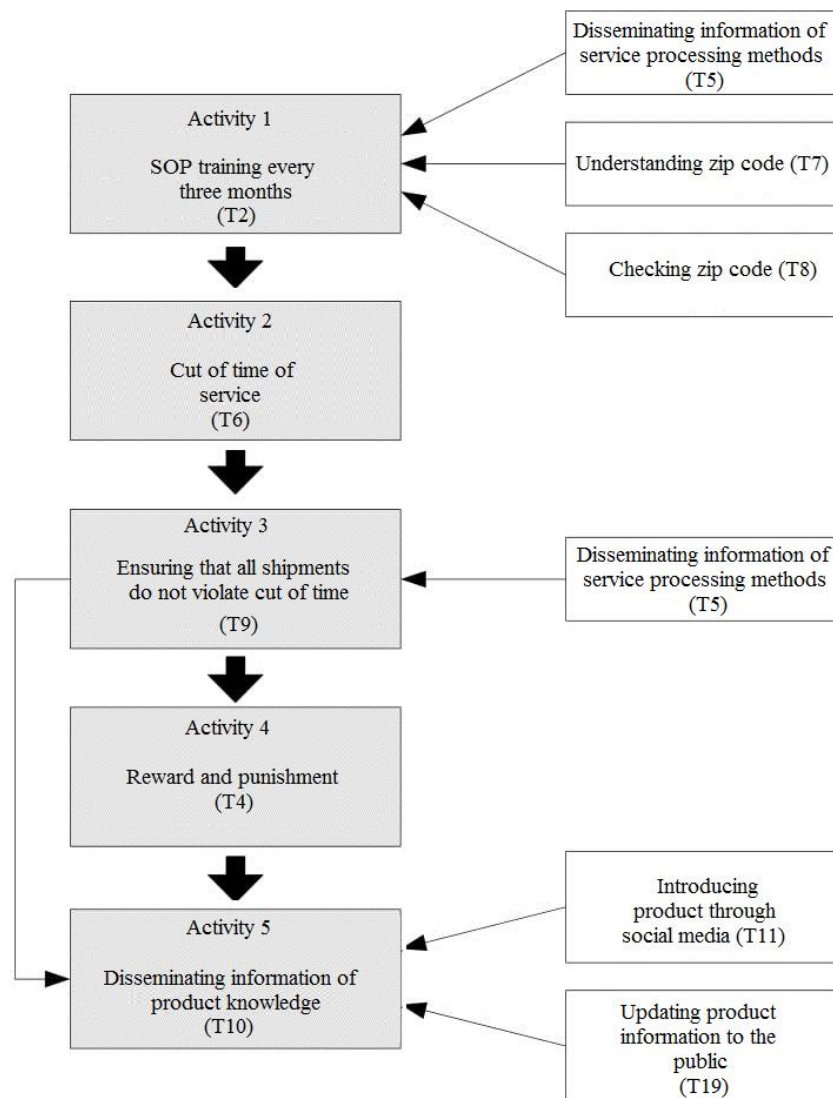

Figure 5. Summary of activities to be done

activities, these must be taken into account. The activity of ensuring the receipt of shipments does not violate the service cut of time will affect the certainty of the transport system and service cut of time (T6). However, this activity is influenced by the results of the service SOP trainings for employees (T2) and the dissemination of information on service processing methods (T5). When the two activities are resulted in the expected results on employees understanding, the activities to ensure the receipt of shipments does not violate the service cut of time will be achieved. Furthermore, the fourth priority activity that needs to be carried out by the management of PT Pos Indonesia is the provision of rewards and punishments, a competition assessment system between frontline employees. This can lead to good performance among frontline employees.

The fifth priority activity is dissemination of information on product knowledge (T10). This technical solution is influenced by the availability of information on product introduction through social media (T11). Product knowledge dissemination activities will have an influence on activities for updating product information to the public through public and online networks (T19).

5. Conclusion

This study has identified which development steps and activities to be carried out first to improve the quality of Express Post products. SOP training activities, which are priority activities, are related with other activities such as dissemination of information on service processing to increase customer satisfaction and the counter clerks' mastery of zip codes to avoid mistakes in shipping. In addition, re-checking the zip codes is also an important matter, which must be included as one of the SOPs to prevent shipping errors. Shipping errors mean the delivery service is unreliable and can affect customer trust. Distrust of services will result in customer dissatisfaction, which eventually affect customer loyalty. Therefore, activities that affect SOP are then carried out first because they are related to customer satisfaction, even though they are not prioritized in the QFD matrix. When all activities affecting the SOP training have been carried out, the second priority activities and the next shall be respectively conducted.

In general, QFD has been proven to be able to assist companies in identifying product development activities. However, management involvement in supporting improvement efforts is the key to the success of implementing QFD in the product development process (Cristiano et al., 2001). In this study, the development team of PT Pos Indonesia is actively involved in defining the technical response as a technical solution to problems faced by consumers. This has led to the successful implementation of Express Post product development.

The sample of this research is collected at Boyolali Branch of PT Pos Indonesia. Inputs and opinions of customers of other branches of PT Pos Indonesia may be different. Therefore, it is necessary to expand the sample to find a more stable conclusion on what attributes in Express Post products that should be improved by PT Pos Indonesia.

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