

A Proposed Quality Improvement of Delivery Services at PT Pos Indonesia Using Importance-Performance Analysis and Kano Model

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Abstract— PT Pos Indonesia, a courier service company, contends with a notably low market share, as indicated by Top Brand data reflecting market proportions over the past five years in Indonesia. This decline in market share is predominantly attributed to subpar service quality. Hence, there is a pressing need to scrutinize PT Pos Indonesia to enhance its service standards for consumers and discern the service attributes requiring maintenance and prioritized improvement. This study employs the IPA (Importance Performance Analysis) and Kano method, both of which complement each other synergistically. IPA seeks to unearth insights into service factors influencing customer satisfaction and loyalty, while the Kano model categorizes service attributes based on their capacity to meet customer needs effectively. Additionally, the Kano model identifies areas warranting attention or enhancement, which can augment customer satisfaction. The analysis reveals four attributes classified as defenseless strategy points and one attribute deemed a chronic issue through the amalgamation of IPA and Kano model findings, thereby informing decisions to enhance performance.

Keywords—IPA, IPA-Kano Integration, Kano Model, Pos Indonesia, Service Quality

I. INTRODUCTION

The industrial advancement in Indonesia is continuously evolving alongside the rapid currents of globalization and technological progress. This condition compels every business entity to expand its operations as a means of survival [1]-[3]. However, businesses are also confronted with increasingly fierce market competition. This heightened market competition is keenly felt within the courier service industry [4]-[6]. In the effort to secure market share, service companies need to deliver superior services compared to their competitors. Precise and high-quality services engender consumer satisfaction [7],[8].

PT Pos Indonesia is one such courier service company grappling with a relatively low market share, as evidenced by Top Brand data illustrating market share proportions over the past five years in Indonesia, depicted in Fig. 1.

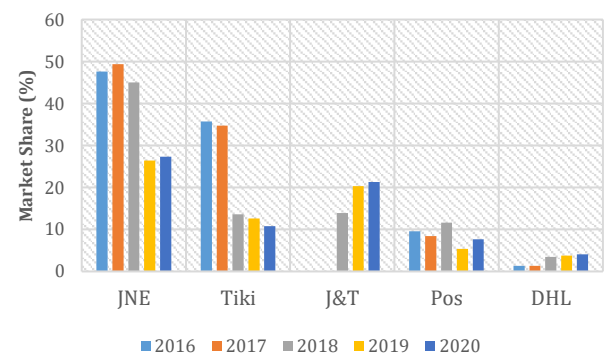


Fig. 1. Market Share Proportions of Courier Services in Indonesia (2016-2020)

From the presentation of courier service market share proportions above, it can be inferred that PT Pos Indonesia's competitiveness is suboptimal in vying for the top position in the delivery service sector in Indonesia. This can be discerned from PT Pos Indonesia's primary focus on mail and parcel delivery services, contributing to 53 percent of its annual revenue.

Competitiveness is a measure of comparison between a company's or business unit's ability and performance to sell and supply goods and/or services offered to the market. Competitiveness can also be represented by the market share served by a company. A company's competitiveness can be measured through profitability, costs, productivity, and/or the market share served by the company [9]-[11].

Moreover, PT Pos Indonesia has recorded poor performance amidst the coronavirus pandemic. Djoko Suhartanto, Vice President of Courier and Logistics Product Development at PT Pos Indonesia, has noted a decline in revenue and overall courier activities by up to 15 percent [12]. The suboptimal competitiveness of Pos Indonesia is regrettable considering it is the oldest courier service provider in Indonesia with the most extensive network.

Based on Amal et al.'s research, market share can be enhanced through the fulfillment of the quality level of service received by customers [6]. Hence, it can be inferred that the

low market share is attributed to poor quality of service. Consequently, an analysis of PT Pos Indonesia is required to improve the quality of service provided to its customers.

This study aims to ascertain the level of customer satisfaction regarding the services provided by Pos Indonesia. The analysis of service quality improvement in this research utilizes the integration of IPA and the Kano Model. IPA aims to elucidate information pertaining to service factors that consumers perceive to influence their satisfaction and loyalty towards the utilized service, while the Kano Model aims to categorize service attributes based on how well the product can satisfy customer needs [13]-[15].

II. METHODS

A. Research Flow

The analysis in this study proceeds through several stages as following Fig. 2.

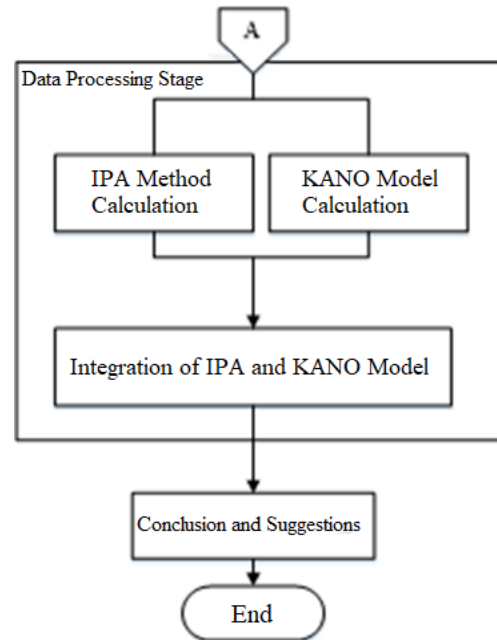
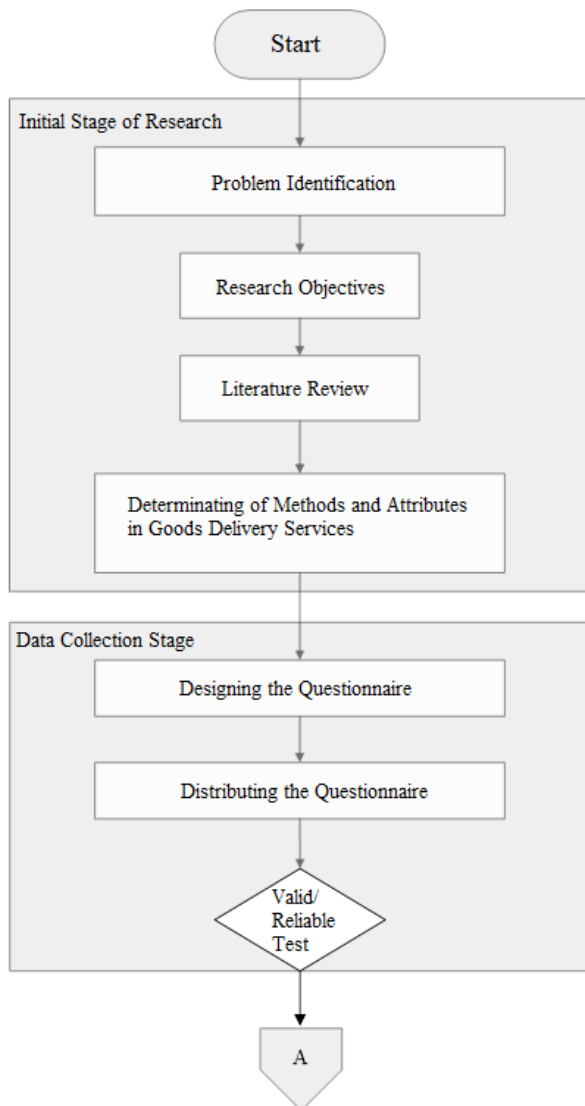


Fig. 2. Research Flow Diagram

B. Initial Stage of Research

In conducting the research and compiling the final report, the first step is to determine the topic. The topic is identified by searching for journal references or literature studies. Thus, the research topic for this report is proposed as "Improving Service Quality at PT Pos Indonesia Using Integrated IPA and Kano Methods." Subsequently, background identification and problem formulation, research objectives determination, literature review, and selection of methods and criteria for improving service quality at PT Pos Indonesia are performed.

C. Data Collection Stage

During this stage, data collection is conducted by directly obtaining responses from the distribution of questionnaires (primary data) to users of PT Pos Indonesia's courier services via Google Forms. The questionnaire attributes have been prepared based on the conditions found at the research site. See Table 1.

Table 1. Service Attributes

No	Service Attributes
Tangibles	
1	POS Indonesia provides a comfortable, clean, and tidy waiting area for its services.
2	Parking facilities at each POS Indonesia agent are secure and spacious.
3	Employees working at POS Indonesia maintain a neat and clean appearance.
4	Packages are placed in an adequate location upon receipt from the sender.
5	There is a weighing scale and a detailed breakdown of shipping costs for each product specification.
Reliability	
6	Shipping costs are affordable and commensurate with the quality of service provided.
7	The shipping service operates with punctual working hours.
8	Payment transactions can be easily completed.
9	Extensive coverage for both parcel and letter delivery throughout Indonesia.
10	The employees of POS Indonesia understand the computer system in the company.
Responsiveness	
11	The ability of POS Indonesia employees to provide services in accordance with the company's service standards.
12	Employees of POS Indonesia provide a tracking number for shipment tracking on the proof of delivery.

No	Service Attributes
13	The responsiveness of POS Indonesia employees in quickly addressing consumer complaints
14	The responsiveness of POS Indonesia employees in promptly addressing consumer complaints.
Assurance	
15	Packages sent are guaranteed to arrive undamaged and on time, in accordance with the destination.
16	POS Indonesia has updated its tracking system to facilitate customers in tracking their packages more easily
17	Complaint services are available at every POS Indonesia agent.
Empathy	
18	Customer Service representatives respond to customer complaints in a polite and effective manner.

D. Data Processing Stage

Data processing involves processing the collected data from the initial data collection. The processed data are then analyzed to find solutions to existing problems. The researcher's chosen method functions are IPA and Kano Model, which will be integrated to formulate priority strategies for resolving attributes that need to be maintained and improved by combining the results of the IPA and Kano Model methods for each service attribute.

E. Calculation of IPA Method

The first step in the IPA method is to calculate the averages for each attribute perceived by consumers using the following formulas:

$$X_i = \sum X_i / n \dots\dots\dots (1)$$

$$Y_i = \sum Y_i / n \dots\dots\dots (2)$$

Where:

X_i = Average score of performance/satisfaction level

Y_i = Average score of importance level

n = Number of respondents

Next, the averages of all importance (Y) and performance (X) attribute levels are calculated to establish the boundaries in the Cartesian diagram using the formulas:

$$X = \sum X / k \dots\dots\dots (3)$$

$$Y = \sum Y / k \dots\dots\dots (4)$$

Once the importance and performance levels of each attribute are determined, the next step is to map the obtained calculation results into a Cartesian diagram, forming an importance-performance matrix consisting of four quadrants.

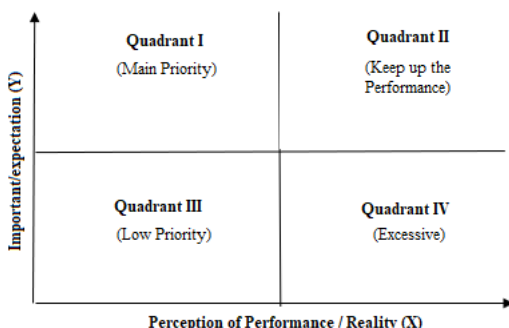


Fig. 3. Importance-performance matrix

F. Calculation of Kano Model

The first step is to evaluate the Kano model. This stage involves correlating the questions for each attribute between

the functional (if the attribute is fulfilled) and dysfunctional (if the attribute is not fulfilled) Kano questionnaires. This identification aims to determine the number and types of grades for each attribute from each respondent. Each selected service attribute response from visitors is classified into categories to determine the level of customer requirement for each service attribute.

Table 2. Categories of the level of customer requirement

Functional	Dysfunctional				
	1	2	3	4	5
1	Q	A	A	A	O
2	R	I	I	I	M
3	R	I	I	I	M
4	R	I	I	I	M
5	R	R	R	R	Q

The determination of Kano categories categorizes attributes based on the six categories in the Kano Model, namely Must be or basic needs (M), One-dimensional or performance needs (O), Attractive (A), Indifferent (I), Questionable (Q), and Reverse (R).

G. Integration of IPA and Kano Model Methods

The integration of IPA and the Kano Model aims to assist in evaluating customer satisfaction, determining whether customer expectations have been met. This integrated model can be seen in the diagram below:

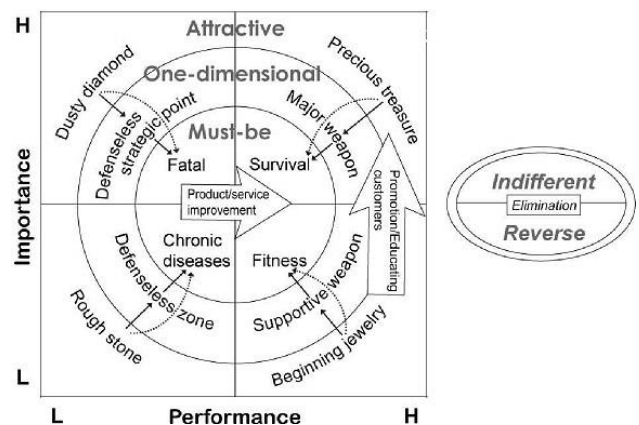


Fig. 4. IPA-Kano Integration Model

III. RESULTS AND DISCUSSION

A. Grouping Based on IPA Diagram

After determining the performance assessment scores and the importance assessment scores, a summary is made to facilitate grouping into the IPA Cartesian diagram and to determine the averages of each assessment score as the boundaries of the horizontal and vertical Cartesian axes. The following is a summary of the assessment scores for each attribute.

Table 3. The assessment scores for each attribute

Service Attributes	Performance Level	Level of Importance
1	3.784	4.296
2	3.744	4.256
3	3.984	4.264
4	3.920	4.352
5	4.072	4.408
6	3.840	4.416
7	3.784	4.376
8	4.000	4.456
9	4.232	4.488
10	3.944	4.432

Service Attributes	Performance Level	Level of Importance
11	3.952	4.368
12	4.096	4.456
13	3.712	4.296
14	3.656	4.296
15	3.792	4.456
16	3.832	4.368
17	3.664	4.328
18	3.872	4.376
Average	3.882	4.371

Subsequently, the IPA Cartesian diagram is created by inputting the importance assessment scores of each attribute using SPSS software. There are four quadrants in the IPA method, each providing management information or service strategies. The results of the IPA Cartesian diagram using SPSS are as follows:

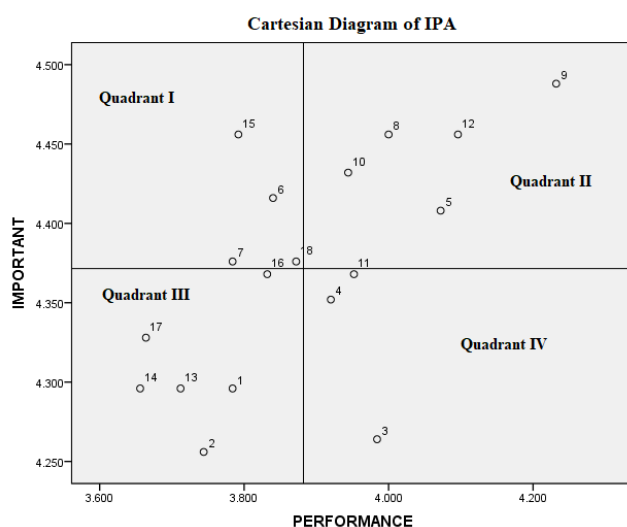


Fig. 5. IPA Cartesian Diagram

Quadrant I: Indicates factors or attributes deemed to affect customer satisfaction, including service elements considered highly important but not yet implemented by management according to customer desires, thus resulting in disappointment/dissatisfaction. Attributes falling into Quadrant I are:

- (6) Affordable shipping costs commensurate with service quality
- (7) Shipping service operates with punctual working hours
- (15) Guaranteed undamaged and timely delivery of packages according to destination
- (16) POS Indonesia updates its tracking system to facilitate package tracking for customers.

Quadrant II: Represents fundamental service elements successfully implemented by the company, thus requiring maintenance. Deemed highly important and highly satisfactory. Attributes falling into Quadrant II are:

- (5) Presence of weighing scale and detailed breakdown of shipping costs for each product specification
- (8) POS Indonesia employees' ability to provide services in accordance with company service standards
- (9) Extensive coverage for parcel and letter delivery throughout Indonesia
- (10) POS Indonesia employees understand the company's computer system

- 11) POS Indonesia employees provide a tracking number for shipment tracking on proof of delivery
- (12) POS Indonesia employees respond to customer complaints politely and effectively.

Quadrant III: Indicates some factors with less impact on consumers, with average company implementation. Deemed less important and not very satisfactory. Attributes falling into Quadrant III are:

- Comfortable, clean, and tidy waiting area at POS Indonesia
- Secure and spacious parking at each POS Indonesia agent
- (13) POS Indonesia employees provide a tracking number for shipment tracking on proof of delivery
- (14) Service speed provided to each package sender not exceeding 5 minutes to avoid long queues
- (17) Complaint services available at every POS Indonesia.

Quadrant IV: Shows that factors influencing consumers are not very important, but their realization is wasted. Deemed less important but highly satisfactory, allowing for simplification of some dimensions in this quadrant to improve and refine other attribute dimensions. Attributes falling into Quadrant IV are:

- (3) POS Indonesia employees maintain a neat and clean appearance
- (4) Packages are placed in an adequate location upon receipt from the sender.

B. Grouping Based on Kano Model

The calculation of the Kano model aims to categorize service attributes based on how well the product can satisfy customer needs. Additionally, the Kano model identifies which service attributes, when fulfilled or improved, can enhance satisfaction.

The results of the questionnaire data collection, categorized based on the attractive, must-be, one-dimensional, indifferent, reverse, and questionable categories in the Kano model, are then summarized to determine the conclusions of the Kano categories for each service attribute. There are two types of questions: Functional and Dysfunctional. Then, the classification of attributes is carried out based on the Kano model. This is done by comparing Functional and Dysfunctional statements for each attribute. The following Table 4 is a summary of the determination of the Kano Model categories.

Table 4. A summary of the determination of the Kano Model categories

No	Service Attributes	Grade
1	The waiting area for POS Indonesia services is comfortable, clean, and tidy.	M
2	The parking facilities at each POS Indonesia agent are safe and spacious.	O
3	The employees working at POS Indonesia have a neat and clean appearance.	I
4	The packages are placed in an appropriate location upon receipt from the sender.	O
5	There is a weighing scale and detailed shipping cost breakdown for each product specification.	O
6	The shipping costs are affordable and in line with the quality of service provided.	O
7	The delivery service operates with punctual working hours.	O
8	The payment transactions can be easily completed.	O
9	The coverage area for package and letter delivery is extensive throughout Indonesia.	I
10	POS Indonesia employees understand the computer system within the company.	I

No	Service Attributes	Grade
11	The ability of POS Indonesia employees to provide services according to the company's service standards.	O
12	POS Indonesia employees provide a tracking number for shipment tracking on the proof of delivery.	O
13	The responsiveness of POS Indonesia employees in promptly addressing consumer complaints.	O
14	The service speed provided to each customer making a package shipment is not more than 5 minutes to ensure that queues do not wait for a long time.	O
15	The shipped packages are guaranteed to arrive undamaged and on time, in accordance with the destination	O
16	POS Indonesia has updated its tracking system to facilitate customers in tracking their packages more easily.	O
17	There is a complaint service available at every POS Indonesia agent	I
18	Customer Service representatives respond to customer complaints in a polite and effective manner.	O

C. Integration of IPA and Kano Model

The integration of IPA and the Kano Model formulates priority development strategies for each service attribute [16]. These development priorities are obtained by combining the classification results of the IPA matrix and the Kano model classification of each service attribute, categorizing them into 12 integration categories with their respective priority levels. Table 5 presents the results of integrating IPA and the Kano Model according to the 12 integration categories.

Table 5. The results of integrating IPA and the Kano Model

No	Category of IPA	Category of KANO	Integration	Conclusion
1	III	M	Chronic Diseases	Performance Improvement
2	III	O	Defenseless Zone	Performance Improvement
3	IV	I	Elimination	-
4	IV	O	Supportive Weapon	Maintain Performance
5	II	O	Major Weapon	Maintain Performance
6	I	O	Defenseless Strategy Point	Performance Improvement
7	I	O	Defenseless Strategy Point	Performance Improvement
8	II	O	Major Weapon	Maintain Performance
9	II	I	Elimination	-
10	II	I	Elimination	-
11	II	O	Major Weapon	Maintain Performance
12	II	O	Major Weapon	Maintain Performance
13	III	O	Defenseless Zone	Performance Improvement
14	III	O	Defenseless Zone	Performance Improvement
15	I	O	Defenseless Strategy Point	Performance Improvement
16	I	O	Defenseless Strategy Point	Performance Improvement

No	Category of IPA	Category of KANO	Integration	Conclusion
17	III	I	Elimination	-
18	II	O	Major Weapon	Maintain Performance

Once the classification results of the IPA and Kano Model are obtained, the next step is to classify them based on priority strategies by sorting the attributes from those requiring performance improvement to those needing performance maintenance. According to Ref. [17], the category prioritized first for performance improvement is the Fatal category. Fatal category refers to service attributes with low service performance but high expectations [18]. Attributes in this category must be promptly repaired and their performance enhanced to avoid a fatal decline in customer satisfaction. Table 6 illustrates the prioritization of strategy integration in the IPA and Kano Model.

Table 5. The prioritization of strategy integration in the IPA and Kano Model

No	Attr. of-	Integration	Conclusion
1	6	Defenseless Strategy Point	Performance Improvement
2	7	Defenseless Strategy Point	Performance Improvement
3	15	Defenseless Strategy Point	Performance Improvement
4	16	Defenseless Strategy Point	Performance Improvement
5	1	Chronic Diseases	Performance Improvement
6	2	Defenseless Zone	Performance Improvement
7	13	Defenseless Zone	Performance Improvement
8	14	Defenseless Zone	Performance Improvement
9	5	Major Weapon	Maintain Performance
10	8	Major Weapon	Maintain Performance
11	11	Major Weapon	Maintain Performance
12	12	Major Weapon	Maintain Performance
13	18	Major Weapon	Maintain Performance
14	4	Supportive Weapon	Maintain Performance

D. Analysis of the Current Situation of PT Pos Indonesia

The courier service revenue of PT Pos has not kept pace with the increasing market of e-commerce. The distribution of PT Pos' agents and offices is still unevenly spread. Compared to competitors like JNE and J&T, PT Pos has fewer agents and offices in each city, primarily located around university areas. This discrepancy may stem from the fact that JNE and J&T operate as franchises, allowing anyone to open an agency with more flexibility in location selection. Despite offering competitive pricing, such as the example of shipping rates from Jakarta to Bandung, where JNE charges IDR 11,000 (2 days) for regular service, J&T charges IDR 12,000 (2 days), and PT Pos charges IDR 11,000 (2 days), customers still prefer the more expensive services of J&T over PT Pos. This suggests that customers are willing to pay higher prices for better quality courier services.

E. Managerial Implications

Based on the research findings, there are 8 service attributes that require improvement, with five attributes identified as top priorities for enhancing the quality of PT Pos Indonesia's courier services. The following are managerial implications that the management can undertake to improve the quality of courier services:

1. Affordable Pricing Strategy: PT Pos Indonesia should offer affordable prices aligned with the quality of service provided. This could involve considering the pricing strategies of similar competitors offering express, regular, and next day delivery services, while specifying delivery time qualifications.
2. Operational Transparency: It is advisable for PT Pos Indonesia to display information boards containing operational hours (opening-closing) and provide announcements such as notices on the door indicating if the office is closed (offline), but customers seeking online access can find information on the Pos Indonesia website. This facilitates customers in accessing information about Pos Indonesia's operational hours.
3. Employee Training and Package Handling: PT Pos Indonesia should ensure that its employees/couriers handle packages properly. This includes categorizing items based on their type and providing labels indicating how they should be handled (e.g., fragile or do not drop). Additionally, PT Pos Indonesia should ensure that packages reach customers within the designated or scheduled time.
4. Enhanced Tracking System: PT Pos Indonesia should update its tracking system to facilitate customers in tracking their packages. This means providing customers with the ability to track their shipments and receive real-time updates on the progress of their packages using the tracking numbers provided by Pos Indonesia as proof of payment.
5. Customer Waiting Area Facilities: PT Pos Indonesia should provide waiting areas that comply with health protocols (during the pandemic) and ensure customer comfort by providing smoke-free, quiet, and ideally temperature-controlled environments. Since most customer package drop-offs occur in the waiting area, it's essential to create a comfortable environment for them.

IV. CONCLUSION

The aim of this study was to determine the level of customer satisfaction with the services provided by Pos Indonesia and identify which service attributes need improvement and maintenance of their quality. From the results obtained, it is evident that the level of customer satisfaction with the courier services of PT Pos Indonesia still falls short of customer expectations. This is evident from the calculation results of the average gap value for all attributes tested in the IPA method, which yielded a value of -0.49, indicating that the level of satisfaction perceived by customers is still lower than their level of importance/expectation. Therefore, there is a need to improve the quality of services at PT Pos Indonesia. Meanwhile, the service attributes that need improvement in their quality are those with high importance/expectation values and low satisfaction values in the IPA analysis, as well as attributes categorized as one-dimensional and must-be in the Kano analysis. On the other hand, the service attributes whose quality needs to be maintained are those with high importance/expectation values and high satisfaction values in the IPA analysis, as well as attributes categorized as major weapon and supportive weapon in the Kano analysis. By focusing on enhancing these identified areas and maintaining the quality of satisfactory attributes, PT Pos Indonesia can strive to bridge the gap between customer expectations and perceived service quality,

thereby improving overall customer satisfaction and loyalty towards the company's courier services.

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