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CUSTOMER SATISFACTION ANALYSIS ON AIR CARGO HANDLING USING THE SERVQUAL APPROACH AT PT XYZ

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Abstract: The main objective of this research is to ascertain the influence exerted by various variables on air cargo services originating from PT XYZ. This research uses a qualitative method by processing questionnaire data tabulated on a Likert scale from questions formed from the operational servqual variables, then continued by processing IPA diagram data with a description of the final results. These results show that the services of PT XYZ cannot fulfil the wishes of its service users. The results of data processing based on the attributes of the servqual dimension obtained 3 big Gap that the biggest gap is in the Emphaty dimension (-0.07), followed by Reliability (-0.05) and Assurance (-0.04) and the IPA diagram shows that 8 attributes need to be improved, namely attribute C number 1, 4, 6, 10, 11 and 14, and attribute D number 16 and 17.

Keywords: *air cargo, customer satisfaction, handling, warehousing, service quality.*

a. Introduction

Logistics plays an important role in a supply chain. Due to the opening of global markets and trade, it opens up opportunities for companies to expand their marketing and distribution areas both regional and inter-country. Currently, there are many companies in Indonesia that provide logistics services such as warehousing, transportation services, freight forwarding services and more.

World air cargo transport has experienced significant growth. According to Boeing (2015), within the next twenty years it is predicted that world air cargo traffic will increase by 4.7% each year. In air cargo transport, the process of transferring modes at the airport has an important role related to the fulfilment of certain schedules for shipping and receiving goods.

The increasing distribution of cargo services at any time causes problems in adjusting flight schedules (cargo flights) and delays in the process of loading and unloading goods at the warehouse. The inflexibility of the process will take a very long time, and the lack of socialisation of SOPs causes the supply chain flow to be uncontrolled and disrupted. In addition, cargo flight schedule slots are very limited, so adjustments to the cargo flight schedule are needed. For this reason, an adjustment to the scheduling of cargo flight slots is required based on the importance of prioritisation to ensure the safety and security of cargo and supported by flexibility and adequate warehouse facilities to manage and accommodate cargo loads.

According to Ashford et al (2011), cargo handling at cargo terminals includes four functions: conversion, sorting, storage, support and documentation. During the conversion process, small items are combined into larger units for easy transport handling during flight and in-flight handling. The classification process aims to select and combine multiple items to form one aircraft load for the same purpose. Storage is necessary to achieve assembly through conversion

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Advances in Transportation and Logistics Research
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and selection. Support and documentation is a physical delivery process involving airport operators and relevant government agencies. The process of goods circulation at the airport includes two forms, namely the out-going flow of goods and the in-coming flow of goods.

Cargo handling activities that occur in the warehouse have procedures that must be applied by both cargo officers and cargo shippers. Due to the requirement of sending and receiving goods, the cargo handling fulfils the needs of the company's customers who handle passengers, baggage, cargo, and post during pre in flight and post flight. Goods or cargo include general cargo, special cargo, and dangerous goods. These goods will be divided into several parts to facilitate the cargo handling process. Goods that have gone through the checking process will later be stored in the warehouse or storage warehouse before being sent to the intended address.

PT XYZ is a company engaged in logistics, and cargo terminals. In the field of logistics, PT XYZ serves the delivery of goods by air (aircraft) which are usually traded either between regions or within the country or between countries called export-import. Goods sent by air are called air cargo, and are sent using airlines or cargo agents (freight forwarders). Because air cargo is goods sent by air, the shipping process must go through the cargo terminal at the airport. The main problem with the delivery of goods is that there is still dissatisfaction by customers who receive services both directly related to personnel and service support infrastructure.

Based on this background, the authors are interested in conducting research with the title "**CUSTOMER SATISFACTION ANALYSIS ON AIR CARGO HANDLING USING THE SERVQUAL APPROACH AT PT XYZ** ".

Problem Formulation

Based on the background of the problem, the author formulates the problem as below:

1. What is the level of service quality provided by PT XYZ?
2. What attributes are needed in handling cargo goods at PT XYZ on service timeliness?

Research Objective

The research objectives to be achieved in this study are as below:

1. Knowing the level of customer satisfaction with service at PT XYZ.
2. Knowing what attributes are related to the handling of cargo goods on the timeliness of service.

b. Literature review

Effectiveness is a measure of the success or failure of an organisation in achieving their goals. If an organisation achieves their goals, then the organisation is working effectively. Effectiveness indicators describe the range of effects and impacts of a programme's outputs in achieving programme goals. The greater the contribution of the outputs produced to the achievement of the specified goals or objectives, and the more effective the work process of an organisational unit (Mardiasmo, 2017).

Effectiveness is usually done to measure the extent to which a group or organisation is effective in achieving a goal, while work effectiveness is the extent to which a person or group in carrying

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out their main duties to achieve the desired goals (Yodi, 2020). The term effectiveness is often used in an organisational or corporate environment to describe whether or not the goals chosen by the company are correct (Taruna, 2021).

Work effectiveness is one of the goals of any work implementation which can be achieved if the work implementation is in accordance with the requirements required by the job (Hakim, 2021). With these predetermined requirements, the division of labour will be easier to do. The division of labour is of course related to the abilities of each employee (Wati & Nugraheni, 2020). This will make it easier for leaders to hand over their authority to each employee. A job is called effective if it can achieve goals as planned by using all the resources that have been planned as well (Lubis, 2020).

According to Barrimi et al. (2013), effectiveness can be understood as the level of success of a company in achieving its goals. The company can be said to be effective if the company's goals have been achieved. The effectiveness of air cargo services is one of the things that air cargo service users pay attention to.

According to Kotler, service is any activity that is profitable in a group or unit, and offers satisfaction even though the results are not tied to a physical product. According to Arianto (2018: 83) service quality can be interpreted as focusing on meeting needs and requirements, as well as on timeliness to meet customer expectations.

According to Jazuli Muhammad (2020), quality is an overall feature and characteristic of a product and service that can provide satisfaction to its users. There is a close correlation between service quality, customer satisfaction, and company profitability. Service quality is a customer assessment of the good or bad actions or behaviour of the services they receive provided by the company to customers in responding to problems submitted by customers (Wahyu Siburian & Lucia Nurbani Kartika, 2021).

Aliansyah (in Jazuli Muhammad, 2020) says that service quality is the level of excellence expected and control over this level of excellence that can fulfil customer desires. In this case there are two determining factors that affect service quality, namely expected services and perceived services. If the services that are felt or received (perceived services) are in accordance with what consumers expect, then the service quality is perceived as good or satisfying. If the service received exceeds consumer expectations, then the service quality is perceived as ideal quality. Likewise, on the contrary, if the quality of service received is lower than expected, the service quality is perceived as poor. The same thing was said by Sihombing et al. (2023), they stated that the quality of service refers to the level of service delivered to customers in compliance with standardized services that serve as rules for service delivery. The dimensions of service quality to be used as a measuring tool for assessing services, namely: tangible, reliability, responsibility, assurance, empathy (Fajriani et al., 2020).

From the three definitions above, it can be seen that service timeliness is a service that is provided in accordance with the time period or estimate promised by the company. The timeliness of service in distribution includes the timeliness provided in the delivery of goods. It

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can be concluded that this is based on several factors that cause the estimation or delivery period for each logistics service company to vary.

Effectiveness and service quality have a positive and significant effect on customer and service user satisfaction. These results indicate that by increasing the effectiveness and quality of service, customers or service users will feel satisfied with the service provided (Dalpiana, Siti Patimah, Hazairin Hab, 2023).

According to Wynd Rizaldy & Muhammad Rifni (2013) in their book entitled Basic Management of Cargo Handling defines that cargo is a shipment of goods transported by airplane (not the same as baggage) or by ocean liner via land transportation and is subject to payment of shipping costs determined by the carrier, which is recorded in the Air Charge Letter on domestic flights or Air Waybill and Bill of Lading on international flights or shipments.

Cargo handling is a service activity for cargo/goods (in and out) through the airpor (Kartikasari et al., 2020). Cargo Handling is a process of work to complete the cargo from the time it was receive until it is loaded onto the aircraft to be transported from one city to another city at home and abroad (kargo.tech). The work process includes: Acceptance, Weighing of goods, Documentation, Build-up/Break-down of pallets/containers or carts, Withdrawal from warehouse to aircraft and vice versa, Loading to aircraft and unloading from aircraft, Storage, and Delivery. Whatever the type, all shipments, except for post items and passenger's baggage, whether they are traded (export-import) or used for other purposes (non-commercial) and equipped with transport documents (SMU or Air Way Bill) are categorized as cargo (Wicaksono et al., 2020).

Warehousing is a part of a company's logistics system that serves to store the company's products (whether the raw materials, product parts, products in process, or finished products) at and between the point of origin of the product (producers) and at the point of consumption (consumers), as well as providing information for management regarding the status, condition, and movement of products stored in the warehouse (Erliyana & Bao, 2021). The warehouse has an important function in maintaining the operations of a factory. (Bagir & Putro, 2018).

A warehouse is a facility that functions as a location for the distribution of goods from suppliers, to end users. In operational practice, every company tends to have an uncertainty of demand. This encourages the company's policy to carry out an inventory system so that demand can be anticipated carefully. With this inventory policy, it encourages companies to provide warehouse facilities as a place to store inventory items. (Deni Sugianto, 2015) Warehouse can also be described as part of a company's logistics system that functions to store products and provide information about the status and condition of materials/availability stored in the warehouse, so that the information is always up-to-date and easily accessible to anyone with an interest. Warehouse is an integral part of the supply chain. Challenging trends in the supply chain, such as increased market volatility, and the need to shorten customer lead times, all impact the expected role of the warehouse.

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Advances in Transportation and Logistics Research
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Previous Research

A few previous researches that have been conducted related to air cargo handling and customer satisfaction at airports can provide an overview of various aspects related to this process. In 2021, Muhammad Miftahul Achir and Ryan Firdiansyah Suryawan conducted a research entitled "Incoming Cargo Handling in Supporting the Smooth Delivery of Goods" using multiple linear regression methods. The results of their research show that incoming cargo handling has four important aspects that need to be considered. These results provide an overview of the incoming cargo handling process in supporting the smooth delivery of goods with objects in one of the airlines in Indonesia. In handling cargo, employees must be balanced with knowledge of their work which is good and very supportive to support performance in handling cargo received through warehousing, as well as a workforce that is quite skilled and experienced in their fields, so the airline can work well to maintain improve the quality of its services.

Sitti Subekti and Muhammad Herry Purnama in 2015 conducted a research entitled "Analysis of Cargo Terminal Service Quality at Juwata Tarakan Airport". This research aims to explore and evaluate the quality of services provided by the cargo terminal at Juwata Tarakan Airport using several research methods including Importance Performance Analysis (IPA), gap analysis, and Customer Satisfaction Index. The results of this study reveal significant findings. In the gap analysis of the five service dimensions, there is a negative value indicating a gap between expectations and actual performance of the cargo terminal. This indicates that the performance of the cargo terminal is still below the level of importance of its users. Moreover, the tangible and empathy dimensions were identified as the service dimensions with the highest gap value of -0.93. The customer satisfaction index was recorded at 71.94%, which indicates that the quality of service at this cargo terminal needs serious attention from service providers or cargo terminal managers.

In the same year, Dio R. Almanditya Ambar Harsono and Hendang S. Rukmi also conducted a research entitled "Proposed Improvements in the Quality of Goods or Package Delivery Services Using the Service Quality Method". In this research, they conducted an in-depth analysis using 24 service quality attributes based on 5 key dimensions of service quality. The results shows that the gap between consumer perceptions and consumer expectations, as measured using Gap 5. More specifically, there were 9 service attributes that scored negatively on this Gap 5. These negative values indicate that there is a difference between consumers' expectations and the reality of the service they receive.

Then in 2022, Sheila Monica Anggraeni and Desiana Rachmawati conducted a research entitled "Analysis of Cargo Handling by PT Angkasa Pura Logistics at Juanda International Airport Surabaya, East Java" using descriptive qualitative method. The results of their research show that PT Angkasa Pura Logistics has followed in accordance with the SOP made by the company following the IATA regulations and the Ministry of Transportation Number 128 of 2017 but adjusting to the company's capabilities in terms of existing facilities. The obstacles that occur are the increase in cargo needs but the handling and service becomes less and less due to facilities that cannot keep up with the increase in cargo needs that occur. The attitude of officers while dealing with problems or obstacles in cargo handling is very professional in accordance with the vision and mission used as a reference in working to make this company grow over the years.

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Advances in Transportation and Logistics Research
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c. Research Method

This research uses a qualitative method with an explanation in the form of a case study at PT XYZ to measure service quality. To collect data, researchers used a questionnaire designed with questions based on the operational Servqual variables. The questionnaire was given to respondents who are customers of PT XYZ. The number of respondents who were sampled in this study were 30 people.

The questionnaire distribution process was carried out by distributing questionnaires to respondents. In data analysis, researchers used data tabulation techniques with Likert scales from questionnaires to identify respondents' perceptions of service quality. Then, qualitative data was analysed by processing diagrams and descriptions of the final results to understand the factors that affect service quality at PT XYZ. The results of data analysis are then presented descriptively, with reference to measurement indicators based on the Servqual concept which begins with 5 Servqual dimensions, namely reliability, responsiveness, assurance, empathy and tangible and each of these dimensions has indicators as described in table 1 below with a total of 20 indicators, then gap analysis and IPA are carried out to measure how big the gap is and which dimensions including indicators need to be addressed and show things that prove customer dissatisfaction and will find a solution.

Results and Discussion

This section contains an explanation of the difference obtained from the reality of the quality of service provided by PT XYZ and customer expectations of the quality of service owned by PT XYZ. The analysis is divided into several parts, namely:

a. Gap Analysis

The difference (gap) generated by the servqual calculation arises because of the influence given between the perceptions held by stakeholders about the quality of service provided to customers and the expectations or expectations that arise in the minds of consumers. The ideal value that should be generated between the statement gap and expectations is zero. The greater the gap value in a service dimension, the greater the priority for improving the service of that service dimension (Addin, 2021). This research uses the calculation of the gap or difference using gap 5, namely Gap = the value of the reality of service performance received by customers - the value of customer expectations, or by using the serviqual formula where the formula used is:

Serviqual score = service performance perception score - customer expectation/interest score

ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
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Here are the results of the Servqual Score calculation generated from the data that has been collected:

Table 1
Servqual Results

Dimension	Service Attributes	Customer Satisfaction		
		Satisfaction (X)	Expectation (Y)	Gap
Reliability	1. Timeliness of porters in serving the search for goods in the warehouse	4.19	4.20	-0,01
	2. Irregularity handling service procedures by cargo delivery staff (gateway staff) in handling customer complaints.	4.35	4.33	0,02
	3. Proficiency (skill) Gateway staff perform handling services in terms of goods handover and cargo report services by customers.	4.42	4.47	-0,05
	4. Speed / dexterity of Gateway staff in helping to solve problems related to complaints about goods that have problems (irregularity) owned by customers.	4.23	4.23	-0,01
	5. The thoroughness of gateway staff in checking cargo documentation handling documentation	4.35	4.37	-0,01
Responsiveness	6. Gateway staff (GS) readiness to help with cargo complaint issues.	4.26	4.27	-0,01
	7. GS's ability to provide information about cargo services	4.35	4.37	-0,01
	8. GS responsiveness in overcoming packaging handling or damage to consignments (Cargo)	4.35	4.33	0,02
	9. GS's alertness in anticipating cargo irregularity	4.35	4.37	-0,01
Assurance	10. Guarantee that the cargo condition is not damaged when being transported by forklift/handpallet equipment when being handled when being removed from the warehouse to the delivery area.	4.23	4.23	-0,01
	11. The Company provides insurance in the event of damage to irregularity cargo that is handed over while stored in the Warehouse in accordance with the applicable terms and conditions.	4.35	4.40	-0,04
	12. GS knowledge and skills in dealing with loss or damage to cargo (irregularity cargo)	4.52	4.50	0,02
Emphaty	13. Friendliness and politeness of GS in serving customers (Cargo agent/consignee).	4.29	4.30	-0,01

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Advances in Transportation and Logistics Research
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	14. GS communication skills in serving customers.	4.58	4.60	-0,02
	15. GS's ability to control emotions by being calm in serving cargo goods problems.	4.39	4.37	0,02
	16. GS's action in understanding the wishes of the owner of the goods.	4.42	4.47	-0,05
	17. The willingness or sincerity of the GS in giving attention to complaints from the owner of the goods.	4.39	4.40	-0,01
Tangible	18. Appearance of the GS (uniform and identification as well as the tidiness of the GS).	4.39	4.40	-0,01
	19. Cleanliness and reliability of forklifts/Handpallets/carts which are also equipped with safety devices and KIR and service instructions.	4.32	4.30	0,02
	20. Adequacy and clarity of security instructions (marking) or sign boards or placards related to the handling of storage and receipt of goods in warehouses and delivery areas	4.10	4.07	0,03

Source: Researcher, 2023

Based on the table above, the average gap of each dimension is calculated by summing the gap value in each dimension and then dividing by the number of attributes in each dimension. Where the gap owned by each dimension is:

Table 2
Gap of Each Dimension

No	Dimension	Average Value of The Gap
1	*Reliability*	-0.05
2	*Responsivness*	-0.01
3	*Assurance*	-0.04
4	*Emphaty*	-0.07
5	*Tangible*	0.04

Source: Researcher, 2023

Based on the servqual gap value generated by each dimension, the total gap value owned by this research is:

Service Quality = (-0,05) + (-0,01) + (-0,04) + (-0,07) + (0,04) / 5
= -0,026

From the resulting value, it can be seen that the value obtained is a negative value of -0.026. This value indicates that the quality of service provided by PT XYZ does not match the expectations of consumers.

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Advances in Transportation and Logistics Research
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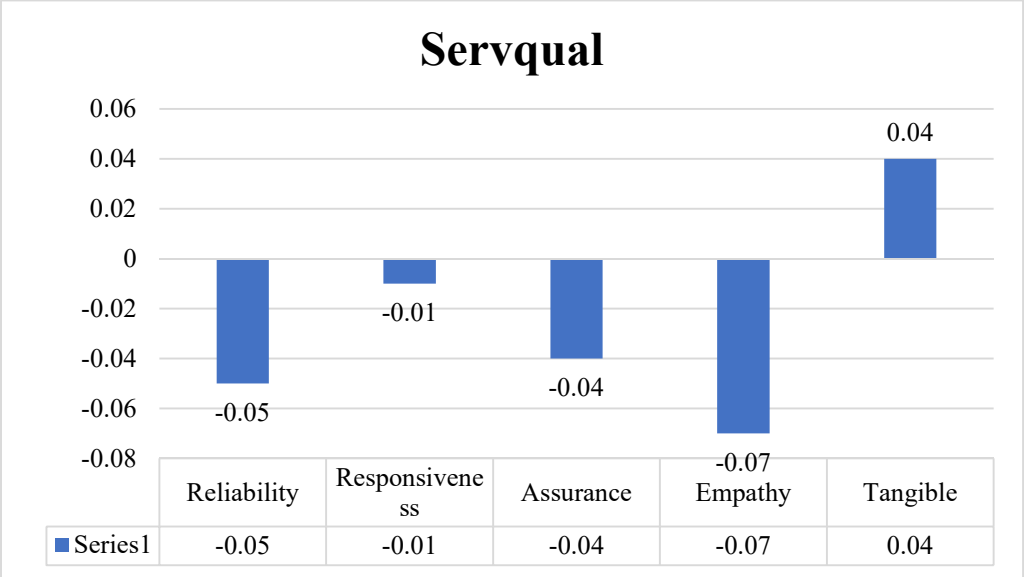

Fig. 1
Servqual Analysis Chart

Source: Researcher, 2023

From the figure above, it is known that almost all dimensions have a negative gap value. This value shows that the dimensions of responsiveness, assurance, and empathy owned by PT XYZ are negative. However, the largest gap value is owned by empathy, where the resulting gap value is -0.07. This shows that the lack of empathy provided by PT XYZ employees to consumers which makes the lack of consumer satisfaction appear.

b. Importance Performance Analysis

Importance Performance Analysis (IPA) is used to measure the relationship between consumer perceptions and priorities for improving product/service quality, which is also known as quadrant analysis . is a method to show the importance of various characteristics in the performance of a group or company and its products. The chart is divided into four sections with insights and expectations. Interest here indicates customer expectations or expectations, while business performance is the customer's perception. This chart has two axes, the X axis as the perceived value and the Y axis as the expected value.

The advantage of this IPA approach is that it achieves the most important improvements in quadrant 1 where awareness is low but expectations are high. In quadrant 2, customer opinions and expectations are high, so the company is sufficient to continue working on this segment. In quadrant 3, customer perceptions and expectations are low, so the company does not need to make changes. In quadrant 4, the company's transparency is high but customer service expectations are low so the company must reduce efficiency so that existing resources become more efficient (Riduansyah, et al 2020).

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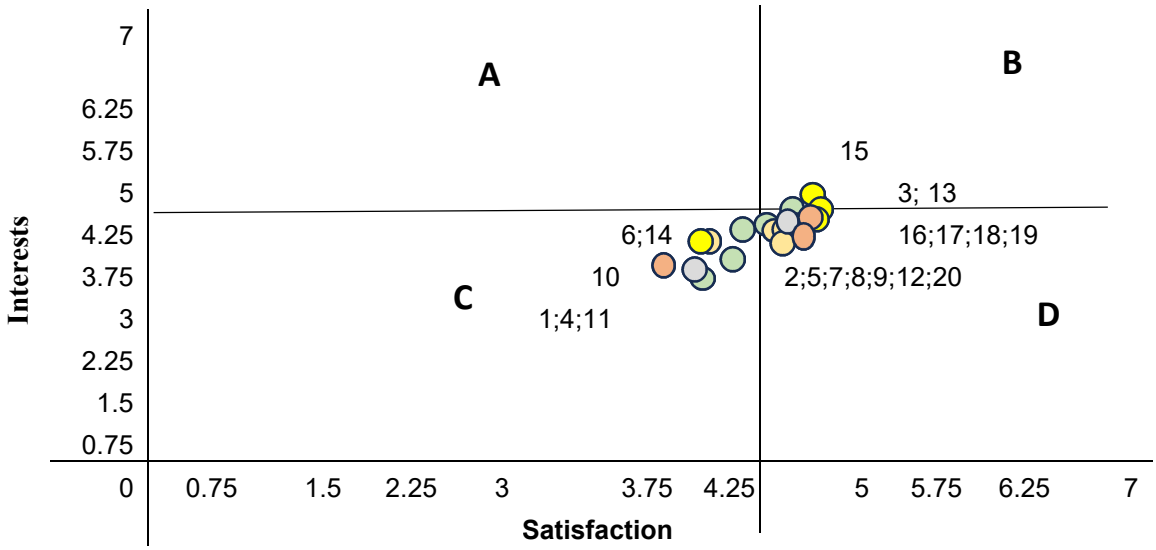

Fig. 2
Importance Performance Analysis Quadrant

Based on the picture above, the following is a description of the quadrant

1. Quadrant A is an area where research instruments are considered important by consumers. This attribute already has a value that exceeds consumer expectations. In the results of this study, there are no attributes that are in quadrant A. This shows that the quality of service provided has not provided satisfaction for consumers.
2. Quadrant B is a area where there are service quality attributes that produce high customer opinions and expectations, so the company is sufficient to continue working on this segment. Which is in quadrant B, the attributes included are attributes 3, 13, and 15.
3. Quadrant C is an area that has low customer perceptions and expectations so that the company needs to make changes even though the priority is low and considered less important but the performance is still lacking. Where in quadrant C, there are 6 attributes included in the attributes 1, 4, 6, 10, 11, and 14.
4. Quadrant D is an area that requires high company transparency but low customer service expectations so that the company must reduce efficiency so that existing resources become more efficient. Where in quadrant D, the attributes included are attributes 2,5,7,8,9,12,16,17,18,19, and 20.

The following customer satisfaction is generated based on IPA analysis in quadrants C and D which are considered problematic and need to be increased in effectiveness.

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Table 3.
Problematic Customer Satisfaction Attributes (Need To Be Improved)

No	Attribute Number	Attribute	IPA	Dimension
1.	1	Timeliness of porters in serving the search for goods in the warehouse.	C	Reliability
2.	4	The speed / dexterity of Gateway staff in helping to solve problems related to complaints of goods that have problems (irregularity) owned by customers.	C	Reliability
3	6	Kesiapsediaan Gateway staff (GS) dalam membantu masalah keluhan cargo	C	Responsiveness
4	10	Availability of Gateway staff (GS) in helping cargo complaint problems Guarantee of cargo conditions that are not damaged when transported by forklift/handpallet equipment when handled when being removed from the warehouse to the delivery area	C	Assurance
5	11	The Company provides insurance in the event of damage to irregularity cargo that is handed over while stored in the Warehouse in accordance with the applicable terms and conditions	C	Assurance
6	14	GS communication skills in serving customers	C	Emphaty
7	16	GS's actions in understanding the wishes of the owner of the goods	D	Emphaty
8	17	Seriousness or sincerity of the GS in giving attention to complaints from the owner of the goods	D	Emphaty

Source: Researcher, 2023

Conclusion

Based on the discussion that has been carried out, this research produces several important conclusions. First, the quality of service provided by PT XYZ is still below consumer expectations, as reflected in the gap analysis results with a negative value of -0.026. This shows that the level of effectiveness of warehousing handling has not reached the expected standard. Second, there are six attributes in the IPA C quadrant (attributes 1, 4, 6, 11, 14, and 21) that need to be improved and enhanced to improve the effectiveness of cargo warehousing handling. In addition, two attributes in the D IPA quadrant (attributes 16 and 17) although considered excessive, but need special attention in service improvement efforts.

Implications

In the analysis results, there are dimensions that need to be improved in an effort to increase customer satisfaction. The dimension with the largest gap analysis is the empathy dimension, with a gap value of -0.07. This is due to certain attributes (numbers 14, 16, and 17) that require improvement, because employees are considered less sensitive in serving consumers to fulfill their desires. In addition, the reliability dimension also needs to be improved, with two specific attributes (numbers 1 and 4) affecting the gap result by -0.05. Likewise, the assurance and responsiveness dimensions have negative gaps of -0.04 and -0.01 respectively, with certain attributes (numbers 10, 11, and 6) requiring special attention. Therefore, it is recommended that PT XYZ provide direction to managers and supervisors to conduct regular briefings to GS officers and provide appropriate training to improve the dimensions of empathy, reliability,

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http://proceedings.itltrisakti.ac.id/index.php/altr

assurance, and responsiveness to improve service quality. On the other hand, the tangible dimension is considered to have exceeded consumer expectations with a gap analysis of 0.04, indicating that PT XYZ has provided excellent service in terms of service attributes and completeness. In the Importance Performance Analysis (IPA) analysis, the most filled quadrant is quadrant D, although there are still two attributes (numbers 16 and 17) that need to be improved. This shows that most of the attributes are in accordance with consumer desires and have the potential to increase consumer loyalty.

Research Limitation

The limitation of this research is the fact that within the framework of the current research, we have not succeeded in fully generating a House of Quality that covers all relevant aspects. Therefore, in the context of future research, it is hoped that further research will be able to formulate and develop a more comprehensive House of Quality. This will enable a more holistic and continuous redesign and improvement of service quality more effectively, taking into account all relevant dimensions.

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