

ANALYSIS OF THE IMPACT OF INFORMATION TECHNOLOGY AND CONTAINER SERVICE QUALITY ON CUSTOMER SATISFACTION AT PT XYZ

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Abstract: This study aims to examine the impact of information technology and container service quality on customer satisfaction at PT XYZ. Quantitative research is used in the study. On July 21, 2024, the study which was carried out via a Google Form survey was published. A sample of 97 responders was selected to represent the study's subject, a user of PT XYZ's container delivery service. The sample was selected using a non-probability sampling method with purposive sampling. The variable "information technology" has observable, easily interpreted, adaptable, and controlled indicators. Indicators of service quality include things like tangible evidence, dependability, promptness, security, and compassion. Indicators of customer satisfaction include loyalty, popularity, excellent attitude, and high-quality service. This research was carried out in different places to get respondents. Structural Equation Model (SEM) is used to analyze the data. Based on the results of data analysis, information technology and container service quality has a positive and significant effect on customer satisfaction. This is of course a consideration for every business actor (PT XYZ in particular) to make more use of information technology and improve service quality in order to increase competitiveness.

Keywords: *Information Technology, Container Service Quality, Customer Satisfaction, Marine Logistics*

Introduction

Transportation has been essential for moving people and goods since prehistoric times. Information technology has advanced since the creation of the Internet. Current advancements in digitalization, communication, and computer technology have compelled businesses in a variety of sectors, including manufacturing and services, to embrace these innovations in order to advance their enterprises or organizations. Advancements in digitization and information technology have led to their widespread use in banking, healthcare, transportation, and many other industries. (Gelul et al., 2022)

The advancement of information technology has altered how businesses conduct business and interact with clients. Information technology can increase productivity and enhance customer service in the transportation sector. Customer happiness significantly impacted by the quality of the services provided. This can include things like: prompt delivery, the state of the items when they are received, and staff members' responses to client inquiries or grievances. As a result, it's critical to comprehend how client pleasure is impacted by service quality and how information technology is used.

A transportation firm called PT XYZ was established in 1962. The company offers a range of transportation services, including: Tanker loading, cargo, and container shipping. As one of Indonesia's top shipping firms, PT XYZ has won numerous accolades, including "Best Liner Company" at the 2020 Lloyd's List Asia Awards. (Wikipedia, 2024) Information technology use is crucial for firms to be competitive in the digital age. Significant alterations have also been made to the way certain industries in Indonesia operate, including logistics and transportation. (Ekonomi et al., n.d.) Employing information technology helps businesses become more productive and efficient.

The company recently introduced a new website called XYZ Connect. Through digitalization, XYZ Connect may facilitate container tracking for consumers. In addition, users can view warehouse locations, ship departure timetables, and other information. This web-based application aims to increase productivity and efficiency. Its launching in 2023 and the number of consumers it has attracted thus far make it a significant achievement in Indonesian ocean's use of this information technology. (Samudera Indonesia Insight, 2024) Additionally, PT XYZ has the chance to take advantage of information technology to boost client satisfaction and gain a competitive edge.

Research by (Sugiarto & Telan, 2011) discovered that technology has a good impact on customer satisfaction since it is one of the factors that raises consumer contentment. However, further research by (Devi Ayu Azisyah, 2016) concluded that there was no discernible impact of technology (self-service technology) on customer satisfaction.

According to (Heni Rohaeni1, 2018) Customer satisfaction is significantly impacted by service quality. Meanwhile, according to (Ratih Andalusi, 2018) Customer satisfaction is not much impacted by service quality.

The nature of the relationship between container service quality, information technology, and customer satisfaction at PT XYZ is uncertain. Therefore, this research aims to ANALYZE INFORMATION TECHNOLOGY AND CONTAINER SERVICE QUALITY ON CUSTOMER SATISFACTION AT PT XYZ.

Problem Statement

1. Is there an impact between information technology and customer satisfaction at PT XYZ?
2. Is there an impact between the quality of container services at PT XYZ and customer satisfaction?
3. Does information technology and the quality of container services at PT XYZ have an impact on customer satisfaction?

Literature Review

Information Technology

According to (Bambang Warsita, 2011), information technology refers to the tools and resources (hardware, software, and useware) used to gather, transfer, process, interpret, store, arrange, and utilize data effectively.

According to (Sudaryono and Astuti in Yudha and Ramantha, 2014), "Information technology can also be used for a variety of business benefits. The resulting benefits include: cost and timeliness savings, increased productivity, and improved information accuracy."

According to (Kadir (2018 : 14), n.d.) The general definition of information technology is as follows: "Software and hardware are the two components that make up information technology. Hardware refers to tangible devices like keyboards, printers, and memory. The purpose of software is to provide instructions to the hardware so that it operates in accordance with those instructions."

Advances in information technology have a positive impact on various aspects of human life. One of these advances is the Internet. The Internet as a network coupled with communication tools allows people to interact with each other anywhere and anytime. With the existence of these advances, practicality becomes the issue that changes the way businesses conduct transactions to make them faster and easier than ever before. (Dwi Sakti et al., n.d.)

Quality of Service

According to Nasution M.N. (2008), quality also refers to the willingness of the customer to meet the needs of the vendor or consumer. A product is considered high-quality if it can provide the customer with consistent value, meaning it should meet the expectations of the customer regarding the product. Elements of quality consist of (a) efforts to meet or exceed customer expectations; (b) evaluating products; (c) representing a constantly changing state; the quality of a given product or service is determined by the customer's expectations as well as the product's actual performance, including whether it meets expectations and desires Sitti Subekti (2013) in (Sandriana Marina et al., 2018).

According to (Raditya et al., 2019) Processes, applications of human resources, and products and services that can meet or surpass the necessary standard of service quality are all strongly tied to the dynamic conditions of service quality. Meeting the wants and desires of the customer and accurately delivering the service to satisfy their expectations constitutes quality of service. The quality of service is an endeavor to fulfill the needs together with the customer's desire and the precision of the delivery technique to fulfill the requirements and guarantee the customer's complete pleasure.

Menurut Rohaeni & Marwa, (2018) Service quality is the fulfillment of consumer needs based on the level of excellence of products and services that align with expectations, thereby satisfying consumer desires. (Sarinah Sihombing et al., n.d.) Any activity or action that can be granted by one party to another is considered a service, according to Kotler (2002:83) in (Adhitya & Christmastianto, 2017) yet, this is fundamentally intangible and does not result in ownership. A product might or might not be connected to a specific tangible product. (Roselina, n.d.)

The ability to deliver a degree of service that meets or exceeds the expectations of the customer is referred to as service quality, according to (Wijaya (2011) and Teguh Iman (2018)., n.d.) This definition leads to the conclusion that measuring the effectiveness of a service in relation to client expectations is an action or activity that is considered to be of high quality.

According to Tjiptono (2011:17) in (Lis Lesmini et al., n.d.), service is an activity of intangible nature that normally (but not necessarily) take place in interactions between customer and service employees, physical resources or goods and systems of the service provider which are provided as a solution to a customer's problem. It can be said that service

is an activity provided to consumers, and it is essentially intangible and provided as a solution to consumer problems.

Customer Satisfaction

According to (Fauzan Noor et al., n.d.) defines consumer satisfaction as the joy or dissatisfaction that results from evaluating a product's (or outcome's) perceived performance against the expectations of the consumer.

According to Kotler and Gary Armstrong (2003:10), in (Arif Siaha Widodo, 2016) "The degree to which the buyer expects that the product will perform up to their expectations is known as customer satisfaction. The buyer is not satisfied when the product performs less well than anticipated. The buyer feels content or happy if the performance meets or beyond their expectations."

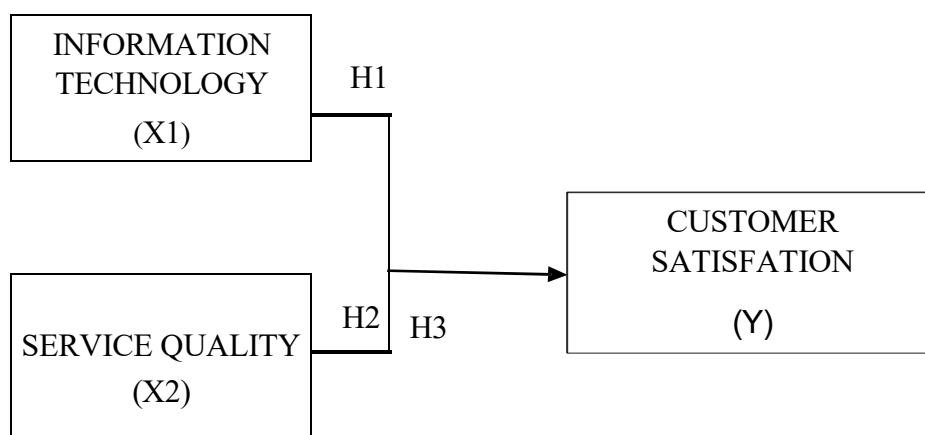
According to Tjiptono (2001:24) in (Arif Siaha Widodo, 2016) that "the customer's reaction to the perceived evolution of the mismatch between the prior expectations and the actual performance of the product after its use" determines whether the consumer is satisfied or dissatisfied."

Djasmin Salim (2003:9) in (Arif Siaha Widodo, 2016) outlined the concept of customer satisfaction as the emotional state resulting from a comparison between a customer's perception of the performance of a product or service and his predetermined standards.

According to Mardalis (2005) in (Yolla Ayutia et al., n.d.) , Customer satisfaction is the result of a comparison between achievements or products that consumers expect as feelings of liking or disappointment.

Service user satisfaction is determined by service users' perceptions of product or service performance in meeting service user expectations (Permana et al. 2021). In general, satisfaction is a person's feelings of pleasure or disappointment arising from the compare products (or results) against an expectation of them (Riyanto et al., 2021) in (Widiyanto et al., 2021)

Hypothesis



Based on the framework above, the research hypothesis is:

H1: There is a significant and positive relationship between information technology and PT XYZ customer satisfaction.

H2: There is a significant and positive relationship between container service quality and PT XYZ customer satisfaction.

H3: There is a significant and positive relationship between information technology and the quality of container services on PT XYZ customer satisfaction.

Research Method

This investigation used a quantitative approach. This study involved preliminary data collection, theoretical analysis, and data analysis. This quantitative method was conducted through data collection techniques and questionnaire surveys. The sample was selected using a non-probability sampling method with purposive sampling. The subjects of this study were users of PT XYZ container shipping services, and a total of 97 respondents were sampled. The questionnaire survey was conducted through Google Forms and distributed starting on July 21, 2024. The subjects of this study were users of PT XYZ container shipping services aged 15 to 40 years and above, and gender included 51 males and 46 females. The information technology variable indicators are controllable, clear and easy to understand, flexible and easy to use. Indicators of service quality include things like tangible proof, dependability, promptness, safety, and empathy. Indicators of client satisfaction include loyalty, popularity, pleasant attitude, and high-quality services.

Results and discussion

The purpose of the research provided here is to show how customer happiness at PT XYZ is affected by information technology utilization and container service quality. The validity test results for the variables of information technology (X1), service quality (X2), and customer satisfaction (Y) indicate that all items received r values greater than the r table, confirming the validity of each statement. According to Sugiyono (2017:130), The degree to which measurement outcomes using the same object will yield the same data is known as the reliability test.

Tabel I Reability Statistic

Reliability Statistics	
Cronbach's Alpha	N of Items
.954	35

According to Jonathan Sarwono (2015: 262), a question item is said to be reliable if it has a value of Cronbach's Alpha if Item Deleted ≥ 0.80 . Based on table 1 "Reability Statistics", it is known that Cronbach's Alpha values are $0.954 > 0.80$, thus it can be concluded that the question items for the variables X1, X2, and Y are declared reliable.

Table II multiple linear regression test results

		Coefficients ^a				
		Unstandardized	Standardized			
		Coefficients	Coefficients			
		Std.				
Model		B	Error	Beta	t	Sig.
1	(Constant)	4.081	1.548		2.637	.010
	X1	.068	.109	.075	.620	.537
	X2	.604	.085	.859	7.135	<.001

a. Dependent Variable: Y

Based on the table above, the multiple linear regression equation can be described as follows:

$$Y = 4.081 + 0.068X1 - 0.604X2$$

Where:

Y = Customer Satisfaction

X1 = Information Technology

X2 = Quality of Service

It may be inferred from the multiple linear regression equation above that the constant (α) has a positive value of 4.081. A positive value indicates that the influence between the independent and dependent variables is one-way. This indicates that the average value of Y is 4.081 if all the independent variables, which include X1 and X2, have values of 0.

Additionally, the variable X1 has a 0.068 positive value. This indicates that, if the other independent variables remain constant, Y will grow by 0.068 if X1 increases by 1. Positive means showing a unidirectional influence between independent variables and dependent variables. Likewise, the X2 variable has a positive value of 0.604. This shows that if X1 experiences an increase of 1, then Y will increase by 0.604 assuming the other independent variables are considered constant. Positive means showing a unidirectional influence between independent variables and dependent variables.

Multiple Correlation Coefficient

Table III multiple correlation test results

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.930 ^a	.865	.862	1.972	1.695

a. Predictors: (Constant), X2, X1

b. Dependent Variable: Y

A correlation coefficient of 0.930 indicates the association between information technology and service quality on customer satisfaction. These findings provide credence to the theory that the two factors have a very significant positive correlation. This finding aligns with earlier studies that found improved customer satisfaction was attained with increased usage of information technology and higher-quality services.

Coefficient of Determination

Table IV of the Determination test results

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.930 ^a	.865	.862	1.972	1.695
a. Predictors: (Constant), X2, X1					
b. Dependent Variable: Y					

The determination coefficient of 0.930 indicates that the variables of information technology and service quality account for 93% of the variation in customer satisfaction. Raising the standard for information technology and service quality may lead to improved customer happiness, as this implies a substantial association exists between these two independent variables and customer contentment. However, the remaining 7% of the variation in customer satisfaction may be influenced by factors not included in this model.

Test T

Assuming that the other variable remains constant, the goal of the partial regression test is to ascertain whether or not specific independent factors have an impact on the bound variable.

Table V T-test results

Coefficients ^a						
	Model	Unstandardized Coefficients		Standardized Coefficients		Sig.
		B	Std. Error	Beta	t	
1	(Constant)	4.949	1.909		2.592	.011
	X1	.807	.043	.889	18.866	<.001

a. Dependent Variable: Y

The calculation t for the variable of information technology based on the table above is 18,866, while the result of t table t is 1.66123 or 1,662. then it can be stated that the calculation of $18,866 > 1,662$ and the significance value of $0.001 < 0.05$, then H_0 is rejected and H_a is accepted, meaning that there is a positive and significant influence between information technology and customer satisfaction.

Table VI T-test results

Coefficients^a

		Unstandardized		Standardized		
		Coefficients		Coefficients		
	Model	B	Std. Error	Beta	t	Sig.
1	(Constant)	4.309	1.498		2.876	.005
	X2	.654	.027	.930	24.481	<.001

a. Dependent Variable: Y

Based on the aforementioned table, the service quality variable's computation t is 24,481, whereas the t table yields a value of 1.66123 or 1,662. After stating that the significance value is $0.001 < 0.05$ and the t_{count} is $24,481 > t_{table}$ 1,662, it can be concluded that there is a positive and significant relationship between service quality and customer happiness. H_a is approved and H_0 is denied.

Test F

According to (Sugiyono, 2016) the statistical F test was used to examine parameter b (correlation test). The F test is used to examine the combined (simultaneous) impact of independent factors on bound variables.

Table VI test results F

ANOVA^a

Model		Sum of		Mean Square	F	Sig.
		Squares	df			
1	Regression	2316.121	2	1158.061	297.895	<.001 ^b
	Residual	361.535	93	3.887		
	Total	2677.656	95			

a. Dependent Variable: Y

b. Predictors: (Constant), X2, X1

Criteria for making decisions:

1. H_a is accepted and H_o is refused if $F_{\text{counts}} > F_{\text{table}}$, indicating that variables X_1 and X_2 have an influence on variable Y .
2. There is no correlation between variables X_1 and X_2 and variable Y if $F_{\text{counts}} < F_{\text{table}}$, rejecting H_a and accepting H_o .

H_a is approved if $F_{\text{count}} > F_{\text{table}}$, indicating a considerable influence of the free variable on the independent variable. The formula $df_1 = \text{number of free variables}$ yields $df_1 = 2$, whereas $df_2 = n - k - 1$; $(97 - 2 - 1)$; $df_2 = 94$ can be used to look for the F value of the table. In table F , column 2 of row 94, the significance of 5% (0.05) is 3.09. Following that, it may be said that $F_{\text{counts}} > F_{\text{table}}$ ($297.895 > 3.09$) and that $0.001 < 0.05$ is the significance value, meaning that H_a is accepted and H_o is rejected. Customer satisfaction (Y) is significantly and simultaneously positively impacted by both variable information technology (X_1) and the quality of service (X_2).

Conclusion

A method of quantitative research is utilized in this research. This quantitative approach uses Google Forms to distribute questionnaires as a means of data collecting. The study's subjects are customers of PT XYZ's container delivery services. A sample of 97 respondents, 51 of whom were males and 46 of whom were women, were selected based on their age range of 15 to 40 years and above. Information technology is a variable with easily controlled, comprehensible, and adjustable indications. Indicators of physical evidence, dependability, assurance, responsiveness, and empathy are included in the service quality variable. Additionally, there are strong predictors of attitude, service excellence, loyalty, and popularity in the customer satisfaction variable.

The results of the t-test show that the variable of information technology obtained a significance value of $0.001 < 0.05$, so the hypothesis proves that there is a positive and significant influence between information technology and customer satisfaction. Likewise, the results of the t-test of the service quality variable obtained a significance value of $0.001 < 0.05$, so that the hypothesis proves that there is a positive and significant influence between service quality and customer satisfaction.

The results of the f test on the variables of information technology and service quality have a significance value of $0.001 < 0.05$ so that H_o is rejected and H_a is accepted. Therefore, both information technology (X_1) and service quality (X_2) significantly and positively influence customer satisfaction (Y).

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