

Shipping, Tracking, And Returned Goods: The Determinants of Sustainable E-Commerce Supply Chain and Logistics Operation

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ABSTRACT

The main objectives of the research were to analyze many factors affecting the sustainability distribution, supply chain and logistic operation among e-commerce organization in Indonesia. The establishments were picked up randomly representing main regional in Indonesia. Ten e-commerce establishments were participating in the survey. 215 respondents representing nine e-commerce establishments gave their respond related on how they organized the shipping, tracking, handling as well as the returned goods policy. The result showed that the determinants were significantly gave impact on users' satisfaction as well as the intention to repeat the business with the establishments, since in particular circumstances those ecommerce establishment gave hands on others to organize the goods shipping and distribution, and share the cost, so efficiency were created at both sides' logistics operation.

1. INTRODUCTION

In the current era, the population were increasing and the level of need even higher, especially in the growth of furniture, fashion and house-hold industry. The rise in sales of these category had created new opportunities for large companies to open online stores in the field of such category, by making it easy for customers to buy, companies were competing with each other to perfect online shopping convenience (Wiegand & Imschloss, 2021). In particular from those three industries, study of biggest twenty companies had been held to seek the rate of shipping quality, tracking and returned goods. It was be interpreted as the highest number of visitors during 2019 and 2020, those companies believe that the growth in the world of e-commerce and technology will allow visitors to see the products in increasing significantly. Attractive pages, ease of shopping and attractive promos are one of the attractions of online shopping (Sarkar & De Bruyn, 2021).

In Indonesia since 2015 there were 54 million people out of 255.5 million people already using e-commerce and it is estimated that in 2020 there will be 143 million people out of 271 million people who will use e-commerce as one of the online transactions (Statistic Centre Bureau, 2022). Seeing this potential, large local and international companies are competing with each other to develop business in the online world or what was called e-commerce (Lehmann, 2020). Two e-commerce companies, Tokopedia and Shopee, are competing for the market in Indonesia. Both have the largest market share when viewed based on the average number of visits per month. Based on iPrice data (Jayani, 2021), Tokopedia is at the top with average traffic reaching 158.1 million visits per month during the third quarter of 2021. This figure increased 7% from the previous quarter of 147.8 million visits. Meanwhile Shopee has an average traffic of 134.4 million visits. The number of visits increased 5.8% from the second quarter of 2021 which was 127 million visits. Then the third position is occupied by Bukalapak, which had 30.1 million visits in the third quarter of 2021, up 2.3% from the previous quarter. Lazada followed with 27.95 million visits. This figure is up 1% from the previous quarter which was 27.7 million visits. Indonesia is the largest digital economy market in Southeast Asia. Research results from Google, Temasek, and Bain & Company estimate that Indonesia's total sales value or gross merchandise value (GMV) will reach US\$ 70 billion in 2021. This projected GMV will increase again to US\$ 146 billion in 2025. This projected increase is supported by the level of e-commerce sales were US\$ 53 billion in 2021, and are expected to increase to US\$ 104 billion in 2025.

E-commerce companies compete with each other to get as many customers as possible, one of which is offered by e-commerce to attract customers is by offering easy transactions and payments, delivery, giving discounts, promos, cashback and customer trust that was offered by e-commerce companies (Claro et al., 2020). - current commerce. As is known, e-commerce consists of various types of online-to-offline, Consumer-to-Consumer, Consumer-to-Business, Business-to-Consumer, Business-to-Business, Business-to-Administration, Consumer-to-Administration, in this modern era there are lots of large companies competing to become a

business like the one above (Appel et al., 2020). Millennial consumers tend to rely on information through searching on the internet and also through word of mouth (Jeong & Kim, 2023).

Shipping service is one of the company's advantages including: (1) to increase customer and supplier value; (2) increasing market share; (3) to allow for mass customization; (4) to influence positively on customer satisfaction; (5) to provide a competitive advantage (Neuerburg et al., 2021). The importance of quality shipping service continues to grow under fierce competition (Shahbaznezhad et al., 2021). Thus, the new trend will be more towards embodying the importance of quality shipping service and complete differentiation from other companies (Mazerant et al., 2021). The quality of shipping service which contains very unique characteristics compared to other service industries. Shipping service affects product prices, delivery performance, and the condition of goods when they arrive (Verma & Yadav, 2021). Shipping service will affect customer satisfaction. Shipping services play a vital position in facilitating global exchange and the country's financial improvement (Zeng et al., 2023). Thus, the mode of delivery has emerged as a fundamental component in the global supply chain that connects the location of production to the point of consumption (März et al., 2021). Shipping is the level of delivery of the right product in the right package, which has the right amount and quality to the right time and place (Almeida Lucas et al., 2023). It may be emphasised at this factor that the shipping service is characterised by using growing complexity, the complexity stemming from the reality that in shipping there are several locations of production (Penagos-Londoño et al., 2021). Also, production conditions may vary in time and space. Additionally, production conditions may additionally vary in time and area. But, an essential factor is that the extra complex the enterprise, the more the problems of conversation, coordination and control in conducting shipping services (Kim et al., 2023).

Tracking is the collection and management of information related to the location of products or delivery of goods at a certain time (Lee et al., 2023). Tracking shipments and assuring delivery information to buyers is an important component of customer service and is often considered an industry norm rather than a competitive advantage for logistics service providers (Zhu et al., 2023). Application tracking and tracing, referred to as development structures, can be defined as constructs that describe specific concepts including the way these concepts are positioned in relation to one another (Eigenraam et al., 2021). The importance of cargo monitoring and tracing is taken into consideration quite high for manufacturing companies in terms of customer service and crucial for efficaciously managing the logistics network (Ho & Chuang, 2023). Monitoring structures assist to identify the placement of shipments and notify clients earlier (Happ et al., 2021). Without a monitoring machine, it's miles almost impossible to discover shipped items and it is regularly considered as misplaced or stolen items causing loss of enterprise. This device can meet the desires of mission managers to map the production process from transportation to substances control (Dokić et al., 2023). Tracking systems are generally considered as a link among statistics structures and physical reality in logistics networks (Sharma, 2023). The degree to which customers can song their shipments the usage of multi-channels This machine is seen as a key carrier aspect for the transportation indus-

try to meet the desires of manufacturing companies within the logistics chain, shipment notifications are real-time reputations could be very vital and the fame of any delays or different transport troubles is required to inform as quickly as possible (Zhao et al., 2023). In general, consumers receive information regarding shipment tracking via short message services, mobile phone applications, and websites (Wang et al., 2023)

Growing opposition requires value-optimized manufacturing, service and distribution as indispensable components of market success (Yan et al., 2023). The financial effect of logistics is growing; obvious and efficient internal and external approaches are visible as key achievement elements. Transparent and efficient internal and external processes are seen as key success factors. Therefore, the exchange of data and information that is managed effectively and efficiently "information logistics" - along the logistics chain has become very important. In transportation, global integration and deregulation have elevated opposition, and transportation and logistics service vendors see the need to streamline their internal operations so that you can nonetheless. competitive compared to in-house options (Schoenherr, 2023). Accessibility to transport status and notification of delays or transport problems is simple data that need to be found in a logistics transaction, or a purchaser changing his mind and selection (Chen et al., 2023). Postbenefit convenience can reduce physical and emotional effort. Factors included in post-possession convenience generally are consumer needs for repair, maintenance, or exchange of goods (Yu et al., 2023). Other factors that can affect the evaluation of customer convenience in online purchases are problems in transactions, customer complaints or complaints, requesting guarantees, and defective or defective products (Grundner & Neuhofer, 2021). Post-possession convenience is one of the dimensions that influence consumer perceptions of online purchases (Akyüz et al., 2023). In general, the less effort and time a buyer needs to spend dealing with service failures, the greater the convenience level of online purchases. Ease of product returns can increase consumer perceptions of product trustworthiness and quality (He et al., 2023).

Based on the results of previous research on the variables to be studied, there are still inconsistencies in the hypothesis results. Research conducted by (Cao et al., 2018) on citizens of China or Taiwan at the time of the survey and are currently living there, and have shopped online domestically in their respective countries showed that customer service and returns good had an effect on customer satisfaction, while shipping and tracking had no effect on consumer satisfaction. (Pink & Djohan, 2021) Pink research conducted on Shopee Indonesia users obtained results that customer service, good shipping returns had an effect on customer satisfaction while tracking did not. Based on this, researchers are interested in researching customer service, shipping, tracking, good returns on customer satisfaction and repeat business using a sample of the top 10 e-commerce companies in Indonesia.

In this study the data will be analyzed using the structural equation modeling method. Structural equation modeling is a multivariate statistical technique that combines several aspects of

multiple regression which aims to test dependent relationships and factor analysis which presents the concept of unmeasured factors with multiple variables used to estimate a series of dependent relationships that influence each other simultaneously, with the hypotheses:

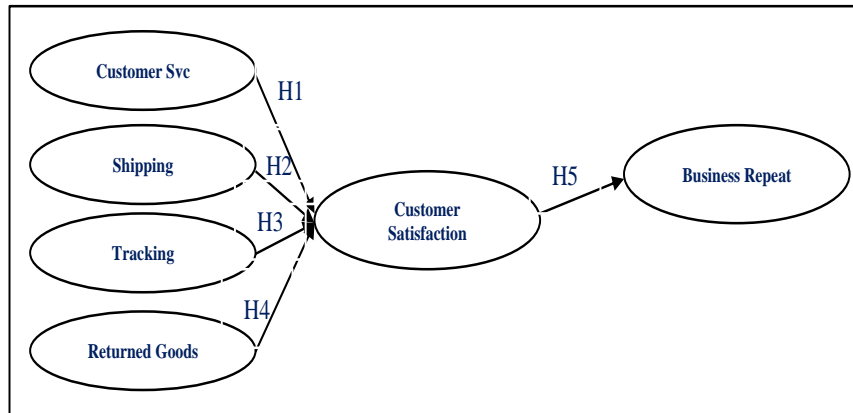


Figure 1. Research Framework

Source: Research Data, 2023

- H₁: Customers Services gave influence to Customers Satisfaction
- H₂: Shipping Quality gave influence to Customers Satisfaction
- H₃: Tracking system gave influence to Customers Satisfaction
- H₄: Returned Goods gave influence to Customers Satisfaction
- H₅: Customers Satisfaction gave nfluence to Business Repeat

2. RESEARCH METHODS

The research uses quantitative methods with descriptive and verification approaches (Malhorta & Birks, 2017). The data analysis technique uses Structural Equation Modeling (SEM) (Jöreskog et al., 2016) with the help of Lisrel 8.8 to thoroughly explain the relationship between the variables in the research (Santosa, 2020). The research laten variables are customer service shipping, tracking, return, good customer satisfaction and business repeat. In detail, operational research variables consist of latent variable exogenous customer service (ξ_1), shipping (ξ_2), tracking (ξ_3), return good (ξ_4) and latent variable endogenous customer satisfaction (η_1) and business repeat (η_2)

This se In terms of methodology, this model has several roles, namely as a system of simultaneous equations, linear causal analysis, path analysis, analysis of covariance structure, and structural equation model. Analysis of research results using the structural equation modeling method:

$$\eta = \gamma \xi + \zeta \dots\dots\dots(1)$$

$$\eta = \beta \eta + \gamma \xi + \zeta \dots\dots\dots (2)$$

Structural models are also called latent variable relationships. The following is the general equation below: Confirmatory factor analysis (CFA) as a measurement model consists of two

types of measurements. Measurement model for exogenous variables (independent variables).

$$X = \lambda_x \xi + \delta \dots\dots\dots(4)$$

$$Y = \lambda_y \eta + \varepsilon \dots\dots\dots(5)$$

The above equation is used with the assumption that (1) ζ is not correlated with ξ , (2) ε is not correlated with η , (3) δ is not correlated with ξ , (4) ζ , ε , and δ are not mutually correlated, and (5) $\gamma - \beta$ is non-singular

Where the above notations have the following meanings: y = observable endogenous variable vector, x = vector of observable exogenous variables, η (eta) = random vector of endogenous latent variables, ξ (ksi) = random vector of exogenous latent variables, ε (epsilon) = measurement error vector in y , δ (delta) = vector of measurement error in x , λ_y (lambda y) = regression coefficient matrix y over ε , λ_x (lambda x) = regression coefficient matrix y over δ , γ (gamma) = coefficient matrix of the variable ξ in the structural equation, β (beta) = variable coefficient matrix η in the structural equation, ζ (zeta) = the equation error vector in the structural relationship between η and ζ . Evaluation or analysis of the structural model includes examining the significance of the estimated coefficients.

Data taken randomly representing the main regions in Indonesia. Ten e-commerce companies participated in the survey (Aditiya, 2021) . 215 respondents representing seven e-commerce companies (Shopee, Tokopedia, Bukalapak, Lazada, Blibli, JD ID, Sociolla) provided their responses regarding how they manage shipping, tracking, handling, and policies on returned goods.

3. RESULTS & DISCUSSION

In this study, visual diagrams are described by path diagrams. In describing the path diagrams in this study, the following path diagrams are described based on the research model:

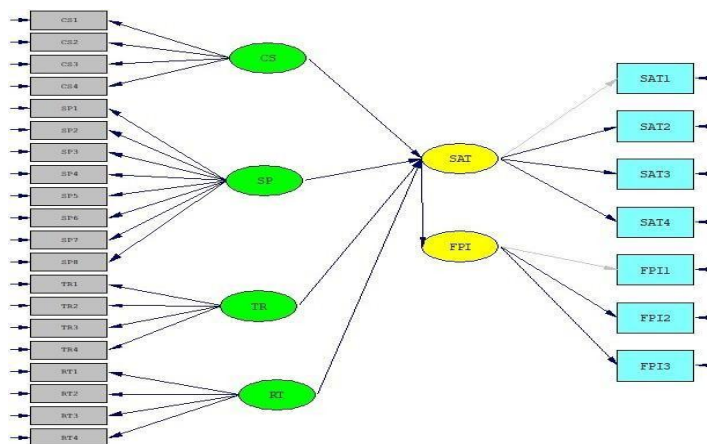
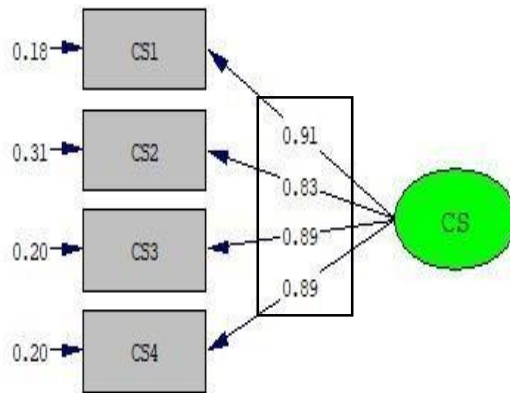


Figure 2. Path Diagram Model

Source: Research Data, 2023

Measurement to measure each latent variable which is a variable that cannot be measured directly, but can be measured with two or more indicators. In measuring latent variables, it measures validity with standardized loading factor (SLF) values and reliability with CR and VE values.

The value of the standardized loading factor (SLF) Latent Variable Customer Service which can be seen in the figure 3. All meet the standardized loading estimates value ≥ 0.50 or it can be said to be ideal if it has a value ≥ 0.70 . From Figure 4 it can be seen that the t-value of all the Customer Service variable indicators has a t-value value that is greater than the standard critical value of 1.96, so it can be interpreted that the Customer Service variable is valid. While the results of the calculation of construct reliability (CR) and variance extracted (VE)



on the Customer Service variable are as follows:

Figure 3. Variable Customer Service
Source: Research Data, 2023

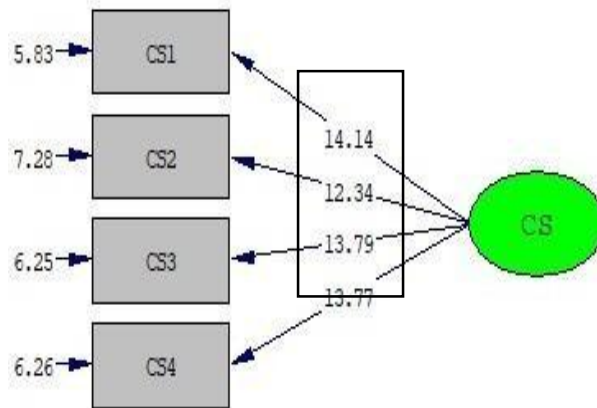


Figure 4. Variable Customer Service T-Value
Source: Research Data, 2023

Table.1 Construct Reliability Test

Indicator	SLF	Err.	Construct Reliability				Variance Extracted			
			\sum SLF	$(\sum$ SLF) ²	\sum Err	CR Val	(SLF) ²	\sum (SLF) ²	\sum Err	VE Val
CS			\sum SLF	$(\sum$ SLF) ²	\sum Err	CR Val	(SLF) ²	\sum (SLF) ²	\sum Err	VE Val
CS1	0.89	0.21	3.46	12.4206	0.85	0.90234	0.8167	3.0123	0.85	0.71256
CS2	0.81	0.28					0.6776			
CS3	0.84	0.19					0.7129			
CS4	0.84	0.19					0.7223			

Source: Research Data (2023)

The results of the calculation of construct reliability (CR) and variance extracted (VE) on the Customer Service variable with results of CR 0.90 and VE 0.71 were all declared to meet the requirements, namely construct reliability (CR) ≥ 0.70 and variance extracted (VE) > 0.50 . The value of the standardized loading factor (SLF) of Latent Shipping which can be seen in Figure 5. All meets the requirements for a standardized loading estimate value of ≥ 0.50 or it can be said to be ideal if it has a value of ≥ 0.70 . From Figure 5 it can be seen that the t-value of all the indicators for the Shipping variable has a t-value that is greater than the standard critical value of 1.96, so it can be interpreted that the Shipping variable is valid. While the results of the calculation of construct reliability (CR) and variance extracted (VE) on the Shipping variable are as follows:

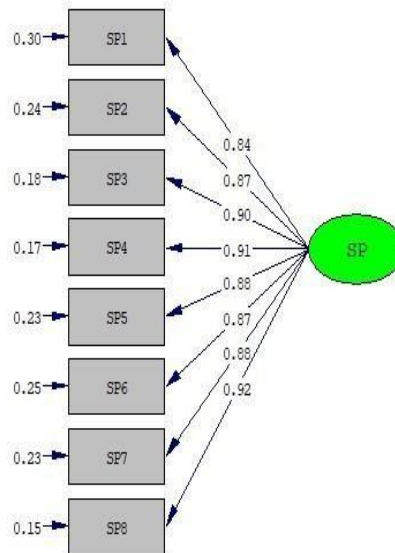


Figure 5. Variable Shipping
Source: Research Data, 2023

The value of the standardized loading factor (SLF) of Latent Shipping which can be seen in

Figure 5. All meets the requirements for a standardized loading estimate value of ≥ 0.50 or it can be said to be ideal if it has a value of ≥ 0.70 . From Figure 5 it can be seen that the t-value of all the indicators for the Shipping variable has a t-value that is greater than the standard critical value of 1.96, so it can be interpreted that the Shipping variable is valid. While the results of the calculation of construct reliability (CR) and variance extracted (VE) on the Shipping variable are as follows:

Table 2. Construct Reliability and VE

Indicator	SLF	Err.	Construct Reliability				Variance Extracted			
			Σ SLF	$(\Sigma$ SLF) ²	Σ Err	CR Val	$($ SLF) ²	Σ (SLF) ²	Σ Err	VE Val
SP			Σ SLF	$(\Sigma$ SLF) ²	Σ Err	CR Val	$($ SLF) ²	Σ (SLF) ²	Σ Err	VE Val
SP1	0.81	0.29	7.23	48.32456	1.79	0.92231	0.7165	3.0123	1.79	0.74356
SP2	0.86	0.25					0.7496			
SP3	0.89	0.19					0.8223			
SP4	0.92	0.24					0.8467			
SP5	0.89	0.26					0.7612			
SP6	0.88	0.24					0.7495			
SP7	0.89	0.25					0.7663			
SP8	0.93	0.17					0.8184			

Source: Research Data (2023)

The results of the calculation of construct reliability (CR) and variance extracted (VE) on the Shipping variable with CR 0.92 and VE 0.74 were all declared to meet the requirements, namely construct reliability (CR) ≥ 0.70 and variance extracted (VE) > 0.50 . The results of measuring the validity of the tracking latent variable showed that:

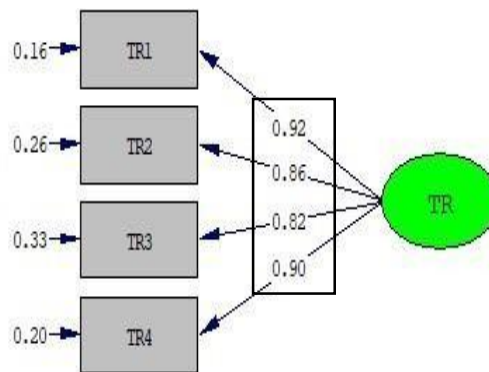


Figure 6. Variable Tracking
Source: Research Data, 2023

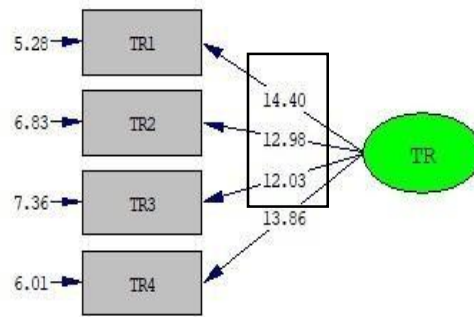


Figure 7. Variable Tracking T-Value

Source: Research Data, 2023

The value of the standardized loading factor (SLF) Latent tracking which can be seen in figure 7. All meets the requirements for a standardized loading estimate value ≥ 0.50 or it can be said to be ideal if it has a value ≥ 0.70 .

Table 3. Construct Reliability and VE

Indicator	SLF	Err.	Construct Reliability				Variance Extracted			
			Σ SLF	$(\Sigma$ SLF) ²	Σ Err	CR Val	(SLF) ²	Σ (SLF) ²	Σ Err	VE Val
TR										
TR1	0.93	0.18	3.61	12.3128	0.96	0.91554	0.8327	3.1123	0.96	0.77412
TR2	0.87	0.27					0.7194			
TR3	0.86	0.34					0.6863			
TR4	0.91	0.22					0.7992			

Source: Research Data (2023)

The results of the calculation of construct reliability (CR) and variance extracted (VE) on the tracking variable with CR 0.91 and VE 0.77 were all declared to meet the requirements, namely construct reliability (CR) ≥ 0.70 and variance extracted (VE) > 0.50 . The results of measuring the validity of the latent variable Return showed that:

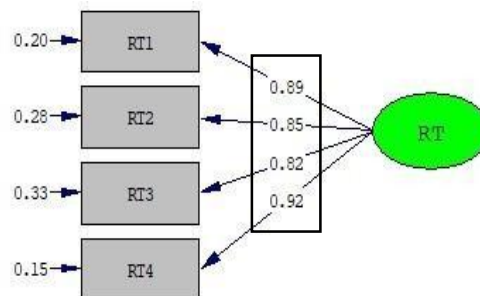


Figure 8. Variable Returned Goods

Source: Research Data, 2023

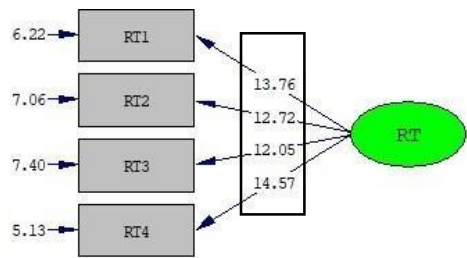


Figure 9. Variable Return Goods T-Value
 Source: Research Data, 2023

The value of the standardized loading factor (SLF) Latent return which can be seen in Figure 9. All meets the requirements for a standardized loading estimate value ≥ 0.50 or it can be said to be ideal if it has a value ≥ 0.70 . From the figure 9 it can be seen that the t-value of all indicators of the Return variable has a t-value value that is greater than the standard critical value of 1.96, so it can be interpreted that the Return variable is valid. While the results of the calculation of construct reliability (CR) and variance extracted (VE) on the Return variable are as follows:

Table 4. CR & VE

Indicator	SLF	Err.	Construct Reliability				Variance Extracted			
			\sum SLF	$(\sum$ SLF) ²	\sum Err	CR Val	(SLF) ²	\sum (SLF) ²	\sum Err	VE Val
RT										
RT1	0.88	0.21	3.49	12.3312	0.97	0.91644	0.8067	3.0863	0.87	0.747532
RT2	0.86	0.27					0.7376			
RT3	0.83	0.32					0.6829			
RT4	0.91	0.17					0.8523			

Source: Research Data (2023)

The results of the calculation of construct reliability (CR) and variance extracted (VE) on the return variable with CR 0.91 and VE 0.75 were all declared to meet the requirements, namely construct reliability (CR) ≥ 0.70 and variance extracted (VE) > 0.50 . The results of measuring the validity of the latent variable customer satisfaction with lisrel show that :

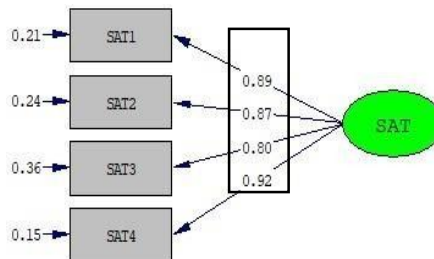


Figure 10. Variable Customer Satisfaction
 Source: Research Data, 2023

The value of the standardized loading factor (SLF) Latent customer satisfaction which can be seen in Figure 11. All meets the requirements for a standardized loading estimate value ≥ 0.50 or it can be said to be ideal if it has a value ≥ 0.70 .

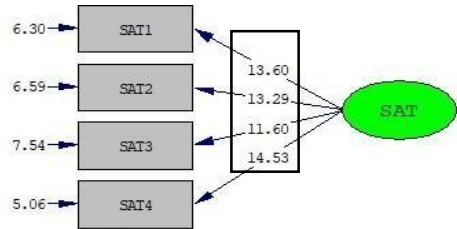


Figure 11. Variable Customer Satisfaction T-Value
 Source: Research Data, 2023

From the figure 11 it can be seen that the t-value of all indicators of the variable customer satisfaction has a t-value value that is greater than the standard critical value of 1.96, so it can be interpreted that the variable customer satisfaction is valid. While the results of the calculation of construct reliability (CR) and variance extracted (VE) on the customer satisfaction variable.

Table 5. CR & VE

Indicator	SLF	Err.	Construct Reliability				Variance Extracted			
			\sum SLF	$(\sum$ SLF) ²	\sum Err	CR Val	(SLF) ²	\sum (SLF) ²	\sum Err	VE Val
SAT										
SAT1	0.87	0.22	3.46	12.2256	0.97	0.92331	0.78043	3.0379	0.96	0.74487
SAT2	0.85	0.25					0.7678			
SAT3	0.861	0.31					0.6819			
SAT4	0.90	0.18					0.8521			

Source: Research Data (2023)

The results of the calculation of construct reliability (CR) and variance extracted (VE) on the customer satisfaction variable with CR 0.92 and VE 0.74 were all declared to meet the requirements, namely construct reliability (CR) ≥ 0.70 and variance extracted (VE) > 0.50 . The results of measuring the validity of the latent variable Business Repeat showed that:

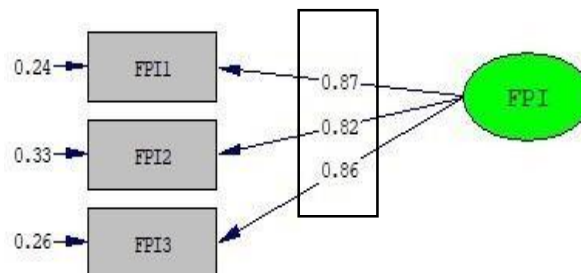


Figure 12. Variable Business Repeat
 Source: Research data, 2023

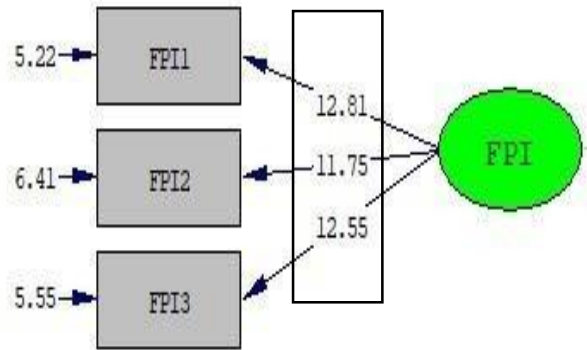


Figure 13. Variable Business Repeat T-Value
Source: Research Data, 2023

The value of the standardized loading factor (SLF) Latent Future Purchase intention which can be seen in Figure 12. All of them fulfill the standardized loading estimates value ≥ 0.50 or it can be said to be ideal if it has a value ≥ 0.70 . From Figures 13 it can be seen that the t-value of all the indicators of the Future Purchase Intention variable has a t-value value that is greater than the standard critical value of 1.96, so it can be interpreted that the Future Purchase Intention variable is valid. While the results of the calculation of construct reliability (CR) and variance extracted (VE) on the Future Purchase Intention variable were as follows:

Table 6. CR and VE

Indicator	SLF	Err.	Construct Reliability				Variance Extracted			
			\sum SLF	$(\sum$ SLF) ²	\sum Err	CR Val	(SLF) ²	\sum (SLF) ²	\sum Err	VE Val
BR										
BR11	0.85	0.21	2.58	6.5342	0.85	0.87645	0.7212	2.2329	0.84	0.74487
BR12	0.83	0.35					0.6813			
BR13	0.84	0.28					0.7264			

Source: Research Data (2023)

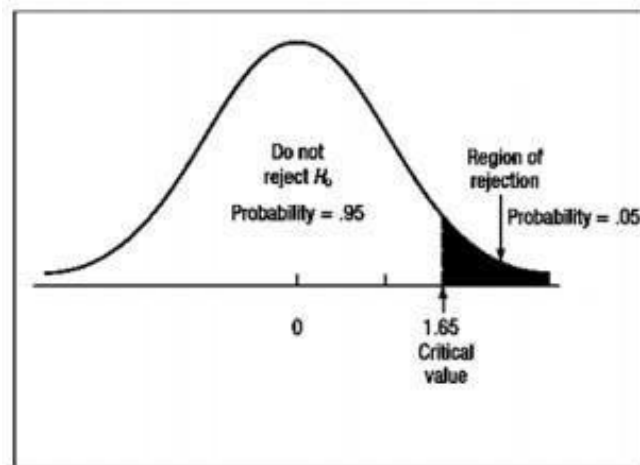
The results of the calculation of construct reliability (CR) and variance extracted (VE) on the Business Repeat variable with CR 0.87 and VE 0.72 results were all declared to meet the requirements, namely construct reliability (CR) ≥ 0.70 and variance extracted (VE) > 0.50 . To be able to find out how suitable the research model is, it can be seen based on the degree of compatibility of the goodness of fit values. Goodness of fit is divided into three groups, namely absolute measures, incremental measures, and parsimony fit measures. Following are the results of the model fit test with goodness of fit:

Table 7. Goodness Of Fit Test Result

Size of gof	Fitness scale	Est.result	Fitness rate
Absolute fit size			
Normed Chi-Square $P \geq 0,05$	$(X^2/Df) < 3 = \text{VeryGood}$	571.76 (df=312) =	
	$2 \leq (X^2/Df) \leq 5 =$ acceptable	2.182 P = 0.000	Acceptable fit
RMSEA	RMSEA < 0.08	0.074	Acceptable fit
Incremental fit size			
CFI	≥ 0.95	0.95	Acceptable fit
Parsimonal fit size			
Parsimonius Normed Fit Index (PNFI)	$0 \leq \text{PNFI} \leq 1$	0.94	Acceptable fit

Source: Research Data (2023)

It can be seen in table 7, the results of the three parts of the goodness of fit group are absolute fit indices with a root mean square error approximation value of 0.074, incremental fit indices with a cooperative fit index value of 0.95, and parsimony fit indices with a pasimony normed value the fit index is 0.94 as a whole fulfilling the suitability level requirements. So it can be concluded that the level of fit of the model is fit. At this stage, the researcher tested the one-tailed hypothesis test with a critical value of 1.65 so that it could be said to be a hypothesis that had a positive influence. For a hypothesis with a critical value of -1.65

**Figure 14.** Hypotheses Plot

Source: Research Data, 2023

With a significance level of 0.05, the hypothesis has a negative effect, as shown in the following figure:

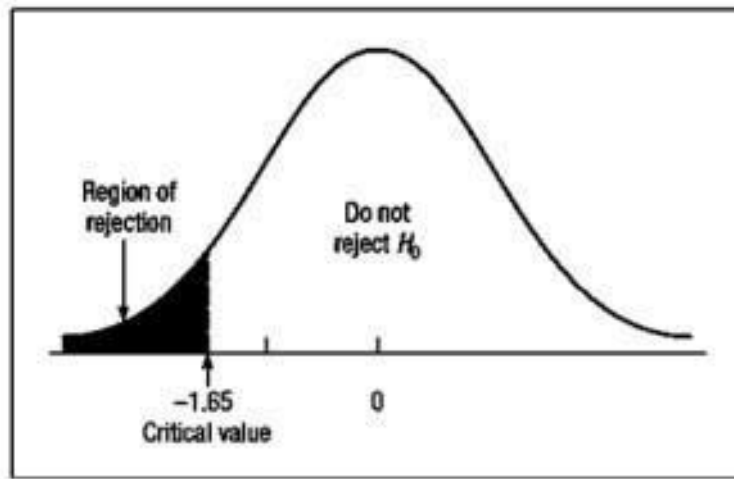


Figure 15. Left-Tailed Test

Source: Research Data, 2023

The following is the result of processing the data path diagram:

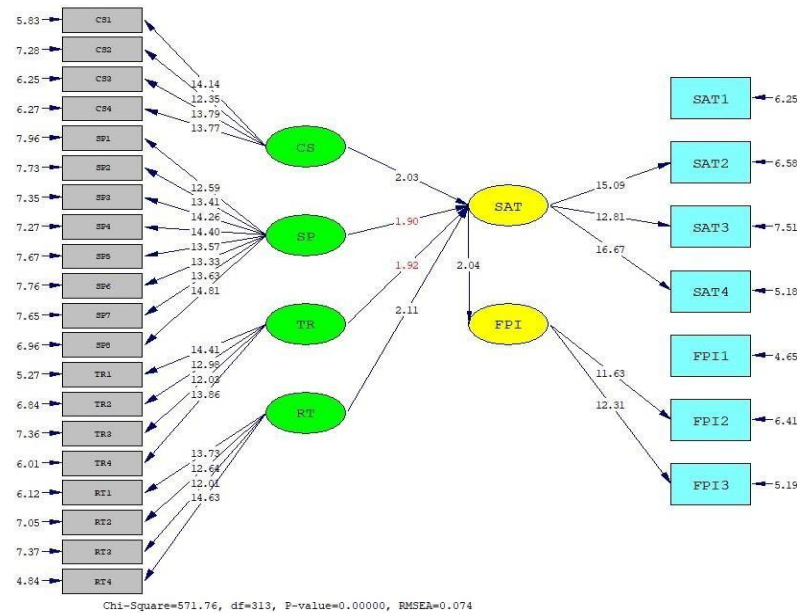


Figure 16. Path Diagram

Source: Research Data, 2023

Based on the path diagram image, the author makes a table that contains the influence between variables. If the hypothesis that has a positive impact has a value greater than the critical value of 1.65 then the results of the hypothesis are significant and accepted (H_0 was rejected) and the hypothesis that has a positive impact but has a value below the critical value of 1.65 then the hypothesis is declared insignificant (does not reject H_0).

Table 8. Hypotheses Test Result

Hypotheses	Path	Critical Value	T-Value Result	Conclude
1	Customer Service (CS) affecting Customer Satisfaction (SAT)	1.65	2.03	Data Supported Hypotheses
2	Shipping (SP) affecting Customer Satisfaction (SAT)	1.65	1.90	Data Supported Hypotheses
3	Tracking (TR) affecting Customer Satisfaction (SAT)	1.65	1.92	Data Supported Hypotheses
4	Return (RT) affecting Customer Satisfaction	1.65	2.11	Data Supported Hypotheses
5	Customer Satisfaction (SAT) affecting Business Repeat	1.65	2.04	Data Supported Hypotheses

Source: Research Data (2023)

Based on Table 8, the hypothesis test shows that H1 results are accepted, customer service has a significant and positive effect on customer satisfaction with a customer service t-value of $2.03 > t$ table 1.65. This shows that customer service fulfilled customer satisfaction. The better the customer service, the better the level of customer satisfaction. This research is in line with research (Cao et al., 2018) found that perceived customer service quality has a significant impact on satisfaction, which, in turn, affects customers' future purchase intention. (Reibstein, 2002) reported that post-purchase customer support service is one factor that that is a key to customer's satisfaction. More specifically, several activities are found to be crucial to a good e-commerce company and they ensure company's success in an e-business environment business. These activities include promptness in responding to customer's inquires in complaints, access to service, and perception of service quality received (Liu et al., 2008).

Hypothesis H2 is accepted, shipping has a significant and positive effect on customer satisfaction with a t-value of $1.90 > t$ table 1.65. This shows that the shipping of goods according to the specified time and other factors regarding shipping make customers feel satisfied. The same results were obtained (Vasić et al., 2019) (Tandon et al., 2020) (Pink & Djohan, 2021). Shipping is a link in the supply chain that directly affects the consumer and triggers their satisfaction (Chakraborty et al., 2007). It implies that the customer will receive the ordered product, which is well packed, and whose amount, quality and specification are in accordance with the order, as well as the set delivery time and place (Chakraborty et al., 2007). Consumers are inclined to buy a product from their homes, and thus require a secure, reliable, and fast shipment of the desired product to its destination. In online environment, a timely and reliable delivery plays a key role in meeting consumers' expectations and creating their satisfaction (Chakraborty et al., 2007). This research provides differ-

ent results carried out by (Cao et al., 2018) which provides shipping results has no effect on customer satisfaction.

Hypothesis H3, tracking has a positive effect on customer satisfaction with a t-value of $1.92 > t$ table 1.65. This shows that tracking when delivery is made makes consumers satisfied with advance notification. Thus increasing the level of customer satisfaction. Tracking helps companies to track and analyze various logistics aspects such as return rates, return time for refunds, return time for resale, return costs, and the impact of returns on the environment. By tracking and improving these metrics, you can increase profitability, improve customer experience, and make your business more sustainable. The results of this study are not in line with research (Cao et al., 2018) (Pink & Djohan, 2021) which provides tracking results has no effect on customer satisfaction.

Hypothesis 4 is accepted, returned goods have a significant and positive effect on customer satisfaction with a t-value of $2.1 > t$ table 1.651. This shows that returned goods increases customer satisfaction considering that the service and goods are for welfare, so the goods purchased must be durable and of good quality. The results of the same research carried out by (Cao et al., 2018) (Pink & Djohan, 2021). This is how customers feel when shopping and returning items. Return goods handling is also important because it helps e-commerce businesses reduce their losses. By quickly processing returns and issuing refunds, businesses can minimize the money they lose due to returns. Additionally, restocking returned items and reselling them helps businesses recoup their losses and increase their profits.

Hypothesis H5, customer satisfaction has a positive effect on business repeat with a t-value of $2.04 > t$ table 1.65. In e-commerce, satisfaction is defined as an affective state that represents the consumer's emotional reaction to the entire transaction experience with an online retailer. Only shoppers who experience a series of discrete satisfying experiences with the online retailer will progress to the stage of loyalty (Mofokeng, 2021). (Patterson, 1993) found that satisfaction positively influences customers' behavioural loyalty. However, consumer loyalty related to repurchase behaviour will manifest in a strong commitment, as consumers repurchase the same brand because the search for alternatives is worth the time and effort it would need (Oliver, 1999).

4. CONCLUSION & SUGGESTION

Based on the results and discussion, what the author can conclude is that customer service has a significant and positive effect on customer satisfaction, shipping has a significant and positive effect on customer satisfaction, tracking has a significant and positive effect on customer satisfaction, returned good has a significant and positive effect on customer satisfaction, customer satisfaction has a significant and positive effect on business repeat. There are many benefits of sustainable logistics and supply chain management, both for the environment and for business. This includes: Reducing emissions and energy use. Reducing waste creates a more efficient and cost-effective supply chain. Returns are the new normal and critical to the customer experience. But they don't have to be an epidemic. But how an ecom-

merce company handles returns, before and after purchase—can differentiate your brand, create a competitive advantage, and even make you more profitable. It helps them maintain customer satisfaction and loyalty. Customers who can easily and quickly return products they don't like or don't need are more likely to shop with that business again. Return goods handling is also important because it helps e-commerce businesses reduce their losses. By quickly processing returns and issuing refunds, businesses can minimize the money they lose due to returns. Additionally, restocking returned items and reselling them helps businesses recoup their losses and increase their profits. This shows that customer satisfaction when shopping is determined by many factors, especially customer service, shipping, tracking, and returned goods, with these factors making customers feel satisfied and will influence their intention to repeat business.

REFERENCES

- [1] Aditiya, I. M. (2021). *Sengitnya Perebutan Takhta Penguasa E-Commerce di Tanah Air*. Iptek. <https://www.goodnewsfromindonesia.id/2021/01/07/sengitnya-perebutan-takhta-penguasa-e-commerce-di-tanah-air>
- [2] Akyüz, M. H., Dekker, R., & Sharif Azadeh, S. (2023). Partial and complete replanning of an intermodal logistic system under disruptions. *Transportation Research Part E: Logistics and Transportation Review*, 169, 102968. <https://doi.org/https://doi.org/10.1016/j.tre.2022.102968>
- [3] Almeida Lucas, G., Lunardi, G. L., & Bittencourt Dolci, D. (2023). From e-commerce to m-commerce: An analysis of the user's experience with different access platforms. *Electronic Commerce Research and Applications*, 58, 101240. <https://doi.org/https://doi.org/10.1016/j.elerap.2023.101240>
- [4] Appel, G., Libai, B., Muller, E., & Shachar, R. (2020). On the monetization of mobile apps. *International Journal of Research in Marketing*, 37(1), 93–107. <https://doi.org/https://doi.org/10.1016/j.ijresmar.2019.07.007>
- [5] Cao, Y., Ajjan, H., & Hong, P. (2018). Post-purchase shipping and customer service experiences in online shopping and their impact on customer satisfaction: An empirical study with comparison. *Asia Pacific Journal of Marketing and Logistics*, 30(2), 400–416. <https://doi.org/10.1108/APJML-04-2017-0071>
- [6] Chakraborty, G., Srivastava, P., & Marshall, F. (2007). Are drivers of customer satisfaction different for buyers/users from different functional areas? *Journal of Business and Industrial Marketing*, 22(1), 20–28. <https://doi.org/10.1108/08858620710722798>
- [7] Chen, J., Feng, X., Kou, G., & Mu, M. (2023). Multiproduct newsvendor with cross-selling and narrow-bracketing behavior using data mining methods. *Transportation Research Part E: Logistics and Transportation Review*, 169, 102985. <https://doi.org/https://doi.org/10.1016/j.tre.2022.102985>
- [8] Claro, D. P., Ramos, C., Gonzalez, G. R., & Palmatier, R. W. (2020). Dynamic effects of newcomer salespersons' peer relational exchanges and structures on performance. *International Journal of Research in Marketing*, 37(1), 74–92. <https://doi.org/https://doi.org/10.1016/j.ijresmar.2019.07.006>

- [9] Dokić, A., Stamenković, M., & Stojković, D. (2023). Multiple channel strategy selection: A roadmap perspective for brick-and-click retailers. *Electronic Commerce Research and Applications*, 57, 101234. <https://doi.org/https://doi.org/10.1016/j.elerap.2022.101234>
- [10] Eigenraam, A. W., Eelen, J., & Verlegh, P. W. J. (2021). Let Me Entertain You? The Importance of Authenticity in Online Customer Engagement. *Journal of Interactive Marketing*, 54, 53–68. <https://doi.org/https://doi.org/10.1016/j.intmar.2020.11.001>
- [11] Grundner, L., & Neuhofer, B. (2021). The bright and dark sides of artificial intelligence: A futures perspective on tourist destination experiences. *Journal of Destination Marketing & Management*, 19, 100511. <https://doi.org/https://doi.org/10.1016/j.jdmm.2020.100511>
- [12] Happ, E., Hofmann, V., & Schnitzer, M. (2021). A look at the present and future: The power of emotions in the interplay between motivation, expectation and attitude in long-distance hikers. *Journal of Destination Marketing & Management*, 19, 100527. <https://doi.org/https://doi.org/10.1016/j.jdmm.2020.100527>
- [13] He, M., Kang, K., Wei, X., & Li, Y. (2023). Financing strategy of transnational supply chain with vertical shareholding under tax system difference: Creditor or guarantor? *Transportation Research Part E: Logistics and Transportation Review*, 169, 102973. <https://doi.org/https://doi.org/10.1016/j.tre.2022.102973>
- [14] Ho, S.-C., & Chuang, W.-L. (2023). Identifying and prioritizing the critical quality attributes for business-to-business cross-border electronic commerce platforms. *Electronic Commerce Research and Applications*, 58, 101239. <https://doi.org/https://doi.org/10.1016/j.elerap.2023.101239>
- [15] Jayani, D. H. (2021). *Peta Persaingan E-Commerce di Indonesia - Infografik Katadata.co.id*. Katadata.Com. <https://katadata.co.id/ariayudhistira/infografik/61b945392d739/peta-persaingan-e-commerce-di-indonesia>
- [16] Jeong, Y., & Kim, G. (2023). Reliable design of container shipping network with foldable container facility disruption. *Transportation Research Part E: Logistics and Transportation Review*, 169, 102964. <https://doi.org/https://doi.org/10.1016/j.tre.2022.102964>
- [17] Jöreskog, K. G., Olsson, U. H., & Wallentin, F. Y. (2016). *Multivariate Analysis with LISREL*. Springer.
- [18] Kim, W., Nam, K., & Son, Y. (2023). Categorizing affective response of customer with novel explainable clustering algorithm: The case study of Amazon reviews. *Electronic Commerce Research and Applications*, 58, 101250. <https://doi.org/https://doi.org/10.1016/j.elerap.2023.101250>
- [19] Lee, C. T., Ho, T.-Y., & Xie, H.-H. (2023). Building brand engagement in metaverse commerce: The role of branded non-fungible tokens (BNFTs). *Electronic Commerce Research and Applications*, 58, 101248. <https://doi.org/https://doi.org/10.1016/j.elerap.2023.101248>
- [20] Lehmann, D. R. (2020). The evolving world of research in marketing and the blending of theory and data. *International Journal of Research in Marketing*, 37(1), 27–42. <https://doi.org/https://doi.org/10.1016/j.ijresmar.2019.12.001>
- [21] Liu, X., He, M., Gao, F., & Xie, P. (2008). An empirical study of online shopping customer satisfaction in China: A holistic perspective. *International Journal of Retail and Distribution Management*, 36(11), 919–940. <https://doi.org/10.1108/09590550810911683>
- [22] Malhorta, N. K., & Birks, D. F. (2017). *Marketing Research - An Applied Approach Updated* (5th editio). In Koks i Khimiya.
- [23] März, A., Lachner, M., Heumann, C. G., Schumann, J. H., & von Wangenheim, F. (2021). How

- You Remind Me! The Influence of Mobile Push Notifications on Success Rates in Last-Minute Bidding. *Journal of Interactive Marketing*, 54, 11–24.
<https://doi.org/https://doi.org/10.1016/j.intmar.2020.08.002>
- [24] Mazerant, K., Willemsen, L. M., Neijens, P. C., & van Noort, G. (2021). Spot-On Creativity: Creativity Biases and Their Differential Effects on Consumer Responses in (Non-)Real-Time Marketing. *Journal of Interactive Marketing*, 53, 15–31.
<https://doi.org/https://doi.org/10.1016/j.intmar.2020.06.004>
- [25] Mofokeng, T. E. (2021). The impact of online shopping attributes on customer satisfaction and loyalty: Moderating effects of e-commerce experience. *Cogent Business and Management*, 8(1).
<https://doi.org/10.1080/23311975.2021.1968206>
- [26] Neuerburg, C., Koschate-Fischer, N., & Pescher, C. (2021). Menu-Based Choice Models for Customization: On the Recoverability of Reservation Prices, Model Fit, and Predictive Validity. *Journal of Interactive Marketing*, 53, 1–14.
<https://doi.org/https://doi.org/10.1016/j.intmar.2020.05.003>
- [27] Oliver, R. L. (1999). Whence consumer loyalty? *Journal of Marketing*, 63, 33.
- [28] Patterson, P. G. (1993). Expectations and product performance as determinants of satisfaction for a high- involvement purchase. *Psychology & Marketing*, 10(5), 449–465.
<https://doi.org/10.1002/mar.4220100507>
- [29] Penagos-Londoño, G. I., Rodriguez–Sanchez, C., Ruiz-Moreno, F., & Torres, E. (2021). A machine learning approach to segmentation of tourists based on perceived destination sustainability and trustworthiness. *Journal of Destination Marketing & Management*, 19, 100532. <https://doi.org/https://doi.org/10.1016/j.jdmm.2020.100532>
- [30] Pink, M., & Djohan, N. (2021). Effect Of Ecommerce Post-Purchase Activities On Customer Retention In Shopee Indonesia. *Enrichment: Journal of Management*, 12(1), 519–526.
- [31] Reibstein, D. J. (2002). What attracts customers to online stores, and what keeps them coming back? *Journal of the Academy of Marketing Science*, 30(4), 465–473.
<https://doi.org/10.1177/009207002236918>
- [32] Santosa, A. D. (2020). *Partial Least Square 2 Dalam Penelitian Empirik*. Kepel Pres.
- [33] Sarkar, M., & De Bruyn, A. (2021). LSTM Response Models for Direct Marketing Analytics: Replacing Feature Engineering with Deep Learning. *Journal of Interactive Marketing*, 53, 80–95. <https://doi.org/https://doi.org/10.1016/j.intmar.2020.07.002>
- [34] Schoenherr, T. (2023). Supply chain management professionals' proficiency in big data analytics: Antecedents and impact on performance. *Transportation Research Part E: Logistics and Transportation Review*, 169, 102972.
<https://doi.org/https://doi.org/10.1016/j.tre.2022.102972>
- [35] Shahbaznezhad, H., Dolan, R., & Rashidirad, M. (2021). The Role of Social Media Content Format and Platform in Users' Engagement Behavior. *Journal of Interactive Marketing*, 53, 47–65. <https://doi.org/https://doi.org/10.1016/j.intmar.2020.05.001>
- [36] Sharma, P. (2023). Destination evangelism and engagement: Investigation from social media-based travel community. *Electronic Commerce Research and Applications*, 57, 101228.
<https://doi.org/https://doi.org/10.1016/j.elerap.2022.101228>
- [37] Tandon, A., Aakash, A., & Aggarwal, A. G. (2020). Impact of EWOM, website quality, and product satisfaction on customer satisfaction and repurchase intention: moderating role of

- shipping and handling. *International Journal of System Assurance Engineering and Management*, 11(2), 349–356. <https://doi.org/10.1007/S13198-020-00954-3/METRICS>
- [38] Vasić, N., Kilibarda, M., & Kaurin, T. (2019). The Influence of Online Shopping Determinants on Customer Satisfaction in the Serbian Market. *Journal of Theoretical and Applied Electronic Commerce Research*, 14(2), 70–89. <https://doi.org/10.4067/S0718-18762019000200107>
- [39] Verma, S., & Yadav, N. (2021). Past, Present, and Future of Electronic Word of Mouth (EWOM). *Journal of Interactive Marketing*, 53, 111–128. <https://doi.org/https://doi.org/10.1016/j.intmar.2020.07.001>
- [40] Wang, Q., Zhang, W., Li, J., Ma, Z., & Chen, J. (2023). Benefits or harms? The effect of online review manipulation on sales. *Electronic Commerce Research and Applications*, 57, 101224. <https://doi.org/https://doi.org/10.1016/j.elerap.2022.101224>
- [41] Wiegand, N., & Imschloss, M. (2021). Do You Like What You (Can't) See? The Differential Effects of Hardware and Software Upgrades on High-Tech Product Evaluations. *Journal of Interactive Marketing*, 56, 18–40. <https://doi.org/https://doi.org/10.1016/j.intmar.2021.03.004>
- [42] Yan, X., Xu, M., & Xie, C. (2023). Local container drayage problem with improved truck platooning operations. *Transportation Research Part E: Logistics and Transportation Review*, 169, 102992. <https://doi.org/https://doi.org/10.1016/j.tre.2022.102992>
- [43] Yu, F., Xiang, Z., Wang, X., Yang, M., & Kuang, H. (2023). An innovative tool for cost control under fragmented scenarios: The container freight index microinsurance. *Transportation Research Part E: Logistics and Transportation Review*, 169, 102975. <https://doi.org/https://doi.org/10.1016/j.tre.2022.102975>
- [44] Zeng, Y., Bai, X., & Wang, Y. (2023). How should resale platforms operate the customer-to-business-to-customer mode? *Electronic Commerce Research and Applications*, 58, 101251. <https://doi.org/https://doi.org/10.1016/j.elerap.2023.101251>
- [45] Zhao, W., Hu, F., Wang, J., Shu, T., & Xu, Y. (2023). A systematic literature review on social commerce: Assessing the past and guiding the future. *Electronic Commerce Research and Applications*, 57, 101219. <https://doi.org/https://doi.org/10.1016/j.elerap.2022.101219>
- [46] Zhu, Z., Zhang, F., Xu, X., & Jiang, A. (2023). Retailer's optimal pricing decisions when offering installment in the presence of P2P market. *Electronic Commerce Research and Applications*, 58, 101245. <https://doi.org/https://doi.org/10.1016/j.elerap.2023.101245>