The Effect of E-Service Quality, E-Service Satisfaction, on E-Service Loyalty of Indonesian E-Commerce Using SEM-PLS Methodology

Annisa Nurul Fitriani, Imanuddin Hasbi, Mahir Pradana,
Tri Indra Wijaksana, Budi Rustandi Kartawinata
School of Communication and Business Telkom University,
Annisanrlftrn2602@gmail.com, imanuddinhasbi@telkomuniversity.ac.id,
mahirpradana@telkomuniversity.ac.id, triindrawijaksana@telkomuniversity.ac.id,
budikartawinata@telkomuniversity.ac.id

Abstract

Currently, there are many types of e-commerce that are developing in Indonesia, one of which is a marketplace which is an intermediary between the seller and the buyer. Marketplace as a third party in online transactions by providing sales features equipped with payment facilities. Some examples of marketplaces in Indonesia are interesting to study. This study examines the effect of e-service quality, e-service satisfaction, on e-service loyalty. This study aims to examine the effect by using Slovin's formula. The analytical tool used is SmartPLS program. the *e-service quality* of the Zalora application is not optimal so that it makes its users feel aggrieved. Where many users complain about the quality of service such as delays in delivery, unilateral cancellations, failed login access, to *live chat customer service* that is expected to help the difficulties of its users is even considered less helpful so that users feel displaced. *E-service quality* or electronic service quality is something that shows how *e-commerce* **sites** serve and facilitate online shopping*, ordering to deliver a product or service effectively and efficiently

Keywords
 e-service quality, e-service satisfaction, e-service loyalty, e-business

1. Introduction
Briefly the development of the internet in Indonesia began in the 2000s. Along with the advancement of internet development technology in Indonesia is widely used in all aspects of daily life. Speed and convenience are the benefits offered in the use of the internet and can be used as the right choice for the people of untUK save time and effort. According to *the We Are Social-Hootsuite* survey, internet use in 2021 has increased. The results of the survey data can be seen in the following figure 1:
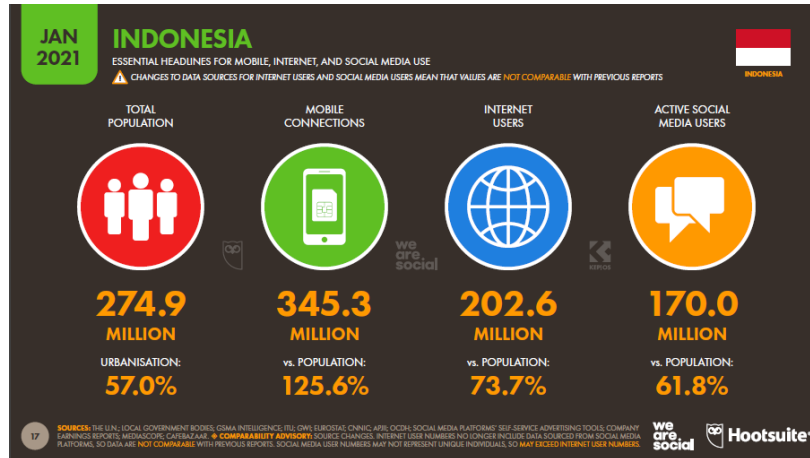
Figure 1. Internet User Data in Indonesia in 2021 1

Source: We Are Social & Hootsuite, (2021)

Internet use in Indonesia at the beginning of 2021 reached 202.6 million out of a population of 274.9 million or equivalent to 73.7% of the indonesian population. The number of uses that access the internet through mobile devices type smartphones rose 125.6% or as many as 345.3 million users. The number of users active on social media increased by 61.8% or as many as 170 million users. The development of the internet not only serves as a medium of information, but the creation of a change in business model by utilizing the   internet as an intermediary for buying and selling transactions of a product or Services that can be widely reached   and more effective and efficient. Changes in business models can be called *E-commerce (electronic commerce). E-commerce* is a trading business that is connected to the internet through electronic media (Nugroho 2016: 5). *E-commerce*   is one of the fruits of the development of trends that can be facilitated in the search for products without having to visit the store that sells the product.
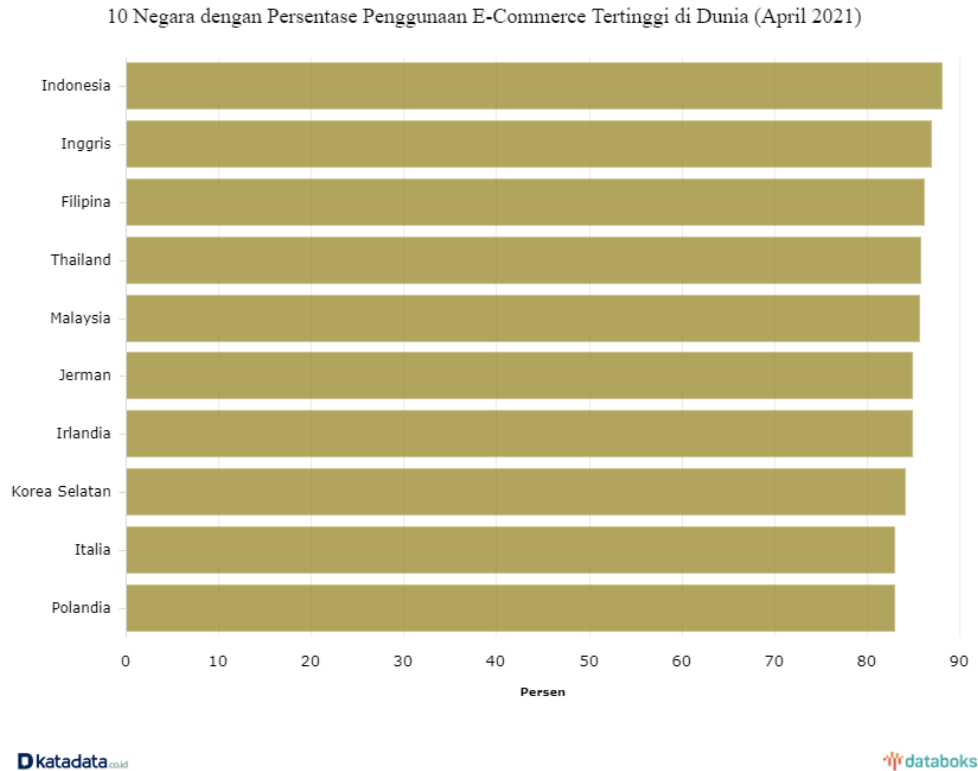
Figure 2. World's Highest E-Commerce Users 2021
Source: databox (2021)

The figure 2 shows that Indonesia is in the first rank as the highest number of *e-commerce* usage in the world, which is 88.1% of users. It can be interpreted that the use of the internet to make buying and selling transactions online through *e-commerce* in Indonesia   is quite large and becomes an opportunity to get benefits for businesses conducted online through *e-commerce.* Currently there are many types of *e-commerce* that develop in Indonesia, one of which is a *marketplace* that is an intermediary for sellers with buyers. *Marketplace* as a third party in online transactions by providing sales features that are equipped with payment facilities. Some examples *of marketplaces* in Indonesia are Tokopedia, Bukalapak, Shopee, Lazada, and Zalora. Here is a comparison of *e-commerce* visitors in similar industries quoted from Iprice (2021).
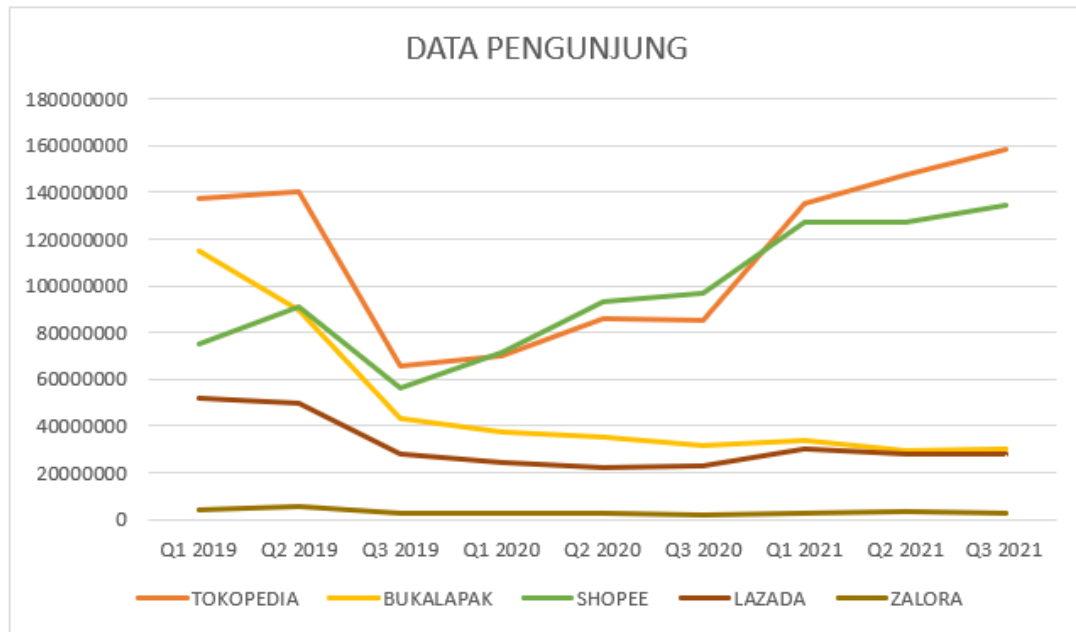
Figure 3. E-commerce Visitor Graph in Indonesia
Source: Research Processed Data *Based on Iprice 2019-2021*

The figure 3 above is the order of *e-commerce* visitors in 2019 to 2021 where Zalora is always at the lowest rank among other *e-commerce*. There was an increase in some *e-commerce* in the third quarter of 2021, and there were also some declines. Unlike the case with Zalora which continues to decline from the first quarter in 2019 to the third quarter in 2021. It has been quite a long time the existence of Zalora in Indonesia compared to other *e-commerce* and is one of the applications that are widely used in Indonesia but the Zalora application cannot guarantee to provide Satisfaction for all its users. There are many obstacles and also complaints from the use of the Zalora application. Especially complaints on the quality of the system and also *customer service*.

Based on research conducted by Maulida (2021) entitled The effect of electronic service quality on electronic customer loyalty through electronic customer satisfaction as an intervening variable (linkaja application case in Indonesia), it was mentioned that *e-service Quality* to *e-customer satisfaction* in linkaja applications has a positive and significant effect, *e-customer satisfaction*. Positive and significant effect on *e-customer loyalty, e-servuce quality* has a positive but insignificant effect on e-customer loyalty, and *e-service quality* indirectly *affects e-customer loyalty* through *e-customer satisfaction.*

2. Literature review

E-Business
E-Business (electronic business) is a term used to define or describe a method of business management over the internet using a series of tools and information technology (Zebari et al. 2019).
 In addition, *E-B usiness* is also defined as a relevant concept and adaptation process and the latest technology with a marketing and management philosophy focused on the field of *E-commerce,* intelijen bisnis, customer relationship management, rantai value. and also enterprise resource planning that provides frameworks with effective and efficient performance (Mokhniuk and Lipych 2020)
From both definitions it can be concluded that *e-business* is a business management method using the internet and information technology tools as a means of marketing that provides a framework with Effective and efficient performance.

E-Marketing
According to (Sasono, Suroso, and Novitasari 2021) *e-marketing* is an activity that uses information technology in the process of creating, communicating and providing value to customers and is used to maintain relationships. with

mutually beneficial customers. Meanwhile (Noorbehbahani, Salehi, and Jafar Zadeh 2019) shows that *e-marketing* has a set of benefits for small and medium-sized businesses such as, increasing profitability through lower costs and Wide access by providing better customer service at the same time.

So, it can be concluded that *e-marketing* is a marketing activity that uses internet media as information and communication technology to be able to increase business profitability, reach more customers. extensive and faster service.

E-Commerce

E-commerce is a system that consumers do in buying and selling various types of products electronically from one company to another through computers as an intermediary for business transactions carried out (Nugroho 2016: 6).

While *e-commerce* according to (Kotler and Keller 2016: 226) is a company that moves and uses websites to conduct transactions with consumers and provide facilities to sell products and services online with the help of the internet.

From the two theories above, it can be concluded that *e-commerce* is a business process that uses electronic-based technology that can connect one company with another company in the form of electronic transactions online through the help of the internet.

In general according to (Nugroho 2016) *e-commerce* is classified in 4 types, including the following:

1) B2B *(Business to Business)*, which focuses on product provider transactions from one business to another.
2) B2C *(Business to Consumer),* transaction activities that perform services directly to consumers through goods or services using online sites.
3) C2C *(Consumer to Consumer),* a system used for communication and business transactions between consumers aims to meet the needs at any given moment.
4) C2B *(Consumer to Business),* a business model in which consumers provide and offer products or services to a company.

E-Service Quality

E-service quality is defined as the expansion of customer interaction by using a website to facilitate shopping, purchasing, to the distribution of products and services that are more effective and also Efficient (Parasuraman, Zeithaml, and Malhotra 2005). According to (Amin 2016) *E-Service quality* is a way in which customers feel the quality of website-based or online services that are different from the quality of service traditionally.

Then according to (Tjiptono and Chandra 2019: 195) *E-service quality* is defined as an assessment that is carried out thoroughly related to the delivery of service quality through *the website* and improving the quality of electronic services in company.

From the three explanations of the experts above, it can be concluded that *e-service quality* is a way of assessing the quality of electronic-based services using the internet including spending and delivering products or services.

E-Service Quality Dimensions

Zeithaml et al., in (Tjiptono and Chandra 2019:217) define seven dimensions of *e-service quality* to measure customer perception, as follows:

1) *Efficiency,* which is the ease and speed of customers in accessing and when using the site.
2) *Reliability,* the condition of the technical functionality of the site, in particular how the site can function as it should.
3) *Fulfillment,* the extent to which the site's promise to shipping and availability of goods is fulfilled.
4) *Privacy,* a guarantee to the security promised by the site regarding the user's personal data.
5) *Responsiveness,* the ability to provide the right information to customers in case of a problem
6) *Compensation:* the extent to which the site compensates customers for a problem.
7) *Contact,* availability of assistance by staff services by telephone or online.

E-Customer Satisfaction

Magdalena and Jaolis (2018) stated that *e-customer satisfaction* is a form of customer satisfaction related to previous purchasing experiences or behaviors using the website.

According to maulida (2021), *e-customer satisfaction* is a form of customer evaluation of emotions related to being fulfilled or not a customer's expectations based on the online shopping experience . on or application.

E-customer satisfaction is a condition to generate loyalty, where customers are satisfied with a product or service provided by the company so that it is possible to continue to interact so that customers become loyal to the company (Omar et al. 2021).

So it can be concluded that *e-customer satisfaction* is the level of satisfaction obtained by related customers to be met or not customer expectations through their experience after making a purchase and using a product or service.

Dimensions of *E-Customer Satisfaction*

According to Ranjbarin et al., in Maulida (2021), explaining *e-customer satisfaction* has five dimensions, including the following:

1) Convenience, making it easier for customers to find merchants, find goods and get offers so as to save time and effort when shopping online.
2) *Merchanding,* provides a variety of information online to increase consumer satisfaction.
3) *Site design,* easy search and about organizing a good application display. Includes a neat screen display not cluttered, a simple search pointer and a fast presentation.
4) *Security* is related to how an application can be trusted by users. Lack of interpersonal contact with users makes users pay attention to transaction security which refers to user privacy.
5) *Serviceability,* a feeling of satisfaction arising from the services available on the application.

E-Customer Loyalty

E-Customer loyalty is defined as an attitude that favors customers towards an online electronic business resulting in repetitive purchasing behavior (Saragih 2019).

Meanwhile, according to Santika & Pramudana (2018),*E-Customer loyalty* is the customer's intention to visit an online site again with or without online transactions.

Based on the opinions of experts above eating can be concluded that *e-customer loyalty* is a repurchase activity due to dissatisfaction after the use of a product or service offered.

Dimensions of E-customer Loyalty

According to Oliver in Chidir et al (2022), there are four dimensions of *e-customer loyalty,* including the following:

1) *Cognitive*, can be interpreted as a preference for sites or services available in a company.
2) *Affective*, interpreted as the result of references arising from the desire to reference. Indicated with consumers recommending the application to others.
3) *Conative,* is a customer willing to revisit the application as a result of the experience gained previously. So that there is a desire to get the same good experience by persuading the application again.
4) *Action,* is the highest level of customer flexibility, where customers return to visit the site or application to make purchases *online.*

Relationships between Variables

Relationship between *E-Service Quality* and *E-Customer Satisfaction*

The results of research conducted by Maulida (2021) the relationship between *e-service quality* and *e-customer satisfaction* is significant and positive. This shows that the increasing *e-service quality* of eating will be followed by an increase in *e-customer satisfaction.* The relationship between significant *e-service quality* and *e-customer satisfaction* means that it can be generalized to the entire population.

The results of other studies conducted by Magdalena & Jaolis (2018) showed that *e-service quality* has a significant influence on *e-customer satisfaction*. Both variables are positive which means that the higher *the e-service quality*, the more *e-customer satisfaction* will increase.

Relationship between *E-service Quality* and *E-Customer Loyalty*

From research conducted by Magdalena & Jaolis (2018) it is known that *e-service quality* has a significant effect on *e-customer loyalty.* The influence of the two variables is positive where there is a unidirectional relationship that shows the increasing *e-service quality*, the more consumer loyalty will increase in using electronic services. .

In a study conducted by Saragih (2019) *e-service quality* is significant to *e-customer loyalty.* This means that customer loyalty depends heavily on the quality of service provided.

Relationship between *E-customer Satisfaction* and *E-Customer Loyalty*

In research according to Maulida (2021) *e-customer satisfaction* has a positional and significant effect on *e-customer loyalty.* Shows that the increasing *e-customer satisfaction* will be followed by an increase in *customer e-customer loyalty*. The significant *e-customer satisfaction* relationship to *e-customer loyalty* means that it can be generalized to the entire population.

The results of Magdalena & Jaolis (2018) research are known that *e-customer satisfaction* has a significant effect on *e-customer loyalty* which is the higher *the e-customer satisfaction*, *the more e-customer loyalty* will increase. The influence of both variables is positive which means that the higher the satisfaction felt by consumers, the more the consumer loyalty will increase to continue to use the service. electronics.

Sourced from previous research, the framework of thought in this study *e-service quality* (X) as an independent variable, *e-customer satisfaction* (Z) as an intervening variable, and *e-customer loyalty* (Y) as a dependent variable to determine the influence on the use of the Zalora application so that schematically the thought model in this study is described as follows in figure 4:
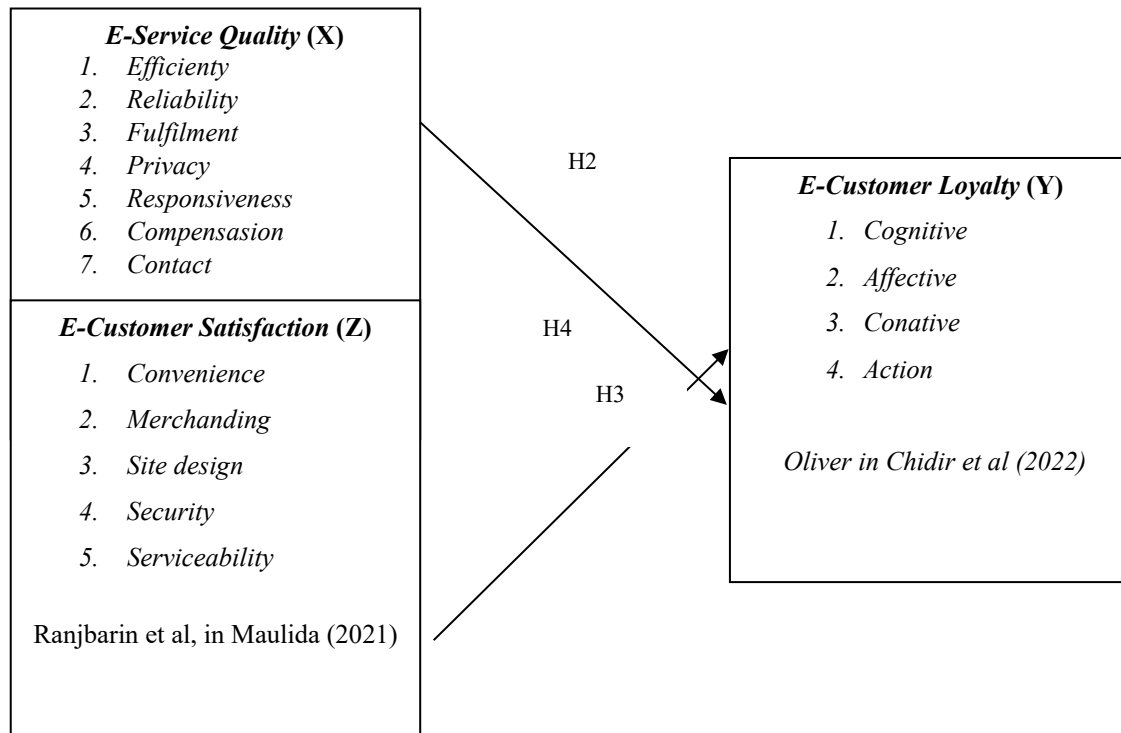

Figure 4. Framework of Thought
Source: Processed Author (2022)

\Based on the figure 4, researchers want to know the influence of *e-service quality* (X) on *e-customer loyalty* (Y) through *e-customer satisfaction* (Z).

Research Hypothesis

According to Sugiyono (2019: 99) the hypothesis is a temporary answer to the formulation of research problems, where the formulation of research problems is expressed in the form of statement sentences. It is said to be temporary because the answer or conjecture is based only on relevant theories, so it must be empirically tested through data collection. The hypotheses in this study are:

H_1 = There is a positive and significant direct influence of *e-service quality* on *e-customer satisfaction* in the Zalora application

H_2 = There is a positive and significant direct influence of *e-service quality* on *e-customer loyalty* in the Zalora application

H_3 = There is a positive and significant direct influence of *e-customer satisfaction* on *e-customer loyalty* on the Zalora application

H_4 = There is a positive and significant influence of *e-service quality* on *e-customer loyalty* indirectly through *e-customer satisfaction* on the Zalora application

Scope of Research

This research has several problem limitations so that the research conducted is more consistent and obtains results that are in accordance with the formulation of the problem. The limitations of research are as follows:

1) Variables and Sub variables
2) Independent Variable: *E-Service Quality*
3) Dependent Variable: *E-Customer Loyalty*

4) Intervening Variable: *E-customer Satisfaction*
5) Location and Research Object
6) This research was conducted for all users of the Zalora application throughout Indonesia.
7) Research Time and Period
8) This research will be carried out for four months starting from February 2022 to June 2022.

3. Research methods

Based on the   background of research, problem formulation, and theory outlined, this research uses descriptive research that is causal.   Descriptive research is research that analyzes or describes a study but is not used to make conclusions more broadly (Sugiyono 2019: 31).   Meanwhile, according to Sugiyono (2019: 65) the understanding of causal research is as a   causal relationship in which independent variables (affect) and dependent variables (affected).). This research method also uses quantitative research methods.

According to Sugiyono (2018: 8) defines that quantitative methods are research   methods based on the philosophy of positivism, which is used to examine certain populations or samples, data collection. using research instruments, quantitative data analysis   with the aim of testing established hypotheses. Population and Sample

BAB IPopulation

Population is a generalization area consisting of objects or subjects of quality and has a certain characteristic karak that has been determined by the researcher to be studied and then withdrawn. In conclusion (Sugiyono 2019:126). The population in this study is all Indonesian people who have or are using the Zalora application with the number of unknown populations.

BAB IISample

According to Sugiyono (2019: 127) the sample is partly representative of the number of populations that have the same characteristics and characteristics. The sampling technique used in this study is *non-probability sampling* using *purposive sampling.* According to Sugiyono (2018: 133) *non-probability sampling* is a sampling technique that does not provide opportunities for any element or member of the population to be selected as a sample. While *purposive sampling* is a technique yesng is used to determine samples with certain considerations. What is meant by   certain considerations ialah someone has made a transaction on the Zalora application and has an assessment of the   Zalora application, which can be affects the assessment of what will determine the *e-customer loyalty* of the person.

In this study, the sample was respondents who met certain criteria. The criteria that the author takes to determine the sample are as follows:

1) Respondents who have used the Zalora application.
2) Respondents who have made transactions in the Zalora application.
3) Respondents who have been in trouble when transacting in Zalora.

Because the number of users of the Zalora application is not known, then to determine the number of samples using the Bernoulli formula, as follows:

$$n \geq \frac{(Z\alpha/2)^2 p.q}{e^2}$$

Description:
n = Number of samples
α = Level of precision
Z = standard value of normal distribution
p = probability rejected
q = probanility accepted (1-p)
e = Error rate

This research uses a precision level of 5%, a confidence level of 95% so that it gets a value of Z = 1.96 and the error rate is determined to be 10% or 0.1 and the probability of the questionnaire being accepted or rejected is 0.5. Using the formula, the solution is as follows:

$$n = \frac{(1,96)^2 0,5.0,5}{0,1^2}$$

$$n = \frac{0,9604}{0,1}$$

$$n = 96.04 \text{ rounded to } 100$$

Based on the results of the sample calculations that were respondents in this study, a figure of 96.04 was obtained for the minimum sample number and rounded to 100.

BAB III Data Collection Techniques

BAB IVPrimary data

Primary data is a data source that provides data to data collectors directly (Sugiyono 2019: 296) In this study the primary data used is in the form of kuesipner and data sources obtained from respondents, The person who answers the statements of the researcher. Questionnaire is a data collection technique that is carried out by providing a set of written statements to respondents to answer (Sugiyono 2019: 199). Respondents to this study were users or who had used the Zalora application.

BAB VSecondary Data

According to Sugiyono (2019: 296) secondary data is a data source that provides data to data collectors indirectly such as through others or documentation in the form of writing, drawings, and monumental works of a person. In this study, the secondary data used is previous research in the form of thesis, national journals and international journals. In addition to previous research researchers obtained secondary data from the book literature for theories related to variables and the internet to obtain company data.

BAB VI Data Analysis Techniques

BAB VII Descriptive Analysis

Descriptive analysis is a statistic used to analyze data by using how to describe or describe the data that has been collected without intending to make conclusions that apply to the public or generalization (Sugiyono 2018: 147) .
In this study, researchers used questionnaires distributed to respondents containing several statements accompanied by five answer options. From the answers obtained, it is then arranged according to the assessment criteria for each statement item. The assessment criteria for faithfulp statement are based on percentages with the following steps:
   a. Cumulative value is the number of values of each question that are the answers of each respondent.
   b. Calculating percentage:

$$\text{Percentage} = \frac{nilai\ kumulatif\ item}{nilai\ frekuensi} \ 100\%$$

   c.   Calculates the largest cumulative number of the smallest. The number of respondents is 100 respondents, with the largest scale being = 5, and the smallest scale is = 1, so it is obtained:

Largest cumulative number = 100 x 5 = 500
Smallest cumulative number = 100 x 1 = 100

   d. Determine the largest and smallest percentage values

Largest percentage value = (500:500) x 100% = 100%
Smallest percentage value = (100:500) x 100% = 20%

   e. Calculates the range value.

$$\text{Range value} = \frac{nilai\ presentase\ terbesar - nilai\ presentase\ terkecil}{jumlah\ titik\ skala}$$

$$\text{Range value} = \frac{100\% - 20\%}{5} = 16\%$$

Based on these calculations, the criteria for interpretation of the score can be obtained which can be seen in table 1, figure 5 below:

Table 1. Score Interpretation Criteria

No	Percentage	Rating Categories
1.	20%-36%	Very Bad
2.	36%-52%	Bad
3.	52%-68%	Good Enough
4.	68%-84%	Good
5.	84%-100%	Excellent

Source: Data Processed Researcher (2022)

To see the results of the score interpretation criteria of each variable can be seen on the following continuum line:
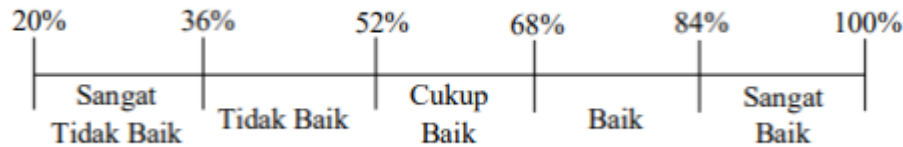

Figure 5. Score   Criteria Interpretation Continuum Line
Source: Processed Data Researchers (2022)

For calculations the total score of each variable is as follows:
a. Total score = (number of respondents strongly agree x 5) + (number of respondents agree x 4) + (number of respondents quite agree x 3) + (number of respondents disagree x 2) + (number of respondents strongly disagree x 1)
b. Ideal score = (assumed all respondents answered strongly agreed) x (number of respondents or total score)

Structural Equation Modeling (SEM)

According to Santosa (2018: 54) *Structural Equation Modeling* (SEM) is a statistical method used by researchers in various fields such as social, behavioral, educational, biological, economic, marketing, and medical researchers. *Structural Equation Modeling* (SEM) according to Maulida (2021) is an analysis that   combines *factor analysis* , structural *model(structural model),* and path *analysis* .   There are three types of activities carried out simultaneously such as checking the validity and reliability of the instrument (related to factor analysis), testing the model of relationships between variables (related to path analysis), as well as activities to obtain a model that is suitable for prediction (related to the analysis of structural models).

BAB VIII Analysis Methods

BAB IXBasic definitions and concepts *of Partial Least Square* (PLS)

Partial Least Square Analysis (PLS) is a multivariate statistical technique that compares between multiple dependent variables and multiple independent variables. PLS is a variant-based SEM statistical method designed to solve multiple regressions in the event of specific problems in the data, such as the number of small research samples, the presence of missing values and *multicollinearity* between exogenous variables (Magdalena and Jaolis 2018). According to Maulida (2021) *smartPLS software* is used to create a combined model between latent variables or variables that are not measured directly and the specifications of the connecting path. between variables. PLS can work   efficiently by using small sample sizes and practical complex models and making no assumptions about the underlying data.

BAB X Model Measurement *(Outer Model)*

Themodel is a measurement to assess the relationship between latent variables and their indicators and is also used to assess the validity and reliability of the model (Santosa 2018: 152). Here's an explanation *of the outer model* equation for reflective constructs:

$$X = \char`^x\xi + \varepsilon x$$
$$Y = \char`^y\eta + \varepsilon y$$

From the above formula, it can be explained that x and y are indicators of independent variables ξ and η dependent variables, while ^x and ^y are *loading matrixes* that indicate regression coefficients that connect latent variables with their indicators, and εx and εy indicate the rate of measurement errors (*errors*).

The kovergen validity test is assessed based on *loading factors* that describe the magnitude of cholera between indicators and their constructs. The *loading factor value of* ≥ 0.7 is said to be ideal, which means the indicator states valid in measuring the construct that is fixed. The validity of the kovergen can also be measured using the *Average Variane Extraced* (AVE) value.

The AVE value indicates the magnitude of a variant or diversity of manifest variables owned by the latent construct. The higher the diversity of manifest variables that latent constructs have, the higher the representation of manifest variables to their latent constructs. If an indicator has an AVE value above 0.5 the indicator can be said to be valid

(Haryono 2017: 373). The AVE value can be obtained from the sum of the loading factor square *divided* by *the error*. The AVE value formula is as follows:

$$AVE = \frac{\Sigma_{i=1}^{n}\lambda 2}{n}$$

Description:
AVE = average percentage of variant scores that are titrated from a set of latent variables that are destimasied by *loading standardlize* indicators in the algorithmic literacy process in PLS.

Λ = Signifies s*tandarlize loading factor* and *I* is the number of indicators.

Tests performed on the *outer model:*

a. Covergen Validity, the value of *the Average Variance Extracted* (AVE) of more than 0.5 is the expected value of AVE on latent variables with its indicators.

b. *Discriminant Validity* is a *cross loading* value factor that is useful to find out whether the construct has adequate discrimination, namely by comparing the loading value on the intended construct > with another construct loading value.

c. *Composite Reability, Composite reability* value of more than 0.7 and *Cronbach alpha* value on a data of more than 0.6 eats are said to be *reliable.* Then *cronbach alpha* and reliability values are used for reliability tests.

BAB XI Structural *Measurements (Inner Model)*

The Inner Model is a structural model used to predict causality relationships between latent variables (Magdalena and Jaolis 2018). To test *the inner model* can use several models including the following:

1. R *Square* on the dependent variable.

The interpretation of the value R^2 is the same as the interpretation of R^2 linear regression where the magnitude of *the variability* of endogenous variables can be explained by exogenous variables. Changes in the value of R2 can be used to see if the exogenous latent variable against the endogenous latent variable has a substantive influence (Haryono 2017:374–75). There are three criteria in classifying R *Square*, namely, R *square* of 0.67 (strong), 0.33 (moderate), and 0.19 (weak) which can be calculated using the following rusmus:

$$KD = R^2 \times 100\%$$

Description:
KD = Determinant Coefficient Value
R^2 = Correlation coefficient value

2. *Q-square*

Able to measure whether or not the value of an observation obtained from the model and its parameter estimation. Models can be said to be *predictive relevance* if *Q-square* > 0, while models that lack *predictive relevance* if *Q-square* < 0. Nilai coefficient or latent construct effect is called *estimate for path coefficients* which is done using *bootstrapping* procedures in *Smart*PLS applications.

BAB XII Hypothesis Testing

Based on the research model that has been described, the hypotheses in this study are:

1. H_1: There is a positive and significant direct influence of *e-service quality* on *e-customer satisfaction* in the Zalora application

   H_0: There is nodirect and significant influence of *e-service quality* on *e-customer satisfaction* in the Zalora application

2. H_1: There is a positive and significant direct influence of *e-service quality* on *e-customer loyalty* on the Zalora application

   H_0: There is nodirect and significant influence of *e-service quality* on *e-customer loyalty* on the Zalora application

3. H_1: There is a positive and significant direct influence of *e-customer satisfaction* on *e-customer loyalty* on the Zalora application

   H_0: There is nodirect and significant influence of *e-customer satisfaction* on *e-customer loyalty* on the Zalora application

4. H_1: There is a positive and significant influence of *e-service quality* on *e-customer loyalty* indirectly through *e-customer satisfaction* on the Zalora application

   H_0: There is no significant influence of *e-service quality* on *e-customer loyalty* indirectly through *e-customer satisfaction* on the Zalora application.

In hypothesis testing it is necessary to compare the t-value with the t-table. The test parameters used are as follows:

If the value to > tα, then H1 is accepted.

If the value to < tα, then H1 is rejected.

4. Results and Discussion
4.1 Data Collection
This research was conducted on Zalora *e-commers*, the study respondents were Zalora *e-commers* users in Indonesia and had made transactions and who had gotten into trouble using the Zalora *e-commers* application. The data collection in this study used questionnaires distributed through *google form* to 163 respondents which at the time of *screening question* the number consisted of 108 respondents who met the criteria and 55 who did not meet the criteria.

4.4 Path Analysis Results Using Smart PLS SEM
4.4.1 Measurement Model Results (*outer model*)
A measurement model is a model that connects latent variables with manifest variables. In this study there were 3 latent variables measured by31 indicators. Based on the *Partial Least Square* estimation method obtained a path diagram as seen in the following figure 6:
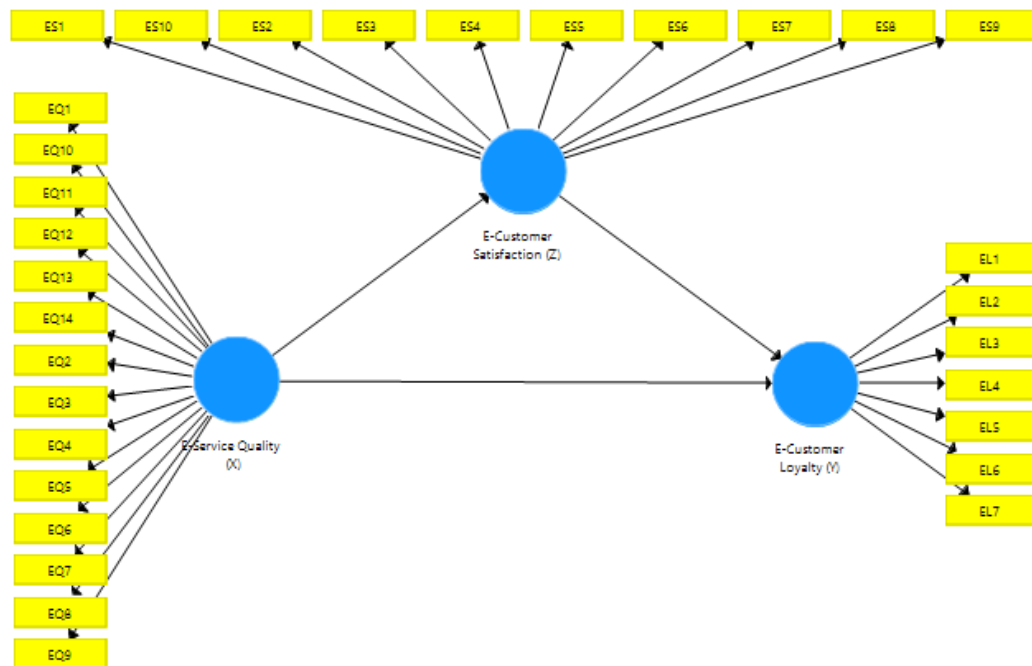

Figure 6. Path Diagram Drawing
(source: data processed by researchers,2022)

4.4.2 Validity Test
a. Convergent Validity
The following are the results of the validity test using convergent validity which includes *loading factors* and AVE values on each of the research variables in table 2.

Table 2. Convergent Validity Test

Variable	Indicators	Outer Loading	P Values	Conclusion
E-Service Quality	EQ1	0.884	0,000	Valid
	EQ2	0.861	0,000	Valid
	EQ3	0.909	0,000	Valid
	EQ4	0.897	0,000	Valid
	EQ5	0.805	0,000	Valid
	EQ6	0.714	0,000	Valid
	EQ7	0.841	0,000	Valid
	EQ8	0.855	0,000	Valid
	EQ9	0.910	0,000	Valid
	EQ10	0.842	0,000	Valid
	EQ11	0.874	0,000	Valid
	EQ12	0.773	0,000	Valid
	EQ13	0.839	0,000	Valid
	EQ14	0.733	0,000	Valid
E-Customer Satisfaction	ES1	0.901	0,000	Valid
	ES2	0.928	0,000	Valid
	ES3	0.869	0,000	Valid
	ES4	0.857	0,000	Valid
	ES5	0.914	0,000	Valid
	ES6	0.848	0,000	Valid
	ES7	0.776	0,000	Valid
	ES8	0.908	0,000	Valid
	ES9	0.828	0,000	Valid
	ES10	0.908	0,000	Valid
E-Customer Loyalty	EL1	0.877	0,000	Valid
	EL2	0.870	0,000	Valid
	EL3	0.918	0,000	Valid
	EL4	0.861	0,000	Valid
	EL5	0.939	0,000	Valid
	EL6	0.739	0,000	Valid
	EL7	0.868	0,000	Valid

(source: data processed by researchers, 2022)

To test the validity of Converge used *outer loading* value or *cross loading factor*. Furadantin, (2018) states that convergent validity is categorized as good if *the outer loading* indicator is worth > 0.7. In the table above shows there is no indicator whose *outer loading* is worth < 0. 7. This means the indicator is declared valid for research use and can be used for further analysis.

Another method to test validity is to look at the AVE value on each of the research variables. An AVE value > 0.5 indicates that the items in a variable have sufficient convergent validity. Here is a convergent validity test through AVE presented in the table 3 below:

Table 3. Average Variant Extracted (AVE)

variable	AVE
E-Service Quality	0.707
E-Customer Satisfaction	0.765
E-Customer Loyalty	0.756

(source: data processed by researchers, 2022)

Based on the table above, it is known that the AVE value of *variable eservice quality, e-customer satisfaction, and e-customer loyalty* > 0.5. Thus, it can be stated that each variable has had good convergent validity. Based on the table above, it is known that each indicator on the research variable has the largest *cross loading* value on the variable it forms compared to the *cross loading* value on other variables. Based on the results obtained, it can be stated that the indicators used in this study have had good discriminant validity.

c. Reliability Test

Maulida Hilma, (2021) said the reliability test is how far a measurement result can be generated the same data. In *Partial Least Square* reliability test using *composite reability* and *cronbach alpha* where if the *composite reability* value > 0.7 and *the cronbach alpha* value in a data > 0.6 then the data is tied *reliable*. Here are the results of the reliability test presented by the data in the following table 4:

Table 4. Reliability Test Results

Variable	Cronbach's Alpha	Critical Value	Composite Reliability	Critical Value
E-Service Quality	0.968		0.971	
E-Customer Satisfaction	0.966	>0.6	0.970	>0.7
E-Customer Loyalty	0.945		0.956	

(source: data processed by researchers, 2022)

From the data in the table above it is known that three latent variables (*e-service quality, e-customer satisfaction and e-customer loyalty*) have a *Composite Reliability* (CR) value of > 0.7 and *Cronbach's Aplha* (CA) more than > 0.6, then it can be said that the data is reliable and the whole variable has a high level of reliability.

4.4.3 Structural Measurements (*Inner Model)*

Structural model *measurements (inner models)* have the aim of testing the influence of other latent variables. In PLS, it can be measured using *R-Square* (R^2) and *path coefficient.* Structural model tests are performed by paying attention to the value of R^2 in endogenous latent constructs (dependents) and *tvalues* on each of the exogenous latent variables (independent) to the endogenous latent constructs of *bootstrapping results.* The following is a *path diagram of the inner model* in this study (Figure 7):
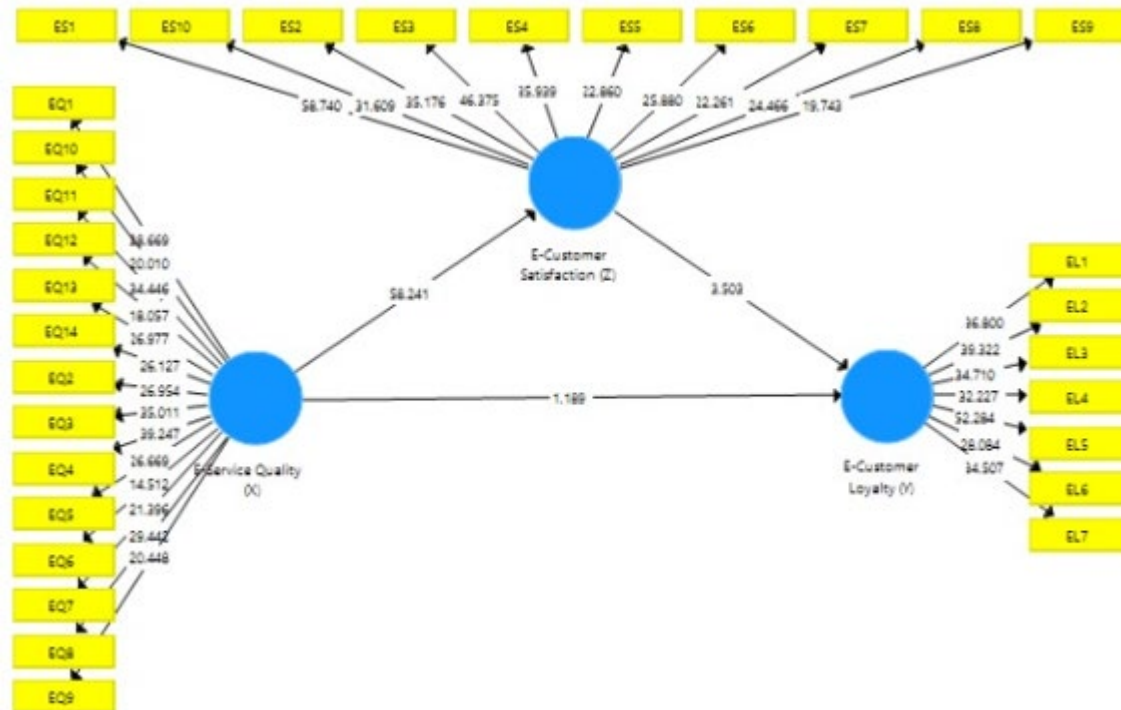
Figure 7. Bootstraping Inner Model Images

a. *Path Coeficcient*

Based on the *inner model* image that has been shown in the image above, it can be explained that the largest *path coefficient* value is indicated by the influence of *e-service quality* on *e-customer satisfaction* of 58,241.   Then the second largest influence is the influence of *e-customer satisfaction* on *e-customer loyalty* of 3,502 and the smallest influence is shown by the influence of *e-service quality* on *e-customer loyalty* of 1,199.

Based on the description of the results, all *variables in the inner model* have a *path coefficient* with a positive number. If the greater the path *coefficient* value on one variable independent of the dependent variable, the stronger the influence between independent variables on the dependent variable.

b. *R-Square* (R^2)

Menurut Yadi Kuntoro et al., (2019) the value of *R-Square* is the coefficient of determination in endogenous constructs. Maulida Hilma, (2021) mentioned that the R2 result of 0.67 and above for endogenous latent variables in structural models indicates the influence of exogenous variables (affected) on endogenous variables (affected) fall into the good category. If the result is 0.33 - 0.67 then it belongs to the medium category, and if the result is 0.19 - 0.33 then it belongs to the weak category. Based on testing with *R-Square* obtained the following results:

Table 5. R-Square Value

Variable	R-Square
E-Custmer Loyalty (Y)	0.737
E-Customer Satisfaction (Z)	0.846

Based on the table 5, it can be seen that the *R-Square* value in the *e-customer loyalty* variable is 0. 737 terfalls into the category bothand for variable *e-customer satisfaction* of 0. 846 falls into the good category. The *R-Square* value for *the e-customer loyalty* variable is 73.7% which means the *e-customer loyalty* variable   can be explained by the *e-service quality*   vaiabel   and the remaining 26.3% is

influenced by other variables not described in this study. The *R-Square* value for *the e-customer satisfaction* variable is 84. 6% which means the *e-customer satisfaction* variable can be explained by *the e-service quality* variable and the rest is influenced by other variables not described in this study.

c. Predictive Relevance
Q Square is used to measure how well the observation value produced by the model and parameter estimation. If the *Q Square* value is less than 0 (zero) then the model has less *predictive relevance*, while if the *Q Square* value is greater than 0 (zero) then the model has a *predictive relevance value.* Here is the calculation of the inner test of the model with (predictive relevance) using the formula formula:

$$Q^2 = 1 - (1 - R1^2)(1 - R2^2)...(1 - Rp^2)$$
$$Q^2 = 1 - (1 - 0.737^2)(1 - 0.846^2)$$
$$Q^2 = 0.87$$

From the results of these calculations obtained *a predictive relevance* value of 0. 87 means greater than 0 (zero) which explains that the model has a relevant predictive value.

4.5 Hypothesis Test
Menurut Maulida Hilma, (2021) states that the research hypothesis is a temporary answer to the formulation of research problems that must be proven to be true through the data that has been collected. To test the hypothesis, it must compare the value of *t-statistic* (to) with the value *of t-table* (tα) where the value of t-table in this study is 1.96 with the following hypothesis acceptance provisions:

   a.   If the value to > (tα), then H0 is rejected and H1 is accepted
   b.   If the value to < (tα), then H0 is accepted and H1 is rejected

Table 6. Hypothesis Test Results of Large Estimates of Influences Between Research Variables

Variable	Original Sample (o)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (| O/STDEV|)	P Values	Information
E-Service Quality (X) -> E-Customer Satisfaction (Z)	0.928	0.929	0.016	58.241	0.000	H1 Accepted (Significant)
E-Customer Satisfaction (Z) -> E-Customer Loyalty (Y)	0.6323	0.619	0.180	3.503	0.000	H2 Received (Significant)
E-Service Quality (X) -> E-Customer Loyalty (Y)	0.225	0.239	0.189	1,189	0.117	H3 Accepted (Insignificant)

Based on the table 6, an explanation of the hypothesis can be obtained as follows:

1. The Effect of *E-Service Quality* on *E-Customer Satisfaction*
In the table above, the value of research significance is T calculates 58,132 > 1.96, the significance level of 0.000 which is smaller < 0.05 and *the path coefficients* value is positive 0. 928 which shows the direction of the relationship between *e-service quality* and *e-customer satisfaction* is positive and

significant. Thus, this study states that *eservice quality* affects *e-customer satisfaction* received. The positive relationship shows that the increase in *e-service quality* will be followed by an increase in *e-customer satisfaction*. Meanwhile, the significant *e-service quality* relationship to *e-customer satisfaction* means that it can be generalized in the entire population where the sample in this study is the population of Zalora app users. For this reason, it is important to pay attention to the extent *of e-service quality* owned by the Zalora application. These results support the results of previous research conducted by Maulida Hilma, (2021) that *e-service quality* has a positive and significant effect on *e-customer satisfaction*.

2. The Effect of E-Customer Satisfaction on E-Customer Loyalty

In the table above, the research significance value is obtained, namely T calculates 3,589 > 1.96, the significance level of 0.000 which is smaller < 0.05 and *the path coefficients* value is positive 0. 632 that shows the direction of the relationship between *e-customer satisfaction* and *e-customer loyalty* is positive and significant. Thus, this study states that *e-customer satisfaction* affects *e-customer loyalty* received. Positive relationships show that the increasing *e-customer satisfaction* will be followed by an increase in *e-customer loyalty*. Meanwhile, the significant *e-customer satisfaction* relationship to *e-customer loyalty* means that it can be generalized in the entire population where the sample in this study is the population of Zalora application users. For this reason, it is important to pay attention to the extent *of e-customer satisfaction* owned by the Zalora application. These results support the results of previous research conducted by Maulida Hilma, (2021) that *e-customer satisfaction* has a positive and significant effect on *e-customer loyalty*.

3. The Effect of E-Service Quality on E-Customer Loyalty

In the table above, the value of research significance is obtained, namely T calculates 1. 211 < 1.96, significance level 0. 113 which > 0.05 and *the value of path coefficients* is positive 0.225 which is seen from the T value calculate and the level of significance has not met the requirements. This shows that *e-service quality* has an effect but is not significant on *e-customer loyalty* in Zalora application customers. This is in accordance with research conducted by Maulida Hilma, (2021) in yang stated where the majority of Indonesians use more than one type of e-commersbased on different motivations for use (Table 7).

Table 7. Hypothesis Test Results of Large Estimates of Influences Between Intervening Variables

Variable	Original Sample (o)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (| O/STDEV|)	P Values	Information
E-Service Quality (X) -> E-Customer Satisfaction (Z) -> E-Customer Loyalty (Y)	0.587	0.582	0.161	3.644	0.000	H4 Accepted (Significant)

(source: data processed by researchers, 2022)

4. The Effect of E-Service Quality on E-Customer Loyalty Through ECustomer Satisfaction

In the table above shows the influence of mediation between the relationship of *e-service quality* variables with *e-customer loyalty* variables or it can be interpreted that there is an indirect influence between *e-service quality* variables on *e-customer loyalty variables* through *e-customer satisfaction*. The study significance value is T calculates 3,644 > 1.96, the significance level of 0.000 which is smaller < 0.05 and *the path coefficients* value is positive 0. 587 which shows the direction of the relationship between *e-service quality* and *e-customer loyalty* through *e-customer satisfaction* is positive and significant. Thus, this study states that *e-service quality* affects *e-customer loyalty* through *e-customer satisfaction* through *e-customer satisfaction* received. The positive relationship shows that the increasing *e-service quality* will be followed by an increase in *e-customer loyalty* in Zalora application users but must create *e-customer satisfaction* first. Meanwhile, a significant relationship to meaning can be generalized in the entire

population where the sample in this study is the population of users of the Zalora application. These results support the results of previous research conducted by Maulida Hilma, (2021) *e-service quality* indirectly has a positive and significant effect on *e-customer loyalty* through *e-customer satisfaction.*

5. Conclusion

It can be concluded from several complaints about the quality of Zalora application services above that the *e-service quality* of the Zalora application is not optimal so that it makes its users feel aggrieved. Where many users complain about the quality of service such as delays in delivery, unilateral cancellations, failed login access, to *live chat customer service* that is expected to help the difficulties of its users is even considered less helpful so that users feel displaced.

E-service quality or electronic service quality is something that shows how *e-commerce* **sites** serve and facilitate online shopping*,* ordering to deliver a product or service effectively and efficiently (Santika and Pramudana 2018). Quality of service with customer satisfaction is a factor of a company's success to achieve competitive advantage with other companies. With good service quality, it can create customer satisfaction.

Satisfaction is a person's feeling of pleasure or disappointment that comes from a comparison between his impression of the performance (or results) of a product and his expectations (Kotler and Keller 2016:153). Meanwhile, according to Maulida (2021) explained that *e-customer satisfaction* is When online products and services exceed consumer expectations, the level of buyer satisfaction after comparing the purchase experience and perceived expectations with the post-purchase experience online. So it can be concluded that *e-customers satisfaction* is the level of consumer satisfaction with a product or service online related to the fulfillment or not of consumer expectations or expectations. If the quality of service obtained by consumers can meet consumer expectations, consumers tend to feel satisfied and there is a lack of flexibility.

Santika and Pramudana (2018), defines *e-customer loyalty* as a customer's favorable attitude towards *online* **business** that results in repeated buying behavior. It can be concluded that *e-customer loyalty* is the interest of consumers to repurchase a product or service *online* due to dissatisfaction after use.

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Biographies

Annisa Nurul Fitriani is a student at Business Administration Program at Telkom University, Bandung, Indonesia.
Imanuddin Hasbi, Mahir Pradana, Budi Kartawinata, and Tri Indra Wijaksana are Assistant Professors of Business Administration in the Business Administration Department, Telkom University (Bandung, Indonesia).