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HOW TO IMPROVE ONLINE SHOP CUSTOMER SATISFACTION THROUGH SERVICE QUALITY

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Abstrack: This study aimed to figure out the Effect of Quality System, E-Service Quality, and Information Quality on Value Perception and Customer Satisfaction of an online marketplace. The number of samples used was 110 respondents who have become customers at Bukalapak, a well-known online shop in Indonesia. Data were collected through a survey toward the customers. The PLS-SEM was applied to evaluate the relationship among variables. The results indicated that the E-Service Quality Variable, Quality System, and also Information Quality positively and significantly affected the Customer Satisfaction Variable. However, only Quality System and Information Quality positively and significantly affected Value Perception, showing its mediation role to Customer Satisfaction. This study suggests that online marketplaces should have more concern to their Quality System and Information Quality as well as E-service quality to improve their sales performance by increasing their customer satisfaction and Value Perception.

Keyword: Customer Satisfaction, Service Quality, Performance, Online Shop, Customer Perception.

INTRODUCTION

Digital marketing in Indonesia showed a positively developing trend, especially on online shopping. In the first position globally, Indonesia has become the most prominent online customers (Widowati, 2019). It showed that online sales encouraged people to increase their procurement (Susanti et al., 2018). Online sale and purchase data in Indonesia reached up to 78%, with an average purchase of up to US$228/person. Meanwhile, China becomes the country with the lowest rank of online shop customers.

In order to improve online sales, some factors should be paid more attention by the service providers, for this case, online marketplaces. Atmaja & Ratnawati (2018) identified E-Service Quality or E-Servqual as the primary factor for online sale improvement through customer satisfaction. Devaraj et al (2002) argued that E-Servqual consisted of four dimensions such as empathy, reliability, responsiveness, dan assurance. Once the E-Service quality (E-Servqual) has been met, the other factor should be paid attention to improve online sales by increasing

the customer satisfaction is the quality system. A good and sharp quality system is required for the online marketplace to impact online sales, especially to attract prospective buyers positively.

Besides the two E-Servqual and quality system predicted to impact on customer satisfaction, DeLone & McLean (1992) identified that information quality played a vital role in giving customer satisfaction. The information quality enables the customers to feel comfortable and satisfied when buying on the online marketplace. Besides, Tjiptono (2016) mentioned Value Perception as another factor that made customers feel satisfied with their buying activity. It meant that the buyers should perceive the value of the goods they have bought before being satisfied. Thus, it is hypothesized that Value Perception mediates E-Servqual, Quality System, as well as Information Quality provided by the online marketplace to affect online customer satisfaction. Therefore, this study aimed to evaluate the influence of Quality System, *E-Servqual*, and Information Quality on Customer Satisfaction mediated by Value Perception. It is chosen Bukalapak customers as the object of the study to test the hypotheses. Bukalapak is one of the well-known online marketplaces in Indonesia. This study will be insightful for the online marketplaces to prepare for a better marketing strategy to improve their sales.

RESEARCH FRAMEWORK & HYPOTHESIS

Service quality or E-Servqual is defined as comparing what should be offered and what they have provided (Parasuraman et al., 1990). Companies with high quality of services tended to provide two vital information systems; the first is to improve their service capability for management and employees' motivation.

The second information system provided is sharing valuable information for the customers. Zeithaml et al (1990) formulated a model containing essential factors that service providers should obey to boost their service quality. Devaraj et al (Devaraj et al., 2002) formulated Information System by four dimensions: empathy, reliability, responsiveness, dan assurance. Other dimensions include price, time, ease of use, dan usefulness. Delone & McLean (2003) stated that E-Servqual was the most critical factor because system users are their customers, instead of their employees or their internal organizational members. Therefore, negative support can make the company losing their customers and even their sales.

A Quality system is the measurement of information system process focusing on interaction result between the system and the users. The quality system is predicted through peripheral availability, system reliability, respond time and ease of use that become determinant factors whether an information system will be utilized or not. Nielsen (2000) added usability, online environment, navigation, credibility, and response time. On the other hand, McKinney et al (2002) stated that quality system was measured through accessibility, usability, dan navigation. It can be concluded that the quality system was determined by reliability, flexibility, and ease of use.

Information Quality is correlated to net benefits, system use, and user satisfaction (DeLone and McLean, 1992). The attributes were the information relevancy, information accuracy, information completeness and timeliness. The Information Quality was often considered as the

critical dimension for customer satisfaction (Baroudi and Orlikowski, 1988; Doll et al., 1994; Ives et al., 1983). Therefore, it becomes one of the components to measure customer satisfaction (DeLone and McLean, 1992). The model by Seddon (1997) showed that System Quality, similar with Information Quality, had influence significantly on users' perception on the information system. In this study, the Information Quality is defined as an online buying perception at Bukalapak.com and the information quality provided by the online marketplace.

Some characteristics were used to measure the information quality, including accuracy, timeliness, relevance, informativeness, and competitiveness (timely), safety, and presented well on the website (Liu et al., 2000). The best information quality is the information that is easy to search, organized, and available in large quantity (Wijayanto and Hari, 2008). The information quality can be measured when there is unlimited information, either in or outside the organization (Barnes and Vidgen, 2003). According to Liu & Arnett (2000), qualified information should have accuracy, preciseness, detailed information, relevance to the requirement, easiness to get, timeliness, up-to-date, and suitability. However, the study considered accuracy, timeliness, and relevance can be the best predictor of information quality.

Value Perception is the perception that becomes the individual's preference to evaluate attributes of a particular product or service, performance attribute, and various other consequences of fulfilling consumer's needs (Sweeney and Soutar, 2001). The indicators to measure Value Perception included Emotional value, Quality or Performance value, Social value, Price or value of money (Tjiptono, 2016).

Satisfaction is consideration toward a product/service, providing sufficient degree of complacence, thanks to the users' need fulfillment (Oliver, 1997). This definition emphasized the consumers rather than customers because even though customers pay for the product or service, they might not directly use it. Satisfaction toward a particular product or service requires experience and use for every individual. Customer satisfaction has a central role in developing an information system. According to previous researches, it was found that customer understanding is the influential variable to determine customer's satisfaction, system success, and system quality (Doll and Deng, 2001; Figueiredo et al., 2003; McKeen et al., 1994; Suryaningrum and Trisnawati, 2003).

Therefore, this study's objectives were to analyze the impact of E-Servqual, Quality System, and Information Quality on Customer Satisfaction mediated by Value Perception. The operationalization of the variables is presented in **Table 1**. Eventually, the hypotheses which will be answered by this study are:

H1: E-Servqual has an impact on Value Perception significantly
H2: Quality system has an impact on Value Perception significantly
H3: Information Quality has an impact onValue Perception significantly
H4: E-Servqual has an impact on Customer Satisfaction significantly
H5: Quality System has an impact on Customer Satisfaction significantly
H6: Information Quality has an impact on Customer Satisfaction significantly
H7: Value Perception has an impact on Customer Satisfaction significantly

H8: Servqual has a significant impact on Customer Satisfaction mediated by Value Perception

H9: Quality System has a significant impact on Customer Satisfaction mediated by Value Perception

H10: Information Quality has a significant impact Customer Satisfaction mediated by Value Perception

RESEARCH METHOD

Using PLS-SEM approach through The SmartPLS 3.8, this study analyzed the relationship among variables by testing the hypotheses. The sample of the research is Bukalapak customers being chosen using a random sampling method. It has been chosen 110 respondents from customers at Bukalapak to fill out the questionnaire to gather the data. There were employed two tests for the model proposed: measurement model and structural model.

Table 1 Variable Operationalization

No.	Variable	Dimension		Indicator
1	*E-Servqual* (X1)	Physical Evidence	1	The application provider used has sophisticated hardware and software
			2	The application provider has interesting visual facilities
		Emphaty	1	The application provider gives attention to the users individually
			2	The application provider pays attention to the users' needs
			3	The employees understand the special need of the users
		Reliability	1	The application provider can be reliable
			2	When the users have problems, application provider will be glad to help
		Responsiveness	1	The application provider tells the users when they service will be given
			2	The application provider always gives a hand to the users
			3	They feel not busy to make a response the users' requests
		Assurance	1	The employees' behavior can convince the users
			2	The users feel save to make transaction with the employes of the application provider
			3	The employees have sufficient knowledge to work well
2	Quality System (X2)	*Flexibility*	1	The application can be used in other organization environment without a lot of modification
			2	The application can be used for various companies with different characteristics
		Ease of use	1	Provide the facilities to correct the data (help function)
			2	Easy to identify and correct error occured
		Reliability	1	Even though the users have not used the application for a long time, it is easy for them to reuse it
			2	The application is easy to be mastered by new users
3	Information Quality (X3)	*Accuracy*	1	Information given is accurate
			2	The information given is entrusted
		Timeliness	1	The information is resulted on time
		Relevance	1	The information resulted is relevant
4	Customer Satisfaction (Y)	*Content*	1	The information content is usable as required
			2	The application used can provide report exactly as required
			3	The application used provide proper information
		Accuracy	1	The application used is accurate
			2	I feel satisfied with the application accuracy
		Format	1	The application used can give suitable information as required
			2	The application used can result clear and understandable information

		Ease of Use	1	The application used is user-friendly
			2	The application is easy to use
		Timeliness	1	I can gather the required information on time
			2	The application used can give up to date information
5	Perceived Value/Value Perception (Z)	Emotional Value	1	The customer feels relaxed when shopping
			2	The customer feels happy to visit a certain place
		Social Value	1	Feeling proud when visiting
			2	Tell the others about their experience
		Quality/Performance Value	1	Quality standard can be accepted as expectation
			2	The quality runs consistently
		Price/Value of Money	1	Reasonable price
			2	The price is worthy with the quality accepted by the customers

FINDING AND DISCUSSION

This section presents the study result that showed the effect of E-Servqual, Quality System, as well as Information Quality on the Bukalapak consumers' Satisfaction mediated by Value Perception. The data gathered using SEM-PLS. There are two types of models as the output of SEM-PLS: outer model or measurement model, focusing on indicators – dimensions correlationship and inner model or structural model, focusing on dimensions-latent variables (Dodik et al., 2020; Ervina et al., 2008). The outer model showed the variance ratio of each manifest variable (indicator) to predict its latent variable. Through the outer model, it is found which indicators are more dominant to form the latent variable. As the measurement model of each latent variable has been analyzed, it is discussed the structural model analyzing the effect of exogenous latent variables on endogenous latent variables so that the hypotheses can be proven.

Multicollinearity Testing

Multicollinearity testing is aimed to test whether there is a correlation between independent variables. A good model should not correlate each other. Variance inflation factor value (VIF) is the parameter to determine the multicollinearity. The cut off value is ≥ 10, meaning that there is multicollinearity when the VIF is more than 10. The VIF value of the independent variable in this study is shown in Table 2:

Table 2 Multicollinearity Test Result

	Customer Satisfaction	*Value Perception*
	VIF	VIF
E-Servqual	5.022	4.849
Information Quality	5.752	4.671
Quality System	5.195	4.894
Value Perception	4.665	

Table 2 clearly shows that every independent variable has a VIF value below 10, implying that there is no multicollinearity between the independent variables.

Measurement Model

There are 5 latent with total 42 manifest variables. The E-Servqual variable has 13 manifest variables, quality system has 6 manifest variables, information quality has 4 manifest variables, Value Perception has 8 manifest variables, and customer satisfaction has 11 manifest variables. The relationship of the latent variables toward its dimensions and indicators according to the testing output of SmartPLS 3.8. is presented in **Figure 1**.

There are two validity and reliability tests for the measurement model that should be conducted because several dimensions form each latent variable. The first-order model analysis is conducted to measure the indicators' validity and reliability toward its dimensions. In contrast, the second-order is conducted to measure the validity and reliability of dimensions to form the corresponding latent variables.

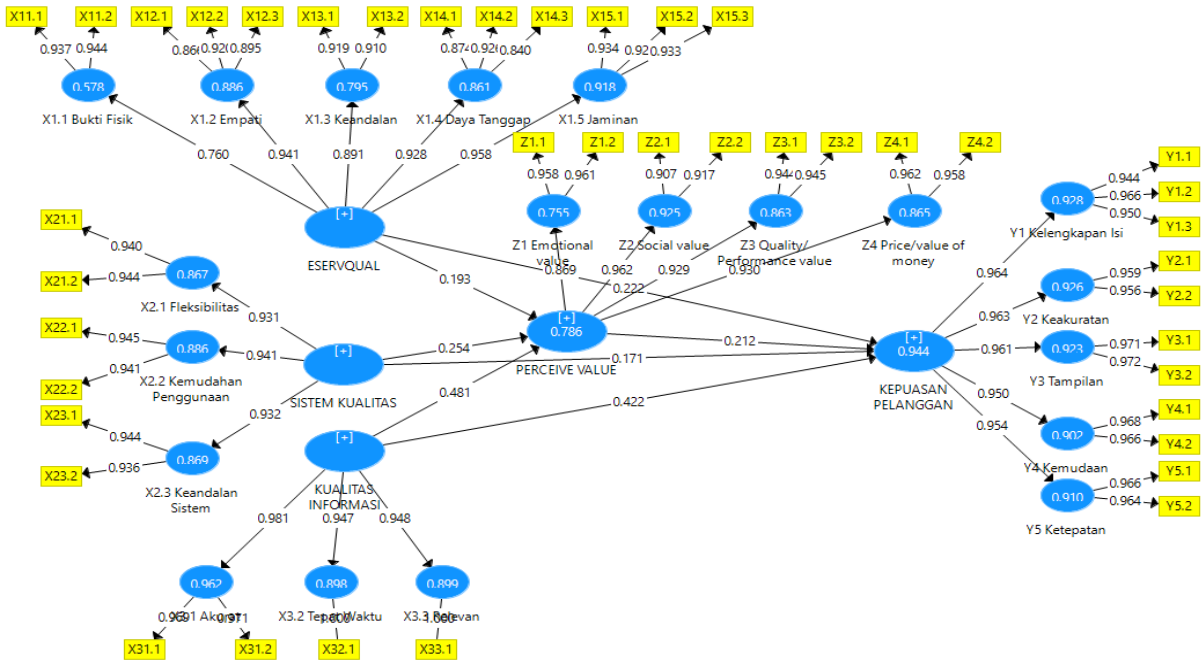

Figure 1. T-Value Diagram of Full Path Model

The reliability test includes Internal Consistency Reliability, while validity test includes Convergent and Discriminant Validity (Cai et al., 2019). The included Internal Consistency Reliability is presented by value output on Composite Reliability (CR) and also Cronbach's α (Ariyanti and Joseph, 2019). The CR threshold is 0.7 (Hair Jr. et al., 2017), meaning that the indicators score more than 0.7 has consistency in measuring its latent variable and Cronbach's alpha more than 0.7. Convergent Validity can be represented by Indicator Reliability and AVE value.

Indicator Reliability should be more than 0.708, while the AVE's benchmark value should be more than 0.50. It means that indicators that meet the requirements are considered associated

with the corresponding dimensions. Thus, the indicators can be used to measure the dimensions. The Discriminant Validity is measured through the Fornell-Larcker criteria to determine the degree of differentiation among constructs. **Table 3** presents the validity and reliability test for both first and second-order.

Table 3 Confirmatory Factor Analysis (CFA) Result for the Measurement Model

Latent Variable	Items	First-Order				Cronbach's Alfa	Second-Order				Cronbach's Alfa
		Loadings	Indicator Reliability	CR	AVE		Loadings	Indicator Reliability	CR	AVE	
E-Servqual (X1)	X11.1	0.937	0.879	0.939	0.885	0.870	0.760	0.578	0.965	0.681	0.960
	X11.2	0.944	0.892								
	X12.1	0.866	0.751								
	X12.2	0.920	0.846	0.923	0.799	0.874	0.941	0.886			
	X12.3	0.895	0.800								
	X13.1	0.919	0.844	0.910	0.836	0.803	0.891	0.795			
	X13.2	0.910	0.827								
	X14.1	0.874	0.764								
	X14.2	0.926	0.858	0.912	0.776	0.855	0.928	0.861			
	X14.3	0.840	0.705								
Quality System (X2)	X15.1	0.934	0.873								
	X15.2	0.921	0.849	0.950	0.864	0.921	0.958	0.918			
	X15.3	0.933	0.870								
	X21.1	0.940	0.884	0.940	0.888	0.873	0.931	0.867			
	X21.2	0.944	0.891								
	X22.1	0.945	0.893	0.942	0.890	0.876	0.941	0.886	0.954	0.775	0.942
	X22.2	0.941	0.886								
	X23.1	0.944	0.891	0.939	0.883	0.868	0.932	0.869			
	X23.2	0.936	0.875								
Information Quality (X3)	X31.1	0.969	0.939	0.970	0.941	0.937	0.981	0.962	0.973	0.902	0.964
	X31.2	0.971	0.943								
	X32.1	1.000	1.000	1.000	1.000	1.000	0.947	0.898			
	X33.1	1.000	1.000	1.000	1.000	1.000	0.948	0.899			
Customer Satisfaction (Y)	Y1.1	0.944	0.891								
	Y1.2	0.966	0.933	0.968	0.909	0.950	0.964	0.928			
	Y1.3	0.950	0.902								
	Y2.1	0.959	0.921	0.957	0.918	0.910	0.963	0.926			
	Y2.2	0.956	0.914								
	Y3.1	0.971	0.943	0.971	0.943	0.940	0.961	0.923	0.984	0.850	0.982
	Y3.2	0.972	0.944								
	Y4.1	0.968	0.936	0.966	0.934	0.930	0.950	0.902			
	Y4.2	0.966	0.933								
	Y5.1	0.966	0.934	0.964	0.931	0.926	0.954	0.910			
	Y5.2	0.964	0.929								
Value Perception (Z)	Z1.1	0.958	0.917	0.959	0.921	0.914	0.869	0.755			
	Z1.2	0.961	0.924								
	Z2.1	0.907	0.822	0.908	0.831	0.797	0.962	0.925			
	Z2.2	0.917	0.841								
	Z3.1	0.944	0.891	0.943	0.892	0.879	0.929	0.863	0.961	0.757	0.954
	Z3.2	0.945	0.893								
	Z4.1	0.962	0.925	0.959	0.921	0.915	0.930	0.865			

Z4.1	0.958	0.918

Source: Primary data analysed using SmartPLS 3.8

Table 3 showed that the CR score for every indicator (first-order) are more than 0.7, showing that all indicators are consistent with be the corresponding dimensions' predictors. The Indicator Reliability of all indicators meets the requirements, which is more than 0.708. Similarly, the AVE score is all suitable for the benchmark 0.5. It implied that all indicators are valid because they are correlated with corresponding dimensions.

According to **Table 3**, second-order testing showed that all dimensions had met the threshold required for all requirements, including CR and convergent. It implied that all the dimensions are valid and reliable to predict the corresponding latent variables.

The Discriminant Validity, the representation the validity of the construct formed, is decided using Fornell-Larcker criterion, as presented in **Table 4**. Fornell-Larcker criterion was found based on the √AVE in diagonals, which should be the highest among the other correlated latent variables

Table 4 Discriminant Validity with Fornell-Larckel Criterion

	E-Servqual	Consumer Satisfaction	Information Quality	Perceived Value	Quality System
E-Servqual	**0.825**				
Consumer Satisfaction	0.905	**0.922**			
Information Quality	0.855	0.941	**0.950**		
Value Perception	0.823	0.902	0.864	**0.870**	
Quality System	0.862	0.900	0.856	0.832	**0.880**

Source: Primary data analysed using SmartPLS 3.8

The model has good discriminant validity if every loading value of each indicator has the biggest value than the other latent variable. The discriminant validity value is presented in Appendix Table 4.13, showing that every loading factor value of indicators for each latent variable is bigger than the loading value compared to other latent variables. It showed that every latent variable has a good discriminant validity, which has no high correlation to other constructs.

The Fornell-Larcker criterion is showed in **Table 4**. The correlation between constructs and √AVE value of every variable is bigger than the relationship value between the other constructs. Commonly, the result of the Fornell-Larcker criterion stated that the discriminant validity of the latent variable is high, implying that the construct has good consistency.

Structural Model

The structural model describes the correlation of the exogenous latent variable and the endogenous latent endogenous. This research's structural model is related to 10 research hypotheses indicating a causal relationship between latent variables. The structural model involved three exogenous latent variables (E-Servqual, Quality System, and Information

Quality) and two endogenous latent variables (Customer Satisfaction and Value Perception). The standardized path coefficients for the relationship among variables is presented in **Figure**

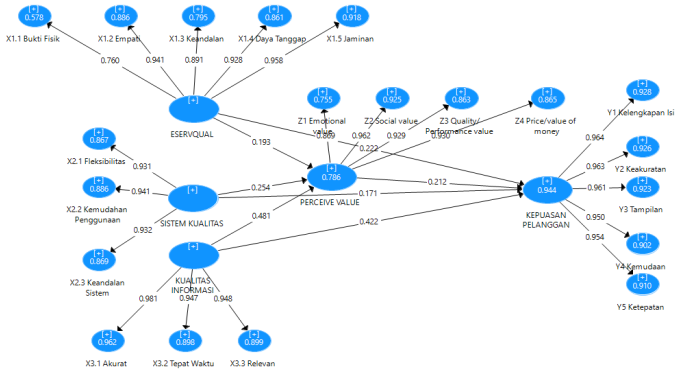

Figure 2. The Structural Model Output

The structural model testing (inner model) was conducted by using *R-square.* The R^2 value indicated the model prediction (Hair Jr. et al., 2017). If the R^2 value is the same as 0.25, meaning that the causal relationship is weak. If the value is 0.5, it means the causal relationship is moderate, while the value more than 0.75 means the causal relationship is substantial (Chin, 2010). The R^2 value of the model is presented in **Table 5**.

Table 5 R-Square Value Testing Result

	R Square	R Square Adjusted
Customer Satisfaction	0.944	0.941
Value Perception	0.786	0.779

Table 5 showed that R-square for Value Perception (Z) is 0.786, indicating that 78.6% of the Value Perception variable is affected by E-Servqual, Quality System, and Information Quality. The R-square for customer satisfaction (Y) is 0.944, indicating that 94.4% of customer satisfaction variable is affected by E-Servqual, Quality System, Information Quality and mediated by Value Perception.

The R-Square values for both dependent variables are more than 0.75, implying that the causal relationship is substantial. Therefore, the correlation between the variables is strong as expected.

The Effect of Size f^2 of the Structural Model

The size effect f^2 showed the contribution of each construct toward customer satisfaction. If the f^2 value is similar with 0.02, 0.15, 0.35 indicated that the latent variable predictor has a weak effect, moderate and significant, respectively (Hair Jr. et al., 2017). The analysis result of size effect f^2 for the proposed model is given in **Table 6.**

According to **Table 6,** The size effect f^2 of E-Servqual (X_1) variable toward Customer Satisfaction variable was 0.173, being considered moderate, according to the benchmark defined by (Hair Jr. et al., 2017).

Table 6 Size Effect f^2 Testing Result

	Efek size f^2	*Efek size* f^2
	Customer Satisfaction	Value Perception
E-Servqual	0.173	0.036
Quality System	0.100	0.062
Information Quality	0.548	0.231
Value Perception	0.171	

Meanwhile, the size effect f^2 of Quality System Variable (X_2) toward Customer Satisfaction is 0.100, which is considered weak. The size effect of f^2 Information Quality variable (X_3) toward Customer Satisfaction is 0.543, which is considered significant.

Hypothesis Testing

As the structural model testing of each latent variable and the model's correctness has been explained in the previous sub-section, the next testing is hypothesis testing on the partial effect of the exogenous-endogenous variables according to the hypotheses aimed to be proven in this study.

The consideration to determine whether the hypothesis is accepted or rejected is based on the t-statistics value. The benchmark to accept or reject is when the t value is between the range -1.96 s/d 1.96 (t_{crisis}). If the t value of the model testing is met the requirement, it means the hypothesis is rejected, while the Nul Hypothesis is accepted (H0). The t-value of the structural model in this study is presented in **Table 7**.

Table 7 Testing Result of Effect Significance

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
E-Servqual -> Value Perception	0.193	0.183	0.099	1.935	0.056
Quality System -> Value Perception	0.254	0.280	0.095	2.677	0.009
Information Quality -> Value Perception	0.481	0.461	0.100	4.812	0.000
E-Servqual -> Customer Satisfaction	0.222	0.221	0.066	3.341	0.001
Quality System -> Customer Satisfaction	0.171	0.174	0.062	2.778	0.006
Information Quality -> Customer Satisfaction	0.422	0.417	0.058	7.320	0.000
Value Perception -> Customer Satisfaction	0.212	0.215	0.074	2.885	0.005
E-Servqual -> Value Perception -> Customer Satisfaction	0.041	0.042	0.033	1.243	0.217

Information Quality -> Value Perception -> Customer Satisfaction	0.102	0.098	0.039	2.631	0.010
Quality System -> Value Perception -> Customer Satisfaction	0.054	0.059	0.027	2.029	0.045

The Impact of E-Servqual on Value Perception

The hypothesis that showed the effect of E-Servqual to Value Perception is the first hypothesis as presented in **Table 7**. The statistical hypothesis and the significance test result is stated as follow:

$H_0 : \gamma_{11} = 0$ E-Servqual has no impact on Value Perception significantly

$H_1 : \gamma_{11} \neq 0$ E-Servqual has an impact on Value Perception significantly

Based on **Table 7**, the t_{value} for *E-Servqual* variable (1.935) is smaller than the t_{crisis} (1.96), with significance (P-value) is 0.056. Because t_{value} is smaller than t_{crisis}, with the error level is 5%, it is decided to reject H1. It means the H0 is accepted, indicating that E-Servqual has no significant effect on Value Perception.

The Impact of Quality System on Value Perception

The hypothesis that showed the effect of Quality System to Value Perception is the second hypothesis being tested as presented in **Table 7**. It is hypothesized that Quality System has significant impact on Value Perception. The statistical hypothesis and the significance test result is stated as follow:

$H_0 : \gamma_{12} = 0$ Quality System Has no impact on Value Perception significantly

$H_1 : \gamma_{12} \neq 0$ Quality System Has an impact on Value Perception significantly

Based on **Table 7**, the t_{value} for *Quality* System variable (2.677) is bigger than t_{crisis} (1.96), with significance (P value) is 0.009. Because the t_{value} is bigger than t_{crisis}, and the significance (p-value) is < 0.05, with the error level is 5%, it is decided to accept H1. It means H0 is rejected. So, it concluded that the Quality System has significant impact on Value Perception.

4.2.3 The Impact of Information Quality on Value Perception

The third hypothesis being tested is whether Information Quality has significant impact on Value Perception. The statistical hypothesis and the significance test result is stated as follow:

$H_0 : \gamma_{13} = 0$ Information Quality has no impact on Value Perception significantly

$H_1 : \gamma_{13} \neq 0$ Information Quality has an impact on Value Perception significantly

According to **Table 7**, it is found that the t_{value} of the Information Quality variable (4.812) is bigger than the t_{crisis} (1,96), with significance (P Value) is 0.000, which is smaller than 0.05. It is decided that H1 is accepted and H0 is rejected with error level 5%. Therefore, it is concluded that Information Quality has significant impact on Value Perception.

4.2.4 The Impact of E-Servqual on Customer Satisfaction

The hypothesis being tested is the the effect of E-Servqual to Customer Satisfaction. The statistical hypothesis and the significance test result is stated as follow:

$H_0 : \gamma_{21} = 0$ E-Servqual has no impact on Customer Satisfaction significantly

$H_1 : \gamma_{21} \neq 0$ E-Servqual has an impact on Customer Satisfaction significantly

According to **Table 7**, it is found that the t_{value} of the E-Servqual Variable (3.341) is bigger than the t_{crisis} (1,96), with significance (P Value) is 0.001, which is < 0.05. It is decided that H1 is accepted and H0 is rejected with error level 5%. Therefore, it is concluded that E-Servqual has a significant impact on Customer Satisfaction.

4.2.5 The Impact of Quality System on Customer Satisfaction

The fifth hypothesis being tested is whether Quality System has a significant impact on Customer Satisfaction. The statistical hypothesis and the significance test result is stated as follow:

$H_0 : \gamma_{22} = 0$ Quality System has no Customer Satisfaction significantly

$H_1 : \gamma_{22} \neq 0$: Quality System has an impact on Customer Satisfaction significantly

According to **Table 7**, it is found that the t_{value} of the Quality System (2.778) is bigger than the t_{crisis} (1.96), with significance (P Value) is 0.006, which is < 0.05. It is decided that H1 is accepted and H0 is rejected with error level 5%. Therefore, it is concluded that Quality System has a significant impact on Customer Satisfaction.

The Effect of Information Quality on Customer Satisfaction

The hypothesis being tested is the the effect of Information Quality to Customer Satisfaction. The statistical hypothesis and the significance test result is stated as follow:

$H_0 : \gamma_{23} = 0$ Information Quality has no impact on Customer Satisfaction significantly

$H_1 : \gamma_{23} \neq 0$: Information Quality has an impact on Customer Satisfaction significantly

According to **Table 7**, it is found that the t_{value} of the Information Quality (7.320) is bigger than the t_{crisis} (1.96), with significance (P Value) is 0.000, which is < 0.05. It is decided that H1 is accepted and H0 is rejected with error level 5%. Therefore, it is concluded that Information Quality has a significant impact on Customer Satisfaction.

4.2.6 The Impact of Value Perception on Customer Satisfaction

The hypothesis being tested is the effect of Value Perception on Customer Satisfaction. The statistical hypothesis and the significance test result is stated as follow:

$H_0 : \beta_{21} = 0$ Value Perception has no impact on Customer Satisfaction significantly

$H_1 : \beta_{21} \neq 0$: Value Perception has an impact on Customer Satisfaction significantly

According to **Table 7**, it is found that the t_{value} of the Value Perception variable (2.885) is bigger than the t_{crisis} (1.96) with significance (P Value) is 0.005, which is < 0.05. Therefore, it is decided that H1 is accepted and H0 is rejected with error level 5%. Thus, it is concluded that Value Perception has a significant impact on Customer Satisfaction.

4.2.7 The Impact of E-Servqual to Customer Satisfaction mediated by Value Perception

Based on statistical measurement as presented in **Table 7**, the indirect effect of E-Servqual to Customer Satisfaction when mediated by Value Perception based on statistical test is **0.041**. The statistical hypothesis and the significance test result is stated as follow:

$H_0 : \gamma_{11.} \beta_{21} = 0$ E-Servqual has no impact on Customer Satisfaction mediated by Value Perception significantly

H_1 : $\gamma_{11.}$ $\beta_{21} \neq 0$ E-Servqual has an impact on Customer Satisfaction mediated by Value Perception significantly

According to **Table 7**, it is found that the t_{value} of the E-Servqual variable mediated by Value Perception (1.243) is smaller than t_{krisis} (1.96), with significance (P Value) is 0.217. Because the t_{value} is smaller than t_{crisis}, with significance value (p-value) > 0.05, it is concluded that H1 is rejected and H0 is accepted with error level 5%. Thus, according to the hypothesis result, it is stated that E-Servqual has in insignificant impact on Customer Satisfaction mediated by Value Perception.

4.2.8 The Impact of Quality System on Customer Satisfaction Mediated by Value Perception

Based on statistical measurement as presented in **Table 7**, the indirect effect of Quality System on Customer Satisfaction when mediated by Value Perception is **0.102**. The statistical hypothesis and the significance test result is stated as follow:

H_0 : $\gamma_{12.}$ $\beta_{21} = 0$ Quality System has no significant impact on Customer Satisfaction Mediated by Value Perception

H_1:$\gamma_{12.}\beta_{21} \neq 0$ Quality System a significant impact on Customer Satisfaction Mediated by Value Perception

According to **Table 7**, it is found that the t_{value} of the Quality System mediated by Value Perception (2.631) is bigger than the t_{crisis} (1.96), with significance (P Value) is 0.010. Because the t_{value} is bigger than t_{crisis}, with significance value (p-value) smaller than 0.05, Therefore, it is decided that H1 is accepted and H0 is rejected with error level 5%. Thus, it is concluded that Quality System has significant impact on Customer Satisfaction mediated by Value Perception.

4.2.10 The Impact of Information Quality to Customer Satisfaction Mediated by Value Perception

Based on statistical measurement as presented in **Table 7**, the indirect effect of Information Quality on Customer Satisfaction mediated by Value Perception is **0.054**. The statistical hypothesis and the significance test result is stated as follow:

H_0 : $\gamma_{13.}$ $\beta_{21} = 0$ Information Quality has no impact on Customer Satisfaction mediated by Value Perception significantly

H_1:$\gamma_{13.}\beta_{21} \neq 0$ Information Quality has a significant impact on Customer Satisfaction mediated by Value Perception

According to **Table 7**, the t_{value} of Information Quality variable when mediated by Value Perception is (2.029) is bigger than the t_{crisis} (1.96), with significance (P Value) is 0.045. Because the t_{value} is bigger than t_{crisis}, with significance value (p-value) smaller than 0.05, Therefore, it is decided that H1 is accepted and H0 is rejected with error level 5%. Thus, it is concluded that Information Quality has a significant impact on Customer Satisfaction mediated by Value Perception. The hypotheses and all hypotheses results measured is presented in **Table 8**.

Table 8 Hypotheses Result

	Hypotheses	Result
H1:	E-Servqual has an impact on Value Perception significantly	Rejected
H2:	Quality System has an impact on Value Perception significantly	Accepted
H3:	Information Quality has an impact on Value Perception significantly	Accepted
H4:	E-Servqual has an impact on Customer Satisfaction significantly	Accepted
H5:	Quality System has an impact on customer satisfaction significantly	Accepted
H6:	Information Quality has an impact on customer satisfaction significantly	Accepted
H7:	Value Perception has an impact on customer satisfaction significantly	Accepted
H8:	E-Servqual has a significant impact on customer satisfaction mediated by Value Perception	Rejected
H9:	Quality System has a significant impact on customer satisfaction mediated by Value Perception	Accepted
H10:	Information Quality has a significant impact on customer satisfaction mediated by Value Perception.	Accepted

CONCLUSION

This study's objectives were to measure the impact of E-Servqual, Quality System, and Information Quality on Value Perception and online Customer Satisfaction. Based on Multicollinearity testing, it was found no multicollinearity among independent variables. Thus, all variables did not correlate with each other. The measurement model was to measure the relationship between the latent variable and its manifest variable through reliability and validity test. The first-order model analysis was to measure the indicators' validity and reliability toward its dimensions. In contrast, the second-order was to measure the dimensions's validity and reliability to form the corresponding latent variables (E-Servqual, Quality System, Information Quality on Value Perception and Customer Satisfaction). Based on the measurement model, it was found that all the dimensions are valid and reliable to predict the corresponding latent variables.

The next step was conducting a structural model test to answer the hypotheses. There were 10 hypotheses that should be proved. According to the structural model testing result, it is found 2 hypotheses were rejected and 8 hypotheses accepted. The rejected hypotheses were about the E-Servqual's impact on Value Perception and Customer Satisfaction when mediated by Value Perception. However, E-Servqual has a significant direct impact on Customer Satisfaction. Therefore, it was concluded that Value Perception was affected significantly by Information Quality and Quality System. In addition, Customer Satisfaction was affected significantly by all independent variables (E-Servqual, Quality System, and Information Quality). However, Information Quality and Quality System affected Customer Satisfaction directly and indirectly through Value Perception. It indicated that the online marketplace should pay attention to the three factors, including their service and information quality, as well as their quality system to improve their sale rate significantly.

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