

THE IMPACT OF CUSTOMER SATISFACTION WITH E-COMMERCE SYSTEM

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Abstract

The pandemic condition can change the pattern of online shopping behavior in Indonesia. This change in shopping behavior causes the level of visits for each e-commerce in Indonesia to increase. With a high number of visitors, of course, this e-commerce has a quality information system and quality information that greatly affects customer satisfaction. This study can explain that the quality of information systems used by e-commerce affects customer satisfaction, the quality of information produced by e-commerce affects customer satisfaction and the quality of information systems also affects the quality of information produced. Data collecting through a questionnaire and the data processing using SEM PLS.

Keywords: e-commerce, customer satisfaction, SEM PLS.

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1. INTRODUCTION

Shopping on digital platforms has now become a consumption pattern for people in Indonesia. This is consistent with Bank Indonesia's data, that is, the growth of e-commerce transactions from 2017 to December 2019, an increase of 162%. This change in behaviour also improves payment methods that are all online, fast, and secure. Online payment services provided by financial technology (fin-tech) companies,

especially electronic money, encourage an increase in public preference and merchant acceptance for online payments in e-commerce transactions. Data from management consulting firm McKinsey in 2018 revealed that the increase in e-commerce in Indonesia was supported by several factors:

- (1) increased use of smartphones and the internet,
- (2) Indonesia's population was large and people's purchasing power increased amid strong macroeconomic growth,
- (3) young population in Indonesia who can adapt quickly to new technologies.

Indonesian consumers spend up to 15 percent of their monthly income on e-commerce shopping and the most popular payments for online shopping are via bank transfer (48 percent) and debit/credit cards (21 percent) (Brian Marshal, 2019). The most popular payments for online shopping are via bank transfer (48 percent) and debit/credit cards (21 percent). Sales of health products increased by 90%, hobby support products by 70%, staple foods by 350% and herbal foods by 200% (Teten Masduki, 2020). Indonesia is in the top ten countries with rapid 'e-commerce' growth with an average growth of 78%, this beats Mexico which is at 59% growth (Septriana Tangkary, 2020). The COVID-19 pandemic in 2020 caused a global economic slowdown but led to the growth of the digital and e-commerce sectors. The pandemic condition has caused changes in online shopping behavior patterns in Indonesia. Increased public trust for shopping in e-commerce can be seen in the number of consumers who shop in several marketplaces with a composition level of 60% (Lily Suriani, 2020).

The results of research conducted by I-price regarding e-commerce competition in Indonesia, especially based on the level of visits, can be seen in tables 1, 2, 3, and 4 below:

TABLE 1. NUMBER OF INDONESIAN E-COMMERCE VISITORS, THIRD-QUARTER 2020

No	E-commerce	Visitors
1	Shopee	96.532.300
2	Tokopedia	84.997.100
3	Bukalapak	31.409.200
4	Lazada	22.674.700
5	Blibli	18.695.000

Source: <https://iprice.co.id/insights/mapofecommerce/>

Table 1 describes the number of visitors to the top five e-commerce in Indonesia. This table shows that Shopee and Tokopedia are the most visited e-commerce by visitors.

TABLE 2. NUMBER OF INDONESIAN E-COMMERCE VISITORS, THIRD-QUARTER 2020

No	E-commerce	Visitors
1	Shopee	129.320.800
2	Tokopedia	114.655.600
3	Bukalapak	38.583.100
4	Lazada	36.260.600
5	Blibli	22.413.100

Source: <https://iprice.co.id/insights/mapofecommerce/>

Table 2 explains that at the end of 2020, Shopee and Tokopedia e-commerce remain the e-commerce with the highest number of visitors in Indonesia.

TABLE 3. NUMBER OF INDONESIAN E-COMMERCE VISITORS, FIRST QUARTER 2021

No	E-commerce	Visitors
1	Shopee	127.400.000
2	Tokopedia	135.076.700
3	Bukalapak	34.170.000
4	Lazada	30.516.700
5	Blibli	19.590.000

Source: <https://iprice.co.id/insights/mapofecommerce/>

Table 3 explains that Shopee and Tokopedia remain the two e-commerce sites with the highest visitors. However, compared to table 2 where Shopee e-commerce visitors decreased by 0.02% and Tokopedia visitors experienced an increase of 0.18%.

TABLE 4. NUMBER OF INDONESIAN E-COMMERCE VISITORS, SECOND QUARTER 2021

No	E-commerce	Visitors
1	Shopee	126.996.700
2	Tokopedia	147.790.000
3	Bukalapak	29.460.000
4	Lazada	27.670.000
5	Blibli	18.440.000

Source: <https://iprice.co.id/insights/mapofecommerce/>

Table 4 explains that in the second quarter of 2020 Shopee and Tokopedia had the highest number of visitors. However, compared to the first quarter of 2020 (table 3), the number of Shopee visitors decreased by 0.32% while Tokopedia experienced an increase of 0.09%.

Based on the four tables above, it can be explained that Shopee and Tokopedia are e-commerce with the highest number of visitors. A significant increase occurred in the fourth quarter of 2020. During the first and second quarters of 2021, Shopee experienced a decrease in the number of visitors compared to Tokopedia.

The research results from Kredivo's research and Kata Data Insight Center (KIC) on e-commerce consumer behavior in Indonesia revealed that the highest contributor to e-commerce transactions with a level of 85% was the millennial generation and generation Z. The highest e-commerce transactions were carried out by consumers with a range of age 26-35 years is 49%, age 18-25 years is 36 percent (Mulya Amri, 2020). The results of research conducted by Snapcart explained that the higher age group who shopped at Shopee was the age range of 19-24 years (72%), 25-30 years (69%). Furthermore, the age range of shopping at Tokopedia is favored by 35 years and over (24%), 31-35 years (15%) (Astrid Wiliandry, 2020).

Research conducted by (Sharma and Lijuan, 2015) reveals that a website with a quality system, quality information, and quality electronic services is the key to the success of E-commerce. The quality of e-commerce services is the key that affects e-commerce customer satisfaction, especially in security services related to payment methods (Alotaibi Khalid, 2018).

This study will be able to explain the influence of the quality of e-commerce systems, the quality of information produced by e-commerce, and its effect on e-commerce customer satisfaction. Respondents in this study were respondents with an age range of 19-24 years, this is in accordance with the results of Snapchart research which explained that the higher age group who shopped at Shopee was the age range of 19-24 years.

This study can explain that the information system used by Shopee is of high quality, seen from the indicators of easy use, user-friendly, reliability, stability, flexibility, and security. Quality information in this study is explained with accurate indicators, relevance, and currency. Information system quality indicators and information quality can explain satisfaction while using Shopee e-commerce whose satisfaction is measured by indicators of Quality of work-life satisfaction and task support. The formulation of the problem in this study is:

- (1) Does the quality of the information system affect customer satisfaction,
- (2) Does the quality of information affect customer satisfaction,
- (3) Does the quality of information systems affect the quality of information.

2. LITERATURE REVIEW

2.1. E-Commerce

According to the definition of Bank Indonesia, e-commerce is a trade transaction online or using technology. E-commerce is defined as E-commerce is a business that is carried out using a network, providing online sales, and serving customers (Alotaibi Khalid, 2018).

2.2. Information System Quality

According to Romney & Steinbart (2009), the quality of the system can be seen based on the characteristics:

- (1) Usefulness: Output can help management and users make decisions,
- (2) Reliability: The system is able to process data correctly and entirely,
- (3) Availability: system access for users can be implemented properly,
- (4) Timelines of the required information can be generated by the system when needed,
- (5) Ease of use: The system must be easy,
- (6) Flexibility: the system must be able to handle operations and changes that arise in these operations,
- (7) Tractability: The system should be easy to understand by users and facilitate troubleshooting and future system development,
- (8) Security: Only authorized users are given access or are allowed to change system data.

According to Laudon & Laudon (2012), the quality of information systems that an effective information system will provide users with information that is accurate, timely, and relevant. Accurate information is free from error. Timely information, information available when needed. This information is relevant when it is useful and appropriate for the type of work and decisions that require it.

2.3. Information Quality

The Information must be accurate, reliable, current, complete, and delivered in the proper format (Stair & Reynolds, 2010). Meanwhile, according to Laudon & Laudon (2016) quality information has the following dimensions: accurate, timely, and relevant information. Accurate is information that is free from error, timely is information that is timely and available to decision-makers when needed, and relevant is information that is useful and appropriate in making decisions. Meanwhile, Hall (2011) states that information quality has the following characteristics: accuracy, completeness, relevance, timeliness, and summarization. According to Zaied (2012) in measuring the success of information quality, the dimensions that can be used are Completeness, understandability, security, availability, and accuracy. Meanwhile, according to Wixom & Todd (2005) in Al-Shibly (2011), the dimensions used in measuring the quality of information are the following meanings: completeness, accuracy, format, and currency. The meaning of

each dimension: Completeness: the extent to which the system provides all the necessary information, Accuracy: the information is correct, Format: how the information is presented, Currency: the extent to which the availability of information is up to date.

2.4. Customer Satisfaction

System quality and information quality, individually and collectively affect the use of information systems and user satisfaction. In addition, the amount of use of information systems can affect the level of user satisfaction positively or negatively and vice versa. Usage satisfaction is a direct antecedent of the impact on individuals and lastly, the impact on individual abilities will ultimately have a certain impact on the organization (De Lone & Mc Lean, 1992).

The dimensions and indicators used in measuring satisfaction are:

- (1) Task support satisfaction/system function in helping staff/employees (Garrity & Sanders, 2008),
- (2) Well Integrated (Garrity & Sanders, 2008),
- (3) User-friendly: easy to use, well documented (Garrity & Sanders (2008),
- (4) Interface Satisfaction: User satisfaction with the information system/interface interaction (Garrity & Sanders, 2008),
- (5) Quality of work-life satisfaction: the steps how a computer system affects the quality of individuals in the fulfilment of quality and job satisfaction.

Measurements are made of the social needs, intellectual needs, and or physiological requirements of individuals in the context of work-related activities (Garrity & Sanders (2008).

3. METHODOLOGY

1. Sampling: the sample, according to Sekaran and Bougie (2013), is as part of the population. In this study, the minimum sample size was taken using power analysis. With a significance level of 5%, statistical power 80%, the highest number of arrows pointing to the construct is 3 and R² is 0.25, so the minimum sample size taken in this study is 59 samples.
2. Data Source: in this study, there are two types of data: 1) primary data and 2) secondary data. Primary data are the first-hand data (information) obtained by researchers on the variables of concern for certain study objectives (Sekaran & Bougie, 2013). Secondary data is data or information collected from existing/available sources (Sekaran & Bougie, 2013).
3. Data Collection Techniques: Data collection is done by sending a questionnaire to each respondent.
4. Data Analysis: Data analysis was carried out using a covariance-based structural equation model method, namely partial least squares (PLS).

5. Structural Model

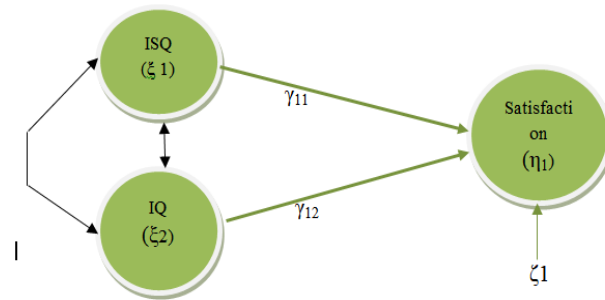


FIGURE 1. STRUCTURAL MODEL

Source: Author

Based on Figure 1 structural model (inner model), to test, the hypothesis that is able to describe that satisfaction is influenced by the quality of information systems and information quality. Furthermore, the equations that can be described from this structural model are:

- (i) $\eta_1 = \gamma_{11}\xi_1 + \gamma_{12}\xi_2 + \zeta_1$
- (ii) $\eta_2 = \beta_{21}\eta_1 + \zeta_2$

Description:

- η_1 = Customer Satisfaction
- β = path coefficient between latent variables
- ξ_1 = Information System Quality
- ξ_2 = Information Quality
- ζ_1 = Variable Measurement Error

6. Structural Model Evaluation:

According to Hair (2014), the evaluation of the structural model:

- (1) Test the collinearity problem, collinearity is seen from the VIF value. An indicator is said to have collinearity with other indicators if its VIF value is greater than 5,
- (2) The coefficient of determination (R^2).

R^2 is a measure of the predictive accuracy of a model. R^2 varies from 0 to 1, with an indication that higher values indicate better prediction accuracy. According to Hair (2014), in social research, the R^2 value of 0.25 can indicate a weak predictive accuracy while 0.50 is categorized as moderate and 0.75 is categorized as substantial,

(3) Size and significance of path coefficient. The significance value can be seen from the p-value and t-value.

If the p-value is less than then it is considered significant. The significance test can be explained as follows:

Hypothesis 1: Information System Quality Affects User Satisfaction,

Hypothesis 2: Information Quality affects User Satisfaction.

4. RESULT

1. Outer Model Results: The standard of an indicator is said to have a good value according to Hair (2014) if it has an AVE value of more than 0.5. Based on table 5, all dimensions have an AVE value of more than 0.5, meaning that all indicators have indicators with good convergence validity.

TABLE 5. CONVERGENT VALIDITY (AVERAGE VARIANCE EXTRACTED)

Variable	AVE/Average variance extracted	Status
Customer satisfaction	0,638	Valid
Information System Quality	0,590	Valid
Information Quality	0,639	Valid

Source: Author

According to Hair (2014), to achieve convergent validity, the value of each item on the outer loading must be greater than or above 0.7. The results of data processing in Table 6 show that the outer loading value has met the criteria, which is above 0.7.

TABLE 6. CONVERGENT VALIDITY (OUTER LOADING)

	Customer satisfaction	Information System Quality	Information Quality
CSO1	0,766		
CSO2	0,844		
CSO3	0,766		
CSO4	0,828		

CSO5	0,785	
IQU1		0,788
IQU2		0,799
IQU3		0,817
IQU4		0,712
IQU5		0,72
ISQ1		0,775
ISQ2		0,823
ISQ3		0,735
ISQ4		0,839
ISQ5		0,857
ISQ6		0,857
ISQ7		0,792

Source: Author

Table 7 shows the results of the reliability test. This study uses the value of Cronbach's alpha and composite reliability, as a measure of the reliability of the observed variables. Each of these measuring values must be greater than 0.6 and 0.7, thus indicating reliability. The results in Table 7 show that each variable has Cronbach's alpha and composite reliability values that meet the requirements, therefore each variable meets the reliability requirements.

TABLE 7. RELIABILITY TEST RESULTS

	Cronbach's alpha α	Composite Reliability	Status
Customer satisfaction	0,858	0,898	Reliable
Information System quality	0,827	0,878	Reliable
Information Quality	0,904	0,925	Reliable

Source: Author

2. Inner Model Results. The evaluation of the inner model can be done in three ways. The three ways are by looking at R^2 , Q2, and GoF. From the estimation results, it can be seen that:

- The influence of information quality on customer satisfaction has a path coefficient of 0.528. Where the effect is significant ($t = 5.464$; $p < 0.000$).
- The effect of information system quality on customer satisfaction has a path coefficient of 0.196. The effect was significant ($t = 1.544$; $p < 0.000$).
- The effect of information system quality on information quality with a path coefficient of 0.848 with a significant effect ($t = 35.348$; $p < 0.000$).

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