

Analysis of factors for increasing e-commerce adoption with intervening attitude variables for JABOTABEK MSMEs

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Abstract

This study aims to analyze the effect of time-saving, cost-effective, security assurance, easy to use, product quality (compatibility) on e-commerce adoption with attitude as a mediation between ease of use and product quality (compatibility) with e-commerce adoption in MSMEs in the region. Jakarta, Bogor, Tangerang, Bekasi. The population in this study is the owners of MSMEs engaged in the food business in the areas of Jakarta, Bogor, Tangerang, Bekasi. Number of samples was taken based on Hair et al (2019) so that 140 respondents were obtained. The data processing method used in this study is a descriptive quantitative research with a causal approach. Data analysis using Structural Equation Model (SEM) with Smart PLS (Partial Least Square) 3.0. The independent variables in this study is time-saving (X1), cost-effective (X2), security assurance (X3), easy to use (X4), and product quality (compatibility) (X5). The moderating variable in this study is attitude (Z). The dependent variable in this study is e-commerce adoption (Y). The results showed that there was a positive and significant effect of saving time, saving costs, guaranteeing security, easy to use, product quality (compatibility) on e-commerce adoption. Variables easy to use and product quality (compatibility) have a significant positive effect on attitude. Attitude variable has a significant positive effect on e-commerce adoption.

Key words: Time-saving; cost-effective; security assurance; easy to use; product quality (compatibility); attitude; e-commerce adoption; MSME

INTRODUCTION

Along with technological developments and supported by changes in market behavior, the number of e-commerce is increasing, both in the form of online stores and other internet-based businesses. The potential of the e-commerce market in Indonesia is growing from year to year. In 2011, the e-commerce market reached a value of IDR. 8.325 trillion grew to IDR. 100 trillion in 2015 (BPS, 2015).

Shopping using an online system is a lifestyle that has now metamorphosed into popular culture in Indonesia. Nowadays someone who wants to shop does not need to go to a store anymore. They only need to open their smartphone and online shopping application and then choose the needs they are looking for. The digital lifestyle in the form of shopping through online applications is part of media and technology activities as an extension of the human hand (Sazali & Rozi, 2020). This is in accordance with media reports which state that online shopping not only has advantages in the context of the ease of getting an item but there are several reasons people choose to shop online, i.e. saving energy, reducing fatigue, not having to bother, easy to compare the price of one product with another. other products, saves time, and is convenient because it can be done anywhere (Fara, 2020).

Along with the times and technology, PT. Bhandha Ghara Reksa (Persero) or known as BGR logistics, is a state-owned company engaged in logistics, warehousing and transportation, continuously transforming into a beyond digital logistics company. Therefore, as a digital logistics company, BGR Logistics provides an IT-based logistics service solution that can reduce logistics costs which have been a public issue.

One of the IT-based logistics breakthroughs, the company launched a new business model platform, i.e. the Warung Pangan (WP) Application (or Food Stall Application). Digital innovation in the e-commerce sector developed by BGR Logistics is expected to play a major role in the MSME digitization plan that has been initiated by the government. BGR Logistics' position in the digital industry in the e-commerce sector can be said to be unique where BGR Logistics has a role to play in empowering Indonesian MSMEs. This new business model aims to help SMEs or shop owners to obtain food stocks at stable prices.

The food stall application (Aplikasi Warung Pangan) has a B2B2C business model with a focus on food commodities, where BGR through the Warung Pangan application is the owner of the middleman between MSMEs and suppliers who will later buy the food commodities directly via the Food Stall application. Along with the high demand for food and the limited movement of the community, it is an opportunity and momentum for BGR to participate in the food distribution business, which is affordable by the wider community. Changes in behavior towards food needs are an opportunity for BGR.

From several previous studies and the results of a pre-survey conducted on 51 MSMEs in Jabodetabek that have been verified as members of food stalls or who have used e-commerce, there are several indicators that make them interested in making transactions through e-commerce applications.

E-commerce adoption in this study can be influenced by attitude toward using or attitudes toward using e-commerce. E-commerce adoption for MSMEs requires determining the attitude of the MSME owners themselves in adopting e-commerce. Research conducted by Weng et al. (2018), Kusumadewi et al. (2021), Kustono et al. (2020) states that attitude has a significant effect on the use of e-commerce. Attitude and adoption of e-commerce in this study are influenced by the variables of ease of use and product quality.

Saving time is one of the important factors in e-commerce as revealed by Chakraborty et al. (2014) which states that the concept of e-commerce is also very effective and efficient, can save time and space, at this time the internet network is easier, supported by more and more Wifi sites and increasing network development from better providers. This is also supported by research by Arda and Pulungan (2019) which states that the external drivers variable (time saving) has a positive and significant effect on e-commerce success.

Cost saving is an important factor in e-commerce as suggested by Chakraborty et al. (2014) which states that the concept of e-commerce makes transportation, marketing and operational costs lower so that prices can be reduced to lower prices, with lower prices increasing sales volume. This is also supported by Arda and Pulungan (2019) which state that the internal drivers variable (cost savings) has a positive and significant effect on e-commerce success.

Security assurance is an important factor in transactions carried out on e-commerce, this is in accordance with the opinion of Qteishat et al. (2014) which states that data security is related to guaranteeing the security of consumers' personal data during business dealings with companies. The high level of security in e-commerce is the main attraction for consumers in conducting e-commerce transactions. This is in accordance with research conducted by Wilson (2021) which states that security guarantees have a significant effect on the use of e-commerce. It is important for every B2C E-Commerce company in Indonesia in creating a secure e-commerce system that is able to protect buyers and sellers from the possibility of data theft cases when both parties make purchases and sales transactions on the developed e-commerce page. by the company. However, unlike the results of Hussein et al. (2020) which states that security guarantees have no effect on the use of e-commerce.

Ease of use is the perception of e-commerce users who can easily run e-commerce applications that create interest in e-commerce applications. Ease of use or perceived ease of use is the user's belief that the new technology or system being implemented is easy to use. This is in accordance with the results of research conducted by Santika and Yadnya (2017) which states that perceived ease of use has a positive and significant effect on attitude toward using. Results of the research by Wijaya et al. (2021) stated that ease of use had a significant positive effect on attitude toward using. The results of Siri and Herliana's research (2017) state that ease of use has a significant effect on user attitudes. However, in contrast to the results of research conducted by Sandi et al. (2021) which states that ease of use has no effect on user attitudes. The results of research by Novianto, Rachbini and Rekart (2020) which state that easy of use has a significant effect on the use of OVO digital wallets. The research results of Weng et al. (2018) states that ease of use has a significant effect on interest in use.

Product quality (compatibility) is the suitability of the product desired by consumers which can affect consumer or user attitudes and become important in the use of e-commerce. This is in accordance with research conducted by Zawaideh (2017), Hussein et al. (2020), which states that compatibility has a significant effect on the use of e-commerce. The results of the research by Juarez and Suprpti (2020) state that the quality of the site has a significant effect on consumer attitudes. The results of Callista and Sharif's (2020) research state that website quality has a significant effect on user attitudes. Santoso and Kunto (2014) state that perceived quality has a significant effect on attitudes.

METHODS

Method used in this research is descriptive quantitative research with a causal approach. The population in this study is the owners of SMEs engaged in the food business in the areas of Jakarta, Bogor, Tangerang, Bekasi. The number of samples was taken based on Hair et al (2019) so that 140 respondents were obtained. The research hypothesis was tested using the Structural Equation Model (SEM) approach using SmartPLS (Partial Least Square) 3.0.

Evaluation of Outer Model

Convergent Validity

Convergent validity tests the value of the outer loading or loading factor. The indicator is declared to meet convergent validity in the good category if the outer loading value is > 0.7 .

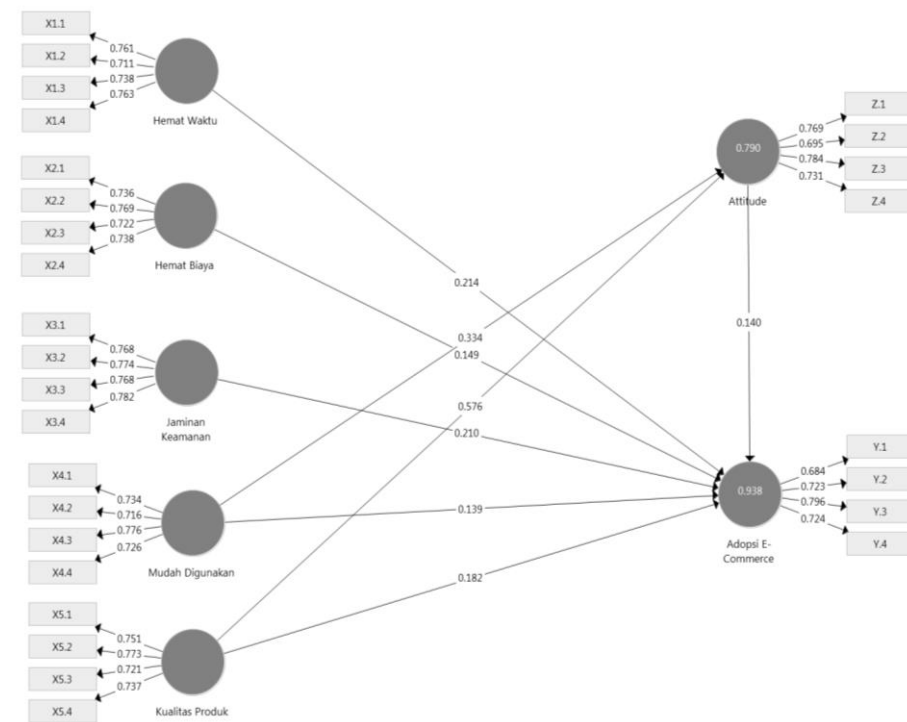


Figure 2.
Outer Model

Table 1.
Outer Loading

Variables	Indicators	Outer Loading	Reliability
Time-Saving (X1)	Order anywhere	0,761	Reliable
	Order anytime	0,711	Reliable
	Effectiveness	0,738	Reliable
	Productivity	0,763	Reliable
Cost-Saving (X2)	Save on booking fees	0,736	Reliable
	Save on shipping costs	0,769	Reliable
	Save on daily operations	0,722	Reliable
	Save on advertising costs	0,738	Reliable
Security Guarantee (X3)	Personal data security	0,768	Reliable
	Transaction security	0,774	Reliable
	Relevant information	0,768	Reliable
	Timely payment	0,782	Reliable
Easy to Use (X4)	Easy and fast access	0,734	Reliable
	Easy operation	0,716	Reliable
	Easy interaction	0,776	Reliable
	Flexible interaction	0,726	Reliable
Product Quality (X5)	Attractive design	0,751	Reliable
	According to transaction wishes	0,773	Reliable
	Compatible	0,721	Reliable
	Unlimited	0,737	Reliable
Attitude (Z)	Benefits of e-commerce	0,769	Reliable
	Help at work	0,695	Reliable
	Product optimist	0,784	Reliable
	Optimistic for sustainability	0,731	Reliable
Adoption of e-commerce (Y)	Using e-commerce	0,684	Reliable
	Take advantage of e-commerce	0,723	Reliable
	Continue to use e-commerce	0,796	Reliable
	Recommend	0,724	Reliable

In table 1 it can be seen that there is no indicator variable whose outer loading value is below 0.6, so all indicators are declared feasible or valid for research use and can be used for further analysis.

Discriminant Validity

In this section, the results of the discriminant validity test will be described. The discriminant validity test is carried out by looking at the average variant extracted (AVE) value for each indicator. The required value must be > 0.5 for a good model, (Results of PLS, 2021 Processing).

Table 2.

Average Variant Extracted		
Variables	AVE	Validity
Time-saving	0,553	Valid
Cost-saving	0,550	Valid
Security guarantee	0,556	Valid
Easy to use	0,545	Valid
Product quality	0,556	Valid
Attitude	0,556	Valid
Adoption of e-commerce	0,537	Valid

Table above shows that the AVE value of the leadership style, organizational culture, customer satisfaction and employee performance variables is > 0.5 . Thus it can be stated that each variable has good discriminant validity.

Composite Reliability

Composite Reliability is the part that is used to test the reliability value of indicators on a variable. A variable can be declared to meet composite reliability if it has a composite reliability value of ≥ 0.7 , (Results of PLS, 2021 Processing).

Table 3.

Composite Reliability		
Variables	Composite Reliability	Reliability
Time-saving	0,832	Reliable
Cost-saving	0,830	Reliable
Security guarantee	0,856	Reliable
Easy to use	0,827	Reliable
Product quality	0,833	Reliable
Attitude	0,833	Reliable
Adoption of e-commerce	0,822	Reliable

Table 3 above shows that each variable has met composite reliability so that it can be concluded that all variables are Reliable with a high level.

Cronbach Alpha

Reliability test with the composite reliability above can be strengthened by using the Cronbach alpha value. A variable can be declared Reliable or fulfills cronbach alpha if it has a cronbach alpha value > 0.75 . The following is the cronbach alpha value for each variable, (Results of PLS, 2021Processing).

Table 4.

Cronbach Alpha		
Variables	Cronbach Alpha	Reliability
Time-saving	0,731	Reliable
Cost-saving	0,728	Reliable
Security guarantee	0,776	Reliable
Easy to use	0,722	Reliable
Product quality	0,734	Reliable
Attitude	0,778	Reliable
Adoption of e-commerce	0,791	Reliable

Table 4 above shows that each research variable has met the requirements of the Cronbach alpha value, so it can be concluded that all variables have a high level of reliability.

Evaluation of Inner Model

Hypothesis testing is carried out based on the results of the Inner Model test which includes the output of r-square, parameter coefficients and t-statistics. To see whether a hypothesis can be accepted or rejected, among others, by paying attention to the significance value between constructs, t-statistics, and p-values. The hypothesis testing of this research was carried out with the help of the SmartPLS (Partial Least Square) 3.0 software. These values can be seen from the bootstrapping results. The rule of thumb used in this study is t-statistic > 1.96 with a significance level of p-value 0.05 (5%) and a positive-valued beta coefficient.

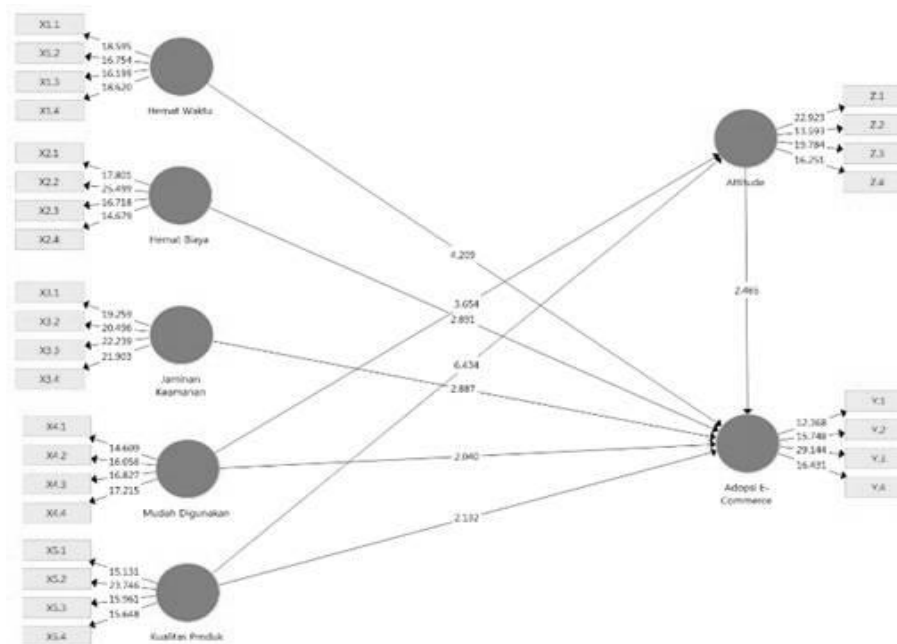


Figure 2.
Inner Model

Test of Path Coefficient

Based on Figure 1 above, it can be explained that the path coefficient value on the dominant path coefficient is shown in the product quality variable (compatibility) to attitude of 0.576. Then the coefficient of the second path is shown in the easy-to-use variable for attitude of 0.334. While the smallest value is shown in the attitude variable towards e-commerce adoption of 0.140.

Based on Figure 2 above, it can be explained that the largest t-statistic value is indicated by product quality towards attitude of 6.434. Then the second biggest impact is the effect of easy to use on attitude of 3.654. While the smallest effect is shown in the easy-to-use variable on e-commerce adoption of 2,040.

Based on the description of these results, it shows that the independent variable on customer satisfaction in this model has a path coefficient value with a positive number. This shows that the greater the path coefficient value on one of the independent variables on the customer satisfaction variable, the stronger the influence between the independent variables on the customer satisfaction variable. While the independent variable on employee performance in this model has a path coefficient value with a positive number. This shows that the greater the path coefficient value in one of the independent variables on the employee performance variable, the stronger the influence between the independent variables on the employee performance variable.

Model Goodness Test (Goodness of Fit)

Based on the data processing that has been done using the smartPLS 3.0 program, the R-Square values are obtained as follows, (Results of PLS, 2021 Processing).

Table 5.
Values of R-Square

Variables	Values of R Square
Attitude	0,938
Adoption of e-commerce	0,790

Based on the data in table 5 above, it is explained that attitude can be explained by variables that are easy to use and product quality (compatibility) is 93.8% while the remaining 6.2% can be influenced by other variables not examined. Then for the e-commerce adoption variable has an R-Square value of 0.790. This value explains that e-commerce adoption can be explained by time-saving, cost-effective, security assurance, easy-to-use, product quality and attitude variables of 79% while the remaining 21% can be influenced by other variables not examined.

Hypothesis testing

Direct effect of time-saving and cost-effective on attitude and adoption of e-commerce as well as attitude on adoption of e-commerce can be seen from the path coefficient presented in the following table, (Results of PLS, 2021 Processing).

Table 6.
Direct and Indirect Effects

Hypothesis	Effects	Original Sample	T-Statistics	P-Values	Results
H1	Time-saving => Adoption of e-commerce	0,214	4,209	0,000	Accepted
H2	Cost-saving => Adoption of e-commerce	0,149	2,891	0,004	Accepted
H3	Security guarantee => Adoption of e-commerce	0,210	2,887	0,004	Accepted
H4	Easy to use => Attitude	0,334	3,654	0,000	Accepted
H5	Product quality (compatibility) => Attitude	0,576	6,434	0,000	Accepted
H6	Attitude => Adoption of e-commerce	0,140	2,465	0,014	Accepted

Table 7.
Direct and Indirect Effects

Hypothesis	Effects	Original Sample	T-Statistik	P-Values	Results
H7	Easy to use => Adoption of e-commerce through Attitude	0,047	2,194	0,029	Accepted
H8	Product quality (compatibility) => Adoption of e-commerce through Attitude	0,081	2,108	0,036	Accepted

FINDING AND DISCUSSION

Effect of Time Saving on E-Commerce Adoption

Based on the results of the study, the t-value of $8.360 > 1.96$ means that organizational culture has a significant and positive effect on customer satisfaction. The path coefficient is 0.583, which means that the contribution of the influence of organizational culture to customer satisfaction is 58.3% and the remaining 41.7% is another factor not examined.

Based on the results of the study, the t-value was $4.209 > 1.96$, meaning that saving time had a significant and positive effect on attitude. The path coefficient is 0.214, which means that the contribution of time-saving effect on e-commerce adoption is 21.4% and the remaining 78.6% is another factor not examined.

Saving time is one of the main priorities in the e-commerce business where sellers and buyers or companies with partners can connect in a timely manner (İşoraité and Miniotiené, 2018). Saving time is one of the important factors in e-commerce as revealed by Chakraborty et al. (2014) which states that the concept of e-commerce is also very effective and efficient, can save time and space, at this time the internet network is easier, supported by more and more wifi sites and increasing network development from better providers. The results of this study support the research conducted by Arda and Pulungan (2019) which states that the external drivers variable (time saving) has a positive and significant effect on e-commerce success.

Cost-Effective Effects on E-Commerce Adoption

Based on the results of the study, the t-value of $2.891 > 1.96$ means that cost-effectiveness has a significant and positive effect on e-commerce adoption. The path coefficient is 0.149, which means that the contribution of cost-effectiveness to e-commerce adoption is 14.9% and the remaining 63.1% is another factor not examined.

Cost saving is an important factor in e-commerce as suggested by Chakraborty et al. (2014) which states that the concept of e-commerce makes transportation, marketing and operational costs lower so that prices can be reduced to lower prices, with lower prices increasing sales volume. The results of this study support the research conducted by Arda and Pulungan (2019) which states that the external drivers variable (time saving) has a positive and significant effect on e-commerce success.

Effect of Security Assurance on E-Commerce Adoption

Based on the results of the study, the t-value of $2.887 > 1.96$ means that security guarantees have a significant and positive effect on e-commerce adoption. The path coefficient is 0.210, which means that the contribution of the influence of security guarantees on the adoption of e-commerce is 21% and the remaining 79% are other factors not examined.

Security is defined as the trust or confidence of organizations in using B2B e-commerce, therefore security guarantees are an important barrier to technology adoption (Hussein et al (2020). Security assurance is an important factor in transactions carried out on e-commerce this in accordance with the opinion of Qteishat et al. (2014) which states that data security is related to guaranteeing the security of consumers' personal data during business dealings with companies. The high level of security in e-commerce is the main attraction for consumers in conducting e-commerce transactions. This study supports research conducted by Wilson (2021) which states that security guarantees have a significant effect on the use of e-commerce.

Easy-to-Use Effects on Attitude

Based on the results of the study, the t-value was $3.654 > 1.96$, meaning that the variable easy to use had a significant and positive effect on attitude. The path coefficient is 0.334, which means that the contribution of easy-to-use influence on attitude is 33.4% and the remaining 66.6% is another factor that was not examined.

Ease of use is the perception of e-commerce users who can easily run e-commerce applications that create interest in e-commerce applications. Ease of use or perceived ease of use is the user's belief that the new technology or system being implemented is easy to use. The ease of use of e-commerce applications felt by users, in this case MSME actors, can lead to a positive attitude towards e-commerce. MSME actors can determine their attitude in using e-commerce because of the ease of use of e-commerce technology. The results of this study support the research conducted by Santika and Yadnya (2017), Wijaya et al. (2021), Siri and Herliana (2017) which state that ease of use has a significant effect on user attitudes.

Effect of Product Quality (Compatibility) on Attitude

Based on the results of the study, the t-value was $6.434 > 1.96$, meaning that the product quality variable (compatibility) had a significant and positive effect on attitude. The path coefficient is 0.576, which means that the contribution of product quality to attitude is 57.6% and the remaining 42.4% is another factor not examined.

Product quality or compatibility is defined as the consistency between B2B e-commerce and the organization's existing values, preferred work practices and the way its suppliers and customers do business (Hussein et al., 2020). Product quality or the quality of B2B e-commerce products that can meet the wishes of users, such as the appearance of the design, the quality of accurate product information or the suitability of product information with the reality of the product can affect the attitude of using e-commerce. The results of this study support research conducted by Zawaideh (2017), Hussein et al. (2020), Juarez and Suprapti (2020), Callista and Sharif (2020), Santoso and Kunto (2014) who stated that compatibility had a significant effect on user attitudes.

Attitude Effect on E-Commerce Adoption

Based on the results of the study, the t-value was $2.465 > 1.96$, meaning that the attitude variable had a significant and positive effect on e-commerce adoption. The path coefficient is 0.140, which means that the contribution of attitude towards e-commerce adoption is 14% and the remaining 86% are other factors not examined.

Consumer attitudes to buy online have an important role in determining consumer intentions to buy online and subsequently these intentions will encourage consumers to purchase certain products (Trisdayana et al., (2018). Attitude is an expression of consumer feelings about an object whether it is liked or not), as well as a description of consumer confidence in various attributes and benefits of the object, so that previous researchers concluded that consumer attitudes have a positive effect on intentions to buy online. The results of this study support research conducted by Weng et al. (2018), Kusumadewi et al. (2021), Kustono et al. (2020) state that attitudes have a significant effect on the use of e-commerce.

Effect of Easy-to-Use on E-Commerce Adoption through Attitude

Based on the results of the study, the t-value of $2.194 > 1.96$ means that the attitude variable can mediate the influence of the easy-to-use variable with the adoption of e-commerce. The path coefficient is 0.047, which means that the contribution of attitude in mediating between ease of use and adoption of e-commerce is 4.7% and the remaining 95.3% are other factors not examined.

Effect of Product Quality on E-Commerce Adoption through Attitude

Based on the results of the study, the t-value was $2.108 > 1.96$, meaning that the attitude variable could mediate the influence between product quality (compatibility) variables and e-commerce adoption. The path coefficient is 0.081, which means that the contribution of attitude in mediating between product quality (compatibility) and e-commerce adoption is 8.1% and the remaining 91.9% is another factor not examined.

CONCLUSIONS

Based on the findings of the research on the adoption of e-commerce in MSMEs in Jakarta and the factors that influence it as well as the explanations in the previous chapters, several research conclusions can be drawn as follows:

There is a positive and significant effect of time-saving variables on e-commerce adoption. Of the four time-saving indicators that most reflect on time-saving is the productivity indicator with a loading factor value of 0.763.

There is a positive and significant effect of cost-effective variables on e-commerce adoption. Of the four cost-effective indicators, the most reflective of cost-effectiveness is an indicator of cost-effective delivery with a loading factor value of 0.769.

There is a positive and significant effect of the security guarantee variable on the adoption of e-commerce. Of the four indicators of security guarantees that most reflect on security guarantees are indicators of timely payment with a loading factor value of 0.782.

There is a positive and significant effect of the easy-to-use variable on Attitude (Attitude to Use E-commerce). Of the four easy-to-use indicators, the one that most reflects on ease of use is the easy interaction indicator with a loading factor value of 0.776.

There is a positive and significant effect of product quality (compatibility) on attitude (attitude to use e-commerce). Of the four product quality indicators (compatibility), the most reflective of product quality (compatibility) is the indicator according to the transaction's wishes with a loading factor value of 0.773.

There is a positive and significant effect of product quality variable (compatibility) on attitude (attitude to use e-commerce). Of the four product quality indicators (compatibility), the most reflective of product quality (compatibility) is the indicator according to the transaction's wishes with a loading factor value of 0.773.

There is a positive and significant effect of attitude on e-commerce adoption. Of the four attitude indicators, the most reflective of attitude is an optimistic product indicator with a loading factor value of 0.784.

There is a positive and significant effect of easy-to-use variables on e-commerce adoption through attitude

There is a positive and significant effect of product quality (compatibility) on e-commerce adoption through attitude.

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