

FACTORS THAT DRIVE E-COMMERCE ADOPTION IN MSMEs

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nasruddinberuh1970@gmail.com **Abstract**

This study aims to identify factors influencing MSMEs' decisions to adopt e-commerce. Using the Theory of Planned Behavior (TPB) as the primary theoretical framework, this study also considers the Technology-Organizational-Environmental (TOE) model to understand technological, organizational, and environmental factors, as well as personal factors of MSME owners. Primary data were collected through questionnaires completed by 148 respondents from MSMEs in Aceh, and analyzed using multiple linear regression methods. The results indicate that MSMEs have positive attitudes toward e-commerce, influenced by social norms, perceived behavioral control, perceived benefits, and government support. These findings suggest that MSMEs that have not yet adopted e-commerce need to consider its potential benefits, while those that have already adopted can evaluate the existing challenges. The government is expected to contribute through training, infrastructure, and regulations that support the use of e-commerce in MSMEs.

Keywords : e-commerce; E-commerce adoption ; MSMEs

Introduction

The use of technology, particularly smartphones, in Indonesia has increased rapidly, with 62.84% of the total population using these devices (Central Statistics Agency, 2020). This increase has had a significant impact on the development of e-commerce in Indonesia. E-commerce has become a business innovation that connects various parties globally to exchange products, services, and information via the internet. However, e-commerce adoption by Micro, Small, and Medium Enterprises (MSMEs) remains relatively low, especially in certain regions such as Aceh Province.

Data shows that only a small proportion of MSMEs in Aceh have optimized digital marketing. According to the Cooperative and Business Actor Development Information System, only 764 out of 2,332 MSMEs have adopted e-commerce. Yet, the benefits of e-commerce for MSMEs are significant, including increased revenue, market expansion, and operational efficiency. However, the complexity of using this technology is one reason for low adoption.

The Theory of Planned Behavior can be used to understand the factors influencing MSMEs' decisions to adopt e-commerce. This theory suggests that a person's intention to adopt a particular behavior is influenced by attitudes toward that behavior, subjective norms, and perceived behavioral control. Positive attitudes toward e-commerce, support from external parties such as trading partners, and positive perceptions of behavioral control can encourage MSMEs' intention to adopt this technology.

This study aims to identify factors that drive MSME owners' decisions to use e-commerce, with a focus on attitudes, subjective norms , and perceived behavioral control . The results of this study are expected to

provide deeper insights for stakeholders in developing policies that support increased adoption of e-commerce by MSMEs in Indonesia.

Literature Review

E-commerce

E-commerce is the buying and selling of products and services over the internet and the use of computer systems to improve company efficiency (Alzahrani, 2019). Furthermore, e-commerce is defined as economic activity via the internet, including selling or buying products and services (Rosnita, 2019). This economic activity occurs either as business-to-business (B2B), business-to-consumer (B2C), customer-to-customer (C2C), or customer-to-business (C2B). E-commerce is not only a channel for conducting business, but also as an application of information technology solutions to help define and develop new strategies to address business problems. Businesses can benefit from the benefits of e-commerce itself.

The benefits of e-commerce for MSMEs include gaining 24-hour service availability, reaching a wider customer base, improving customer relationships, exchanging information, meeting customer needs, cost-effectiveness (Alzahrani, 2019), and increasing sales and productivity (Awa et al., 2015). (Alzahrani, 2019) also found that adopting e-commerce is essential for achieving competitive and strategic advantages, especially for small businesses. According to CNBN Indonesia (2021), the percentage of e-commerce users in Indonesia is the highest, at 88.1%. Seeing this, it is appropriate for MSMEs to adopt e-commerce to be able to compete and excel.

Micro, Small, and Medium Enterprises (MSMEs)

MSMEs, or Micro, Small, and Medium Enterprises, are independent companies that employ a small number of employees (Alzahrani, 2019). In Indonesia, MSMEs are defined as businesses with annual sales of no more than IDR 300 million or net assets (excluding land and buildings) of less than IDR 50 million (Rosnita, 2019). The term MSME is often used by developed countries. MSMEs themselves play a significant role in the economies of most countries (Awa et al., 2015). The adoption of e-commerce has impacted MSMEs globally in terms of sales growth, cost efficiency, improved service processes, and product quality (Rosnita, 2019). To adopt e-commerce, a strategic approach is necessary.

Factors Influencing MSMEs to Adopt E-commerce

1. Technology

The technology variable is associated with three indicators: relative advantage, perceived complexity, and compatibility. Relative advantage is the extent to which adopting an innovation is perceived to provide greater benefits to a company than maintaining the previous innovation (Alsaad et al., 2017; Religia et al., 2021). The complexity indicator refers to the degree to which an innovation is perceived as relatively difficult or not to adopt when used. Other indicators include:

compatibility refers to the level of user readiness for the existing technological infrastructure , and the company's desired work practices (Religia et al., 2021).

2. Company

Company variables are linked to indicators including management support, information technology knowledge, and company size (Gono et al., 2016; Religia et al., 2021). This management support refers to the extent to which company leaders understand e-commerce. The next indicator is information technology knowledge, where employee technological knowledge is crucial. This will determine a company's ability to adopt e-commerce, as will its size.

3. Environment

This environmental variable is linked to two indicators: pressure from competitors and pressure from trading partners. When competitors have adopted e-commerce, companies will inevitably be compelled to follow suit to maintain their competitive edge. Meanwhile, pressure from trading partners, such as suppliers and customers, can also influence e-commerce adoption (Religia et al., 2021).

Method

This study employed a survey method, asking questions to the research subjects and processing and analyzing the collected answers (Sugiama, 2008). The data used were primary data obtained from the responses given by respondents. Data were obtained by distributing printed questionnaires to MSMEs in Aceh. The simple random sampling technique was chosen in sampling so that each member of the population had an equal opportunity to be sampled (Silalahi, 1999). The population used in this study was MSMEs domiciled in Aceh Province. Because at the time of the study no representative MSME population data was found, the population determination was carried out using the Lemeshow method (Lemeshow et al., 1990). With a 95% confidence level, the minimum adequate sample size was 100 respondents. This number was considered appropriate to ensure the accuracy of the research results, exceeding the minimum sample size for survey research, which is 100 respondents (Hair et al., 2010).

The sample collection process lasted for two weeks. This study used a questionnaire to record respondents' responses. Respondents read the statements on the questionnaire and then filled in the Likert scale points that best matched their choices. Before being used in the main study, the questionnaire was pre-tested on 30 initial respondents to determine its validity and reliability (Silalahi, 1999). The results of the questionnaire validity test indicated that the smallest number was

The highest value is 0.423 and the highest is 0.964. From these figures, it is stated that all questionnaire statements are valid because they are higher than the critical r of 0.3. For reliability, the lowest is 0.903 and the highest is 0.943, so all statements are also reliable because Cronbach's $\alpha > 0.7$. Analysis of the research data using multiple linear regression. Because the data collected from the questionnaire is ordinal data, it is necessary to convert it to interval data using the interval succession method (Sarwono & Budiono, 2012). The next stage is to conduct a classical assumption test so that the independent variable as an estimator of

The dependent variable is unbiased (Ghozali, 2011). The methods used were a normality test using a P-plot graph, a multicollinearity test using VIF values, a heteroscedasticity test using a scatterplot, and an autocorrelation test using the Durbin-Watson method. The data were then subjected to regression analysis using SPSS 22.

Results and Discussion

Multiple Regression Analysis

The study used multiple regression analysis to examine the influence of 12 factors on *e-commerce* adoption by MSMEs: technological readiness, perceived benefits, perceived suitability, required resources, owner innovation, owner IT knowledge, owner IT experience, consumer pressure, supplier pressure, competitor pressure, environmental uncertainty, and government support. The results of the analysis are shown in Table 1.

Table 1. Coefficient Table

1	Mode I	<u>Unstandardized coefficients</u>		<u>Unstandardized coefficients</u>	Say
		B	Std. Error	Beta	
	(Constant)	-12.434	12.159		.312
	Technology Readiness	-.003	.728	-.001	.996
	Benefits felt	1.181	.524	.288	.029
	Perceived level of suitability	.956	.502	.265	.063
	Resources required	.206	.277	.080	.461
	Owner innovation	1.244	.652	.237	.063

1	Mode I	<u>Unstandardized coefficients</u>		<u>Unstandardized coefficients</u>	Say
		B	Std. Error	Beta	
	Owner's knowledge in the field IT	-.127	1.000	-.017	.900
	Owner's experience in the IT field	-.152	.412	-.049	.714
	Consumer Pressure	.819	.467	.199	.086
	Supplier Pressure	-.529	.569	-.103	.357
	Competitor Pressure	.190	.419	.051	.652
	Environmental Uncertainty	-.496	.663	-.082	.458
	Government Support	1.008	.321	.351	.003

The results of the analysis show that of the 12 factors tested, there are two factors that have a significant influence on *e-commerce* adoption, namely the perceived benefits factor.

and government support factors. The significance value of the perceived benefits factor is 0.029 ($\text{sig} < 0.05$), while the government support factor has a significance value of 0.003 ($\text{sig} < 0.05$). Thus, **H2** and **H9** are accepted, which means that these two factors have a significant positive influence on *e-commerce adoption by MSMEs*. These results are in line with previous studies that have proven that perceived benefits [12], [15], [18]–[20] and government support [15] have an influence on *e-commerce adoption*.

In addition to the influential factors, there are 10 other factors whose results have a significance value > 0.05 , namely technological readiness (0.996), perceived suitability level (0.063), required resources (0.461), *owner* innovation (0.063), *owner* knowledge in the IT field (0.9), *owner* experience in the IT field (0.714), consumer pressure (0.086), supplier pressure (0.357), competitor pressure (0.652), and environmental uncertainty (0.458). From these significance results, **H1**, **H3**, **H4**, **H5**, **H6**, **H7**, **H8**, **H10**, **H11**, and **H12** are rejected, which means that these 10 factors have no influence on *e-commerce adoption*.

This study also identified five key benefits perceived by MSMEs adopting *e-commerce*. These benefits include increased market share, processing speed, increased revenue, improved corporate image, and increased competitiveness. A greater understanding of these benefits increases the likelihood of MSMEs adopting *e-commerce*.

Furthermore, external support, specifically government support, has also been shown to have a significant positive influence on *e-commerce adoption by MSMEs*. This support includes financial support, training, and information provision, as part of the government's efforts to encourage MSMEs to adopt *e-commerce*. This finding aligns with previous research showing that government support plays a significant role in promoting *e-commerce adoption* in the MSME sector.

Model Feasibility Test

The model feasibility test was conducted using the F test and the Coefficient of Determination test. The F test tested the entire model and showed that variables ranging from technological readiness to government support together had a significant effect on *e-commerce adoption*. This confirms the feasibility of the model to explain the phenomenon of *e-commerce adoption by MSMEs*. If the calculated F value $> F$ table or significance < 0.05 (5%) then the model is declared feasible and testing can be continued. The calculated F value is obtained from the output of the ANOVA table, while the F table value is done manually. The way to calculate the F table value is by determining the df_1 and df_2 values. The ANOVA table is shown in Table 2.

Table 2. ANOVA Table

Model	F	Say
1 Regression	6.759	.000

F value = 6.579

Table F value = $f(k-1; nk) = (13-1, 59-13)$
 $= (12,46) = 1,97$

With an error rate of 5% $F_{\text{count}} >$

$F_{\text{table}} = 6.579 > 1.97$

K = number of independent variables
+ bound N = number of samples

The calculated F value is $> F$ table 2.00 and the significance level is $0.000 < 0.05$. These results indicate that the technology readiness variable and government support variables simultaneously have a significant effect on *e-commerce* adoption, in other words, the model is declared feasible to be continued in the next test.

Furthermore, the coefficient of determination test shows that the model is able to explain approximately 53.6% of the variation in *e-commerce* adoption by MSMEs, while the remaining 46.4% is explained by other factors not examined in this study. The coefficient of determination table is shown in Table 3.

Table 3. Coefficient of Determination

Model	R	R square	Adjusted R square	Std Error of Estimate
1	0,795	0,632	0,536	6,153

The results of this data analysis provide a deeper understanding of the factors influencing *e-commerce* adoption by MSMEs, emphasizing the crucial roles of perceived benefits and government support. Furthermore, the feasibility of the regression model is confirmed, making it an effective tool for analyzing *e-commerce* adoption in the MSME context. These findings provide valuable insights for practitioners and policymakers seeking to increase *e-commerce* adoption among MSMEs.

Conclusion

The rapid growth of e-commerce has encouraged MSMEs to adopt it. Adopting e-commerce can provide MSMEs with a competitive advantage in a technology-driven economy. However, not all MSMEs can easily adopt e-commerce. MSMEs themselves are a vital part of the economy in many countries. Therefore, conclusions drawn from several journals indicate that e-commerce adoption is driven by technological, company, and environmental factors.

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