Formosa Multidisciplinary Research Journal (FJMR)
Vol. 3, No. 11, 2024: 4203-4216

The Influence of Using Technology Based Information Systems in Increasing Profitability in Food Industry MSMEs in Mataram City

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ARTICLE INFO
Keywords: Technology Based Information System, Increasing, Profitability, MSMEs

Received : 15, October
Revised : 29, October
Accepted: 24, November

ABSTRACT
The purpose of this study is to determine the influence of the use of Technology-Based Information Systems (e-commerce) in increasing the Profitability of Food Industry MSMEs in Mataram City. This study uses a descriptive method with a quantitative approach. The type of data used is primary data. Primary data is collected directly from MSMEs that are the research samples. The methods used in data collection include interviews, questionnaires, and documentation. The population in the study is the Food Industry MSMEs in Mataram City with a sample of 80 MSMEs, with the sampling technique used is purposive sampling. The data analysis method in this study is simple linear regression processed with an analysis tool in the form of SPSS 18. The results of the study obtained are that the use of technology-based information systems produces a significant positive impact on the profitability of MSMEs in the food industry in Mataram City.

DOI: https://doi.org/10.55927/fjmr.v3i11.11985
ISSN-E: 2829-8896
https://journal.formosapublisher.org/index.php/fjmr

INTRODUCTION

Indonesia is the country with the largest population in the world, this causes many economic sectors to occur in our country, for example the industrial sector. A country's industrial sector is developed with the aim of developing its country's economy (Ikhsan & Hasan, 2020). Micro, small and medium enterprises (MSMEs) are one part of the industry that can advance the local economy in Indonesia. MSMEs are here to create independence by creating jobs for the community and increasing the community's competitiveness (Dharma et al., 2022). MSMEs have a substantial impact on the economy throughout the world, including Indonesia (H. Zaied, 2012). MSMEs have a significant impact on Indonesia's economic growth, because many of the workers they employ come from local communities (Lismula, 2022). MSMEs in Indonesia, especially in Mataram City, are spread across various sectors such as trade, services, agriculture, fashion, culinary, and other sectors. The rapid growth of MSMEs creates competitivenessbetween business actors is getting stronger and business actors can compete with large companies (Gurure & Takavarasha, 2020). MSMEs in Mataram City tend to be more engaged in the culinary or food sector, this is proven and can be seen from the many food sellers along the streets of Mataram City. The types of businesses that are traded vary from heavy meals, snacks or similar snacks (Suryati et al., 2023).

According to data from the Directorate General of Treasury of the Ministry of Finance of the Republic of Indonesia, MSMEs in Indonesia have a significant contribution in creating jobs and providing employment for local communities. Based on data from the Ministry of Cooperatives and SMEs, as many as 65.4 million SMEs were operating in 2019. With the 2019 business unit data, it can absorb up to 123.3 thousand people, so it can be said that the contribution of SMEs in Indonesia is very significant for the Indonesian people and can reduce the unemployment rate in Indonesia.

Technological advances have made significant changes in life for business people, especially those who have modern technological devices. Business people certainly use this modern technology to conduct buying and selling transactions with consumers (Sanz et al., 2020). The development of technology is currently growing rapidly, MSMEs uses assistance to increase sales profits. In modern times, MSMEs often use e-commerce applications as technology-based information systems (Mohan & Ali, 2019). Technological developments make the relationship between business owners and consumers closer and more efficient in terms of time (Costa & Castro, 2021). The development of technology and the emergence of trends in modern times today make parties MSMEs make innovation efforts to be able to compete with other MSMEs. The innovation in question is changing the purchasing and marketing system by using a technology-based information system or e-commerce (Anastasia Brigitha Lee Montana & Animah, 2024).

This innovation means that transactions that are usually carried out using paper money have switched to electronic transactions (Abtahi et al., 2023) and these innovations can reduce costs and reach a wider market (Luay Ahmed, 2018). The existence of an electronic payment system makes it easy for

business people to transact with customers (Okoye et al., 2023). Application innovation makes business competition more competitive and broad because innovation is needed in modern times (Effendi & Subroto, 2021). E-commerce opens up business opportunities for MSMEs in remote areas to develop their trading businesses to be better known by the public (Scutariu et al., 2022), by using e-commerce, the sales capacity of MSMEs increases compared to not using the help of applications (Al-Tit, 2020). Many MSMEs use e-commerce because by using this additional workforce, it can increase the profitability of MSME sales (Kumar & Ayedee, 2021).

In other words, e-commerce can help MSMEs with few consumers to become many consumers. E-commerce used by MSMEs in Mataram City has many types, starting from Gojek, Grab, Maxim Food, Shopee Food (Demiroglu, 2021). The development of e-commerce is very fast especially in the Mataram City area, people especially young people can use the application easily to order food compared to having to order food to the location where the MSMEs is located. Moreover, people tend to be lazy to travel out of the house to buy food especially for those who already work so people tend to use this e-commerce application to order food.

By using information technology, especially e-commerce, MSMEs can increase the profitability of their sales efforts (Nwokorie, 2023). Profitability is the skill of business actors to create profits, in this case the ability of MSMEs to generate profits from the sale of their food products. By generating profits, MSMEs can maintain the sustainability of their business. In addition to looking at the company's capacity to make a profit, profitability is also useful as a benchmark for banks or investors in seeing the profit capacity of MSMEs (Almunawar et al., 2022). In micro, small and medium enterprises, profitability is important to see whether the MSMEs makes a profit or not. If the MSMEs makes a profit, it can be said that the MSMEs is successful in managing its finances so that profitability is one of the important jobs in the company (Serina & Nilwan, 2022).

The use of e-commerce systems has had a significant impact on the income of MSMEs in Padang City (Helmalia & Afrinawati, 2018). Increased revenue or profitability is beneficial for micro, small and medium enterprises. The research is comparable to research from (Fadhli et al., 2021) which resulted in research that e-commerce had a significant impact on increasing sales from MSMEs in Jombang Regency. With increasing sales from MSMEs, MSMEs' income and profitability have experienced rapid development. (Madrianah et al., 2023) In his research, it was found that technology-based information systems, especially e-commerce, have a positive and significant impact on increasing the profitability of MSMEs in Makassar City.

LITERATURE REVIEW

Neo Classical Enhancement Theory

The neo-classical upgrade theory is the basis of thinking in this study. The neo-classical upgrade theory was designed by Robert M. Solow and TW Swan. The neo-classical upgrade theory considers how the amount of production, capital accumulation, technological progress, and output work together in the

process of economic development (Nurwulian & Astutik, 2023). Based on neo-classical development theory, technological development is the most important factor in economic growth, not capital and additional work factors that increase the economy (Santri & Aida, 2023). So in its development we are not only faced with capital and labor factors, but it is also very important to see from the perspective of current technological progress which is developing very rapidly. Technological developments provide opportunities for business actors to promote their businesses more easily in the transaction process. In line with the neo-classical theory of growth, the implication of the theory in this study is to review the extent to which e-commerce is able to increase profitability in MSMEs. With this study, we can review whether technological advances with the use of e-commerce can increase income or vice versa, namely there is no change, and the increase in income is not driven by the use of e-commerce technology. Based on the explanation above, the hypothesis is formulated as follows:

H1: Technology-based information systems have an impact on increasing the profitability of MSMEs.

Conceptual Framework

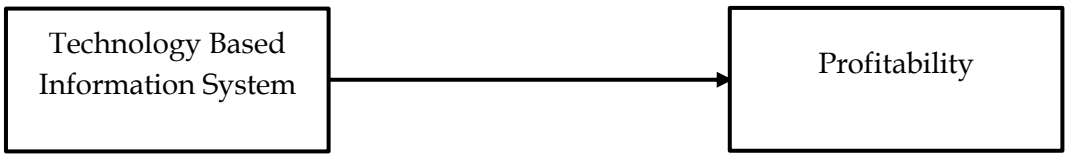

Figure 1. Conceptual Framework

METHODOLOGY

This research is a type of descriptive research with a quantitative approach. Descriptive research is applied to describe the problems that occur in this era. Descriptive research aims to describe what happens to the object being researched empirically, so that it can provide information to readers about the object being researched (Hanny et al., 2020). The type of data used in the research is primary data. The data collection methods used includes interviews, questionnaires, and documentation. The population used in this study is MSMEs in Mataram City which are engaged in the food industry. The number of samples in the study was 80 MSMEs selected using non-probability sampling techniques by applying the purposive sampling method. The purposive sampling method is a sampling determination technique based on the researcher's assessment of samples that are equivalent or considered to be representative of a population.

The criteria used for sampling are based on the following things:

1. MSMEs in Mataram City registered with online to offline (O2O) e-commerce such as Gojek, Grab.
2. MSMEs operating in the food industry in Mataram City.

The two criteria selected as samples have their own reasons, the first criterion was chosen because the research focuses on registered MSMEs or

using online to offline (O2O) e-commerce such as Gojek, Grab. In addition, MSMEs registered in online to offline e-commerce were chosen because in 2024 people will use O2O online applications such as Gojek and Grab more often to order food. It can be said that people don't want to bother going out to order food so people prefer to use online applications. In addition, researchers want to see the effect of O2O online applications on the profitability of MSMEs. While the second criterion was chosen because the type of MSME that researchers see that dominates in Mataram City is MSMEs engaged in the food or culinary industry. In addition, researchers also want to see how important O2O applications are to MSMEs in the food industry.

This study uses primary data obtained through questionnaires and presented in the form of a Likert scale with a score of 1-5 to avoid neutral answers from respondents. The questionnaire was conducted online using a form given to owners or employees of MSMEs in Mataram City engaged in the food industry registered in the Gojek and Grab applications. Questions from each variable studied were entered into the research questionnaire. Questions were based on indicators that refer to previous research. Testing of variables in the study was carried out using SPSS version 18. Data obtained from the questionnaire were analyzed using simple linear regression analysis techniques with a regression equation model described as follows:

$Y = \alpha + \beta X$……………………………………………(1)

Information:

Y = Profitability in MSMEs (Dependent Variable)

α = Constant

β = Regression coefficient

X = Technology-Based Information System (Independent Variable)

RESEARCH RESULT

In this study, there were 80 respondents from MSMEs food industry in Mataram City. The analysis tool used was SPSS version 18 and the analysis technique used was simple linear analysis. Before conducting a simple regression analysis, the first step that needs to be done is the Instrument Test consisting of Validity Test and Reliability Test. Then the Classical Assumption Test was carried out consisting of Normality Test, Linearity Test, and Heteroscedasticity Test. After conducting the Instrument Test, a test was carried out to evaluate the regression model (f Test) and the effect of independent variables on the dependent variable (t Test).

Validity Test

Table 1. Validity Test Results

Variables	Instrument	*Sig. (2-tailed)*	*Pearson Correlation*	Information
Technology Based Information System (X)	X1	0,000	0.543	Valid
	X2	0,000	0.625	Valid
	X3	0,000	0.736	Valid
	X4	0,000	0.514	Valid
	X5	0,000	0.623	Valid
	X6	0,000	0.564	Valid
	X7	0,000	0.696	Valid
Profitability (Y)	Y1	0,000	0.476	Valid
	Y2	0,000	0.720	Valid
	Y3	0,000	0.740	Valid
	Y4	0,000	0.821	Valid
	Y5	0,000	0.684	Valid
	Y6	0,000	0.491	Valid

Validity test is used to assess the validity and accuracy of the research questionnaire. The questionnaire is considered valid if the questions in it can reveal what will be measured. Validity testing was carried out before conducting the research to obtain valid and consistent question items. In accordance with the number of research samples of 80 samples, it is known that the r significance table is 0.220 and the sig value is 0.05. Based on the results of the validity test, all variables obtained results. Pearson correlation above 0.220 and significance value < 0.05.It can be concluded that the research data is considered valid.

Reliability Test

Table 2. Reliability Test Results

Variables	Cronbach's Alpha	Information
Technology Based Information System	0.716	Reliable
Profitability	0.746	Reliable

Reliability Test is a test conducted in research to verify whether the instrument used can produce accurate and reliable results. Reliability test is conducted after validity test, any instrument can be reliable even though its validity test is not valid but the research instrument will not be valid if its reliability test is not reliable, both tests are interrelated.

The calculation results show that the Cronbach's Alpha value obtained is 0.70 according to the established standards. Each variable is considered reliable if its Cronbach's Alpha is > 0.70.Based on the reliability test, the Cronbach's

Alpha value of all variables was > 0.70, so it can be concluded that all variables are reliable.

Classical Assumption Test (Normality, Linearity, Heteroscedasticity)

1. *Normality Test*

Table 3. Normality Test Results
One-Sample Kolmogorov-Smirnov Test

	Unstandardized Residual
N	80
Kolmogorov-Smirnov	1,222
Asymp. Sig. (2-tailed)	0.101

The Normality Test is one of the research tests to evaluate whether variable x, variable y, or both have a normal distribution or not.If the test looks decreasing, it can be said that the distribution is not normal. According to the standard provisions of the normality test value obtained at 0.05. Each variable data is said to be normally distributed if the data value is > 0.05.Based on the normality test, the significance value obtained is 0.101 which is greater than 0.05. Therefore, the data is considered to be normally distributed when viewed from the table.

2. *Linearity Test*

Table 4. Linearity Test Results
ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Y*X	Between Groups	(Combined)					0.088
		Linearity	136,277	11	12,389	1,718	0.004
		Deviation from Linearity	62,511	1	62,511	8,667	
			73,766	10	7,377	1,023	0.434
	Within Groups		490,473	68	7,213		
	Total		626,750	79			

The Linearity Test is used to prove whether there is a significant linear relationship between variable x and variable y in the study. According to the linearity test standard, there is a standard value provision for sig. deviation from linearity of 0.05. If the data between the independent variable and the dependent variable exceeds the specified value, it is concluded that there is a linear relationship between variable X and variable Y.

Based on the linearity test, the sig. deviation from linearity value is known.of 0.434 > 0.05, it can be concluded that there is a linear relationship between the Technology-Based Information System (X) and Profitability (Y) variables.

3. Heteroscedasticity Test

Table 5. Heteroscedasticity Test Results
Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4,845	1,736		2,790	0.007
	Technology Based Information System	-0.087	0.057	-0.171	-1,531	0.130
a.Dependent Variable: Profitability						

Glejser's Heteroscedasticity Test is a hypothesis testing method used to determine whether a regression model shows signs of heteroscedasticity. This method is done by regressing the independent variable against the absolute value of its residual against the dependent variable. According to the decision-making rules, if the significance value < 0.05, heteroscedasticity occurs, and if the significance value > 0.05, heteroscedasticity does not occur.

Based on the results of the heteroscedasticity test, the variable has a significance value of 0.130 > 0.05. Therefore, it can be concluded that the variable does not experience symptoms of heteroscedasticity.

Table 6. Simple Linear Regression Analysis Results
Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	16,432	3,142		5,230	0,000
	Technology Based Information System	0.303	0.103	0.316	2,940	0.004
a. *Dependent Variable*: Profitability						
Adj R Square		0.088				
F sig		0.004				

Based on the f test conducted, it shows a significance value of 0.004 <0.05, so it can be concluded that the independent variable, namely the technology-based information system, has a simultaneous influence on profitability. The amount of contribution data is seen in the Adjusted R2 value of 0.088 or 8.8%. This means that 8.8% of the distribution of the dependent variable can be explained by the independent variable. The remaining 91.2%

cannot be explained by the independent variable or can be explained by variables outside the independent variable.

Based on the t-test, in the first hypothesis the significance value is 0.004 < 0.05 and the beta value is standardized coefficients is 2.940 which is positive. So it can be concluded that the Technology-Based Information System has a significant positive effect. This means that there is a positive relationship between the Technology-Based Information System and profitability. So the increasing use of technology-based information systems in MSMEs, the increasing profitability obtained by the MSME players in the industry.

DISCUSSION

In this study, several tests have been conducted to prove the influence of the independent variable (X) on the dependent variable (Y). The first test conducted was the Validity Test. Then, a Reliability Test was carried out after both tests were carried out and produced valid results, a Classical Assumption Test was carried out (Normality Test, Linearity Test, and Heteroscedasticity Test) and the final test to prove that there is a significant influence between the independent variable and the dependent variable is the f-test and t-test.

Validity Test

Validity test is used to show and measure the validity of research data. In table 1, there are two variables, namely Technology-Based Information Systems (X) and Profitability (Y). For the variable instrument of Technology-Based Information System there are X1, X2, X3, X4, X5, X6, X7 and for the instrument of Profitability variable there are Y1, Y2, Y3, Y4, Y5, Y6. Then the value obtained from the instrument X1, -X7 and Y1-Y6 is 0.000.According to established standards, data is considered valid if the value obtained is < 0.05.so that the X1, -X7 and Y1-Y6 instruments are declared valid. Then for Pearson Correlation each X1, -X7 and Y1-Y6 instrument gets a value above 0.220. The value of 0.220 is the provision of the distribution of the r value of the significance table because the sample data for this study is N = 80 so the value used is 0.220. For Pearson Correlation all instruments produce valid values and it can be concluded that all research data is declared valid.

Reliability Test

Reliability testing is a process carried out in research to ensure that the instruments used can produce accurate and reliable results.In table 2, the reliability test results contain two variables, namely the Technology-Based Information System variable (X) and the Profitability variable (Y). The Cronbach's Alpha value has a value ofstandard criteria value of 0.70. If both research variables obtain a value > 0.70, then the variables can be considered reliable. Based on the reliability test, the Cronbach's Alpha value for the Technology-Based Information System variable is 0.716 and for the Profitability variable is 0.746. It can be concluded that all variables are reliable.

Classical Assumption Test (Normality, Linearity, and Heteroscedasticity)

1. Normality Test

The Normality Test is used to assess the normal distribution of independent variables, dependent variables, or both. In table 3 the results of the normality test have three main parts. First there is N which is the number of samples of 80, then there is Kolmogorov-Smirnov with a value of 1.222 obtained from the results of processing the analysis tool data, and finally there is Asymp. Sig with a value of 0.101. Similar to the previous research test, in the Normality Test there is a standard provision of 0.05. If the significance value is more than 0.05, the data is considered to be normally distributed.

2. Linearity Test

Linearity Test is a test conducted in research to determine whether there is a significant linear relationship between the independent variable and the dependent variable. In table 4, the results of the linearity test, the part that needs to be considered is the Deviation from Linearity section in the significance section. Similar to the previous research test, there are standard provisions where the significance value provision for the Deviation from Linearity is 0.05. If the sig. Deviation from Linearity value produced between the Technology-Based Information System variable and Profitability is more than 0.05, it can be said that there is a linear relationship. Based on the linearity test, the sig. deviation from linearity value is known of 0.434 > 0.05, it can be concluded that there is a linear relationship between the Technology-Based Information System (X) and Profitability (Y) variables.

3. Heteroscedasticity Test

Heteroscedasticity Test is a hypothesis testing method to determine whether the regression model has indications of heteroscedasticity. In table 5, the results of the heteroscedasticity test, the part that we need to look at is the significance section of the Technology-Based Information System variable. In the table, the sig. of the x variable is 0.130. Just like the previous research test, the heteroscedasticity test also has a basis for decision making in the sig. section, which is 0.05. If the data processing produces a sig. value more than the standard provision, which is 0.05, then it is said that the research variable does not experience symptoms of heteroscedasticity. Based on the results of the heteroscedasticity test, the variable has a significance value of 0.130> 0.05, so it can be concluded that the variable does not experience symptoms of heteroscedasticity.

Simple Linear Regression Analysis (F Test & T Test)

1. F Test

The F test is used to assess whether the independent variables in the model can explain changes in the values of the dependent variable. Similar to previous studies, the F test contains a basis for decision making. If the significance value of the variable <0.05, then the independent variable has a simultaneous effect on the dependent variable. If the significance value of the

variable >0.05, the independent variable does not have a simultaneous effect on the dependent variable.

In table 6 the results of the simple linear regression analysis, the f test conducted showed that the significance value was 0.004 <0.05, so it can be concluded that the independent variable, namely the technology-based information system, has a simultaneous influence on profitability. The amount of contribution of the data is seen in the Adjusted R2 value of 0.088 or 8.8%. This means that 8.8% of the variation in the dependent variable can be explained by the independent variables. The remaining 91.2% cannot be explained by the independent variables or can be explained by variables outside the independent variables.

2. T-test

T test isResearch testing is conducted to assess whether the independent variables have a significant positive or significant negative influence on the dependent variable. Just like the previous research test in the t-test there is a basis for decision making. If the resulting significance value is <0.05 then it can be concluded that the technology-based information system variable has an effect on the profitability variable. If the t value in table 6 is positive, it can be said that the technology-based information system variable has a significant positive effect on profitability.

Based on the t-test conducted on the first hypothesis, the significance value produced was 0.004 < 0.05 and the beta value at standardized coefficients is 2.940 which is positive. The results of the analysis show that the Technology-Based Information System has a significant positive impact. This means that there is a positive relationship between Technology-Based Information Systems and profitability. So the increasing use of technology-based information systems in MSMEs, the increasing profitability obtained by MSMEs in the industry.

CONCLUSION AND RECOMMENDATIONS

The research found that the use of technology-based information systems had a significant positive impact on MSMEs in the food industry in Mataram City. With the increasing use of technology-based information systems in MSMEs, the profitability of food industry business actors in Mataram City has also increased. Moreover, in modern times, the use of technology-based information systems is very important for the economic life of business actors.

This research provides good implications in terms of theory and practice. From a theoretical perspective, research conveys information and awareness to the public regarding the importance ofthe influence of the use of technology-based information systems on the profitability of MSMEs in the food industry. Then this research can be used as further study material for researchers who are interested in the use of technology-based information systems in MSMEs. In terms of practice, the research emphasizes the use of technology-based information systems to help MSMEs run their businesses in this modern era.

ADVANCED RESEARCH

The limitation of this research is that it focuses only on two technology-based information system applications, namely Grab and Gojek, only focusing on MSMEs food industry, there are obstacles in finding data in the field, not many factors used by researchers. It is hoped that further research can add other factors that influence the profitability of MSMEs. Then further research is expected to add technology-based information system applications that do not only focus on two applications, especially since currently there are many types of e-commerce.

ACKNOWLEGMENT

The researcher greatly appreciates the assistance provided by all parties in completing this research. The researcher would like to thank especially God Almighty for all His blessings the researcher was able to complete the research without any problems, the researcher would also like to thank the parents and family who have continued to encourage and pray for the researcher to be able to complete the research, the researcher would also like to thank friends and also girlfriends for helping and always giving encouragement to the researcher to complete this research, and finally the researcher would also like to thank the business or MSMEs food industry in Mataram City that the researcher used as a sample, the researcher is very grateful for being willing to help fill out the research questionnaire, pray for the researcher to be successful in his final assignment and help make this research a success.

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