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The Implementation of E-Commerce System by the Theoretical Approach of Technology Acceptance Model: an Empirical Study in Banyumas, Indonesia

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Abstract: The long-term objective of this research is to enrich the development of science, especially the development of SMEs related to the adoption of information technology with studies using the Technology Acceptance Model. The specific aim of the research is to examine what factors are inhibiting the adoption of e-commerce technology in SMEs in Banyumas Regency, as well as examining whether e-commerce adoption has an impact on increasing the demand for product quantities in SMEs.

Collecting data in this study was carried out by distributing questionnaires through direct interviews with SMEs in Banyumas District who were respondents. The sampling technique in this study using random sampling technique. Whereas for data analysis using Statistical Product and Service Solution (SPSS) version 22.0 and Structural Equation Modelling (SEM) with AMOS program. The results of the study show that the Technology Acceptance Model theory is able to explain the institutions of SMEs actors to use e-commerce technology.

Keywords: E-commerce, perceived usefulness, perceived ease of use, use behaviour, TAM (Technology Acceptance Model), SMEs

Introduction

In order to improve the ability of SMEs managers to utilize Information and Communication Technology (ICT) both regarding computer maintenance, data or information management through computers, access to business information, and promotion of SMEs products through the internet, the Ministry of Communication and Information, Deputy for Business Development and Restructuring Business System Development Affairs carry out assistance activities on the use of the internet in the form of websites for SMEs. The launch of information technology via the internet is better known as e-commerce. The Banyumas Regency Government began to socialize e-commerce to the SMEs activists, one of which was through the Nusantara Creative Week (PKN) forum at the event introduced several forms of e-commerce which were obtained to promote SMEs marketing programs in Banyumas Regency.

With the existence of e-commerce like a fresh breeze for SMEs because using e-commerce the possibility of their market will be wider and even cheaper promotion. However, the phenomenon that occurs especially in Banyumas District shows that there is still a lack of implementation of e-commerce. Based on data obtained from direct interviews with MSME players, data was obtained that only about 35% of SMEs in Banyumas used e-commerce applications. The obstruction of this adaptation process occurs because of the tendency of differences in perceptions about the benefits and ease of e-commerce to operate. This can be seen from the tendency of some SMEs to be difficult to adapt to the new system. There are differences in perceptions about the benefits and convenience of the new technology system in accordance with the theory of Technology Acceptance Model (TAM) concept.

This study tries to examine the implementation of e-commerce technology in the SMEs sector by using the theory of Technology Acceptance Model (TAM) concept. The main concept of the Technology Acceptance Model theory is the perception of benefits (perceived usefulness), perceived ease (perceived ease of use) and user behavior (use behavior). The essence of the Technology Acceptance Model theory explains what factors influence the implementation of a system, and what

factors are constraints in the system implementation stage, it is expected that this research can provide answers and obtain findings related to the e-commerce implementation process in Banyumas Regency.

12 1. Theoretical Research

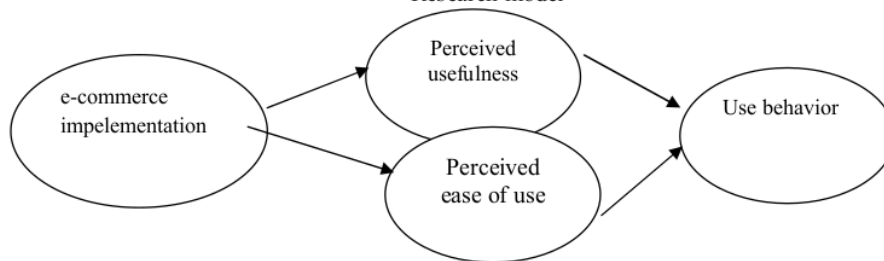
1.1 Technology Acceptance Model (TAM)

The TAM model is actually adopted from the TRA (Theory of Reasoned Action) model. It was first developed by Fishbein and Ajzen in 1980, the theory of action with the premise that one's reaction and perception of something will determine the person's attitude and behavior. TAM has two sides: the first is beliefs that consist of perceived usefulness and perceived ease-of use and the second is attitude, behavior intention to use and usage behavior (Straub, Limayen, Evaristo, 1995 in Petra, 2005). TAM describes the relationship between beliefs (usefulness and ease of use) and attitude, user intentions, and real use of the system.

1.2 E-commerce Implementation

E-commerce is defined by Ellwood (1995) as the implementation of business with the help of information technology and communication technology. E-commerce (electronic commerce) can simply be interpreted as an activity or sale and purchase transaction electronically. Buying and selling activities that occur are identical to conventional trading activities. The difference is only when the payment process occurs, and the delivery of products by sellers is done electronically (online via the Internet).

Picture 1
Research model



2. Research Methods

Types and Data Sources

The type of data in this study is primary data. Primary data comes from the respondent's answer to a number of questions about the implementation of e-commerce, perceived usefulness, perceived ease of use, use behavior, increased demand.

Research Respondents

Respondents in this study were SMEs owners of the trade sector who already had a business license SMEs. Based on the data that has been obtained, the number of SMEs in the trade sector that already have a business license SMEs in Banyumas regency is 100 units, which are scattered in several districts, namely North Purwokerto, East Purwokerto, South Purwokerto, Ajibarang, Jatilawang, Kebasen Kembaran, Lumbir, Pakuncen, Patikraja, Somagede, Sumpiuh, Tambak, and Wangon.

Data Analysis Techniques

Hypothesis testing using the Multivariate Structural Equation Model (SEM) technique. SEM modeling consists of measurement models and structural models. The structural model is intended to examine the relationship between exogenous and endogenous constructs. While the measurement model is intended to examine the relationship between indicators and the latent construct / variable in Imam Ghozali (2005). Hypothesis testing in this study was analyzed using AMOS software.

3. Hypothesis Testing Results

The distribution of questionnaires was carried out directly to the business owner which was carried out in July 2018. There are about 100 respondent sample can used in this study.

a. Normality test

Based on normality test, the table below showed the result that data used in this study have normal distribution

X6	2,000	5,000	-,416	-2,635	-,869	-2,755
X7	2,000	5,000	-,368	-2,334	-,814	-2,579
Multivariate					16,683	1,327

Based on the results of the above normality test, it can be seen that the multivariate critical ratio (c.r.) is 1.327 < 2.58 which shows that the research variables are multivariate normal distribution.

b. Data Quality Test

Data quality testing includes reliability and validity testing. The reliability test was carried out by using cronbach alpha test using SPSS. A construct is said to be reliable if it provides a value of cronbach alpha > 0.60 (Nunnally, 1967 in Imam, 2005). The following is a recapitulation of the results of reliability and validity tests.

No	Variable	Nilai Cronbach Alpha	Means
1	<i>E-commerce implementation</i>	0,827	<i>Reliabel</i>
2	<i>Perceived usefulness</i>	0,844	<i>Reliabel</i>
3	<i>Perceived ease of use</i>	0,855	<i>Reliabel</i>
4	<i>Use behavior</i>	0,815	<i>Reliabel</i>

Source: primary data, 2018

The result of validity test showed by table below

No	Variable	Range of correlation	Sig	explanation
1	<i>E-commerce implementation</i>	0.795**-0.823**	0.01	Valid
2	<i>Perceived usefulness</i>	0.810**-0.841**	0.01	Valid
3	<i>Perceived ease of use</i>	0.766**-0.837**	0.01	Valid
4	<i>Use behavior</i>	0.822**-0.866**	0.01	Valid

Source: primary data, 2018

After data quality test, test of CFA (Confirmatory analysis) the next step is hypothesis test by using Amos to identify the value of full model structural analysis. The result of evaluation model structural analysis is showed by the table below

Evaluation of indeks Fit Model Structural

Indeks fit	Result	Recommended value	Model evaluation
<i>Chi-Square</i>	164,888	More low is good	
<i>Probabilitas</i>	0,001	> 0,05	
<i>Chi-Square/DF</i>	1,459	< 2	<i>Perfect fit</i>
<i>GFI</i>	0,928	> 0,90	<i>Fit</i>
<i>RMSEA</i>	0,044	< 0,08	<i>Perfect fit</i>
<i>AGFI</i>	0,902	> 0,90	<i>Fit</i>
<i>TLI</i>	0,954	> 0,90	<i>Perfect fit</i>
<i>CFI</i>	0,962	> 0,90	<i>Perfect fit</i>

Source: primary data, 2018

11. Discussion

a. E-commerce implementation influences perceived usefulness

From the results of the data it is concluded that the implementation of e-commerce does not affect the perceived usefulness. From the results of the data it is concluded that the implementation of e-commerce does not affect the perceived usefulness.

Profile of research respondents illustrates that research respondents are people who have advanced age in the category of having an average education. This has an impact on respondents' perceptions of the benefits of e-commerce. Respondents are not very interested in the implementation of e-commerce, it can be seen from the average respondent's answers about the implementation of e-commerce, the respondents consider the use of e-commerce is quite complicated. This perception has a direct impact on the unwillingness of respondents to know more about the benefits of e-commerce. Another phenomenon is that respondents who have knowledge about e-commerce applications but have not been in direct contact with e-commerce tend to be pessimistic that the implementation of e-commerce will have a positive effect on helping their work processes.

b. The implementation of e-commerce affects the perception of ease of operating the system (perceived ease of use)

Based on the estimated path coefficient and statistical test results table can be seen the results of testing the second hypothesis shows that the EC relationship to PEU has a critical ratio value of 1.510 and p value of 0.238 $P \text{ value } (0.238) > 0.05$ then H2 is rejected. So it can be concluded that the implementation of e-commerce has no effect on perceived ease of use ((perceived ease of use).

The results of this study do not support the research conducted by Venkantesh (2008), Shrgill (2005), Putri (2003) and Berlilance (2015). That the implementation of the new system will have an impact on perceived ease for users. The difference in the results of the study was due to the phenomena that occurred between the previous research samples were different. This study uses a sample of MSME actors who are vulnerable to a majority of 11-15 years work experience with a percentage of 34%. The average sample with the majority of 11-15 years of work experience has a high school education. They run a business with the principle that there is a will there is a way, from the results of field interviews also found a phenomenon for them conventional product sales systems will foster mutual trust and foster an attitude of cooperation with customers, so that marketing with e-commerce methods is not quite in demand. MSME players prefer to interact directly with customers rather than using e-commerce technology applications. This has an impact on the lack of interest of SMEs to try e-commerce applications, thus impacting the lack of perceptions of ease of use of e-commerce.

14 Perceived usefulness influences use behavior

Based on the results of the data obtained that Perceived usefulness influence the use behavior. The results of this study support previous research by Sun (2003), W19no (2008), Maharsi (2006) Rigopoulos et.al. (2007), Lestari (2013) which proves that proving that perceived ease of use and perceived usefulness has a direct effect on behavioral intention. This result is also in line with the TAM theory which states that the acceptance of use of technology or information systems will certainly influence the interest of human behavior to use the system. In the implementation of the e-commerce system, the perceived ease and benefits of use will have a positive impact on the employee's intention to use the system.

d. Perceived ease of use affects the use behavior

Based on the results of the data obtained that Perceived ease of use influence the use behavior. The results of this study support the previous research conducted by Lestari (2013) and Putri (2013) who found that the acceptance of the use of technology or information systems will influence the interest in human behavior to use the system. The results of this study also support the concept of TAM theory, which states that there is a positive and significant relationship between perceived ease of use towards behavioral intention to use. Based on descriptive statistics the responses of respondents' answers are known that in the implementation of e-commerce the perception of convenience and benefits will encourage SMEs to use e-commerce.

Conclusions and Recommendations

Conclusions

Based on the analysis results, the discussion is known that:

1. The implementation of e-commerce does not affect the perceived usefulness. This is because the phenomenon in the field shows that respondents who have knowledge about e-commerce applications but have not been in direct contact with e-commerce tend to be pessimistic that the implementation of e-commerce will have a positive effect on helping their work processes.
2. The implementation of e-commerce has no effect on perceived ease ((perceived ease of use). The SMEs players prefer to interact directly with customers rather than using e-commerce technology applications. This has an impact on the lack of interest of SMEs players to try e-commerce, thus impacting the lack of perceived ease of use of e-commerce.
3. Perceived usefulness influences use behavior. This result is also in line with the TAM theory which states that the acceptance of the use of technology or information systems will certainly influence the interest of human behavior to use the system.
4. Perceived ease of use affects the use behavior. The results of this study also support the concept of TAM theory, which states that there is a positive and significant relationship between perceived ease of use towards behavioral intention to use. Based on descriptive statistics the responses of respondents' answers are known that in the implementation of e-commerce the perception of convenience and benefits will encourage SMEs to use e-commerce.

Recommendations

In an effort to continue to improve the success of its business, the actors or owners of SMEs in Banyumas Regency need to prioritize policies related to the level of education and business experience, both directly and indirectly through the use of accounting information. The ways that can be done are by continuously improving formal and non-formal education, adding business experience and participating in various training that supports skills in entrepreneurship. In addition, the perpetrators or owners.

SMEs in Banyumas Regency also need to increase the use of accounting information appropriately and proportionally as well as improve their ability to manage their business professionally in order to continue to achieve the success of their businesses.

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