

# THE IMPACT OF TECHNOLOGY READINESS TOWARDS THE USAGE OF *E-COMMERCE* MEDIATED USING TAM BY MSME

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**Abstract.** The objective of study is to investigate the impact of technology readiness toward the usage of e-commerce with perceived ease of use and perceived usefulness as the intervening variable. The data collection technique used in this study is snowball sampling with 40 samples of respondents. Analytical technique used is PLS (Partial Least Square) method. The result of study showing that variable's technology readiness give no impact toward the perceived ease of use give impact toward variable's perceived usefulness, variable's perceived ease of use also give no impact toward the usage of e-commerce, while perceived usefulness have some impact to the usage of e-commerce.

**Keywords:** technology readiness, perceived ease of use, perceived usefulness, and the usage of e-commerce

## 1 Introduction

As the 4<sup>th</sup> largest country in terms of population, Indonesia needs to stabilize the number of population and job vacancies in order to fulfill daily needs. Based on the data of Badan Pusat Statistik (Central Bureau of Statistic), in 2013, the number of job seekers reached up to 1,051,944 and rose to 1,295,149 in 2014. Eventhough the number of job vacancies rises from 612,699 in 2013 to 816,505 in 2014, this number is not enough to fulfill the number of job seekers. Until 2015, the numbers of listed job vacancy is 833,555 while the number of listed job seeker reach up to 1,401,428. This can be concluded that the number of people in Indonesia that remain unemployed is high.

Based on the data from BPS, to reduce the number of unemployment in Indonesia that keeps increasing each year, the government needs to establish cooperation with MSME (Micro, Small, and Medium Enterprises). The contribution of MSME towards GDP (Gross Domestic Product) able to employed 10.7% or roughly 12 million workers (CNN Indonesia Business news, 2016). The high number of employment needs to be balanced with the proses of marketing as well. Modern marketing mostly is using internet to carry out the process of selling using computer or known as *online marketing*.

According to Kotler & Armstrong (2008:237), online marketing is a type of marketing that has the most rapid growth. Enterprises attempt to sell their product and service also build connection with the customers through internet. Kotler & Armstrong (2008:252) also add, if online marketing keeps growing, it would be the proof that online marketing is a marketing

method that is reliable to build relationship with customers, increase sells, share information about products and services, and deliver products and services effectively.

Quoting from *beritajatim.com*, it states that the growth of MSME in Sidoarjo is rapidly increasing. Based on the numbers and the growth of MSME in 2013, Sidoarjo is declared as 'Sidoarjo Kota UKM Indonesia' (Sidoarjo the city of MSME in Indonesia). Chambers of Commerce and Industry of Sidoarjo supports MSME on 18 sub-districts to sell their product online. The program of online business that is called as *Kampung UKM Digital* (village of digital MSME) is done together by Chambers of Commerce and Industry of Sidoarjo, Telkom, and Universities in Sidoarjo. One of the *Kampung UKM Digital* is *Kampung UKM Digital Tanggulangin Goes Digital*.

The continuation of the program *Kampung UKM Digital* that is not well maintained made online shop of *Kampung UKM Digital* member less attracting. Moreover, KKN-PPM program of UNESA in 2016, *Gerai Kapersi*, is not working well because of the consistency and commitment that is still needed to be improved. The owners of MSME still depend on Offline shop. Those explanation indicates e-commerce has great potential but found many problems during the process.

To use online marketing, several things need to be prepared. According to Rahayu & Day (2015) supporting factor in online marketing is perceived benefit, technology readiness, owner innovativeness, owner IT experience, and owner IT ability. But according to Zhu *et al* (2006) technology readiness is the main factor to use e-commerce in developing country. According to Parasuraman (2000) "*the technology-readiness construct refers to people's propensity to embrace and use new technologies for accomplishing goals in home life and at work*".

One of the theories about the use of information and technology that is considered giving great impact and generally used to explain about individual acceptance towards the use of information and technology is TAM (Technology Acceptance Model). This theory introduced by Davis (1986) and developed into TRA (Theory of Reasoned Action) by Ajzen and Fishbein (1980). Jogiyanto (2007:1) also stated, TAM emphasizes 2 main constructs into TRA. 2 main constructs are perceived usefulness and perceived ease of use. According to Jogiyanto (2007:115) perceived ease of use is giving influence to perceived usefulness.

The development of the use of TAM model is divided into 2 contexts that are TAM before the use of technology and TAM after the use of technology. The use of TAM before technology can be found on the research of Davis (1986) that states *Attitude toward using* as the effective response that directly influenced by the attitude of the subject on using new technology. The use of TAM after technology placed *attitude* on the usage that giving focus on the continuation of the usage or stop using technology.

## 2 Research Method

The research design on this research is using conclusive research design, because the main purpose of conclusive research design is testing specific hypothesis and testing specific relation (Malhotra 2009:89). In the words, the basis of this research is survey by collecting primary data through questionnaire. The population is MSME on Tanggulangin, using snowball sampling as the sampling method. The number on sample that is used is 40 respondents. To simplify the research, the respondents are divided into 2 group, online respondent and offline respondent. On the offline respondents, the researcher met the respondents directly. While on

the online respondent, the respondents are requested to answer online questionnaire to simplify data collecting.

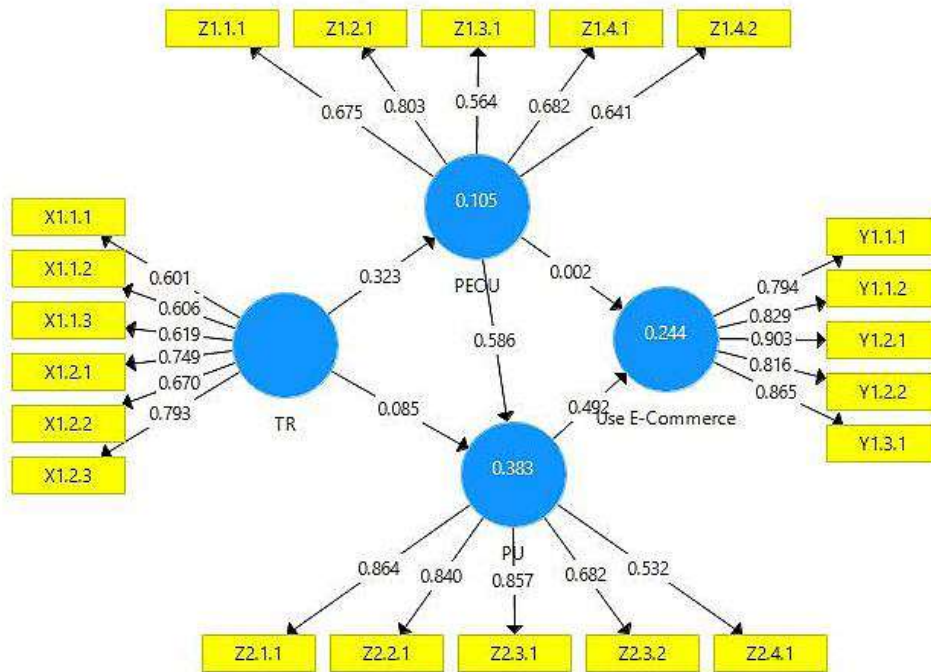
Data collection method is using questionnaire that is given directly to the respondents. The question type that is used on the questionnaire is closed-ended question, a type of question that allows the respondent to choose the answer according to the given answer. Scaling method that is used is *likert* scale. Before the questionnaire shared, it was tested previously for the validity and reliability using SPSS. The collected data from questionnaire then processed using PLS (*Partial Least Square*) method.

### **3 Result and Discussion**

Respondent characteristic that become the subject of research is entrepreneur or online shop administrator from MSME that are using e-commerce. Respondent has customers that bought their product online. TAM construct that is used for this research is perceived ease of use, perceived usefulness, and online marketing (e-commerce) and media that is used is *whatsapp*.

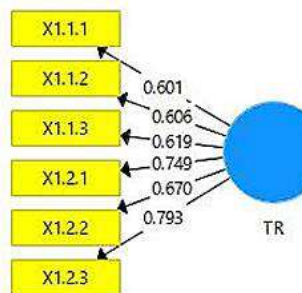
Hypothesis test that is done in this research is using *Structural Equation Modeling* with the support of software SmartPLS ver 3.0. PLS is a *powerful* analysis method because it is not assuming data with scale measurement and small sample (Wold in Ghozali, 2013:4). PLS-SEM analysis is done by valuing outer model and inner model. The indicator can be assessed as valid when value of correlation reaches more than 0.70. Eventhough it is not reach 0.70, for the early stage research, loading value between 0.50 up to 0.60 can be considered sufficient (Chin in Ghozali, 2014: 39).

Four of the dimensions are relatively independent with every one of them showing the will of someone to accept technology. Optimism and innovativeness dimensions are the *driver* of the technology readiness, while discomfort and insecurity are the *inhibitor*. Parasuraman & Colby argue that user segment with technology readiness profile can be different and varied significantly in terms of internet behavior. That is why technology readiness cannot be ignored in assessing user of technology-based services. Based on the previous explanation, in this research optimism and innovativeness will be used to measure technology readiness toward the user of e-commerce (Parasuraman & Colby,2001).



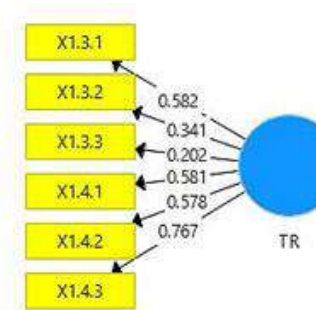
**Figure 1.** Measurement Model Test

According to figure 1, it can be marked that all outer loading is above 0.50. based on that value, it can be concluded that variables above are having good *convergent validity*. Technology readiness variable with 4 dimensions that are *optimism*, *innovativeness*, *discomfort* dan *insecurity* has one of the dimensions with outer loading below 0.5. The following explanation is:



**Figure 2.** Measurement Model Test Variable Technology Readiness *Optimism & Innovativeness* Dimensions

Figure 2 is showing that outer loading from each item of technology readiness for *optimism & innovativeness* dimensions is above 0.50.



**Figure 3.** Measurement Model Test Variable Technology Readiness *Discomfort & Insecurity* Dimensions

Figure 3 is showing that outer loading from *discomfort* with just X1.3.1 that has value more than 0.50, while items X.1.3.2 & X.1.3.3 have value less than 0.50. For each item of *insecurity* dimension has value above 0.50.

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Next is *composite reliability* and *cronbach's alpha* to determine the reliability of good and strong if the value is  $> 0.70$ .

**Table 1.** Composite Reliability.

Variable	Composite Reliability
Technology readiness	0,834
Perceived ease of use	0,807
Perceived usefulness	0,873
Use of <i>E-Commerce</i>	0,924

Source : Output PLS 3.0

According to table 1, the value of *composite reliability* for each of variables are above 0.70. it can be concluded that this variable model fulfills the *composite reliability* or having good reliability.

**Table 2. Croncabch's Alpha**

Variable	Croncabch's Alpha
Technology readiness	0,781
Perceived ease of use	0,704
Perceived usefulness	0,816
Use of <i>E-Commerce</i>	0,901

Source : Output PLS 3.0

The table 2 shown that the value of *Croncabch's alpha* for all of the constructs are above 0.70. This is showing that this variable model fulfills the *Croncabch's alpha* or having strong reliability.

*Inner model* can be calculated by calculating the relation between construct and the value of significance on the table *path coefficients* as shown on table 3 below. the test between variable can be assessed as "giving impact" if  $t\text{-statistics} > t\text{-table } 5\% (1,96)$ .

**Table 3. Path Coefficients Result**

Hubungan Antar Variabel	Original Sample	T <sub>Statistics</sub>	Information
Technology readiness → Perceived Ease of Use	0,323	1,299	H <sub>1</sub> rejected
Technology readiness → Perceived Usefulness	0,085	0,444	H <sub>2</sub> rejected
Perceived Ease of Use → Perceived Usefulness	0,586	3,908	H <sub>3</sub> accepted
Perceived Ease of Use → Use of <i>E-Commerce</i>	0,002	0,009	H <sub>4</sub> rejected
Perceived Usefulness → Use of <i>E-Commerce</i>	0,492	2,468	H <sub>5</sub> accepted

Source : Output PLS 3.0

According to table 3, the result can be explained as following:

First hypothesis that states technology readiness gives positive impact toward the perceived ease of use is rejected with  $t_{\text{statistics}}$  value 1,299. The coefficient parameter 0,323 has meaning that there is positive impact of technology readiness toward perceived ease of use. Coefficient parameter that has positive value can be implemented as the higher technology readiness would make perceived ease of use higher as well. This result supports the research conducted by Walczuch *et al* (2007) that states technology readiness is not giving impact toward perceived ease of use because of the respondent is less optimistic to learn using new technology did not believe that it would makes the technology easier to use.

The second hypothesis that states technology readiness gives positive impact toward the perceived usefulness is rejected with  $t_{\text{statistics}}$  value 0,444. The coefficient parameter 0,085 has meaning that there is positive impact of technology readiness toward perceived usefulness. Coefficient parameter that has positive value can be implemented as the higher technology readiness would make perceived usefulness higher as well. This result supports the research conducted by Walczuch *et al* (2007) that states technology readiness is not giving impact toward perceived usefulness. This could be happened because the application (online shop) that is used is unusual to be used daily and creates a thought that this application (online shop) is not giving benefits.

The third hypothesis that states perceived ease of use gives positive impact toward the perceived usefulness is accepted with  $t_{\text{statistics}}$  value 3,908. The coefficient parameter 0,586 has meaning that there is positive impact of perceived ease of use toward perceived usefulness. Coefficient parameter that has positive value can be implemented as the higher

perceived ease of use would make perceived usefulness higher as well. This can be concluded that MSME, that is chosen to the respondent in this research, felt that using online marketing is easy and the use of online shop would support them increase the customers and income. This result supports the result of the research conducted by Davis (1986), Davis (1989), Davis (1993) and Walzcuch *et al* (2007).

The fourth hypothesis that states perceived ease of use gives positive impact toward the use of e-commerce is rejected with  $t_{\text{statistics}}$  value 0,009. The coefficient parameter 0,002 has meaning that there is positive impact of perceived ease of use toward the use of e-commerce. Coefficient parameter that has positive value can be implemented as the higher perceived ease of use would make the use of e-commerce higher as well. The research done by Dewi & Warmika (2016) and Fayad & Paper (2015) who confirm that perceived ease of use gives impact toward the use of e-commerce has different result with this research that confirms perceived ease of use is not giving impact on the use of e-commerce.

The fifth hypothesis that states perceived usefulness gives positive impact toward the use of e-commerce is accepted with  $t_{\text{statistics}}$  value 2,468. The coefficient parameter 0,492 has meaning that there is positive impact of perceived usefulness toward the use of e-commerce. Coefficient parameter that has positive value can be implemented as the higher perceived usefulness would make the use of e-commerce higher as well. When the use of online marketing is high, the communication and transaction with customers using online is high as well. Based on that result, it can be concluded that perceived usefulness is giving great impact toward the use of e-commerce (online marketing) on MSME. According to the previous research, this result supports the research of Dewi & Warmika (2016) and Fayad & Paper (2015).

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