KnE Social Sciences

ICESRE 2021
4th International Conference on Education and Social Science Research (ICESRE)
Volume 2022

Knowledge E
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Research article

Business Sustainability Through Technology Adoption: Readiness and Acceptance of E-commerce Technology in MSMEs

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Abstract.

The digital economy requires all countries to participate in preparing for digital transformation. As a country in Southeast Asia, Indonesia must prepare for the era of global competition. In 2020, the Indonesian government launched a digital transformation program with the vision of the ”Largest Digital Economy.” The digitalization of micro and small businesses in Indonesia is experiencing a slowdown due to the difficulty in adopting technology by MSME actors, and partly because of the COVID-19 pandemic. The focus of this research emphasizes the impact of the readiness of micro, small, and medium enterprises as individual decision-makers on the adoption of marketing technology. The Readiness Acceptance Model (TRAM) technology developed by Lin *et al.* (2007) utilized in this study explains that the impact of individual characteristics and experiences on their use and usefulness dominates the marketing technology decision-making process. The population of this study includes the micro, small, and medium enterprises in the Sukabumi area with 220 respondents as business actors. The method used is path analysis. The results show that the effect of technological readiness of MSME actors in Sukabumi on the acceptance of e-commerce carriers and technological know-how are influenced by the mindset of optimism, innovation, and discomfort, which have a big impact on the perception of ease of use (PEU) and the perception of usefulness (PU). The PEU has a massive impact on perceived advantages (PU) and the PU and PEU both have a significant positive impact on the intention to use.

Keywords: technology readiness, technology acceptance model, e-commerce, UMKM

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Published: 28 September 2022

Publishing services provided by Knowledge E

Selection and Peer-review under the responsibility of the ICESRE 2021 Conference Committee.

1. Introduction

Since the confirmation of COVID-19 in Indonesia in 2020, the government has made various efforts to prevent its massive spread in Indonesia. In response to this, the government issued a social policy with the enactment of Large-Scale Social Restrictions (PSBB). Hopefully, this will minimize the spread of the virus. However, these social policies have an impact on business activities in the decline of the country’s economy. Indonesia’s economic growth in quarter II-2020 decreased compared to 2019, where the development of economic growth in quarter II-August 2020 (-5.32%) compared to economic growth in 2019 of 5.02%[1].

The economic downturn used to be affected by weakening the contribution of SMEs to the gross domestic product (GDP). Whereas the role of MSMEs contributes 60.3 percent of Indonesia's total GDP. The government, through the ministry of cooperatives and MSMEs, targets the contribution of MSMEs to GDP (Gross Domestic Product) in 2020-2024 at 65%, according to a survey from the Faculty of Economics and Business, Padjadjaran University, as 47% of MSMEs in West Java have completed their business activities[2]

In responding to the impact of the COVID-19 pandemic, the government provides the stimulus and appeals to MSME actors to do marketing boldly. Digital economy transformation is one of the government's programs; by launching the "Largest Digital Economy" in 2020, one of the government's targets is to grow and increase e-commerce transactions and create technopreneurs.

The use of e-commerce can certainly provide more value for MSMEs. Able to boost marketing, where local products can be sold widely and improve quality, innovation, and consumer creativity. Consumer. SMEs to play an active role in the digital economy competition. This government program can spur the economy in general.

Sukabumi has many MSME players engaged in industry, services, and trade. The low adoption of MSME technology in E-commerce in Sukabumi impacts the lack of MSME participation in innovating the digitization of their business activities. In the use of technology, even though MSME actors are the determinants in deciding the use. It is hoped that business actors will increase their optimism, innovation, and creativity in this digital era, leading to increased flexibility, accessibility, and connectivity. Research on personality differences is fundamental in moderating human behavior. Personality can be described as curiosity and conduct secure over time and is persistently regular[3]. Research related to technology readiness towards technology acceptance shows that the user's personality traits strongly influence the use of self-service technology (STT) due to the influence of the environment that people choose and the speed with which they adapt to new technologies[3,4,5,7] personality can determine differences in technology adoption, personality characteristics become a measure that can affect technology adoption . Business people as individual entrepreneurs have an essential role in creating innovations in increasing business value through current technology. The model in assessing technology readiness by considering personality is the technology readiness construct (TR).

1.1. Technology Readiness (TR)

Parasuraman defines Technology Readiness (TR) as the tendency of people (individuals) to embrace new technologies to achieve their life and work goals. The construct consists of 4 sub-dimensions that predict people's conduct associated with technology, including optimism and innovation, which amplify TR, and pain and insecurity, which decrease it[4,7,8,9]

1.2. TAM (Technology Acceptance Model)

TAM is a formula from the research results by Ajzend and Fishben, where this theory explains that a person does something based on two factors, namely behavior belief, and Normative Beliefs. Both of these factors encourage a person to evaluate the results and motivation to comply. These two factors will enable a person to behave (Attitude). Personal Norms (Subjective Norms), with the Attitudes and Subjective Norms, will affect one's attention in behavior, which in turn will affect one's behavior [10]. Acceptance of Technology Model (TAM) is used as the basis of various studies of information technology systems. TAM is built from various indicators which include; (PEOU), (PU), (ATU), (BI), and (AU)[11,12,13]. Referring to the latest research, that assembling technology readiness is simultaneously associated with the dimensions of TAM, POU, and PEOU.

1.3. TRAM (Technology Readiness-Acceptance Model).

This model describes the tendency of society to embrace new technologies in achieving the goals of daily life and in the workplace will predict the acceptance of technology which in turn will influence the behavior and intentions of individuals to use technology. TRAM findings emphasize the impact of the user (individual) and the intended user experience. The impact of use and ease of use will dominate the decision-making technique of adoption conduct[7,14].

1.4. Hypothesis Formulation

Optimism is related to the positive attitude of individuals who believe that technology provides added value in improving the quality of life. People's optimism and innovation towards technology as a positive impact enabler are generally considered to have a

positive attitude towards technology and its use. The following is the hypothesis of this research:

H1: Optimism is positively associated with perceived ease of use

H2: Optimism is positively related to perceived benefits

H3: Innovation is positively associated with perceived benefits.

H4: Innovation is positively associated with perceived ease of use

H5: Discomfort is negatively associated with perceived benefits

H6: Discomfort is negatively associated-to with perceived ease of use

H7: Insecurity is negatively associated with perceived benefits

H8: Insecurity is negatively associated with perceived ease of use

H9: Perceived comfort is positively associated with perceived usefulness

H10: The perceived advantages are positively associated with the intention -to use.

H11: Perceived ease of use is positively associated with intention to use.

Kuo[15] suggest that insecurity will have lower perceived ease of technology. Barriers to technological know-how acceptance are security and privacy issues, which will lead to suspicion and a reduction in the perceived benefits of technology, impacting decreasing usage [6] stated that discomfort affects perceived ease of use, people who score high on this dimension sense burdened by using technological complexity, discomfort has a terrible impact (PU) and (PEU).

User-friendly applications can be considered valuable, easy-to-use functions can be seen as useful, but now not all useful functions are user-friendly. Murat Esen; Enihat Eerdogmus, 2014. People who think e-HRM is useful have a good tendency to use e-HRM, but those who think e-HRM is easy to use have no perceived usefulness intention. Ease of use has a high-quality influence on perceived profits.

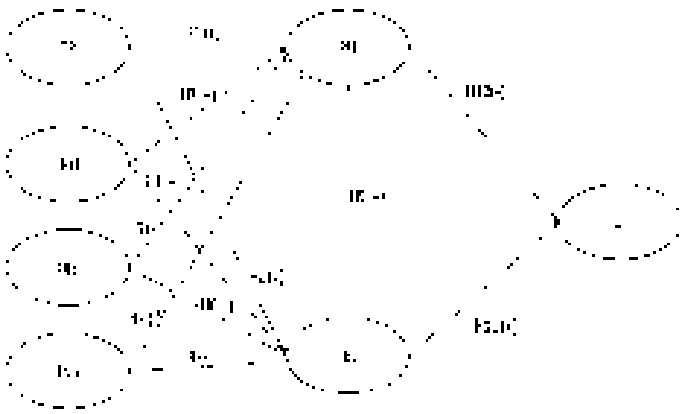

Figure 1: Research Model (TRAM) relationship between technology readiness and technology acceptance.

Information :

OP = Optimism*

INO = Innovativeness*

DIS = discomfort*

INS = Insecurity*

PU = Perceived Usefulness*

PEU = Perceived Ease of Use*

UI = Use Intention*

2. Research Method

The purpose of this study is to describe the impact of (TR) with TAM on MSME actors who apply E-Commerce. This type of search is conclusive. This research method is designed to check hypotheses and the relationship between research models decided by disseminating the questionnaire TR from Parasuraman and David's technology acceptance TAM. The data obtained from the questionnaire were tested for validity and reliability using Pearson correlation and Cronbach coefficients. In trying the TRAM model using Path Analysis with the Amos version 24 program.

3. Results And Discussion

3.1. Characteristics of Respondents

The unit of analysis in this study is the SMEs in Sukabumi. The questionnaires were distributed as many as 384, and the ones that reversed and filled out were 220 respondents. The description of the respondents' characteristics is evidenced in Table 1 of the respondent's factors. Based on the results of processing the gender frequency distribution, MSME actors are more dominated by women, especially based on the level of education they are dominated through high school seniors. Based on the total type of business, which is more dominant, is engaged in trading. Based on the business classification of Micro Business actors, the duration of the agent is more common, less than one year. Gadgets dominate the science used in running their business.

3.2. Data Analysisalisa

In supporting the data analysis process for measuring the TAM (Technology Readiness Accepted Model) research model, the validity and reliability of research instruments

Table 1: Gender.

Gender	Frequency	percentage
Male	99	45
female	121	55
Total	220	100

Source: processed data 2021

Table 2: Education.

Educational level	Frequency	percentage
SD	11	5
SMP	20	9
SMA	122	55
S1	64	29
S2	3	2
Total	220	100

Source: processed data 2021

Table 3: Type of business.

Business Level	Frequency	percentage
Industry	25	11,3
Service	48	21,7
Trading	147	67
Total	220	100

Source: processed data 2021

Table 4: Business Classification.

Business Level	Frequency	percentage
Micro	143	65,1
Small	62	28,2
Intermediate	15	6,7
Total	220	100

Source: processed data 2021

Table 5: Technology Used.

Business Level	Frequency	percentage
Gadget	137	62,4
Laptop	61	27,6
Computer	22	10
Total	220	100

Source: processed data 2021

were first tested from 220 respondents. Data processing is carried out through the SPSS version 24 program in measuring the Technology Readiness Instruments and

Technology Accepted Model. For testing the path analysis model, it is carried out through the Amos version 24 program.

3.2.1. Validity and Reliability Test

In testing the validity of each indicator (TR) and (TAM), it is done by correlating the indicators with the total score for each indicator through Pearson correlation analysis.

Table 6: Validity test.

Item - Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
op1	149.20	190.636	.720	.799
op2	149.31	189.604	.724	.798
op3	149.47	186.067	.755	.795
op4	149.53	184.680	.758	.794
ino1	149.52	189.009	.706	.798
ino2	149.73	189.953	.685	.799
ino3	149.89	189.909	.645	.799
ino4	149.95	188.053	.687	.797
dis1	152.50	231.265	-.452	.851
dis2	151.42	224.354	-.427	.838
dis3	151.91	226.691	-.407	.844
dis4	151.48	224.881	-.384	.841
ins1	151.58	224.756	-.405	.840
ins2	151.60	225.382	-.424	.840
ins3	151.99	227.146	-.412	.844
ins4	151.91	225.462	-.380	.843
pu1	149.53	184.944	.719	.795
pu2	149.58	183.670	.745	.793
pu3	149.68	183.323	.776	.793
pu4	149.77	183.457	.762	.793
pu5	149.87	184.733	.718	.795
pu6	149.85	186.161	.710	.796
peu1	149.51	185.584	.773	.794
peu2	149.57	186.282	.760	.795
peu3	149.64	187.191	.763	.796
peu4	149.62	187.149	.763	.796
peu5	149.67	187.437	.762	.796
ui1	149.37	187.596	.743	.796
ui2	149.42	187.724	.720	.797
ui3	149.45	188.925	.714	.798

Table 7: Reliability Test Results.

Reliability Statistics	
Cronbach's Alpha	N of Items
.815	30

Based on the results of the calculations in the table above, the total correlation value of the 30 items has a value above the minimum r of 0.30 or when compared to the rtable value of 2.559. Thus, 30 items were declared valid. For the results of reliability calculations, all items have a Cronbach alpha coefficient value above 0.7 with a total reliability result of 0.815, and this value has a good level of reliability.

3.3. Structural Model Testing

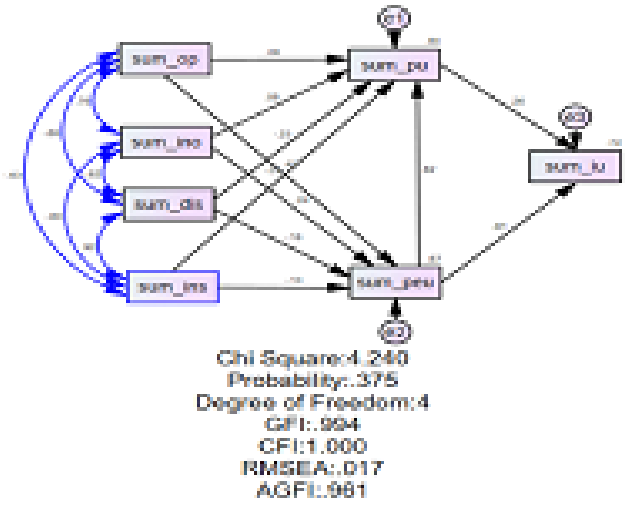

Figure 2: TRAM model test through Path Analysis.

Structural Model testing aims to test hypotheses and answer the research objectives. The test is carried out using the Path Analysis approach through the Amos version 24 program.

The test results on the TRAM model image above can be concluded as follows:

The table above shows that the chi-square value is 4.240, probability 0.375, GFI-0.994, AGFI 0.961, CFI 1.000, and RMSEA-0.017 so that the criteria in the model fit are well met. Thus this model can be accepted.

Source: processed data 2021

Table 8: Research Model Testing.

The goodness of fit Indices	Model results	Test Cut Off Value	description
Chi-Square	4.240	Smaller is Better	Nice
Probability	0.375	> 0.05	Nice
GFI	0.994	> 0.90	Nice
AGFI	0.961	> 0.90	Nice
CFI	1.000	> 0.95	Close fit
RMSEA	0.017	< 0.08	Nice

3.3.1. Research Hypothesis Testing

In testing the hypothesis, look at the results of the Regression weights calculation by looking at the P-value and CR (Critical Ratio), where the P-value <0.05 and the CR (Critical Ratio) value must be > 2.0.

Table 9: Standardized Regression Weights.

			Estimate	SE.	CR.	P	Label	conclusion
sum_peu	<—	sum_op	.492	.079	6.256	***	PAR_1	H2 proved to be significantly positive
sum_peu	<—	sum_ino	0301	.078	3.862	***	PAR_4	H4 proved to be significantly positive
sum_peu	<—	sum_dis	-0181	.106	-1.708	.088	PAR_6	H6 proved to be negative not significant
sum_peu	<—	sum_ins	-0103	.102	-1.019	.308	PAR_8	H8 proved to be negative not significant
sum_pu	<—	sum_op	0.105	.082	1.282	.200	PAR_2	H1 proved positive but significant
sum_pu	<—	sum_ino	.141	.077	1.824	.068	PAR_3	H3 proved positive but significant
sum_pu	<—	sum_dis	-.329	.102	-3.211	.001	PAR_5	H5 proved to be significantly negative
sum_pu	<—	sum_ins	-.018	.098	-.184	.854	PAR_7	H7 proved to be significantly negative
sum_pu	<—	sum_peu	.861	.066	13.126	***	PAR_9	H9 proved to be significantly positive
sum_ui	<—	sum_peu	.363	.048	7.573	***	PAR_10	H10 proved to be significantly positive
sum_ui	<—	sum_pu	.111	.034	3.219	.001	PAR_11	H11 proved to be significantly positive

Based on the calculations in the table above, the Optimism variable has a positive and significant impact on (PEU) but not significant on (PU). Innovation has a positive,

however not significant, impact on (PU), however significant on (PEU). Discomfort has a negative and significantt impact on (PU), however not significant on (PEU). insecurity has a terrible and insignificant impact on each (PU) and (PEU). (PEU) has a positive and significant impact on (PU), (IU) has a positive+ and significant have an effect on (IU).

Table 10: Standardized Regression Weights.

			Estimate
sum_peu	<—	sum_op	.404
sum_peu	<—	sum_ino	.241
sum_peu	<—	sum_dis	-.176
sum_peu	<—	sum_ins	-.102
sum_pu	<—	sum_op	.062
sum_pu	<—	sum_ino	.081
sum_pu	<—	sum_dis	-.230
sum_pu	<—	sum_ins	-.013
sum_pu	<—	sum_peu	.620
sum_iu	<—	sum_peu	.608
sum_iu	<—	sum_pu	.259

The calculation results in the table above show that the weight value of the influence of TR on TAM. It can be explained that the first variable that affects perceptions of ease of use (PEU) is optimism 0.404, and the second is innovation 0.241. at the same time, the variable that affects the perception of benefits (PU) is the discomfort of -0.230. While the effect of (PEU) on perceived benefits is 0.620 and the effect of ease of use on intention to use is 0.608. perceived usefulness is 0.259.

Baseded on the results of the research above, of the 11 hypotheses that were proven, only 7 and 5 were not established, including; first, optimism on perceived benefits (PEU) the results of the study showed a positive but not significant effect, meaning that the optimism attitude of MSME actors did not affect perceived benefits (PEU), second, innovation on perceived benefits (PU) results in The research shows positive but not significant, meaning that the innovative attitude of MSME actors does not affect perceived benefits (PU), third, discomfort on perceived ease of use (PEU). MSME actors have no effect on perceived benefits (PU), fourth insecurity on perceived usefulness. The research results show a negative but not significant effect, meaning that the insecurity attitude of MSME actors does not affect perceived benefits (PU), d. Finally, insecurity on perceptions of ease of use (PEU) results show a negative, but not significant, effect, meaning that the attitude of insecurity of MSME actors does not affect (PEU).

3.4. DISCUSSION

3.4.1. The Effect of Optimism--on Perceptions Ease of use & perceived benefits

Optimism has a positive and significant effect on perceived ease of use but statistically does not support the perceived usefulness. The optimistic attitude of individual MSME actors has the most decisive influence on the perception -of the ease -of use of the E-commerce service system; Dadholkar, 1996, states that optimistic people believe that technology is under their control[7].

3.4.2. Influence of Innovation on Perceived -Ease of use & perceived benefits

Innovation has a positive and significant effect -on perceived benefits but does not affect PEU based on statistical calculations. The attitude of creation has a strong influence on the perception of ease of use, meaning that MSME actors in dealing with E-commerce service system technology have a more open and positive attitude towards the ease of use -of the system; According to [8], in general, innovative people are more receptive to new ideas. Someone creative tends always to learn to increase technology knowledge[7].

3.4.3. Effect of Discomfort on - PEOU & perceived -benefit

Discomfort harms the perception of perceived benefits (PU). A high uncomfortable attitude will impact the common use of the E-commerce service system. According to (21)**[6]** consumers who score high on discomfort believe that their knowledge of technology is insufficient and feel depressed. (19)**[16]** When consumers find a technology product, they think they cannot have sufficient expertise on the development, so they become anxious and think the product is not designed for them, thus avoiding buying it.

3.4.4. Effect of Insecurity -on PEOU e & perceived -benefits

Insecurity negatively affects (PEU) and (PU), but it is not significant or not supported based on statistical calculations. This research is in line with a previous study [7,14]. High

insecurity attitudes will have a low impact on (PEU) and (PU). In this study, insecurity does not affect PEU, and PU may be other factors that affect PEU and PU[7].

3.4.5. Influence of PEOU on Perception of perceived usefulness

PUE positively and significantly affects PU. This means that the higher the grasp of MSME actors in the comfort of using the E-commerce service system, the higher the perception of the benefits felt by MSME actors in using the E-commerce service system. This means that if the E-commerce service system is easy to use, then the service system is considered useful[7].

3.4.6. The Influence of -- PEOU and Perceived Benefits on Intention to Use

PEU and PU have a positive and significant effect on UI. The easier and more useful the E-commerce service system is, the MSME actors will have high intentions to use these services. In this regard, the ease and usefulness of the service system are one of the important considerations that determine the adoption of an information system, so that the functional aspects of the information technology service system are a concern for information service providers and the government in developing an E-commerce service system for business actors. SMEs[17].

4. Author's Contribution

This research is inseparable from the contributions of the parties parts of the research team, such as Mr. Indra Permadi, S.E., M.M as member one, who has assisted researchers in formulating and deciding lookup instruments, gathering data, assisting in interpreting the outcomes and conclusions. To Mr. Ir. Dendi Zainuddin Hamidi, M.M as member two, has assisted in formulating methods, models, and records interpretation and conclusions.

Acknowledgments

In the research process and until this research article is produced, of course, it cannot be separated from the relevant parties who have provided assistance both morally and materially, so we say thank you to L2Dikti Region 4 West Java, Center for Research and

Community Service (P3M) STIE PGRI Sukabumi, Department of Industry, Cooperatives and SMEs of Sukabumi City and the teams who are members of this research.

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