Jurnal SIstem Teknik Industri (JSTI) Vol. 23, No. 2, 2021 | 190 – 203

JSTI
Jurnal Sistem Teknik Industri

Use of Modified Technology Acceptance Models to E-business for MSMEs

***Syahrial Yusuf*[1], *Aulia Fashanah Hadining*[*2]**

[1,2]*Industrial Engineering, Faculty of Engineering, Universitas Singaperbangsa Karawang*

Abstract. Many MSMEs in Indonesia have used e-business including, websites, social media, e-commerce, and Enterprise Requirement Planning (ERP). The aspects that need to be considered include resource management, finance, procurement, logistics, to operational activities. In addition, the challenges that must be faced by MSMEs, in external conditions, must reduce the physical distance to cope with the spread of Covid-19. Due to the outbreak, MSMEs have been compelled to employ alternative methods that must be created and implemented to keep business processes functioning. Therefore, what factors can affect the acceptance of technology that is perceived by MSME owners to adjust their business needs. This research aims to modify TAM for e-business users, especially in MSMEs, to analyze the factors affecting the technology adoption process. The research method used is to build models and indicators from previous studies. However, as discussed in model development, three external variables were added: perceived cost, perceived risk, and facilitating conditions. The next stage is to conduct empirical research using a google form for MSME owners. Based on this framework, we propose a model for research propositions and contributions to scientific studies.

Keyword: E-Business, MSME, Modified, TAM, Preliminary

Abstrak. *Saat ini, banyak UMKM di Indonesia telah menggunakan e-business dengan strategi yang digunakan adalah menggunakan situs web, sosial media, e-commerce, hingga Entreprise Requirement Planning (ERP). Sebenarnya aspek yang perlu diperhatikan diantaranya pengelolaan sumber daya, keuangan, pengadaan atau logistik hingga kegiatan operasional. Selain itu, tantangan yang harus dihadapi oleh UMKM, pada kondisi eksternal, harus mengurangi jarak fisik untuk menanggulangi tersebarnya covid-19. Wabah ini memaksa UMKM untuk menggunakan metode lain yang harus dihimpun dan digunakan agar proses bisnis tetap berjalan. Oleh sebab itu, faktor – faktor apa yang dapat mempengaruhi penerimaan teknologi yang dipersepsikan oleh pemilik UMKM untuk menyesuaikan kebutuhan bisnisnya. Tujuan dari penelitian ini adalah modifikasi model TAM bagi pengguna e-business khususnya pada UMKM dan menganalisis faktor yang mempengaruhi proses adopsi teknologi tersebut. Metode penelitian dilakukan dengan membangun model dan indikator dari penelitian sebelumnya. Namun, seperti yang dibahas dalam pengembangan model, terdapat tiga variabel eskternal yang ditambahkan, yaitu* perceived cost, perceived risk, *dan* facilitating condition. *Tahap selanjutnya adalah melakukan penelitian secara empiris menggunakan google form kepada pemilik UMKM. Berdasarkan kerangkan tersebut, Kami mengusulkan model untuk proposisi penelitian dan kontribusi terhadap kajian ilmiah.*

Kata Kunci: E-Business, UMKM, Pemilik, Modifikasi, TAM, Pendahuluan

Received 31 May 2021 | Revised 16 July 2021 | Accepted 23 July 2021

*Corresponding author at: HS. Ronggowaluyo Street, Puseur Jaya, Kec. Telukjambe Timur, Karawang, 41361, Indonesia

E-mail address: aulia.fasha@ft.unsika.ac.id

https://doi.org/10.32734/jsti.v23i2.6298
Journal Homepage: http://talenta.usu.ac.id/jsti

1. Introduction

According to [1], e-business is defined as using internet networks and a place for business processes, e-commerce, communication within the organization, and cooperation that occurs within a company to occur with various suppliers, customers, and other stakeholders. Meanwhile, according to [2], in principle, e-business uses digital technology and systems for a company to comprehensively improve its business capabilities to develop business processes in it, especially for stakeholders. In this study, it can be concluded that e-business uses the internet network and a place where business processes occur either directly or indirectly connected to several related entities. Moreover, the exchange of goods and services occurs and can also be used to improve business capabilities comprehensively and develop business processes therein.

The development of e-business trends in Indonesia can help the business world, including at the MSME level. The goal is to increase competitiveness with the environment. E-business provides the competitive power built by MSMEs to help business growth, improve business quality, and expand market share [3]. In addition, the use of e-business can provide superior value for current and potential consumers [4]. Therefore, the existence of e-business can provide support for a competitive advantage during fierce competition in the business world [5].

UMKM is a business that plays an essential role for the majority of the Indonesian population, especially those with low education. The presence of MSMEs can provide alternatives to provide employment opportunities [6]. MSMEs are generally flexible, innovative, and they can generate income independently. Its existence can be a significant issue in the wheels of the country's economy. They have a crucial role in growing the production base, assisting large-scale manufacturing companies, providing job vacancies on a regional scale [7]. MSMEs must be preserved since they are vital to the national economy, as evidenced by the fact that they exist after the reform period began in 1997. [8]. This MSMEs contribution is evidenced by the increasing data on the growth of MSMEs from year to year. According to the Indonesian Ministry of Cooperatives and SMEs (2019), the number of MSMEs in 2019 amounted to 65,471,134 units and an increase of 1.98% from 2018. The impact given by MSMEs in 2019 was able to increase Indonesia's GDP in constant value by 22.95 %.

Many MSMEs in Indonesia have used e-business with the strategies used to use websites, social media, e-commerce, and Electronic Requirement Planning (ERP). A website can help promote products produced by MSMEs to attract customer interest [9]. An example is the use of WordPress as a means of product promotion. Social media such as Facebook can help increase the branding of your business [10], and Instagram can introduce the profile of the company being run, insights about followers on linked accounts, and promotions [11]. Meanwhile, e-commerce is expected to boost sales and cash flow [12] and can be used to carry out a survival strategy during the Covid-19 pandemic [13]. This technology site has a broad reach and is not limited by time and space [8]. ERP can also be used for MSME business needs, such as Financial ERP to manage finances [14]. Although many people have used e-business, its use is still ineffective because it only affects one aspect, such as sales and marketing. The elements

that need to be considered include resource management, finance, procurement, or logistics to operational activities [3].

In addition, the challenges that must be faced by MSMEs, in external conditions, must reduce the physical distance to cope with the spread of Covid-19. This outbreak has forced MSMEs to use other methods that must be compiled and used to keep business processes running. The existence of the plague provides a new way for MSMEs to maintain their business. This challenge has pushed MSMEs to respond quickly and immediately, to operate in new ways to continue their business, manage their supply chain, from raw material procurement to consumers, which is carried out effectively and efficiently. Businesses have been urged to create resilience to the crisis and the shocks it brings due to the emergence of Covid-19 [15].

The factor of technology acceptance that is perceived by MSME owners is influenced by external factors. Technology is needed in adjusting business needs [5]. In actual conditions, MSME actors use one or two types of e-business but more and hope that there are many aspects they want to achieve by using e-business. However, the use of technology in MSMEs is not optimal because business people still have problems, for example, in monitoring transaction payments, expensive internet costs. It requires more time and effort to understand the performance process of the technology [16], or UMKM owners lack literacy and technicality even though they already have the opportunity to use them[17]. Therefore, this study will reveal what factors can influence MSME owners to use e-business technology.

This study helps to develop a model in explaining the process of adopting e-business technology by MSMEs. Research conducted by [18] shows that the technology recognition process can be affected by facilitating conditions. The fact is that the use of technology requires costs and the perceived risk of using the technology. According to [19] discloses that the extent to which cost and risk factors influence the intended use. [20] Revealed that perceived risk tends to influence the decision to use technology, in this study, meant e-business. Financial costs (also known as perceived costs) have brought potential users to see the level of difficulty and also what value might be given so that they have to pay high for the desired aspect. Items included include data service operator fees, device purchase fees, and service charges charged. Perceived risk can also play a role in making decisions for technology users and the risk of causing technology performance failure when used. In addition, risks in the form of safety and reliability may exist [21]. Meanwhile [22], revealed that the perceived cost could influence MSMEs to use e-business. Perceived costs can affect management support, financial resources, innovation, and open e-business experiences, so that perceived costs can lead MSMEs to operate e-business. Therefore, perceived risk and perceived cost need to be added as further external factors in fulfilling the process of using e-business technology for MSMEs to support the business activities they build. The proposed model is the basis for the development of future research propositions so that it can test the determinants of the use of e-business by SMEs.

In addition to the technology acceptance process described by TAM, research on the acceptance of e-business technology at MSMEs has been carried out. Previous research has used the limited

domain to one type only and has applied it for their business interests, such as marketing using social media and increasing sales using e-commerce but not supporting other aspects [23], [24]. In addition, a small number of studies provide acceptance of technology services for MSMEs in supporting their business activities, such as peer-to-peer financial services [25]. According to [22], the Technology Acceptance Model is only adhered to by MSME owners, so the decision to use technology is under the authority of the business owner. Given that there is still a gap in the literature that has been done, this study helps MSME owners accept the conditions of e-business technology to the complexity of aspects of their business needs and analyze external factors that influence it. The proposed model is a basis for developing future research propositions, to determinants of the usage of the e-business system in MSMEs.

2. Related Work and Model Development

2.1. Research Model Development for Extended TAM

Expanded TAM-related research has been carried out by [18] to provide research on the analysis of learning technology for physical education students during Covid-19 to predict the factors that influence the use of e-learning. The study was conducted on 974 students. The use of TAM is expanded by including the external variable Facilitating conditions, as shown in Figure 1. The results are (1) this expanded TAM can explain the factors that influence physical education students to use e-learning during covid-19; (2) It has been found a relationship between Facilitating conditions on Perceived ease of use and Perceived of use; and; (3) Shows a significant relationship to all variables except the attitude component.

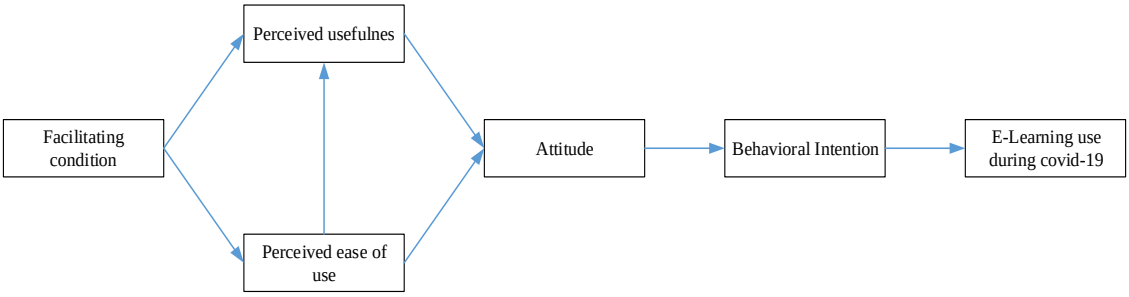

Figure 1 Research developed by Sukendro et al. (2020) in analyzing the use of e-learning

2.2. Research Model Development for Refined TAM

The model for Refined TAM has been developed by Schmidthuber et al. (2020). In ensuring that mobile payments are commercial transactions without cash or cards, some factors influence the intention to use the technology. This study holds eight variables with six hypotheses of the independent and 12 hypotheses of the dependent variables. Research conducted on respondents from the age of 14 to or with older respondents shows that payment services are positively

influenced by Perceived usefulness, Perceived Compatibility, Perceived Personal innovativeness, and Perceived Social Influences. However, it is negatively affected by perceived risk because it is influenced by the variable perceived cost and perceived risk to make the hypothesis inversely proportional. Figure 2 shows the research model developed by the researcher.

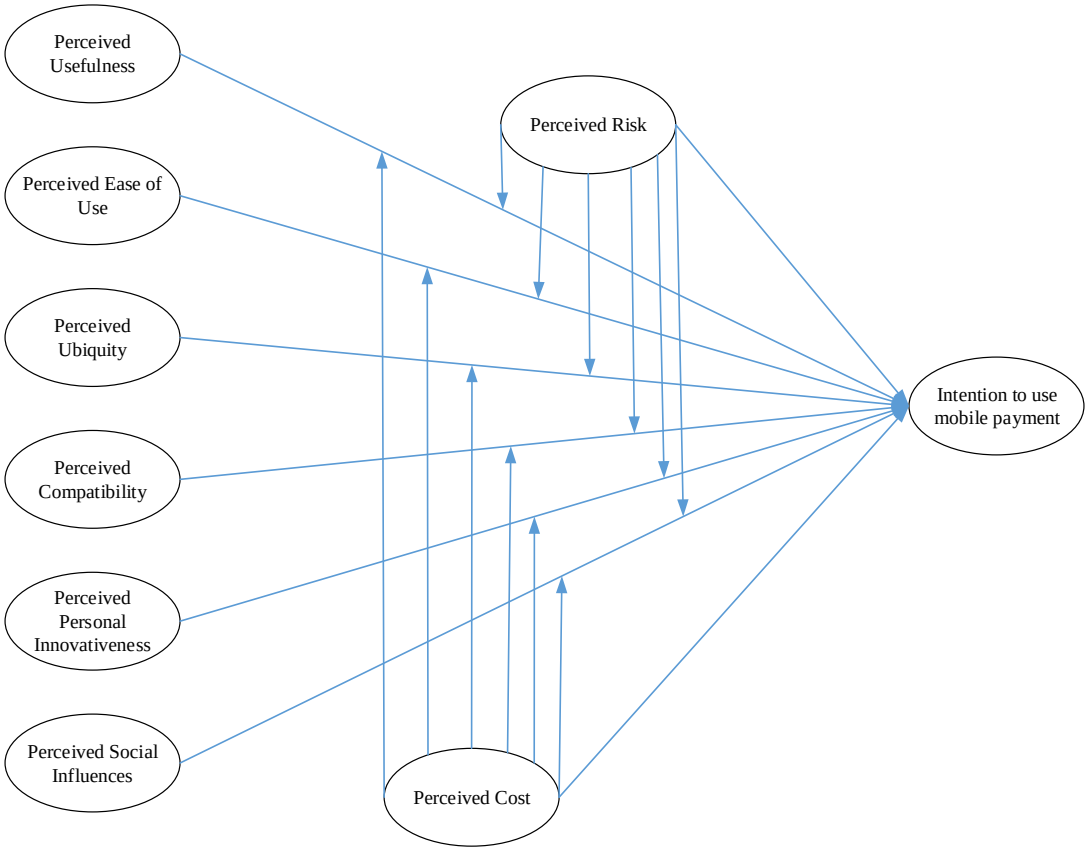

Figure 2 The research model that has been developed by Schmidthuber et al. (2020) against mobile payment

2.3. Research Model Development by Author

The conceptual model on the acceptance of e-business technology for MSMEs can be obtained from Refined TAM by [19] and Extended TAM by [18]. In general, the concept of adopting and extending TAM is used in analyzing external factors for three main reasons, including helping to understand the perspective of E-business users, previous research being carried out on different domains or objects, and understanding the influence of external variables on the dependent variable. Refined and extended TAM variables can be used to analyze the e-business technology acceptance process, as shown in Figure 3 as a result of TAM modification. The adoption of this variable is carried out to provide a new perspective on the use of e-business for MSMEs. The following will describe the process of model building and research hypotheses.

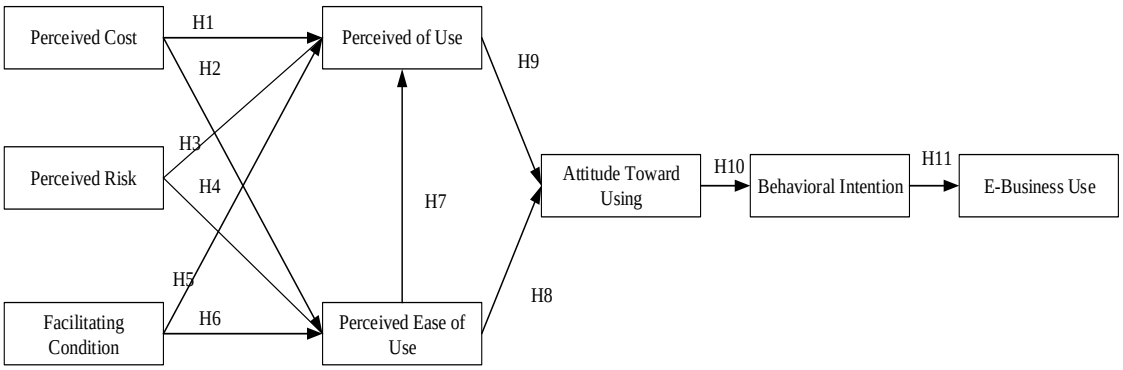

Figure 3 The research model was modified by the author by combining the two previous research models

Perceived cost can be used as a substantial variable because someone who adopts technology can not ignore the costs. The general cost hypothesis is negative with the intended use, reducing their intention and desire to adopt new technology. Generally, users need to bear some costs such as communication costs and transaction costs [19]. In addition, cost refers to the price value, which is the consumer's cognitive trade-off between the perceived benefits of using a service cell phone and the monetary cost of using the service [20]. Therefore, Research related to the effect of the perceived cost was carried out by [19] and proves that Perceived cost has a significant negative relationship to Perceived Usefulness and Perceived ease of use. Therefore, the proposed hypothesis is as follows.

H1: Perceived cost has a significant negative effect on the perceived use
H2: Perceived cost has a significant negative effect on Perceived Ease of use

Perceived risk is a person's perception if he decides to take any action or activity [19]. In addition, the perceived risk lies in a person's perception of the potential outcome of action due to the degree of uncertainty in a particular behavior. The reason is, someone wants to reduce losses when making decisions in risky situations, which can be achieved through certain actions [20]. Therefore, in this study, risk perception is defined as the user's perception of what will happen to MSMEs after using e-business to avoid losses as much as possible in risky situations. Perceived risk is the same as a Perceived cost which provides a negative hypothesis regarding use. This has an impact on reducing the intention and desire to use technology. Research related to perceived risk has been conducted by [19] and provides evidence that perceived risk has a significant negative effect on perceived ease of use and perceived use. The hypothesis that we propose in this study is as follows.

H3: Perceived risk has a significant negative effect on the perceived use
H4: Perceived risk has a significant negative effect on Perceived Ease of Use

Facilitating condition is defined as the existence of adequate organizational and technical infrastructure to support users in adopting new technologies by combining three basic constructs: perceived behavior, control, facilitation conditions, and compatibility [18]. In addition, Facilitating condition (FC) refers to the availability of technological resources and technical infrastructure. Several studies have examined the impact of facilitation conditions on consumers' perceived ease of use [20]. While [26] defines Facilitating conditions as perceptions owned by users of the available resources and support to spur accustomed to using technology. In connection with this, in this study, Facilitating conditions are defined as the availability of technological resources and technical infrastructure to support the smooth running of and accustomed to using e-business for its business. Previous research has discussed that Facilitating conditions have a positive influence on Perceived use and Perceived ease of use [18]. So, this research collects the following hypotheses.

H5: Facilitating conditions have a significant positive effect on Perceived use
H6: Facilitating condition has a significant positive effect on Perceived Ease of Use

Perceived ease of use is the level of trust in someone's technology when using technology it will be easy to be free from effort [27]. In another study, Perceived ease of use is defined as the extent to which people believe when using a system or technology, free from physical and mental effort [28]. While [18] defines Perceived ease of use as a person's level of trust when using technology. This study describes Perceived ease of use as the level of belief that a person will be free from physical and mental burdens when using e-business. Refer to research [18] which proves that Perceived ease of use has a significant positive effect on Perceived of Use and Attitude. Then, a study from [29] states that perceived ease of use has a positive relationship to perceived usefulness and attitude toward using. Therefore, the hypothesis built in this study is as follows.

H7: Perceived ease of use has a significant positive effect on Perceived use
H8: Perceived ease of use has a significant positive effect on Attitude toward using

Perceived use refers to the degree to which a person believes that the use of technology will improve work performance [27]. Research shows perceived use is defined as a person's level of belief about overall job performance that can be improved with a particular system or technology [28]. This study can be defined as a person's level of confidence in using e-business technology to improve overall job performance. Research from [29] showed that perceived ease of using caller tones for treatment had a positive relationship with perceived use. Then it is proved again by [18] that there is a significant positive relationship between Perceived use and Attitude. While research from [30] shows that Perceived use has a significant positive relationship to Attitudes towards the use of Embodied Games. This study reveals the following hypothesis.

H9: Perceived use has a significant positive effect on Attitude toward using.

Attitude refers to the level of evaluative effects associated with individuals using the target system in their work [27]. Then, Attitude can also be defined as a particular behavior while using a technology [18]. This study represents an Attitude toward using certain behaviors based on an evaluative approach to e-business technology. Refers to research [18] that shows that Attitude has a significant positive relationship to Behavioral intention. This study follows the following hypothesis.

H10: Attitude toward using has a significant positive effect on behavior intention.

In addition, behavioral intention (the degree to which people commit or not commit to a particular future behavior) to use the system can be predicted by attitudes and perceived usefulness [27]. According to [18], behavioral intention is defined as the intention associated with using the system. Therefore, behavioral intention can be defined as the extent of behavioral intention to adopt e-business. Referring to research [18] which proves that Behavioral Intention has a positive effect on the use of e-learning, the proposed hypothesis is as follows.

H11: Behavioral intention has a significant positive effect on E-business use.

3. Method and Discussion

This preliminary study was used to construct a modified TAM. Next, the hypothesis will be tested empirically. The literature in previous studies was used to help operationalize the model. The measured variables and indicators are specified in table 1 to provide measurements that can be tested on respondents. The data collection process will be carried out using an online questionnaire survey method using Google Forms. Partial Least Square is used to process the quantitative data that has been obtained. Quantitative data and used to conclude the research results. purposive sampling is used to collect respondent data with inclusive criteria where the sample to be selected has been considered.

This research aims to modify TAM for e-business users, especially in MSMEs, and analyze the factors influencing the technology adoption process. However, as discussed in model development, three external variables were added: perceived cost, perceived risk, and facilitating conditions. We want to get information and a better understanding of these variables in the technological process that can be adopted. This research will focus on the modification of TAM by MSME owners who join the local Cooperatives and UMKM Office and already own a business. In this study, empirical data will be collected from business owners who work in groups that have used e-business, be it social media, e-commerce, website, ERP, or other recommended e-business. But it is not mandatory to use any type of e-business. We use MSME owners because the decision to use technology is placed on the owner. They understand the conditions of the MSMEs being led, making it easier for us to know the process of acceptance

of this technology. The findings, for the future, can be used by e-business developers to evaluate at the end-user level. As for the organization, it can be used by the local government to develop the potential of e-business to MSMEs optimally. The filling is done by providing a level of approval for statements or questions from 1 - 5 according to the Likert scale. 1 is Strongly Disagree (SD), 2 is Disagree (D), 3 is Sufficiently Agree (SA), 4 is Agree (A), and 5 is Strongly Agree (SA). Table 1 shows item measurements for the following research.

Table 1. Measurement item which had to develop by previous studies

No.	Variables	Item Measurement	Source
1.	Perceived cost	Equipment costs for using e-business are expensive	[19], [30]
		Access fees using e-business are expensive	
		Transaction fees using e-business are expensive	
		I feel burdened for using e-business	
2.	Perceived risk	I feel uncomfortable providing personal information via an e-business system	[19]
		I am worried about using the e-business because other people can access my account	
		I feel unsafe sending sensitive information across the e-business	
		I believe that the overall risk of an electronic business system is high	
		The security built into the e-business system is not strong enough to protect my finances	
		Using an e-business system puts my account at financial risk	
3.	Facilitating condition	Someone will help me when I need help using e-business	[18], [20]
		Someone will teach me when I need help using e-business	
		I have the resources necessary for e-business technology	

No.	Variables	Item Measurement	Source
		I feel it is suitable to use e-business for the business that I am working on	
4.	Perceived ease of use	Using e-business will improve my business performance	[18]
		E-business technology will increase the effectiveness of my business	
		E-business technology will increase my business productivity	
		The e-business technology will be of use to me	
5.	Perceived of use	The business will be easy when using e-business	[18]
		The use of e-business technology is clear and easy to understand	
		The use of e-business technology is flexible in interacting	
		Easy to understand using e-business technology	
6.	Attitude toward using	Using e-business technology is a good idea	[18]
		I think using e-business is a trend	
		The e-business technology will be compatible with the smart devices I use	
7.	Behavioral intention	I will use e-business while running my business	[18], [31]
		I will use e-business in the future	
		I plan to use e-business in the future	
		I would recommend using e-business in the future	
8.	E-Business use	E-Business can communicate with customers or my business partners	[22]

No.	Variables	Item Measurement	Source
		E-Business can serve customers	
		E-Business can manage finances	
		E-Business can manage human resources	
		E-Business can manage marketing	
		E-Business can receive or process orders or sales of goods or services	
		E-Business can plan or produce goods or services	
		E-Business can manage inventory	
		E-Business can combine systems (ERP, E-SCM, and so on)	

Questions in a survey can be expressed as closed questions. Statistical methods used: factor analysis, outer loading test, Cronbach Alpha test, and path analysis. The required significance level is 5% and this is used as the threshold for testing the research proportion.

The sample used is 100 SMEs in Indonesia. This number of samples is a stratified sample. The sample size required is 100 MSMEs and allows the research to form three levels according to the size of MSMEs, including 40 micro-enterprises, 30 small enterprises, and 30 medium enterprises. Supervision will be carried out on MSME owners from various MSMEs. The intended MSME owners have used at least one type of e-business.

4. Conclusion and Future Research

The proposed model has a contribution. First, the factors that affect the acceptance of e-business in MSMEs, which apply and use several types of e-business, or all scientific literature for research in the field of e-business technology. The technology acceptance model will review the areas of perceived risk, perceived cost, and facilitating conditions. The proposed test will add value to previous research using the TAM approach. Second, the intensity of the use of e-business will be used by MSMEs in Indonesia, thus describing the state of the use of e-business by MSMEs. The findings and results have a practical future for the technical team of e-business providers and developers as well as organizations such as the local Cooperatives and MSMEs Office so that end-user perspectives can be known about the use of e-business technology and the strategies implemented by technology. According to the definition of e-business, the study can also have future planning and design solutions for e-business towards the determination of e-business users in MSMEs.

REFERENCES

[1] C. Combe, *Introduction to e-Business Management*, First. Burlington, 2012.

[2] M. A. Anshar, "PENERAPAN SISTEM INFORMASI E-BUSINESS DI INDONESIA : Prospek dan Tantangan," *J. Dakwah Tabligh*, 2015.

[3] A. Fauzi and Y. Handoko, "Analisa dan Perancangan Model Umum Enterprise Architecture untuk E-Business Usaha Mikro Kecil dan Menengah (UMKM) dengan Menggunakan Framework TOGAF ADM," *J. Tata Kelola dan Kerangka Kerja Teknol. Inf.*, 2018, doi: 10.34010/jtk3ti.v4i1.1392.

[4] A. Setiawan and L. H. Sulistiowati, "PENERAPAN MODIFIKASI TECHNOLOGY ACCEPTANCE MODEL (TAM) DALAM E-BUSINESS," *J. Manaj. dan Pemasar. Jasa*, 2018, doi: 10.25105/jmpj.v10i2.2277.

[5] Y. D. Handarkho, T. R. Suryanto, F. K. S. Dewi, and E. Julianto, "Penerapan Strategi E-business Untuk Meningkatkan Keunggulan Kompetitif dari Usaha Mikro Kecil Menengah di Indonesia (Studi kasus Trooper Electronic Yogyakarta)," *J. Buana Inform.*, 2017, doi: 10.24002/jbi.v8i4.1444.

[6] A. P. Thahir, Y. Rohayati, and A. F. Hadining, "Seaweed Dodol Of Aulia Sari Small Medium Enterprise Product Quality Improvement Using Kano Model And Product Quality Dimension Integration," *proceedings Eng.*, 2015.

[7] S. S. Abed, "Social commerce adoption using TOE framework: An empirical investigation of Saudi Arabian SMEs," *Int. J. Inf. Manage.*, 2020, doi: 10.1016/j.ijinfomgt.2020.102118.

[8] D. Djamaludin, A. Aviasti, and O. Rukmana, "PENINGKATAN KEMAMPUAN USAHA KECIL MENENGAH DI WILAYAH BANDUNG RAYA DALAM PEMANFAAATAN INTERNET SEBAGAI SARANA PEMASARAN DAN PERLUASAN JANGKAUAN PASAR," *ETHOS (Jurnal Penelit. dan Pengabdian)*, 2016, doi: 10.29313/ethos.v0i0.1682.

[9] S. Lestari, "Analisis Usability Web (Studi Kasus Website Umkm Binaan Bppku Kadin Kota Bandung)," *J. Ilm. Teknol. Inf. Terap.*, 2014.

[10] A. F. Hadining, E. I. Sari, and K. Kusnadi, "Analisis Kategori Iklan Berbasis Facebook Ads untuk UKM," *JTERA (Jurnal Teknol. Rekayasa)*, 2019, doi: 10.31544/jtera.v4.i1.2019.41-46.

[11] R. J. NAIMAH, M. W. WARDHANA, R. HARYANTO, and A. PEBRIANTO, "Penerapan Digital marketing Sebagai Strategi Pemasaran UMKM," *J. IMPACT Implement. Action*, 2020, doi: 10.31961/impact.v2i2.844.

[12] A. Kala'lembang, "Adopsi E-Commerce Dalam Mendukung Perkembangan Usaha Mikro Kecil Dan Menengah (UMKM) Di Masa Pandemi Covid-19," *Cap. J. Ekon. dan Manaj.*, 2020, doi: 10.25273/capital.v4i1.7358.

[13] W. laura Hardilawati, "Strategi Bertahan UMKM di Tengah Pandemi Covid-19," *J. Akunt. dan Ekon.*, 2020, doi: 10.37859/jae.v10i1.1934.

[14] S. Natanael, "PERENCANAAN BISNIS ERPIN.BIZ SEBAGAI APLIKASI ERP FINANCIAL BERBASIS CLOUD COMPUTING UNTUK USAHA MIKRO, KECIL DAN MENENGAH," *Infotech J. Technol. Inf.*, 2019, doi: 10.37365/it.v4i2.18.

[15] K. S. Al-Omoush, V. Simón-Moya, and J. Sendra-García, "The impact of social capital

and collaborative knowledge creation on e-business proactiveness and organizational agility in responding to the COVID-19 crisis," *J. Innov. Knowl.*, 2020, DOI: 10.1016/j.jik.2020.10.002.

[16] R. Piarna and F. Fathurohman, "ADOPSI E-COMMERCE PADA UMKM DI KOTA SUBANG MENGGUNAKAN MODEL UTAUT," *J. Ilm. Ilmu dan Teknol. Rekayasa*, 2019, doi: 10.31962/jiitr.v2i1.13.

[17] R. A. Hendrawan, E. Suryani, M. Er, M. Mudjahidin, and A. P. Aristio, "Penerapan Modul Penjualan Sistem ERP dan Pemasaran Daring pada UMKM UD. Sukri Dana Abadi dan Starlight Shop," *SEWAGATI*, 2020, doi: 10.12962/j26139960.v4i1.6393.

[18] S. Sukendro *et al.*, "Using an extended Technology Acceptance Model to understand students' use of e-learning during Covid-19: Indonesian sports science education context," *Heliyon*, 2020, DOI: 10.1016/j.heliyon.2020.e05410.

[19] L. Schmidthuber, D. Maresch, and M. Ginner, "Disruptive technologies and abundance in the service sector - toward a refined technology acceptance model," *Technol. Forecast. Soc. Change*, 2020, DOI: 10.1016/j.techfore.2018.06.017.

[20] W. Ben Arfi, I. Ben Nasr, T. Khvatova, and Y. Ben Zaied, "Understanding acceptance of eHealthcare by IoT natives and IoT immigrants: An integrated model of UTAUT, perceived risk, and financial cost," *Technol. Forecast. Soc. Change*, 2021, DOI: 10.1016/j.techfore.2020.120437.

[21] S. Wang, J. Wang, J. Li, J. Wang, and L. Liang, "Policy implications for promoting the adoption of electric vehicles: Do consumer's knowledge, perceived risk and financial incentive policy matter?," *Transp. Res. Part A Policy Pract.*, 2018, DOI: 10.1016/j.tra.2018.08.014.

[22] P. O. Hadi Putra and H. B. Santoso, "Contextual factors and performance impact of e-business use in Indonesian small and medium enterprises (SMEs)," *Heliyon*, 2020, DOI: 10.1016/j.heliyon.2020.e03568.

[23] I. Salamah and Dkk, "Model Penerimaan Teknologi E-Commerce UMKM Kain Tenun Songket Kota Palembang," *Annu. Res. Semin.*, 2017.

[24] A. Trihandayani and L. A. Abdillah, "Analisis Penerimaan Pengguna dalam Memanfaatkan Media Sosial Terhadap Usaha Kecil Menengah Menggunakan Metode Technology Acceptance Model (TAM)," *Bina Darma Conf. Comput. Sci.*, 2019.

[25] T. A. Kurniawan, D. K. Wardani, and L. Widhayati, "PENGARUH KEBERTERIMAAN LAYANAN PEER TO PEER LENDING KEPADA UMKM SEBAGAI PENGGUNA DENGAN MENGGUNAKAN METODE TECHNOLOGY ACCEPTANCE MODEL (TAM)," *J. Sos. Ekon. DAN Hum.*, 2019, doi: 10.29303/jseh.v5i2.59.

[26] P. K. Chopdar, N. Korfiatis, V. J. Sivakumar, and M. D. Lytras, "Mobile shopping apps adoption and perceived risks: A cross-country perspective utilizing the Unified Theory of Acceptance and Use of Technology," *Comput. Human Behav.*, 2018, DOI: 10.1016/j.chb.2018.04.017.

[27] F. D. Davis, R. P. Bagozzi, and P. R. Warshaw, "User acceptance of computer technology: A comparison of two," *Manage. Sci.*, 1989.

[28] L. Yang, Y. Bian, X. Zhao, X. Liu, and X. Yao, "Drivers' acceptance of mobile navigation applications: An extended technology acceptance model considering drivers' sense of direction, navigation application affinity and distraction perception," *Int. J.*

Hum. Comput. Stud., 2021, DOI: 10.1016/j.ijhcs.2020.102507.

[29] B. Appiah, I. A. Kretchy, A. Yoshikawa, L. Asamoah-Akuoko, and C. R. France, "Perceptions of a mobile phone-based approach to promote medication adherence: A cross-sectional application of the technology acceptance model," *Explore. Res. Clin. Soc. Pharm.*, 2021, DOI: 10.1016/j.rcsop.2021.100005.

[30] Z. Dulcic, D. Pavlic, and I. Silic, "Evaluating the Intended Use of Decision Support System (DSS) by Applying Technology Acceptance Model (TAM) in Business Organizations in Croatia," *Procedia - Soc. Behav. Sci.*, 2012, DOI: 10.1016/j.sbspro.2012.09.1143.

[31] H. Rafique, A. O. Almagrabi, A. Shamim, F. Anwar, and A. K. Bashir, "Investigating the Acceptance of Mobile Library Applications with an Extended Technology Acceptance Model (TAM)," *Comput. Educ.*, 2020, doi: 10.1016/j.compedu.2019.103732.