The Resistance to Adopting Online Marketplace: The Influence of Perceived Risk and Behavioral Control of Small and Medium Enterprises in Indonesia

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***Abstract*—To date, the number of e-commerce applications in Indonesia keeps increasing. However, the adoption rate amongst Small and Medium Enterprises (SMEs) is still around 13%. Thus, the research aims to analyze the factors that affect small and medium enterprises' resistance to adopting online marketplaces in Indonesia by applying the technological-organizational-environmental framework, the diffusion of innovations theory, and the innovation resistance model. The respondents are 356 owners of SMEs in Indonesia who have sold their products online through social media or marketplace. The research applies a quantitative approach using an online questionnaire and interview. Then, the covariance-based structural equation modeling method is applied to analyze the data. In addition, the research interviews five SME representatives to gain further understanding and information for the rejected hypothesis. The results show that perceived complexity, owners' self-efficacy, and enabling conditions are proven to affect perceived behavioral control. Perceived complexity is also shown to affect perceived risk. On the other hand, government support does not affect perceived behavioral control. It is also found that perceived risk and behavioral control affect resistance to adopting online marketplaces. The findings provide recommendations to overcome this situation, such as the simplification of online marketplace features for sellers and improvements in the digital literacy of the owners of SMEs.**

***Index Terms*—Online marketplace, Perceived Risk, Behavioral Control, Small and Medium Enterprises**

I. Introduction

SMALL and Medium Enterprises (SMEs) are independent companies that are not subsidiaries of other companies. They do not employ more than a specified quantity of employees [1]. Even though the standards for the number of SME employees vary from country to country, fundamentally, SMEs play an essential role in terms of a country's employment by contributing as much as 50% in developing countries [2]. Besides the employment rate, SMEs are crucial in supporting economic growth and innovation [3]. On average, more than 90% of private-sector businesses in developing countries are categorized as SMEs, and 67% of the total number of registered SMEs are from developing countries [2]. Indonesia, as a developing country, is also dominated by SMEs. Referring to the 2019 annual report of the Ministry of Cooperatives and Small and Medium Enterprises (Kementerian Koperasi dan Usaha Kecil dan Menengah (UKM)), 61% of Indonesia's gross domestic products, which is equivalent to Rp9.58 million, come from SMEs [4].

On the other hand, only 13% of 65 million SMEs have already adopted e-commerce [5]. To date, there are 138.1 million e-commerce users in Indonesia. It is also claimed that e-commerce users will grow to 221 million in 2025 [6]. Such rapid growth has also been observed, with an estimated 12 million new users coming on board since the start of the COVID-19 pandemic [7]. However, based on the Central Bureau of Statistics (Badan Pusat Statistik (BPS)), 80% or 8 out of 10 businesses are experiencing a decline in revenue during the pandemic [8]. National Development Planning Agency also states that the digitalization of SMEs is necessary for them to survive the COVID-19 pandemic [9].

To date, Indonesia's e-commerce market is still dominated by online marketplaces. They contribute Rp5 billion to Rp8 billion of the gross merchandise value in Indonesia's e-commerce. Meanwhile, the remaining Rp3 billion comes from social commerce, such as

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Instagram, Facebook, and WhatsApp [10]. Moreover, data show that the six most popular e-commerce platforms in Indonesia are Blibli, Bukalapak, JD.id, Lazada, Shopee, and Tokopedia [11].

Several previous studies have raised the topic of barrier factors in SMEs' e-commerce adoption [12–14]. The previous researchers have developed a research model based on the technological-organizational-environmental (TOE) framework, the innovation resistance model, and the diffusion of innovation (DOI) theory to investigate factors that hinder the adoption of e-commerce in SMEs. However, it is limited to Palestinian SMEs [12]. Hence, some factors are irrelevant when considering its adoption by Indonesian SMEs at this moment, such as government instability, perceived loss, occupational restriction, and logistics obstacle, which will be further elaborated. Furthermore, an analysis of Iranian SMEs' resistance to business-to-business (B2B) adoption is also conducted [15]. All these studies on barrier factors amongst respective SMEs samples are carried out in different countries with varying results. Despite the differing factors, it is worth noting that resistance to adopting e-commerce continues to be a recurring theme with SMEs in many countries. The results found in one country cannot be generalized to other countries since the characteristics and the e-commerce penetration levels may differ [16]. Correspondingly, Indonesia, with a considerably large number of SMEs with an even larger number of markets, should be researched to provide a deeper understanding of what actions can be done to raise the adoption of the online marketplace from the perspective of resistance. Then, in turn, it can push the market potential to the fullest.

In the research, the factors used refer to the Technological-Organizational-Environmental (TOE) framework and the Diffusion of Innovations (DOI) theory. The TOE framework consists of three groups of factors (technological, organizational, and environmental) that explain how a company's circumstances can affect the adoption and implementation of an innovation [17]. Those are also said to have a strong theoretical foundation, which is empirically supported by many fields [18, 19]. The TOE framework is integrated with the DOI theory to gain a comprehensive view of an organization's adoption of e-commerce [12, 20]. This statement aligns with previous researchers who state that integrating the TOE framework and the DOI theory is useful for elaborating the adoption of technology usage in general. It can also be explicitly applied to the e-commerce industry [21]. Therefore, with the research problem context explained before relating to the usage of e-commerce, the integration of TOE and DOI can facilitate the researchers to understand the samples' behavior that is better for Indonesian SMEs and dissects from three aspects (technological, organizational, and environmental). It is expected that the research can specifically addresses factors needed to provide an adequate environment for Indonesian SMEs to adopt online marketplaces. Concerning the three groups of factors included in the framework, the perception of risk and the degree of belief related to the adoption of online marketplaces are obtained. In the end, the factors are analyzed in terms of their relationship with the resistance to adopting online marketplaces in Indonesian SMEs from the point of view of the innovation resistance model [12]. The last-mentioned theory serves as an essential element to the research, which attempts to understand the adoption behavior of Indonesian SMEs, like why most of them are still not implementing online selling through the online marketplace. Further explanation of applied theories can be found in the next section. Based on the explanation, the research formulates the problem regarding which factors affect the resistance to online marketplace adoption amongst Indonesian SMEs.

Aside from the fact that online marketplaces dominate the e-commerce market in Indonesia, the research also focuses on such marketplaces by considering the Indonesian government's target of becoming a middle-income country by the year 2025 [3]. Social commerce is a less significant contributor to sellers' productivity (in this case of SMEs) because the orders, including payment and delivery, are processed manually [10]. The customer experience is notably lower for the same reason [10]. So, the research focuses on online marketplaces as a form of e-commerce that is mainly used in Indonesia and has enormous potential to increase the productivity of the SMEs that adopt them.

The research aims to find factors that can be specifically applied to the case study of Indonesian SMEs to learn the phenomenon behind the seemingly low adoption rate of e-commerce. Specifically, the research explores the act of resisting online marketplace technology amongst them by comparing the numbers of SMEs that have adopted online marketplaces with the total number of Indonesian SMEs. Moreover, the research fills the gap by focusing on resistance factors in online marketplace adoption amongst business-to-consumer (B2C) and consumer-to-consumer (C2C) SMEs in Indonesia. The focus on resistance also hopes to explain actions that can be taken to increase the adoption of online marketplaces amongst Indonesian SMEs. The results are expected to drive initiatives

in getting more SMEs to participate in online selling through an online marketplace. Eventually, the research is also expected to help SMEs to gain more productivity [10] and maintain their business in the ever-growing digitalized Indonesian market [6, 7] through the proven factors.

II. Literature Review

A. The Technological-Organizational-Environmental (TOE) Framework

The TOE framework represents the adoption and implementation of an organizational innovation that focuses on three factors: the technology, organization, and environment of the organization in question [17]. Technological factors include the factors affecting a technology or another relevant technology that has been used or not. Meanwhile, organizational factors refer to the internal aspects of the organization, and environmental factors represent external things to the organization [17, 21]. The TOE framework has been implemented by previous studies to learn about factors affecting adoption and implementation in an organization. It is used in the context of business intelligence adoption in SMEs [22, 23]. Other previous studies also use it in the context of cloud computing adoption [24–26]. On the other hand, several previous studies have used the TOE framework in the context of enterprise resource planning system in an organization [27, 28] and in the context of online commerce in general [19, 29–31].

B. The Diffusion of Innovations (DOI) Theory

The DOI theory explains how innovation is communicated in a social system [18, 32]. This theory enhances the understanding of how technology can encourage changes [33] by elaborating the diffusion process of new technology to a group of people [34]. Specifically, the DOI theory can describe the adoption and implementation process of new technology in an organization [18, 32]. According to [18, 31], the DOI theory, along with the TOE framework, is the most frequently used research model for technology information adoption studies at the organizational level. Following [21, 35], the DOI theory is also popular when researching e-commerce adoption. Many studies have proved it within this context, where researchers have applied the DOI theory to a variety of demographics, such as in Thailand [36], Malaysia [37], Ghana [38], and New Zealand [39].

C. The Innovation Resistance Model (IRM)

Ram and Sheth developed the IRM in 1989 to understand users' resistance behavior towards an innovation [40]. Resistance towards innovation has several definitions. It is defined as behavior resulting from consideration and decision-making regarding the related innovation, triggered by the possibility of change [40]. On the other hand, it can be resistance to innovation by a user's reaction towards a new product or a product that has been developed for some time [41].

Resistance to innovation is split into two types: active and passive resistance [42]. Active resistance tends to happen when the users have completed the evaluation phase after using an innovation [43]. Meanwhile, passive resistance happens before the users have even undergone the evaluation phase [43]. In research about online commerce, such as e-commerce, mobile commerce (m-commerce), and social commerce, active resistance has been applied to explain the resistance that occurs [43]. Active resistance is the appropriate type to use in the research since e-commerce is not a novel concept anymore amongst Indonesians. It is noted that more than 77% of Indonesians falling within the age range of 16–64 years old have admitted to buying or using an online product or service [44]. So, it can be assumed that most Indonesian people have completed an evaluation phase of e-commerce innovation.

D. Research Hypotheses

Based on [12, 38, 45, 46], as many as seven factors are chosen for the research. These factors include perceived complexity, owners' self-efficacy, government support, enabling conditions, perceived risk, perceived behavioral control, and resistance to adopting online marketplaces. The proposed model can be seen in Fig. 1.

In the research, perceived complexity is defined as an SME owner's perception of whether an innovation is difficult to understand or use [12, 47–49]. The complexity of technology has been proven to affect the related technology adoption by various studies. For example, complexity affects the adoption of mobile reservation systems [50]. It is even claimed that complexity is a barrier factor that negatively affects the adoption of smart services [51]. There is also a similar finding in the context of blockchain-based loan system adoption [52]. The research adopts perceived complexity as one of its factors based on the previous researchers [12, 47–49], who have adopted perceived complexity in the context of e-commerce adoption and included developing countries in their demographic studies, namely Vietnam, South Africa, Palestine, and Egypt. Since the research focuses on SME owners in Indonesia, perceived complexity is also considered to be relevant in this developing country context. The first hypothesis is as follows.

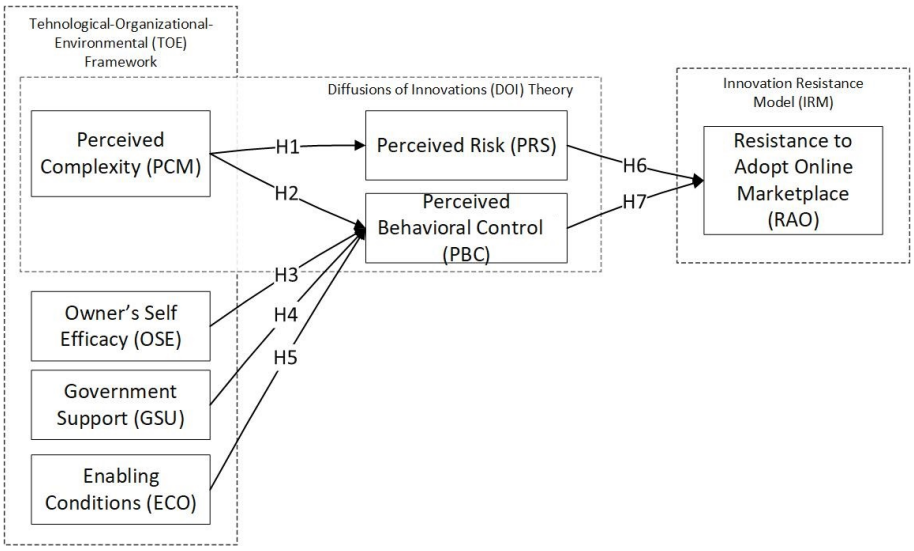

Fig. 1. Research model.

H1: Perceived complexity (PCM) significantly influences perceived risk (PRS).

Besides the relationship of perceived complexity and perceived risk, perceived complexity also influences SME owners' beliefs regarding factors around them that can affect the adoption of e-commerce [12]. Perceived complexity is also observed as a factor that prevents perceived behavioral control, which is decided by the availability of the ability and resources needed to adopt technology in an organization [53]. The more complex a technology is, the more resistance can be observed due to the low ability to utilize the said technology [54]. It is also argued that technology that is perceived as easier to use will be adopted faster compared to the technology that demands its users to learn certain abilities beforehand. Thus, if technology is difficult to understand, it will lead to an even longer adoption process [32]. Based on this elaboration, the following hypothesis is suggested.

H2: Perceived complexity (PCM) significantly influences perceived behavioral control (PBC).

Owners' self-efficacy is the ability of SME owners to use online marketplaces. Self-efficacy has been adopted and applied in information system studies [55]. A study based in Nigeria also applies self-efficacy to predict the current and future usage of mobile payments [56]. Similarly, self-efficacy predicts the intention to use e-government in Ghana [57]. Taking the role of owner or manager (for bigger companies) into account is suggested for studies relating to SMEs [58]. The importance of the roles of owner and manager in an SME also encourages innovation since they are the ones that understand the organization's characteristics and how the business is run [59]. In the research, the influence of the owner's self-efficacy on the resistance to adopting online marketplaces will be measured indirectly through the mediator of perceived behavioral control. Conceptually, these two factors are similar. However, their difference resides in how they are assessed [60]. If self-efficacy focuses on an individuals' assessment and relates to how possible it is to overcome the obstacles elicited from performing a behavior, perceived behavioral control focuses on an individuals' assessment to what extent they have the behavior under control. Several studies have also measured self-efficacy's effect on perceived behavioral control and verified that there is indeed a relationship between them [61–63]. Therefore, the following hypothesis is proposed.

H3: Owners' self-efficacy (OSE) significantly influences perceived behavioral control (PBC).

Government support ranges from infrastructure to policy initiated by the government relating to online marketplace diffusion amongst SMEs. The support can come in the form of regulations, financial aid, and technology and infrastructure development [20]. The degree of support given by the government can motivate an SME's decision to adopt a technology. Moreover, government support can influence this decision positively (acceptance) or negatively (opposition) [64]. In Indonesia, the government has

used various methods to encourage the adoption of e-commerce in SMEs. These consist of initiatives ranging from direct training through a web portal to collaborating with well-known online marketplace platforms in Indonesia. The research correlates government support with perceived behavioral control. Individual perception of a behavior can be measured based on the degree of support [65]. Moreover, an individual's perception of whether a behavior is possible or impossible to execute is influenced strongly by an appropriate amount of support from the related government [66]. Hence, the fourth hypothesis is proposed.

H4: Government support (GSU) significantly influences perceived behavioral control (PBC).

Enabling conditions are defined as the institutional and technical infrastructure supporting SME owners' online marketplace adoption. In this context, the infrastructures can be in the form of financial aid, technology, information technology, or other resources related to the technology [67, 68]. Enabling conditions serve as one of the factors that influence users' perceptions of a technology [69]. In the context of e-commerce, it is claimed that an adequate amount of infrastructure may influence users' comprehension when utilizing social commerce to support an SME's business process [70]. The adoption of e-commerce by Indonesian SMEs is still dominated by social commerce, and as much as 80% are attributed to the use of WhatsApp and Instagram [71]. Consequently, the research wants to test how significant the influence of the available support to SMEs is in the context of online marketplaces, specifically from the perspective of resistance because SMEs still mainly use social commerce for their online selling media. Enabling conditions are linked to perceived behavioral control in the research. It is based on several research findings that besides self-efficacy, enabling conditions are another factor that can influence perceived behavioral control [63, 68, 72]. Therefore, the fifth hypothesis is proposed.

H5: Enabling conditions (ECO) significantly influence perceived behavioral control (PBC).

Perceived risk refers to SME owners' worries concerning the adoption of online marketplaces. Perceived risk is applied to represent the evaluation process regarding whether to adopt a technology or not [45]. When the idea of using technology comes with perceived risk, the resistance to adopting will increase [73]. In contrast, if the perceived risk reduces, accordingly, how a user reacts to the technology will be affected significantly [74]. Therefore, previous studies tend to assess perceived risk as a factor that can hinder the adoption process of technology, and e-commerce is no exception [34, 38, 47, 75–77]. Generally speaking, development or change is riskier for an SME since its capability is still not at the same level as bigger companies [78]. On that account, the research proposes verifying the relationship between the risk that may be elicited from using online marketplaces by SMEs and the related resistance. Perceived risk is predicted using the aforementioned perceived complexity to strengthen the perceived risk effect towards the resistance to adopting online marketplaces. The sixth hypothesis is as follows.

H6: Perceived risk (PRS) significantly influences the resistance to adopting online marketplaces (RAO).

Perceived behavioral control reflects the degree of belief that SME owners have concerning their control when executing a behavior. The belief is based on the extent to which individuals can attain the necessary control regarding the behavior in question. These controls are specified as capability and the availability or unavailability of time, money, or other related resources [60]. These sources will determine a user's capability to exploit the benefits of a technology [38, 79]. Perceived behavioral control has been applied in many technology adoption studies, particularly for predicting users' intention to use technology. Arguments that a degree of users' belief concerning the available resource is needed to execute a behavior are proposed [79–82]. In this context, the users represent SME owners, and the said behavior refers to adopting online marketplaces.

Moreover, in an SME, it is underlined that the knowledge needed to utilize technology is required to support the decision to adopt it [83]. Hence, perceived behavioral control is an essential factor to consider in the research due to its capability to capture the degree of SME owners' beliefs regarding their control when executing a behavior. It may enhance their knowledge of online marketplaces before they eventually decide whether to adopt them in their business processes or not.

H7: Perceived behavioral control (PBC) significantly influences the resistance to adopting online marketplaces (RAO).

III. Research Method

A. Data Collection and Analysis

A quantitative approach is applied using an online questionnaire and interview. Before the data gathering begins, a readability test has been conducted to analyze how well respondents can understand the questionnaire. The respondents in the readability test consist of four SME owners. The suggestions received from the respondents include improvements regarding the diction, the addition of examples for some of the research instruments, changes in the format for some of the questionnaire fields, and the simplification of wording. Various social media are also used to share the questionnaire link, such as Twitter, Instagram, Facebook, and WhatsApp. The period assigned to collect the questionnaire data consists of 18 days (February 22nd until March 12th, 2021).

The research subject is SME owners. SME owners have performed the activity of selling or are currently selling, whether as a primary source of income or not. In the research, the included SME owners are not exclusively those who are still selling offline. SME owners who have conducted the activity of online selling, whether through social media or online marketplaces, are also included. In the research, online marketplaces must be legally available applications, such as Shopee, Tokopedia, Bukalapak, and Blibli. It is in accordance with the argument that adoption behavior results from a resistance felt before adopting [41]. Supporting this claim, previous researchers have emphasized that resistance is not the opposite of adoption but is simply a behavior that occurs during the process of adoption [84, 85]. Based on these claims, it can be concluded that SME owners who have used online marketplaces in their business are also an important part of the sample. Their adoption of online marketplaces is not the opposite of resisting the technology but the outcome of the resistance itself. Therefore, for the research, SME owners who have adopted online marketplaces are included as a means to explore more thoroughly factors that influence resistance [41, 84, 85]. Then, the proven factors can be considered to deal with the resistance of online marketplace amongst SME owners in Indonesia.

B. Analysis Method

The method applied to analyze the collected data is covariance-based structural equation modeling through AMOS 24. Analyzing data consists of several steps, including convergent validity and discriminant validity. If the results surpass the required thresholds, a structural model test is conducted by observing the Goodness-of-Fit (GoF) index. Lastly, hypothesis testing is performed. Several interviews are conducted to explore the matter further for the hypotheses that are not supported.

C. Research Instruments

The online questionnaire is divided into two parts. The first one consists of information related to the respondents' demographics. The second part is measurement items for each variable. When answering, respondents filled in their answers based on a five-point Likert scale, where one represents strongly disagree, and five indicates strongly agree. Table A1 (see Appendix) includes the questionnaire's list of statements.

IV. Results and Discussion

A. Respondents' Demographics

The number of respondents included in the analysis step is 356. Generally, the respondents are dominantly made up of female SME owners. Most of the respondents are classified as owners of SMEs operating in the culinary industry. Details of the respondents' demographics can be seen in Table I.

B. Measurement and Structural Model

The measurement model consists of convergent and discriminant validity in the research. Convergent validity is measured through factor loadings values: Composite Reliability (CR) and Average Variance Extracted (AVE) [86]. For every indicator used in the research, the factor loadings surpass the value of 0.7. The required threshold for CR is above 0.7 [86]. On the other hand, the threshold for the AVE values is above 0.5 [86]. Table II shows how all CR and AVE values for each variable surpass the thresholds.

For the GoF, the parameters are the value of Chi-Square Divided by Degree of Freedom (CMIN/df), Root Mean Square Error of Approximation (RMSEA), Normed Fit Index (NFI), Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Tucker-Lewis Index (TLI), and Root Mean Square Residual (RMR). Then, Table III summarizes all the results from these parameters. The values are classified as good fits.

C. Hypothesis Test

The research applies a two-tailed test with a significance level of 5%. Estimation results are accessed through AMOS 24 outputs by observing the p-values. The hypotheses are supported with $p < 0.05$ [86]. The results of the hypothesis test can be seen in Table IV. Based on Table IV, six out of the seven hypotheses have p-values of less than 0.05, which means they are supported. These six hypotheses are H1, H2, H3, H5, H6, and H7. Meanwhile, H4 is unsupported.

TABLE I
RESPONDENTS' DEMOGRAPHICS.

Demographic Profile		Frequency	Percentage (%)
Gender	Male	148	41.57
	Female	208	58.43
Age	17–27 years old	151	42.42
	28–38 years old	57	16.01
	39–49 years old	77	21.63
	50–60 years old	61	17.13
	$>$ 60 years old	10	2.81
Location	Greater Jakarta	229	64.32
	Outside of Greater Jakarta on Java Island	96	26.97
	Sumatera	25	7.03
	Borneo	1	0.28
	Sulawesi	1	0.28
	Bali, East Nusa Tenggara, West Nusa Tenggara	4	1.12
Industry (can be selected more than one by respondents)	Culinary	151	35.95
	Fashion	80	19.05
	Automotive	7	1.67
	Agriculture	19	4.52
	Handcraft	33	7.86
	Beauty	27	6.43
	Others	103	24.52
Number of Employees	$<$ 5	324	91.01
	5–9	29	8.15
	20–99	3	0.84
Annual Revenue	$<$ Rp300,000,000.00	310	87.08
	Rp300,000,000.00–Rp2,500,000,000.00	35	9.83
	Rp2,500,000,000.00–Rp50,000,000,000.00	11	3.09
Registered in Online Marketplace as a Seller	Yes	190	53.37
	No	166	46.63

TABLE II
COMPOSITE RELIABILITY (CR) AND AVERAGE VARIANCE EXTRACTED (AVE) VALUES.

Variable	CR	AVE
PCM	0.776	0.593
OSE	0.990	0.980
GSU	0.769	0.586
ECO	0.989	0.980
PRS	0.991	0.982
PBC	0.748	0.615
RAO	0.785	0.646

Note: Perceived complexity (PCM), perceived risk (PRS), perceived behavioral control (PBC), owners' self-efficacy (OSE), government support (GSU), Enabling conditions (ECO), and resistance to adopting online marketplaces (RAO).

TABLE III
GOODNESS OF FIT (GOF)

GoF Index	Cut-Off Value	Value	Explanation
CMIN/df	$<$ 2.00	1.996	Good fit
RMSEA	$\leq$ 0.08	0.055	Good fit
NFI	$\geq$ 0.90	0.921	Good fit
CFI	$\geq$ 0.90	0.959	Good fit
GFI	$\geq$ 0.90	0.932	Good fit
TLI	$\geq$ 0.90	0.948	Good fit
RMR	$\leq$ 0.05	0.042	Good fit

TABLE IV
HYPOTHESIS TESTING.

Hypothesis		Estimate	P-Value	Result
H1	PCM $\rightarrow$ PRS	0.657	0.005	Supported
H2	PCM $\rightarrow$ PBC	-0.557	0.005	Supported
H3	OSE $\rightarrow$ PBC	0.214	0.003	Supported
H4	GSU $\rightarrow$ PBC	0.042	0.273	Not Supported
H5	ECO $\rightarrow$ PBC	0.194	0.005	Supported
H6	PRS $\rightarrow$ RAO	0.411	0.005	Supported
H7	PBC $\rightarrow$ RAO	-0.436	0.004	Supported

Note: Perceived complexity (PCM), perceived risk (PRS), perceived behavioral control (PBC), owners' self-efficacy (OSE), government support (GSU), Enabling conditions (ECO), and resistance to adopting online marketplaces (RAO).

D. Discussion

The research results suggest a connection between perceived complexity and perceived risk. Hence, the acceptance of H1 indicates that the degree of complexity affects the perceived risk by SME owners in using online marketplaces. This finding enriches previous studies [12, 45, 47–49] by validating perceived complexity as a factor with the potential to hinder e-commerce adoption amongst SMEs in developing countries. Based on the questionnaire, as many as 13.47% of respondents who have not joined online marketplaces admit that they do not understand the steps to join. That is the reason why they have not done it. This statement supports the research findings that the complexity or the degree of difficulty has the potential to be the reason why SMEs have not adopted online marketplaces.

In the research, perceived behavioral control is defined as SME owners' beliefs regarding the control they have over executing a certain behavior [12, 38]. The second hypothesis proposed (H2) is supported. The perceived complexity in using online marketplaces is proven to affect risk perception and SME owners' beliefs about the available resources that may support or hinder such online marketplace adoption [60]. Based on the previous finding [53], the effect of perceived complexity on perceived behavioral control indicates the limitations of capability and the resources that are available to the organization. It is also argued that the perceived complexity of innovation indicates limitations related to the capability and knowledge required for the related innovation, which may lead to resistance [54]. Therefore, the fact that perceived complexity affects perceived behavioral control signifies that many SMEs in Indonesia still possess this limitation, leading to rising complexity perceptions. In turn, it affects their beliefs regarding the factors

around them. Thus, the research findings indicate that intensive digital literation is needed for Indonesian SMEs to overcome this perceived complexity. It can be achieved through training or guidance to reduce the difficulties in the experience of SMEs when using online marketplaces for their businesses.

Self-efficacy is an essential variable for measuring motivation and the effort that a user is willing to make in using e-commerce technology. When self-efficacy is high, the motivation and effort put into learning the technology will increase. Meanwhile, when self-efficacy is low, there is a possibility that resistance will occur [87]. The support found for H3 means that owners' self-efficacy influences perceived behavioral control. Owners' self-efficacy is used to measure SME owners' capability to utilize online [38]. This finding is aligned with those of previous studies, which have proven the relationship between these two variables [61–63]. Referring to [59], the role of SME owners is still dominant when deciding whether to adopt a technology or not. It can be justified by the fact that 89.04% of SMEs in Indonesia are still considered micro businesses with fewer than five employees. Therefore, the support for H3 means that there is a need for SME owners to possess the ability to use online marketplaces to increase their beliefs about the factors around them and overcome resistance.

Moreover, H4 is the only hypothesis that is not supported in the research. The hypothesis states that government support significantly affects perceived behavioral control. Government support is the variable that represents the government's initiatives, infrastructure, or policy, relating to the diffusion of online marketplaces amongst SMEs [38]. Government support has been claimed to be a factor affecting an SME's decision to adopt a technology, both positively and negatively [46, 64]. Support comes in various forms, ranging from policy and laws to financial aid [53]. The Indonesian government has already created several programs to encourage e-commerce adoption amongst SMEs while not excluding online marketplaces. This finding is not aligned with several previous studies, which have proven the effect of government support in the context of SMEs [20, 38]. Government support, which has not been proven to have any significant effect despite the various forms of government programs, is a phenomenon that must be explored further.

Consequently, some interview sessions are held with SME representatives to gain further understanding and information. The interviewees consisted of five SME owners: three males and two females. When asked if they had heard of or applied for one of the government programs mentioned, all of them admitted they have not (*"What is an example of these programs for marketplaces? Because if they are specific to Shopee or other platforms, I have not heard of them"* – Interviewee 2). Only two interviewees state that they have heard of other forms of government support, which focus on the financial aspect of SMEs (*"The support I have heard of is the one that the government gives financial aid"* – Interviewee 4; *"I have only heard of financial aid. I have never gotten any. I only know that it is distributed through state-owned banks"* – Interviewee 5). These statements indicate that the government's attempt to communicate the programs is still not generally effective. It is confirmed by all the interviewees, who have confessed that the communication and education from the government are still very limited (*"The education and communication are first. If no one knows about the program, it will be wasted"* – Interviewee 4).

The interviewees also communicated their hopes and suggestions regarding how to improve the government's initiatives in increasing online marketplace adoption. One interviewee hopes that the support given will be long-term (*"I am more inclined to accept long-term support"* – Interviewee 3). The long-term support mentioned can be training to enhance skills in utilizing and optimizing online marketplaces for businesses (*"The communication and education can be directed at increasing expertise in using the online marketplace platforms. Not everyone is capable of even the basics, such as installing, registering, and others."* – Interviewee 1; *"In my environment, most of us are middle-aged women, and we are still in the dark about the technology"* – Interviewee 4).

Moreover, there should be a consultation service to serve as a contact person for the SMEs to guide them in using online marketplaces (*"If there is a consultation center or service, everyone can make use of it, even those who are just about to start their business"* – Interviewee 2). One of the interviewees even claims that many SME owners are already interested in adopting online marketplaces. However, they do not know how or where to start (*"I want to use Shopee, but I just do not know how. Many of my friends, fellow SME owners, surely want to use Shopee, Tokopedia"* – Interviewee 4). In accordance, a consultation service may be the solution to help SMEs, particularly those with middle-aged owners or located in districts.

Improvements in government regulations relating to online marketplaces are also brought up. Adequate regulations should be able to create a comfortable environment for SMEs to start selling in online marketplaces (*"Marketplaces should have more explicit regulations for their selling activities"* – Interviewee 2). It will be better if online marketplace platforms are encouraged to focus more on SMEs as local

sellers. Overall, the interviewees agree that government support for online marketplace adoption can greatly help Indonesian SMEs to flourish if the problems are handled accurately and intensively (*" ... if support from the government is communicated effectively, the Indonesian business will surely thrive"* – Interviewee 1).

The next supported hypothesis is related to the significant effect of enabling conditions on perceived behavioral control. Enabling conditions represent the available infrastructures to organizations [38] or, in this context, SMEs. Technology infrastructure, financial aid, or other resources related to online marketplaces can influence technology [67, 68]. It is argued that users' perceptions of technology are affected by the available infrastructures that may support the system usage [69]. This finding is aligned with previous studies [38, 63, 68].

Infrastructure problems have been identified as one of the barriers to Indonesia's e-commerce adoption [88]. One suggestion for overcoming this problem is building optical fibers [89]. Meanwhile, it is stated that adequate infrastructures can affect users' understanding of using social commerce to support SME business processes, which also means they can help with the adoption of online marketplaces as another option for selling online [70]. An evenly distributed infrastructure is crucial in developing and using e-commerce [38]. The research finding shows that the degree of belief by SME owners on factors that can influence online marketplace adoption is affected by the available support and the help around them. Hence, the development of facilities that can support online marketplace adoption should be intensified to increase the adoption rate.

Next, H6 is also supported. It refers to the effect of perceived risk on the resistance to adopting online marketplaces. Perceived risk describes the degree of risk that SME owners identify when adopting online marketplaces. Meanwhile, the resistance to adopting online marketplaces occurs during the adoption [12]. Perceived risk has been claimed to be a possible trigger for technology resistance [42, 43]. A further explanation mentions that if users perceive risk when using technology, their resistance will increase [73]. This finding enriches previous studies about the negative role that risk plays in e-commerce adoption [12, 34, 47, 77]. Resistance indicates a fear of change if the perceived risk exceeds the perceived benefits [41]. Referring to [78], SMEs will perceive bigger risks in anticipating a change since their capabilities are less great than bigger companies. Hence, it is assumed that risk affecting resistance indicates a fear of change. By decreasing the risk, resistance will be directly affected [41]. The support for H6 signifies that follow-up actions need to be implemented to overcome perceived risk and deal with resistance to adopting online marketplaces amongst Indonesian SMEs.

The last hypothesis, H7, is also supported and related to the effect that perceived behavioral control has on the resistance to adopting online marketplaces. Perceived behavioral control represents SME owners' beliefs about the control required to execute a behavior [12, 38]. These beliefs are obtained based on SME owners' ability to control the required resources [60]. In the research, the said resources are gained from the variables proven to affect perceived behavioral control: owners' self-efficacy and enabling conditions. Perceived behavioral control decides SME owners' capability to utilize e-commerce based on these resources.

When deciding to adopt technology in an SME, the knowledge needed to exploit it is an important factor to consider [83]. According to the questionnaire collected, 36 out of 166 or 18.65% of respondents who still have not joined online marketplaces admit that they do not understand how using online marketplaces can benefit their businesses. In contrast, those who have joined online marketplaces identify their understanding of utilizing the platform as to why they have joined (90 out of 173 respondents or 15.47%). This finding indicates that action needs to be taken to increase SME owners' beliefs about the resources around them to utilize online marketplaces for their respective businesses. Besides, a degree of belief regarding available resources is required before behavior can be executed, in this case, adopting online marketplaces [79–82].

E. Implications

The research findings identify factors affecting the resistance to adopting online marketplaces and strengthen previous findings of [12] regarding e-commerce technology in general. The results of several hypotheses proposed by [12] are compatible with the case study of Indonesian SMEs undertaken by the research. These hypotheses concern the effect of perceived complexity on perceived risk, perceived behavioral control, and the resistance to adopting online marketplaces. It also finds a significant effect of enabling conditions on perceived behavioral control, giving substance to the study of [38], which focuses on the intention to adopt e-commerce. The significant effect found regarding perceived risk in the context of e-commerce adoption confirms the finding in previous research [45]. However, the research result shows a lack of a significant effect of government support in the context of e-commerce adoption. It contradicts the

finding of [38] but is aligned with [46]. The research also enriches the application of the TOE framework in e-commerce adoption amongst SMEs [15, 19, 38, 49] and validates its integration with the DOI theory within the same context [12, 20, 45]. Finally, the research broadens this integration to make it not only applicable to the adoption process but also when investigating the resistance side of such adoption. It also gives substance to the study which has previously applied this integration with e-commerce resistance when using the IRM [12].

The Indonesian government and online marketplace companies can use the research findings to gain insight into which factors to improve or intensify to handle the resistance to adopting online marketplaces in Indonesian SMEs. One of the findings includes the indirect effect of perceived complexity on the resistance to adopting online marketplaces. Furthermore, 26 respondents say they have chosen not to join online marketplaces because of difficulties in understanding the registration steps. However, 73 respondents state the opposite. It shows that online marketplace companies can try to simplify their features to help SMEs to operate and manage their virtual stores. With regards to the majority of SMEs in Indonesia being categorized as micro companies, the empowerment of SME owners in digital literacy is needed. The research shows the significance of owners' self-efficacy on perceived behavioral control. It indicates that digital literation is an important program to encourage the digitalization of SMEs through online marketplaces. According to [59], owners play a major role in adopting technology. Hence, this digital literation should target SME owners before gradually expanding to include all SME employees. From this digital literation program, it is expected that SME owners feel capable to the point that their resistance is decreased enough to digitalize their business through an online marketplace. This implication correlates with the finding of perceived complexity. Digital literation can also be the solution to equip SMEs with the needed capability to utilize the online marketplace and exert influence on their perception of risk and ability to execute this behavior, which from the research finding, can affect their resistance.

Meanwhile, the significance of enabling conditions in terms of perceived behavioral control signifies that infrastructure development is also an important factor in decreasing the resistance to adopting online marketplaces. When the infrastructure around SMEs is limited, SMEs can feel they have little to no control in attaining the behavior of using the online marketplace and strengthening their resistance. From the research finding, it is believed that SMEs can gain better beliefs concerning their control to adopt the online marketplace and overcome the resistance with better infrastructures. Possible developments include information technology infrastructures (network connections in every part of the country and support in providing smartphones or other gadgets for SMEs to use). It is emphasized that the mentioned developments should be evenly distributed to support more SMEs in as many parts of Indonesia [38].

The unique research finding is the rejection of the government support hypothesis. According to [65, 66], the degree of support that one receives can strongly influence its decision whether to execute a behavior or not. In the research context, the decision to adopt online marketplaces by SMEs or not relates directly to the degree of support they feel that they receive from the government. The government of Indonesia should intensify its programs to reach SMEs and consider the hopes and suggestions outlined by the interviewees in the research. These supports include consultation services and regulations that side more with SMEs. Then, relating to the finding of enabling conditions, the allocation of gadgets and network data for SMEs is needed. Based on previous findings from other studies, government support significantly influences SMEs in many countries. If it is done correctly, it is hoped that government programs can become the bridge for Indonesian SMEs to go from resisting the adoption to adopting and utilizing online marketplace for their business. Government support may also be the starting point to handle the factors related to the resistance of the online marketplace amongst SMEs. If these factors are handled well, it can affect SME owners' risk perceptions and beliefs regarding control when adopting online marketplaces. Finally, it mitigates the resistance to adopting online marketplaces and increases the possibility of online marketplace adoption by SMEs.

V. Conclusion

The research findings show that the degree of perceived complexity by SME owners when using online marketplaces significantly affects the perceived risk. The perceived complexity also affects their beliefs about the control required to adopt online marketplaces. It is followed by owners' ability and infrastructures, which may also support the use of online marketplaces. Moreover, perceived risk and beliefs significantly influence the resistance to adopting online marketplaces. On the other hand, government support does not affect the degree of SME owners' beliefs concerning factors that may affect online marketplace adoption.

There are two limitations of the research. First, most of the respondents are in the Greater Jakarta area. Second, the SMEs focus on the culinary industry. Moreover, it is suggested that future studies can enhance the research by adding the customers' pressure factor as one of the organizational factors. It can consider the questionnaire responses that identify the most dominant reason SMEs adopt online marketplaces that their customers often use.

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APPENDIX

The Appendix can be seen in the next page.

TABLE A1
RESEARCH INSTRUMENTS.

Code	Statement
PCM1	I feel frustrated when using online marketplaces.
PCM2	I feel that the usage of online marketplaces will be too complicated for my business activities.
PCM3	I am certain that online marketplaces are difficult to use.
PCM4	I feel that my employees and I lack the ability required to use online marketplaces.
OSE1	I can use online marketplaces for selling activities without anyone's help.
OSE2	I have the necessary time to make online marketplaces useful for my business.
OSE3	I have the knowledge and skills required to use online marketplaces for my business activities.
OSE4	I can use online marketplaces reasonably well on my own.
GSU1	I feel that the government has provided adequate financial assistance about implementing and using online marketplaces for my business.
GSU2	I feel that the government has provided enough educational services to raise awareness of online marketplace usage in SMEs.
GSU3	I feel that the government has provided necessary and sufficient support to implement and use online marketplaces for my business.
GSU4	I feel that the government has provided adequate consulting services to support online marketplace usage for SMEs.
ECO1	I receive the necessary support and assistance to use online marketplaces.
ECO2	I have the financial and technological resources required to support the usage of online marketplaces for my business.
ECO3	I have access to the gadgets, applications, and network services required to use online marketplaces for my business.
ECO4	I have no compatibility problems with online marketplaces for my business.
PRS1	I feel unsafe when using online marketplaces to run my business.
PRS2	I feel that when using online marketplaces, online payments trigger a risk of fraud for my business.
PRS3	I feel afraid when using online marketplaces for my business due to the possibility of data misuse.
PRS4	Overall, I feel that online marketplace usage is risky.
PBC1	I have the necessary means and resources to use online marketplaces for my business.
PBC2	I feel that incorporating online marketplaces into my business within the next year will be easy.
PBC3	I feel that incorporating online marketplaces into my business within the next year will be under my businesses' control.
PBC4	I feel that incorporating online marketplaces into my business within the next year will be simple to arrange.
RAO1	I feel uneasy when my business uses online marketplaces.
RAO2	I feel that the current state of my business is better than using online marketplaces.
RAO3	I am reluctant to use online marketplaces for my business.
RAO4	I feel satisfied if my business uses online marketplaces.