Analysis of E-Commerce Adoption by SMEs Using the Technology - Organization - Environment (TOE) Model: A Case Study in Karawang, Indonesia

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Abstract.
E-commerce as a medium for online transactions by business actors can increase the productivity of SMEs. This study aims to analyze the adoption of e-commerce in SMEs in Karawang Regency, Indonesia. The technology-organization-environment (TOE) framework was chosen as a variable for measuring e-commerce adoption. Data collection was carried out through a questionnaire survey which was distributed to SMEs in Karawang Regency, and obtained 301 respondents. The results of data collection by using Smart PLS with the results of the technological aspects have no significant effect on the intention to adopt e-commerce, while the organizational and environmental aspects have a significant effect on the intention to adopt e-commerce. All technology indicators, namely compatability, perceived usefulness, complexity, security concern and relative advantage, are proven to have a significant effect on technology in the intention to adopt e-commerce. Organizational indicators, namely cost, organization readiness, organization culture, organization size and top management support, are proven to have a significant effect on organizations in their intention to adopt e-commerce. Meanwhile, environmental indicators, namely government support, competitive pressure, environmental uncertainty and vendor quality, have a significant effect on the environment in the intention to adopt e-commerce. The data that has been generated can be used by the MSMEs management agency in Karawang Regency to formulate strategies for increasing the productivity of SMEs.

Keywords: *Adoption of E-Commerce, SMEs, TOE*

I. INTRODUCTION

SMEs (Small and Medium Enterprises) has an extremely important contribution to economic growth and the growth of the country's development. Based on data from the Ministry of Cooperatives and Small and Medium Enterprises of the Republic of Indonesia from 2017 to 2018, there were 26,043 small business units and 2,075 medium-sized business units [1]. The rapid development of SMEs cannot be separated from the efforts that involve the adoption of technology. Several studies have revealed that business such as the use of e-commerce [2][3][4][5], digital marketing training [6][7], the use of digital marketing [8] can increase the productivity of SMEs.

The results of research by Purwantini & Anisa (2018) report that social commerce has a positive impact in supporting customer service performance, sales,

marketing and internal operations [9]. In line with this, Mumtahana, et.al (2017) revealed that e-commerce can boost the income of SMEs and MSMEs (Micro, Small and Medium Enterprises), by utilizing it as a marketing strategy [10]. This is also reinforced by research by Helmalia & Afrinawati (2018) which states that e-commerce is proven to have a significant effect on the income of MSMEs [11].

E-Commerce is a commercial activity that takes place on the internet by utilizing digital technology [12]. Electronic commerce (e-commerce) occurs indirectly between customers and merchants via online platforms. The important difference between traditional trade and e-commerce is the transaction processing between the seller and the buyer that is separate and facilitated by software that allows virtual viewing of goods, a shopping cart and a secure payment system and delivery channel. E-commerce customers can be accessed via the internet. By eliminating the physical interaction component of traditional trade, e-commerce also enables producers to act as merchants who are directly connected to customers without retailers acting as intermediaries [13].

Karawang as a district in West Java province has a lot of potential to increase the regional economy through increasing the productivity of SMEs and MSMEs. In March 2016 digital media Merdeka.Com reported that according to the Head of the Karawang Cooperative and MSMEs Office, Asep Junaedi there were at least 38,904 MSMEs [14]. Meanwhile, in November 2020, digital media Tempo.co reported that there were 87,574 MSMEs in Karawang registered to receive capital assistance [15]. Seeing the rapid growth of MSMEs in the last five years, of course, there are many factors that influence it. Based on the results of research that have been previously disclosed, that e-commerce has a role in increasing the productivity of SMEs and MSMEs. This attracts researchers to conduct related studies, the adoption of e-commerce by business actors, especially SMEs in Karawang Regency. The results of this study can provide benefits to the Karawang Regency Government, in order to identify factors that support or influence the adoption of e-commerce by SMEs in Karawang Regency in order to increase the productivity of their businesses.

To measure the adoption of a technology, there are many theories that can be used, including the Technology Acceptance Model (TAM) [16][17], Theory of Planned Behaviour (TPB) [18][19], unified theory of acceptance and use of technology (UTAUT) [20], TOE framework [21].

In this study, researchers used the TOE framework because this framework identifies three aspects, namely the technological, organizational and environmental contexts that affect an organization or in this case business actors (SMEs) in implementing, adopting and using technological innovations. By using the TOE framework, it can be seen which aspects can be improved in order to boost the productivity of business actors (SMEs). Based on the description of the background and the theory chosen by the researcher, in this study, the researcher determined the title of this study was “Analysis of E-Commerce Adoption by SMEs Using the

Technology - Organization - Environment (TOE) Model: A Case Study in Karawang, Indonesia". Information on aspects or factors that drive the productivity of business actors (SMEs) in Karawang Regency in adopting e-commerce can be an evaluation material and become material in developing strategies for increasing the productivity of SMEs by the Karawang Regency Government, especially the Karawang Cooperative and MSMEs Office.

a. Technology Factor

The technology context includes all technologies that are relevant to the company, both existing and existing technologies available in the market, which are not currently used by the company. According to Collins et.al (1988) in [22] explained that the company's existing technology is important in the adoption process because it sets broad limits on the scope and speed of technological change that companies can undertake. In addition, innovations that exist but have not been used in companies also influence innovation, both by sharing what is possible and by showing companies the ways in which technology enables them to evolve and adapt.

According to Tushman and Nadler (1986) in [22] explained that in the innovation group that exists outside the company, there are three types of innovation that change, namely additional, synthetic or intermittent. Innovations that result in incremental changes introduce new features or new versions of existing technologies. This additional innovation represents the least amount of risk and change that it adopts, for example an increase in the ERP variant of a company. Synthesis innovation is the midpoint of moderate change, where ideas or technology are combined in new ways, for example e-learning used by universities.

1) Compatability

Rogers Everett (1995) describes compatibility as the extent to which an innovation is considered consistent with existing values, past experiences and adoption needs [23]. Therefore, when SMEs consider that e-commerce is compatible with their business, they will tend to continue to use it, which in turn benefits their business performance.

2) Perceived usefulness

Perceived usefulness according to Davis (1998) refers to the extent to which an individual believes that using certain technologies will improve their performance [24].

3) Relative Adavantage

Relative advantage can be defined as the extent to which a business views the benefits of using e-commerce [23]. Relative advantege is the level of e-commerce consistency that can provide business benefits, this level of e-commerce consistency is related to innovation, so the extent to which

innovation can offer many business benefits through increased efficiency [25].

4) Complexity

Rogers Everett (1995) defines complexity as the difficulty of innovation to be understood and applied to achieve business goals, which requires more effort to find ways to use innovation [23]. According to Premkumar and Roberts (1999), it is assumed that, in this case, complexity has a negative impact on the adoption rate. Therefore, SMEs are likely to refuse to continue using innovation in their business when they find it too complex. In addition, the complexity in the system may affect the performance of the company because it may be too complex to measure the system from the start, and the process may continue to be difficult to understand, thus, it can be assumed that the more complex the system, the greater the negative impact on company performance.

5) Secuirity Concerns

Security issues involve a security attack on a business that destroys information [25]. Security concerns can be expressed as the level of business confidence in e-commerce services in the protection of company information secrets. According to Clear (2007) in [24] Security is defined as the extent to which the internet platform is assumed to be unsafe for online transactions. Besides that, Sahandi et.al in [24] also added that currently, security risks are increasing as computer networks become more complex. Security issues can be viruses, hacking, data interception which are the main concerns in doing business over the internet.

b. Organization Factor

According to [23] Organizational context refers to the characteristics of the company and its resources, size, scope, and structure.

1) *Cost*

Perceived costs are measured in financial investment and administrative costs. Previous studies by Alshamaila et. al (2013), Raut et.al (2019) and Verma et.al (2017) in [26] explained that the perceived cost is very important in the adoption of a technology.

2) Organization Readiness

Business readiness refers to the availability of a company in implementing a technology. The availability includes infrastructure, finance, information technology and human resources [25]. So that organizational readiness is a company's technical readiness to be able to innovate.

3) Top Management Support

Top management refers to the mindset of top management in supporting related technologies and the breadth of funding for implementation [25]. This support is one of the important aspects in supporting and completing the tools

needed for new or innovative technologies. Top management plays a role since the implementation of creativity which requires the integration of resources and re-engineering of the business structure. Support from top management is a prerequisite where top management encourages acceptance of company creativity.

4) Organization size

According to [27] Organization size reflects that the larger the organization tends to adopt more information technology innovations in terms of flexibility and risk, and vice versa..

5) Organization Culture

Organizational culture according to Liu et.al (2010) in [28] refers to the combination of several general characteristics in an organization in employees such as norms, assumptions, beliefs and values. Khazanchi et.al (2007), Liu et.al (2010) and Mohtaramzadeh et.al (2018) in [28] stated that researchers pay more attention to organizational culture because it plays an important role in the acceptance of a new technology in the organization. Qashoua and Saleh (2018) in [28] reinforce with the statement that organizational culture is a key factor for technology adoption in an organization.

c. Environment Factor

According to [23] The environmental context relates to the industry or type of business and takes into account competitors, markets, government and external support.

1) Government Support

Government support can be defined as initiatives and opportunities from the government to encourage adoption [25].

2) Competitive Pressure

Competitive pressure refers to the extent to which an organization reacts to competitor pressure, thus encouraging the company to use new technology [25]. It can be concluded that competitive pressure is an organization's reaction to competitive pressure and compliance with industry requirements.

3) Environment Uncertainly

An environment full of uncertainty can undermine the use of new technology. Environmental insecurity occurs when there are complex and rapid changes. Organizations in high uncertainty may not adopt new technologies without clear infrastructure support and operating standards. This uncertainty has an impact on the reluctance to adopt information technology [29].

4) Vendor Quality

Vendor quality from e-commerce is related to several factors including reputation, reliability, support and shared value creation by suppliers and companies [30]. This suggests that the reputation of the software supplier

affects adoption. In addition, it also deals with aspects of training in use and technical support for implementation and use.

d. Framework Development

The procedure for developing the model begins with conducting a content analysis of the literature to look for articles related to e-commerce adoption, then the selected articles are analyzed and then classified the factors that drive e-commerce adoption. The factors are classified into 3 categories, namely technology, organization, environment. The results of this categorization are then built an e-commerce adoption model. The following is a proposed conceptual framework for e-commerce adoption.

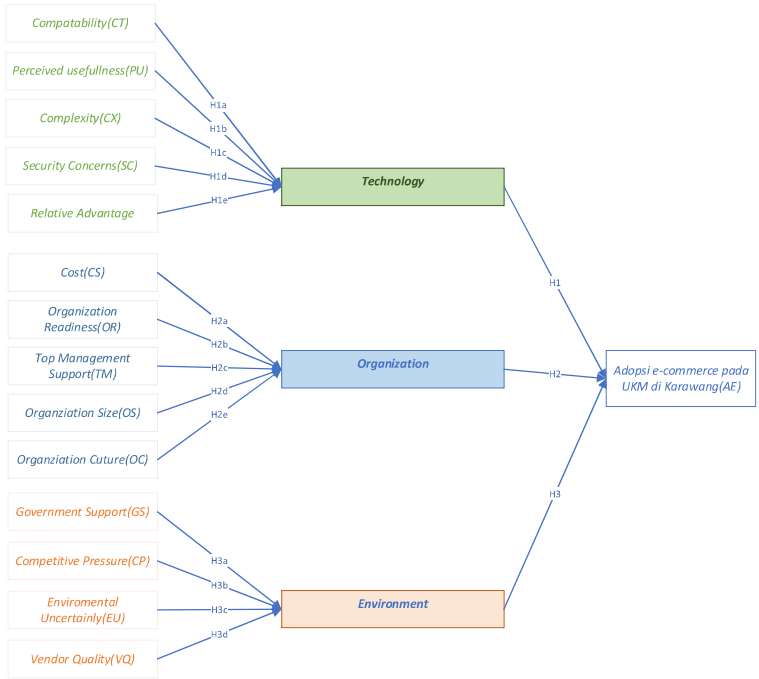

Fig 1. TOE Model

Based on the framework above, the following hypothesis can be formulated:

H1 Technology is thought to have a positive effect on e-commerce adoption by SMEs in Karawang Regency.

H1a. Compatibility is thought to have a positive effect on technology in terms of adopting e-commerce

H1b. Perceived Usefulness is thought to have a positive effect on technology in the intention to adopt e-commerce

H1c. Complexity is thought to have a positive effect on technology in the intention to adopt e-commerce

H1d. Security Concern is thought to have a positive effect on technology in its intention to adopt e-commerce

H1e. Realative Advantage is thought to have a positive effect on technology in the intention to adopt e-commerce

H2 Organization is thought to have a positive effect on e-commerce adoption by SMEs in Karawang Regency.

H2a. Cost is thought to have a positive effect on organizations in their intention to adopt e-commerce

H2b. Organization Readiness is thought to have a positive effect on organizations in their intention to adopt e-commerce

H2c. Organization Size is thought to have a positive effect on organizations in their intention to adopt e-commerce

H2d. Organization Culture is thought to have a positive effect on organizations in their intention to adopt e-commerce

H2e. Top Management Support is thought to have a positive effect on organizations in their intention to adopt e-commerce

The H3 Environment is thought to have a positive effect on e-commerce adoption by SMEs in Karawang Regency.

H3a. Government support is thought to have a positive effect on the environment in the intention to adopt e-commerce

H3b. Competitive Pressure is thought to have a positive effect on the environment in the intention to adopt e-commerce

H3c. Environmental Uncertainly is thought to have a positive effect on the environment in the intention to adopt e-commerce

H3d. Vendor Quality is thought to have a positive effect on the environment in the intention to adopt e-commerce

II. METHODS

In this study, the data collection method used a quantitative approach represented by a questionnaire survey to collect primary data. The population of this research is SMEs in Karawang Regency. Samples were taken using purposive non-probability sampling method. The questionnaire was built with the following constructs:

Table 1. TOE Construct

Variable	Indicator	Source
Technology	Compatability	[31], [32], [29], [33], [26], [25], [23], [28]
	Perceived usefullness	[24]
	Relative Adavantage	[31], [32], [29], [33], [34], [25], [23], [28]
	Complexity	[31], [29], [33], [25], [23], [28]
	Secuirity Concerns	[24], [33], [25], [28]

Variable	Indicator	Source
Organization	Cost	[29], [33], [26]
	Organizational Readiness	[31], [24], [25], [35], [28]
	Top Management Support	[31], [32], [24], [29], [33], [36], [34], [26], [25], [28]
	Organization size	[33], [36], [37]
	Organization Culture	[38], [26], [28]
Environment	Government Support	[32], [29], [36], [38], [25], [35], [37], [28]
	Competitive Pressure	[31], [32], [24], [29], [36], [34], [26], [25], [23], [28]
	Environment Uncertainly	[29]
	Vendor Quality	[24], [23]

Table 2. Research Instruments

Indikator	Deskripsi	Kode	Pernyataan
Technology			
Compatability (CT)	The extent to which an e-commerce innovation is considered consistent with values so as to benefit SMEs	CT1	The use of e-commerce consistently provides beneficial value for the SMEs I own or the SMEs I work for
		CT2	The innovations contained in e-commerce have significantly increased the profits of my SMEs or my SMEs to work
Perceived usefullness (PU)	To what extent do SMEs believe that using e-commerce will improve their business	PU1	I believe that e-commerce will increase the productivity of my SMEs or the SMEs I work for
		PU2	I find e-commerce useful for my SMEs or the SMEs I work for
		PU3	By using e-commerce services to customers becomes faster
Relative Advantage (RA)	The extent to which e-commerce offers business benefits through increased efficiency	RA1	The use of e-commerce increases the efficiency of time in service to customers at my SMEs or SMEs where I work
		RA2	The use of e-commerce increases the efficiency of operational costs at the SMEs owned by me or the SMEs where I work
		RA3	The use of e-commerce increases the efficiency of human resources at the SMEs I own or the SMEs I work for
Complexity (CX)	The difficulty of e-commerce to understand and apply to achieve business goals	CX1	The process of understanding e-commerce used by my SMEs or the SMEs I work for is very easy

Indikator	Deskripsi	Kode	Pernyataan
		CX2	It's easy to learn about the e-commerce used by my SMEs or the SMEs I work for
Security concerns (SC)	The level of business confidence in e-commerce services in protecting SMEs information and transactions	SC1	The level of information security from e-commerce that is used by my SMEs or the SMEs I work for is a consideration in implementing e-commerce
		SC2	The level of transaction security in e-commerce used by my SMEs or the SMEs I work for is my consideration in implementing e-commerce
Organization			
Cost (CS)	Perceived costs of e-commerce adoption by SMEs	CS1	The amount of costs incurred in implementing e-commerce at my SMEs or the SMEs where I work is a consideration in implementing e-commerce
		CS2	The operational costs incurred in implementing e-commerce at my SMEs or the SMEs where I work are taken into consideration in implementing e-commerce
Organization readiness (OR)	Willingness of SMEs in implementing e-commerce which includes the readiness of infrastructure, finance, technology and human resources	OR1	My SMEs or the SMEs I work for have the financial resources to adopt e-commerce
		OR2	My SMEs or the SMEs I work for has the technological resources to adopt e-commerce
		OR3	My SMEs or the SMEs I work for has sufficient internet connectivity to adopt e-commerce
		OR4	Human resources in my SMEs or SMEs where I work have the competence to use e-commerce
Top management support (TM)	Top management's mindset in supporting the implementation of e-commerce in terms of funding and policies	TM1	As an owner of an SMEs or an owner of an SMEs where I work, I am willing to be involved in the adoption of e-commerce
		TM2	As an owner of an SMEs or an owner of an SMEs where I work, I consider the adoption of e-commerce as an important strategy
		TM3	As an owner of an SMEs or an owner of an SMEs where I work, I consider the adoption of e-commerce as a strategy to gain a competitive advantage
Organization size (OS)	Organizational size that reflects the flexibility and risk in adopting e-commerce	OS1	The size of my SMEs organization or the SMEs I work for affects the speed at which e-commerce is implemented

Indikator	Deskripsi	Kode	Pernyataan
Organization Culture (OC)	The combination of general characteristics of SMEs in this regard are norms, assumptions and values	OC1	The organizational culture of my SMEs or the SMEs where I work affects the success of implementing e-commerce
Environment			
Government Support (GS)	Government initiatives and opportunities in encouraging e-commerce adoption	GS1	The government provides e-commerce training to the SMEs I own or the SMEs I work for, in order to encourage e-commerce adoption
Competitive pressure (CP)	The extent to which SMEs react to competitor pressure	CP1	Competitors are encouraging my SMEs or the SMEs I work to adopt e-commerce
		CP2	My SMEs or the SMEs I work for will suffer from competitors if they don't adopt e-commerce
Environment uncertainly (EU)	Environmental uncertainty of SMEs in adopting e-commerce	EU1	The uncertainty of environmental change in my SMEs or the SMEs I work for is driving e-commerce adoption
Vendor quality (VQ)	Quality of an e-commerce vendor in terms of reputation, reliability, support and value creation	VQ1	The reputation of the e-commerce provider is important in choosing the right e-commerce for my SMEs or the SMEs I work for
		VQ2	The competency of e-commerce technology presented by the provider is very important when choosing e-commerce for my SMEs or the SMEs where I work
		VQ3	E-commerce providers provide usage guidelines to make it easier for my SMEs or the SMEs I work for in the e-commerce implementation process
Adoption *e-commerce*			
Adoption e-commerce (AC)	The use of e-commerce by SMEs	AC1	My SMEs or SMEs where I work use e-commerce in managing their business
		AC2	My SMEs or SMEs where I work has implemented e-commerce completely

Data collection was carried out by distributing questionnaires via google form and print media. Google form is spread through social media, groups, MSMEs forums, and Whatsapp. Meanwhile, printed questionnaires were distributed door-to-door visiting SMEs around the crowded areas in Karawang Regency. In the data collection process, it was found that many SMEs were reluctant to fill out questionnaires. This reluctance was eliminated because SMEs assessed that there was no value for them. From the data collection process, there were 301 respondents.

III. RESULT AND DISCUSSION

The survey results were analyzed using Structural Equation Modeling (SEM) with Smart PLS 3.

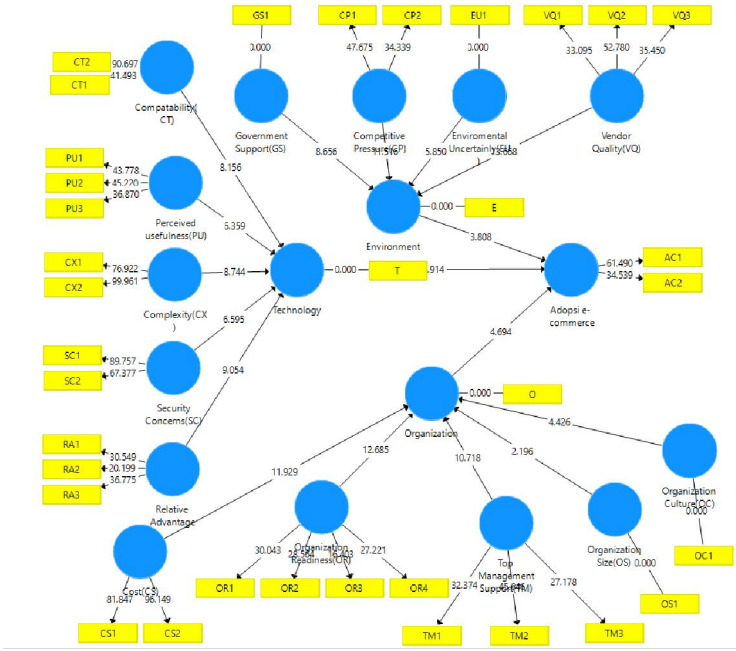

Fig 1. Structural Research Model

a. Demographic Data

Table 3. Demographic Analysis Results

Variable	Type	Frequency	Percent	Percent Valid
E-commerce Users	Already using E-Commerce	271	90%	90%
	Not using E-Commerce yet	30	10%	10%
Vendor E-commerce	Tokopedia	43	14.3%	14.3%
	Shopee	64	21.3%	21.3%
	Bukalapak	22	7.3%	7.3%
	Lazada	18	6%	6%
	Blibli	12	4%	4%
	Social Commerce (Facebook, Instagram, etc.)	209	69.4%	69.4%
	Gofood	87	28.9%	28.9%
	Grabfood	92	30.6%	30.6%
	Others	109	36%	36%
Experience	<5 years	194	64.5%	64.5%
	5-10 years	71	23.6%	23.6%
	>10 years	36	12%	12%
Number of	<5	233	77.4%	77.4%

Employees				
	6-20	46	15.3%	15.3%
	>20	22	7.3%	7.3%
Type of Business	Culinary	160	53.2%	53.2%
	Fashion	45	15%	15%
	Agribusiness	12	4%	4%
	Services	28	9.3%	9.3%
	Others	56	18.6%	18.6%
Respondent Position	Employees	150	50.7%	50.7%
	Business Owners	146	49.3%	49.3%

Based on table 3, respondents consist of 49.3% business owners and 50.7% employees. In addition, the type of business that is mostly occupied by SMEs is culinary, which is 53.2%, and the most widely used e-commerce vendor is social commerce at 69.4%.

b. Convergent Validity of The Measurement

Table 4. Constructs, Items, Confirmatory Factor Analysis

	Item	Loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Compatability	CT1	0.886	0.783	0.925	0.821
	CT2	0.925			
Perceived Usefulness	PU1	0.859	0.814	0.890	0.729
	PU2	0.872			
	PU3	0.830			
Complexity	CX1	0.923	0.839	0.925	0.861
	CX2	0.933			
Security Concern	SC1	0.934	0.838	0.925	0.860
	SC2	0.920			
Relative Advantage	RA1	0.809	0.746	0.855	0.662
	RA2	0.799			
	RA3	0.833			
Technology	T	1.000	1.000	1.000	1.000
Cost	CS1	0.941	0.868	0.938	0.883
	CS2	0.938			
Organization Readiness	OR1	0.818	0.794	0.866	0.618
	OR2	0.815			
	OR3	0.745			
	OR4	0.765			
Organization Size	OS1	1.000	1.000	1.000	1.000
Organization Culture	OC1	1.000	1.000	1.000	1.000
Top Management Support	TM1	0.819	0.766	0.866	0.682
	TM2	0.866			
	TM3	0.791			
Organization	O	1.000	1.000	1.000	1.000

Government Support	GS1	1.000	1.000	1.000	1.000
Competitive Pressure	CP1	0.864	0.604	0.834	0.716
	CP2	0.827			
Environmental Uncertainly	EU1	1.000	1.000	1.000	1.000
Vendor Quality	VQ1	0.823	0.807	0.886	0.722
	VQ2	0.880			
	VQ3	0.844			
Environmental	E	1.000	1.000	1.000	1.000
E-commerce Adoption	AC1	0.919	0.762	0.893	0.806
	AC2	0.876			

Based on the results of processing using Smart PLS that the resulting loading factor value for all items is more than 0.6, this shows that the outer model between constructs and variables has met the convergent validity.

c. Discriminant of The Measurement

Disciplinary valdity is done to ensure that each concept of each latent model is different from other variables. Discriminant validity can be seen from the cross loading value. Cross loading on the model, shows that the loading value of each indicator item on the construct. In addition, to evaluate discriminant validity, it can be seen by using AVE (Average Variance Extracted) for each latent variable. The model has good discriminant validity if the square root of AVE for each construct is greater than the correlation between the two constructs in the model. The value of cross loading and AVE in this study after being analyzed has met the criteria for discriminant validity.

d. Composite reliability and Cronbach Alpha Measurement

Composite reliability measures the actual reliability value of a variable while Cronbach Alpha measures the lowest value of the reliability of a variable so that composite reliability >0.6 and Cronbach alpha value >0.6. Based on the analysis results show that the value of composite reliability and Cronbach alpha of all items >0.6, it can be stated that all constructs are reliable.

e. Model Structure Analysis

1) R-Square Value

Table 5. R-Square Value

	R Square	R Square Adjusted
E-commerce Adoption	0.304	0.297
Environment	0.879	0.877
Organization	0.860	0.858
Technology	0.831	0.829

Table 5 above for the e-Commerce Adoption Variable gives a value of 0.304 which means that the technology, organization, environment variables are able to influence e-commerce adoption by 30,% while the rest is influenced by other factors. For the Technology variable, it gives a value of 0.831, which means the indicators of compatibility, perceived usefulness, relative

advantage, complexity, security concerns are able to influence the technology variable by 83.1%, while the rest is influenced by other factors. For the organization variable it gives a value of 0.860 which means indicators of cost, organizational readiness, top management support, organization size, organization culture are able to influence the organizational variables by 86%, while the rest is influenced by other factors. The environment variable gives a value of 0.879 which means that the indicators of government support, competitive pressure, environmental uncertainty, and vendor support are able to influence the environmental variables by 87.9%, while the rest is influenced by other factors.

2) Hypothesis Testing

Table 6. Original Samples, T Statistics

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Compatability (CT) → Technology	0,279	0,279	0,034	8,156	**0,000**
Competitive Pressure (CP) → Environment	0,356	0,356	0,031	11,516	**0,000**
Complexity (CX) → Technology	0,302	0,302	0,035	8,744	**0,000**
Cost (CS) → Organization	0,289	0,288	0,024	11,929	**0,000**
Enviromental Uncertainly (EU) → Environment	0,180	0,182	0,031	5,850	**0,000**
Environment → E-commerce Adoption	0,288	0,289	0,076	3,808	**0,000**
Government Support (GS) → Environment	0,236	0,237	0,027	8,656	**0,000**
Organization → E-commerce Adoption	0,366	0,363	0,078	4,694	**0,000**
Organization Culture (OC) → Organization	0,136	0,134	0,031	4,426	**0,000**
Organization Readiness (OR) → Organization	0,407	0,409	0,032	12,685	**0,000**
Organization Size (OS) → Organization	0,066	0,066	0,030	2,196	**0,029**
Perceived usefulness (PU) → Technology	0,239	0,237	0,038	6,359	**0,000**
Relative Advantage → Technology	0,332	0,334	0,037	9,054	**0,000**
Security Concerns (SC) → Technology	0,218	0,219	0,033	6,595	**0,000**

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Technology → E-commerce Adoption	-0,070	-0,070	0,077	0,914	**0,361**
Top Management Support (TM) → Organization	0,369	0,369	0,034	10,718	**0,000**
Vendor Quality (VQ) → Environment	0,423	0,421	0,031	13,668	**0,000**

Discussion of Hypotheses 1

The results of testing the technology variable did not have a significant effect on e-commerce adoption with a P value of 0.361 ≥ 0.05 and a T-Statistics value of 0.914 < t-table 1.96 thus H1 in this study was rejected.

a) H1a

The results of testing the compatibility indicators have a positive and significant effect on technology variables with a P value of 0.000 ≤ 0.05 and a T-Statistic value of 8.156 > t - table 1.96, thus H1a in this study is accepted.

b) H1b

The results of the perceived usefulness indicator test have a positive and significant effect on technology with a P value of 0.000 ≤ 0.05 and a T-Statistic value of 6.359 > t-table 1.96 thus H1b in this study is accepted.

c) H1c

The test results of complexity indicators have a positive and significant effect on technology with a P value of 0.000 ≤ 0.05 and a T-Statistic value of 8.744 > t-table 1.96, thus H1c in this study is accepted.

d) H1d

The test results of security concern indicators have a positive and significant effect on technology with a P value of 0.000 ≤ 0.05 and a T-Statistic value of 6,595 > t-table 1.96, thus H1d in this study is accepted.

e) H1e

The results of testing the relative advantage indicator have a positive and significant effect on technology with a P value of 0.000 ≤ 0.05 and a T-Statistic value of 9,054 > t-table 1.96, thus H1e in this study is accepted.

Discussion of Hypotheses 2

The results of testing for organizational variables have a positive and significant effect on e-commerce adoption with a P value of 0.000 ≥ 0.05 and a T-Statistics value of 4.694 > t-table 1.96, thus H2 in this study is accepted.

a) H2a

The results of the cost indicator test have a positive and significant effect on organizations with a P value of 0.000 ≤ 0.05 and a T-Statistic value of 11,929 > t-table 1.96, thus H2a in this study is accepted.

b) H2b

The results of testing for organizational readiness indicators have a positive and significant effect on organizations with a P value of 0.000 ≤ 0.05 and a T-Statistic value of 12.685 > t-table 1.96, thus H2b in this study is accepted.

c) H2c

The test results of organization size indicators have a positive and significant effect on organizations with a P value of 0.029 ≤ 0.05 and a T-Statistic value of 2.196 > t-table 1.96, thus H2c in this study is accepted.

d) H2d

The results of testing for organizational culture indicators have a positive and significant effect on organizations with a P value of 0.000 ≤ 0.05 and a T-Statistic value of 4.426 > t-table 1.96, thus H2d in this study is accepted.

e) H2e

The test results of the Top Management Support indicator have a positive and significant effect on organizations with a P value of 0.000 ≤ 0.05 and a T-Statistic value of 10.718 > t-table 1.96, thus H2e in this study is accepted.

Discussion of Hypotheses 3

The results of testing for organizational variables have a positive and significant effect on e-commerce adoption with a P value of 0.000 ≥ 0.05 and a T-Statistics value of 3.808 > t-table 1.96 thus H3 in this study is accepted.

a) H3a

The test results of the Goverment Support indicator have a positive and significant effect on the Environment with a P value of 0.000 ≤ 0.05 and a T-Statistic value of 8.656 > t-table 1.96, thus the H3a in this study is accepted.

b) H3b

The results of the Competitive Pressure indicator test have a positive and significant effect on the Environment with a P value of 0.000 ≤ 0.05 and a T-Statistic value of 11.516 > t-table 1.96, thus H3b in this study is accepted.

c) H3c

The test results of the Environmental Uncertainly indicator have a positive and significant effect on the Environment with a P value of

0.000 ≤ 0.05 and a T-Statistic value of 5.850 > t-table 1.96, thus the H3c in this study is accepted.

d) H3d

The test results of the Vendor Quality indicator have a positive and significant effect on the Environment with a P value of 0.000 ≤ 0.05 and a T-Statistic value of 13.668 > t-table 1.96 thus H3d in this study is accepted.

Based on the test results, it shows that the intention to adopt e-commerce by SMEs in Karawang Regency is proven not to be directly influenced by the technology aspect, but rather the organizational and environmental aspects.

IV. CONCLUSION

Based on the results of the study, it shows that SMEs in Karawang Regency agree that aspects of technology, organization, and the environment support the adoption of e-commerce. Social commerce is most widely used by SMEs as a medium for increasing productivity. Based on the assumptions made by researchers, it is proven that the technological aspects do not have a significant effect on the intention to adopt e-commerce, while the organizational and environmental aspects have a significant effect on the intention to adopt e-commerce. All technology indicators, namely compatability, perceived usefulness, complexity, security concern and relative advantage, are proven to have a significant effect on technology in the intention to adopt e-commerce.

Organizational indicators, namely cost, organization readiness, organization culture, organization size and top management support, are proven to have a significant effect on organizations in their intention to adopt e-commerce. Meanwhile, environmental indicators, namely government support, competitive pressure, environmental uncertainty and vendor quality, have a significant effect on the environment in the intention to adopt e-commerce. In this study, the sample is limited to SMEs who are willing to fill out the questionnaire. During the data collection process, many SMEs were reluctant to fill out the questionnaire, so that only 301 respondents were obtained. Of course, these respondents do not represent all SMEs within the scope of Karawang Regency completely. For future researchers, they are able to develop this research by using other adoption models such as UTAUT, Diffusion Innovation, and others. In addition, the Karawang Cooperative and MSMEs Office as the agency that manages SMEs, in order to provide more education about e-commerce, because some respondents were reluctant to fill out questionnaires because they did not understand e-commerce.

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