




## INFLUENCE OF INFORMATION TECHNOLOGY TOWARDS THE DEVELOPMENT ECONOMICS OF SMES IN INDONESIA

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### ABSTRACT

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Technology continues to develop rapidly and creates an impact on the economic field. SMEs are increasing at a rapid pace because of the spread and increase in the number of prospective consumers who are influenced by promotion in marketing. With this online marketing strategy, one can find SMEs are able to sell their products. This study aims to identify the influence of information technology with Capture, Processing, Result, Save, Retrieve, and Transmission indicators on the economic development of SMEs in Indonesia. This sequential explanatory mixture method uses two stages of data collection, namely quantitative and qualitative approaches. Quantitative data was collected through surveys with 127 respondents who are SMEs entrepreneurs. The qualitative data was gathered by interviewing 30 informants who have SMEs in the fields of food and beverage, fashion, and handicraft. The results of this study indicate that there is a dimension of information technology that affects the economy of SMEs in conducting sales activities. The impact is seen in the positive results of indicators of Capture, Processing, Result, Save, Retrieve, and Transmission. Then, descriptive results show that with r values capturing (0,78), processing (0,77), result (0,79), save (0,78), retrieve (0,80), and transmission (0,80).

**Contribution/Originality:** This research is one of the few studies that have investigated the influence of information technology on the development of SMEs in Indonesia when viewed from the capture, processing, result, save, retrieve, and transmission indicators.

### 1. INTRODUCTION

One of the competitiveness of SMEs is the use of Information Technology and improve business transformation, accuracy, and efficiency of information exchange (Acire, 2015). Besides, the use of information technology with Capture, Processing, Result, Save, Retrieve, and Transmission indicators can also expand marketing networks and grow market share. Increasing the competitiveness of SMEs is very necessary, and in order to survive and compete in the global trade arena (Subrahmanya, 2014) SMEs need to make use of Information Technology applications as they trigger business in different styles in Indonesia (Raharjo, 2019). In the era of increasingly advanced global economy today, it will lead to very fierce business competition. This will encourage companies to increase productivity in the fields of production, marketing, and corporate strategy (Loroun, Ming, &

Ali, 2018). The global competition, which is realized through free market, has also encouraged ASEAN countries to form economic integrity called the ASEAN Economic Community (AEC) (Nuryani & Firmansyah, 2020). Small and Medium Enterprises (SMEs) have an important role in a country's economic and industrial growth (Hossain & Kauranen, 2016). Small businesses are essential to study because they have a crucial role in economic growth on a national and regional scale. Nearly 90% of the total firms in the world are contributed by SMEs (Vyas & Jain, 2020). In addition, SMEs have a contribution to employment, and empirical studies show that SMEs on an international scale is a source of job creation (Bannour & Mtar, 2019). Based on Singh and Kumar (2020) it has been recognized that small and medium businesses (SMEs) play a very vital role in economic growth and development, not only in developing countries but also in developed countries. In developing countries, SMEs play an essential role from the perspective of employment opportunities and sources of income for the poor, income distribution and poverty reduction, and rural economic development (Liu & Jin, 2018).

Business Actors in Indonesia including Small and Medium Enterprises (SMEs) have to therefore prepare and improve their quality, They need to know the ins and outs and study the market conditions of ASEAN countries (Tan, Supratikno, Pramono, Purba, & Bernarto, 2019). The contribution of SMEs to employment, both in developed and developing countries, including Indonesia, has a significant role in tackling the problem of unemployment SMEs (Rosavina, Rahadi, Kitri, Nuraeni, & Mayangsari, 2019). SMEs in Indonesia can survive the economic crisis caused by 4 (four) things, namely: (1) Some SMEs produce consumer goods, especially those that are not durable, (2) the majority of SMEs rely more on non-banking financing in the aspect of business funding, (3) in general SMEs carry out strict product specialization, in the sense of only producing goods or certain services only, and (4) The formation of new SMEs as a result of the many terminations in the formal sector (Tambunan, 2011). The number of SMEs in Indonesia was reached 56.2 million units and are able to absorb 97.2% of the workforce employment of the total workforce in existence (Martdianty, Coetzer, & Susomrith, 2020). These SME's, that have triggered economic activity in building and improving the economy of the Indonesian people, can be divided into 4 criteria, including: (i) Livelihood Activities that are used as work opportunities to earn a living, more commonly known as the informal sector; (ii) Micro Enterprises run by craftsmen but without entrepreneurial characteristics; (iii) Small Dynamic Enterprises that have an entrepreneurial spirit and can accept subcontracting and export jobs; and (iv) Fast Moving Enterprises, that have an entrepreneurial spirit and have the potential to transform into a big business. These SMEs have played an important role in economic growth; reducing unemployment and poverty, besides played a role in foreign exchange earnings (Najib & Kiminami, 2011).

The crisis that struck Indonesia in 1997 began with the plight of the rupiah exchange rate against the US dollar and the monetary crisis that impacted the Indonesian economy, namely the economic recession (Famiola & Wulansari, 2019). This is a crucial lesson to re-examine a commercial development that really has a strong structure and can survive in any situation. When the economic crisis hit the world automatically worsened the economic conditions in Indonesia. Crisis conditions occurred in the period of 1997 to 1998, and only the SME sector was able to remain stable (Sanusi & Connell, 2018). SMEs are productive businesses to be developed to support macro and microeconomic development in Indonesia and affect other sectors that can develop (Hutahayan & Yufra, 2019). One of the sectors that are affected by the growth of SMEs in the banking service sector that is involved, because almost 30% of SME businesses using operational capital from banks (Wahyuni & Sara, 2020). Empowerment of SMEs amid globalization and high competition makes SMEs must be able to cope with global challenges, such as increasing product and service innovation, developing human resources and technology and expanding marketing areas (Hu, Williams, Mason, & Found, 2019). This needs to be done to increase the selling value of SMEs themselves, especially in order to compete with foreign products that are increasingly flooding industrial and manufacturing centers in Indonesia (Choudhary, Harding, Tiwari, & Shankar, 2019).

Government policy for information technology in the future is considered necessary to increase its role in empowering SMEs while also developing a mutually beneficial business partnership with large entrepreneurs and

improving the quality of Human Resources by making use of IT applications. This study aimed to analyze the economic impact of information technology on SMEs in Indonesia. The focus of this research was on the weaknesses of small and medium business actors regarding information technology, especially those related to Capture, Processing, Result, Save, Retrieve, and Transmission indicators. A broader understanding of information technology is a technology that is used to process data, including process, obtain, organize, store, and manipulate data in various ways to produce quality information.

Therefore, this paper examined the influence of information technology on the development economics of SMEs in Indonesia.

## 2. LITERATURE REVIEW

SMEs are valued as the engine of successful economic development in both developed and developing countries (Prasanna et al., 2019). In Indonesia's present financial predicament, it is easy to forget its remarkable economic performance during the last few decades. Indonesia not only achieved high rates of economic growth and improved welfare for the population, but it also underwent a substantial phase of structural transformation. This transformation was facilitated by the adoption of new technologies for products and processes (Park & Ryu, 2015). At least, the country is still lagging behind other countries in the region in various respects (Okamoto & Sjöholm, 2003). According to data from the Ministry of Cooperatives and SMEs, in 2013 SMEs were able to contribute 5,440 trillion rupiahs (at current prices) to the national GDP, absorb a workforce of 114.14 million people, and attract 1,655.2 trillion rupiah investments with a total number of businesses of 57, 8 million units (Prijadi, Wulandari, Desiana, Pinagara, & Novita, 2020). Indonesia's SMEs technology and innovation mastery are still lower than the average ASEAN country. According to World Bank Enterprises Survey data, in the year 2018, the number of small companies that have international quality certificates was only 1.6 percent, while medium-sized companies were 6.3 percent (Rahyuda, Rahyuda, Rahyuda, & Candradewi, 2018).

Based on Ghani, Munir, Zam, and Sukmadillaga (2020) studies, Indonesian SMEs support to obtain audited financial statements following voluntary practices. Even so, the factors that enhance this voluntary audit were chosen because they have improved economic quality. On the other hand, the results of the study of Musa, Rahim, Azmi, Shibghatullah, and Othman (2016) cited factors that influence SMEs' performance through brand reputation and image, customer involvement, and customer brand reputation. Effectiveness promoted through social media. On the other hand, Mustapha and Yaen (2013) conduct voluntary audit research to help SMEs request consumer demand in Indonesia. Making it, they can develop strategies to choose audit services voluntarily. Cooperation between the government and SMEs is needed to increase competitive advantage (Hove-Sibanda, Sibanda, & Poee, 2017). In addition, SMEs also need to be trained on the importance of self-improvement globally. In Indonesia, SMEs resistance to exchange rate fluctuations and contribute significantly to gross regional domestic product (Noor, Susilastuti, & Wildan, 2020). The regulation No.20 year 2008 about SMEs explained that micro-enterprises have annual sales results of at most 300 million rupiahs, small enterprises also have annual sales results of more than 300 million rupiahs up to a maximum of 2.5 billion rupiahs. On the other side, the medium enterprise has annual sales results of more than 2.5 billion rupiahs up to a maximum of 50 billion rupiahs (Suhud & Hidayat, 2015).

The role of the social sector that SMEs here can provide social benefits is to reduce income inequality, especially in developing countries (Harrigan, Ramsey, & Ibbotson, 2008). The role of small businesses not only provides goods and services for low-purchasing consumers but also for other urban consumers with higher purchasing power. Also, small businesses also provide raw materials or services for medium and large companies, including the local government (Baporikar, Nambira, & Gomxos, 2016). This can be implemented with the business development service in facilitating SMEs to obtain capital and expand market share is a variable that actually has a role in marketing (Suzuki & Igei, 2019). In business development, assistance is needed, considering the limitations

of human resources owned by the community in the business sector. Human resource and technology are two inseparable components, that is necessary for the development of SMEs (Liu, Chang, Horng, Chou, & Huang, 2019).

Technology acquisition can be a strength of strategy and tools for organizations that deliver advantages in the aspect of promotion and power of competitiveness (Subrahmanya, 2014). Van Rensburg, Veldsman, and Jenkins (2008) argue that a technologically advanced enterprise provides benefits for business organizations to reduce costs and improve the ability of business organizations to coordinate with outside parties. Information technology adoption in SMEs is still shallow than expected (Rovira & Tolstoy, 2011). In the era of the knowledge-based economy today, it is vital for SMEs to adopt new technology. It can provide SMEs on services and competitiveness (Verbano & Crema, 2016). According to Garengo (2019) there are four factors that determine the adoption of new technologies by SMEs, namely: (1) the characteristics of SMEs, (2) strategies and management of SMEs competition, (3) the influence of internal and external parties in the adoption decision-making process, and (4) the characteristics of the new technology to be adopted.

The use of information technology on Capture is a process of capturing data that will become input data. Then Processing indicator is carried out by compiling detailed notes and activities (Maxmanroe, 2019). In processing, it processes the input data as it receives. Because it deals with data processing it can be in the form of data conversion to other forms, condition analysis, calculation, and synthesis of all data and information. In addition, computer activities are also process of information and can be converted into other types of information (Jones, Suoranta, & Rowley, 2013). Thus, multimedia systems from computer and smartphone can process various forms of information simultaneously. Next, Result indicator is related to generating and organizing information into useful forms. The various forms of information are reports and tables. Save indicator is an activity of recording and storing information data in a media that can be used for other purposes. Retrieve indicator becomes important to trace, copy data and information that has been stored. Finally, the Transmission indicator is the process of sending data and information from one location to another through a computer network. positively influencing business performance (Raharja & Tresna, 2019). The development of information technology and also the internet in this era of globalization is very high and increasingly widespread (Amaral, Jorge, & Peças, 2019). With the technology that is connected online without a time and place limit, marketing is widely applied in business in companies in various fields. It uses existing technology allowing marketing companies to get a wider reach of customers (Hanh, 2020). Marketing is essential for companies, especially SMEs because only by marketing a service or product, customers awareness increases and then sales and productivity follows (Nayati, Siti, Maulani, Trialih, & Alief, 2019).

### 3. METHODOLOGY

#### 3.1. Content Analysis

##### 3.1.1. Undertaking the Analysis

This type of research is a combination or better known as a mixed-method, which is a combination of qualitative research and quantitative research. Sugiyono (2014) states that this combination of research method qualitative and quantitative, obtains more comprehensive, valid, reliable, and objective data. The sequential explanatory strategy is the strategy that was applied with the collection and analysis of quantitative data in the first stage and was followed by the collection and analysis of qualitative data in the second phase built on preliminary quantitative results (Creswell, 2014).

In preliminary data, researchers used the population of SMEs in Jakarta. Jakarta is the capital of Indonesia, which is the center of government and business. To save resources, time, and energy, only 127 respondents were selected from 350 sample SMEs. For further data at the interview stage, researchers used a purposive sampling technique in determining informants. Out of 127 respondents, only 30 respondents were included for in-depth interviews. Content analysis was used to systematically check the observed data through capture, processing, result, save, retrieval, and transmission. The questionnaire had a total of 20 statements related to the dimensions of

information technology. It consisted of 3 statements about capture, four statements about process, two statements about results, three statements about save, four statements about retrieval, and four statements about transmission. The instrument used 4 Likert scales consisting of; 1) strongly disagree; 2) disagree; 3) agree, and 4) strongly agree. The data were obtained both textually, visually; by recording information into categories based on review and analysis of the quality of capture, processing, yield, storage, retrieval, and transmission dimensions.

**Table-1.** The dimension of information technology.

No	Dimensions of Information Technology
1	Capture
2	Processing
3	Result
4	Save
5	Retrieval
6	Transmission

### 3.2. Interviews

#### 3.2.1. Undertaking the Interviews

Interviewing allows us to put behavior in context and provides access to understanding their action. This structured interview was carried out for 45 minutes, with 30 informants who had SMEs in the fields of food and beverages, fashion, and handicrafts. The meeting was conducted in two parts, namely during the initial research and later to do further research. The questions posed to the interviewees were open-ended questions, based on the dimensions relevant to the research presented in Table 1.

#### 3.2.2. Respondents of the Interviews

In the process of conducting interviews, researchers tried to direct SMEs entrepreneurs to understand information technology better. In addition to giving questions to informants, the researchers also explained the developing information technology to increase selling power. From 30 SME entrepreneurs, interviewed was done with 20 small and 10 medium-scale economic actors to obtain the data needed in this study. Out of 20 small-scale SMEs entrepreneurs, 10 belonged to the food and beverage sector, 5 in the craft sector, and 5 in the fashion sector.

## 4. RESULT AND DISCUSSION

### 4.1. Result

**Table-2.** Validity and reliability dimension of technology information.

No	Dimensions of Information Technology	Validity	Reliability
1	Capture	KMO = 0.71 Sign = 0.000	r = 0.62
2	Processing	KMO = 0.69 Sign = 0.000	r = 0.61
3	Result	KMO = 0.77 Sign = 0.000	r = 0.69
4	Save	KMO = 0.68 Sign = 0.000	r = 0.66
5	Retrieval	KMO = 0.65 Sign = 0.000	r = 0.64
6	Transmission	KMO = 0.64 Sign = 0.000	r = 0.62

The basic requirement that must be met is the Kaiser-Meyer-Olkin Of Sampling Adequacy (KMO) value must be more than 0.5 (Garengo, 2019). In addition, the KMO value on the Anti-image Correlation must be greater or

equal to 0.5. while in the reliability test, the standard used in determining whether a research instrument is reliable or not is generally a comparison between the value of r count with r table at a 95% confidence level or 5% significance (Sevincer, Kaya, Bozkurt, Akin, & Kose, 2017). When done with the Alpha-Cronbach method, the calculated r-value is represented by an alpha value; the more significant the alpha value, the higher the reliability and vice versa. The KMO values in Table 2 above 0.500 indicate that the dimension of information technology can be said to be suitable for use (Wang, Ahmed, & Rafiq, 2008). The validity and reliability of the research instrument are already good. Capture has good validity and reliability values. Processing has good legality and reliability. There have been several interviews with several opinion leaders in supporting research data.

"In my opinion, information technology makes it easy in the sales process, but there are constraints on human resources. My employees are still minimal in using technology and information well." (SME 1, Food and Beverages, 2019).

"The presence of information technology makes it easy for me to do marketing and also manufacturing unit. Besides, marketing costs can be reduced and revenue can be saved with the presence of information technology. For example, I use social media as a promotional tool which is cost effective." (SME 3, Handcrafting, 2019).

"With the ease of information technology, the process of selling goods becomes easy. We can do it through the website and also social media. Usually, I do a pre-order to find out how many interesting items will be sold so that I can save the money that is supposed to be for marketing. And the production is not so great to see the enthusiastic consumers" (SME 5, Fashion, 2019).

"In my opinion now it's easy for consumers to search for goods via the internet. Price competition becomes the main thing. Information technology makes it easy for us to see the market situation." (SME 7, Food and Beverages, 2019).

From this interview data, it is revealed that the presence of information technology can provide opportunities for SMEs to survive. To further clarify, the results of using information technology at SMEs are exhibited in Table 3.

**Table-3.** Descriptive results of the information technology variable.

No	Dimension Information Technology	Indicator	Percentage of dimension			
			Strongly Disagree	Disagree	Agree	Strongly Agree
1	Capture	The ability to compile detailed notes with technology devices running a business owned	4 %	13 %	34 %	49 %
2	Processing	The ability to process and process data into information related to the product being promoted	8 %	6 %	42 %	44 %
3	Result	The ability to generate and organize information into useful forms in reports, tables, and graphs	11 %	1%	59 %	29 %
4	Save	The ability to record and store data information in a media that can be used for marketing purposes	9 %	2 %	37 %	52 %
5	Retrieve	The ability to browse, retrieve information and copy information that has been stored related to suppliers that have been paid off	5 %	12 %	47 %	36 %
6	Transmission	The ability to sending sales information data from user A to user B through a computer network	5 %	13 %	53 %	29 %

Table 3 shows that the all dimensions are saving due to the information technology variable to get a good percentage. There is the influence of technology on SMEs. It is shown by able to store information data either through computer or smartphone devices. The respondents agree that they have the ability to perform all indicators that reflected on information technology dimensions, that are compiling detailed notes with technology devices, processing data into relevant information, generating and organizing information into useful reports, recording data and information, retrieving information, and sending sales information data through computer network. The lowest dimension value in information technology in this study is the transmission. Information technology is now the thing that is very important for SMEs because its benefits have been felt to help facilitate economic activities (Belman & Tzachor, 2015). Based on the six dimensions, information technology can also support the process of management. Therefore, IT increases the complexity of management tasks, and affects the economy internationally (globalization), speeds up response time (response time), and reduces pressure from outside parties due to business competition (Jones et al., 2013).

Table-4. Cluster research result, 2019.

No	Technology Information	R
1	Capture	0.78
2	Processing	0.77
3	Result	0.79
4	Save	0.78
5	Retrieve	0.80
6	Transmission	0.80

The results of information technology clustering research on the capture dimension have a value of r.78. Respondents determine the capture dimension has a positive value. Responding to the entire definition of a catch is very grouping in capturing this dimension regarding capture agreement. The processing dimension has a value of r.77. The result dimension has a value of r.79. The information technology used by respondents is beneficial in opening and winning their SME's networks. The save dimension has a value of r.78. Descriptive data determines this dimension. In the next process, this dimension cluster was not included when results were taken. When responded to storing information, it needed to be saved again. Therefore, the habits of Indonesians in storing data are not well understood. The retrieve dimension has a value of r.80. Respondents get information or news or things that are desired in the activities of SMEs through new media. This dimension is taken from respondents who can retrieve information about variants for their SME's businesses. Respond can open networks and renew their systems through the information technology they obtain. The transmission dimension has a value of r.80. Transmissions from information technology get positive transmissions because of the respondent's use for their economic activities in conducting SMEs. Transmissions made by information technology today are fast. Receive respondents get feedback and run about their business through new media quickly.

#### 4.2. Discussion

The information technology approach has been intensively used recently to encourage businesses to run at their maximum potential (Belman & Tzachor, 2015). In general, the role of IT has begun to be seen and utilized, especially in terms of encouraging marketing strategies and improving the performance of economic activities in SMEs (Choudhary et al., 2019). This study sees that the economic activities of SME respondents must also be updated and current. Based on 127 respondents, only 50 SMEs were able to follow the development of information technology (Famiola & Wulansari, 2019). The rest are still in the process of using IT. Because of the lack of information and socialization levels regarding the use of IT received, they are still relatively limited (Harrigan et al., 2008). This means that the presence of SMEs will be able to improve the welfare of the community through increasing income and reducing unemployment. However, the high development of SMEs is still overshadowed by

obstacles. These barriers can differ in one region from another, in rural and urban areas, or between sectors, or between companies in the same sector (Kussudyarsana, Soepatini, Maimun, & Vemuri, 2019). Based on the findings, the use of technology tools for SMEs has a positive influence on economic activity. This study in line with Jones et al. (2013) that information can be received by users who need it; information needs to be presented in a monitor. According to Nayati et al. (2019) sometimes, both SMEs entrepreneurs and consumers want information printed on paper. In these circumstances, processing the input data is received and transformed into information. Paiola, Gebauer, and Edvardsson (2012) argue that the use of new technology for service SMEs development provides a positive value for management strategies related to aspects of communication, information access, decision making, data management, and knowledge.

In line with Eze et al. (2019) increased use of computer technology as a form of information technology has changed the processing of accounting data. The manual automatically becomes for SMEs the development of the economic condition (Paiola et al., 2012). The social goal of SMEs is to achieve a minimum level of welfare, namely ensuring the basic needs of the people. For this reason, establishing a SME requires careful planning (Ghahroudi, Hoshino, & Ahmadpoury, 2019). On the other side, Park and Rhee (2013) explained that actions through technology commercialization could be taken to respond to business opportunities or by analyzing the opportunities in the form of market research to potential customers. This analysis is carried out to see the customer's response to the product, process, and service. Based on Liu and Jin (2018) the influence of IT on SMEs makes the economic situation more precise, fast, and accurate. In addition, the use of technology makes it easy for SME employees to transmit (Hutahayan & Yufra, 2019) particularly when the boss asks for a sales report or when potential customers ask for price quotes. Information technology therefore has different goals and functions for a company, and it all depends on the business field of each company (Prasanna et al., 2019). In line with Ghani et al. (2020) assessed the dominant factors in volunteering in small and medium-sized companies, and this is by the results of this study, which saw that the economic activities of SME respondents also had to be updated and current. Because consumers always follow the development of existing information technology, consumers still want to be facilitated in every desire and need. Technology helps businesses in Indonesia by improving communication, operating efficiently, overcoming obstacles to accessing training and financial services, and reaching more customers (Bo & Qiuyan, 2012). Digital SME Development needs to get the most attention from both the government and the community itself in order to develop competitiveness with other economic actors (Eze et al., 2019).

SMEs also need to have ease and speed in communicating or promoting their business to consumers widely both at home and abroad. So far, the promotion of SMEs is mostly done through joint exhibitions in a limited time and place, so that the relationship or transactions with consumers cannot be guaranteed its sustainability (Makkonen & Leick, 2019). It can be caused by long-distance or lack of communication intensity constraints. The communication factor in running a business is crucial because communication will create a strong emotional bond with existing customers, also allowing new customers to come. The utilization of the internet allows SMEs to do marketing with global market objectives (Harrington, Srail, & Kumar, 2019).

## 5. CONCLUSION

Even though the use of information technology is still limited to good SMEs seen from the use of computers and the internet in managing their businesses, this research has laid down the significance of the use of Information technology across all categories of SMEs. The information technology variable has a positive and significant effect on the economic development of SMEs in Jakarta, Indonesia. SMEs using technology has also been proven to have a positive impact on organizational performance (Spurge & Roberts, 2005). This can be seen from the results of the validity and reliability of the information technology dimension. The impact is shown by positive results from the dimensions of capturing, processing, result, save, retrieve, and transmission. Then, descriptive results show that with r values capturing (0.78), processing (0.77), result (0.79), save (0.78), retrieve (0.80), and transmission (0.80).



This shows that the Understanding of Technology owned by respondents is quite good. The conclusion in this study is that there is an influence of information technology on the economic development of SMEs.. This research suggestion can be made to do the next research with a broader range of respondents with different concepts and methods.

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