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Maintaining the Performance and Sustainability of MSMEs Using E-Commerce during the Covid -19 Pandemic

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A B S T R A C T

The aim of this study was to test whether e-commerce, information technology, business network affect performance. Besides, this study also examines the effect of performance on business sustainability during the Covid-19 pandemic. The data were obtained from online and offline questionnaires distributed to 193 MSMEs in Yogyakarta. These data were analyzed using structural equation modeling with Smart PLS. This study develops the results of the previous studies by adding one variable that is sustainability. The sustainability variable was tested using structural equation modeling. The results show that e-commerce and business networks affect performance, while information technology does not affect performance. In addition, performance affects the sustainability of MSME businesses. This research implies that the government's support is still needed especially in e-commerce usage for MSME to compete in the global market. Besides, the right strategy is also needed to expand the business network for surviving themselves during the Covid-19 pandemic.

A B S T R A K

Penelitian ini bertujuan untuk menguji apakah e-commerce, teknologi informasi dan jaringan usaha berpengaruh terhadap kinerja. Selain itu, penelitian ini juga menguji pengaruh kinerja terhadap keberlanjutan usaha selama pendemi Covid-19. Data diperoleh dengan menyebarkan kuesioner baik secara off-line maupun on-line pada 193 pemilik UMKM di Yogyakarta yang dianalisis menggunakan model persamaan simultan dengan Smart-PLS. Beberapa hasil temuan riset sebelumnya menguji pengaruh e-commerce, teknologi informasi dan jaringan usaha terhadap kinerja usaha secara parsial. Penelitian ini mengembangkan hasil temuan sebelumnya dengan menambahkan variabel sustainability yang diuji secara structural. Hasil analisis menunjukkan bahwa e-commerce dan jaringan usaha berpengaruh terhadap kinerja usaha. Selanjutnya, kinerja berpengaruh terhadap keberlanjutan usaha UMKM. Namun, pemanfaatan teknologi informasi tidak berpengaruh terhadap kinerja usaha. Penelitian ini memberikan implikasi bahwa masih diperlukan dukungan pemerintah agar UMKM dapat memanfaatkan e-commerce sehingga UMKM mampu bersaing di pasar global. Selain itu, diperlukan strategi yang tepat untuk memperluas jaringan usaha agar mampu bertahan pada masa pandemi COVID 19.

1. INTRODUCTION

MSMEs have a significant role in increasing the gross domestic product in Indonesia. Based on data from the 2019 World Bank (World Development Indicators database), Indonesia reached the 16th globally with the most extensive domestic product. Based on the data from the Central Statistics Agency, MSMEs have an ever-increasing market share with an average increase of > 2 percent for three years from 2016-2018. MSMEs in Indonesia have a strategic role in reducing unemployment, creating new business opportunities, and contributing to improving the national economy (Budiarto, Prabowo, & Herawan, 2017; Riwayati, 2017). Therefore, this positive climate is the right moment for the government to strengthen the foundations of the Indonesian economy (Fahmi & Mudiantono, 2019).

Currently, the 4.0 industrial revolution era is marked by extraordinary technological developments affecting various aspects of people's lives. This is indicated by the rapidly dynamic changes of the community and leads to a business climate which is competitive, fast, and difficult to

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predict (Andriyanto, 2018). In this condition, MSMEs must continue their life to formulate business strategies, compete in the market, and adapt to increasingly rapid environmental changes so they can maintain their performance and business (Pramudiati, Putri, & Basri, 2019).

The Covid-19 pandemic has suppressed businesses performance, especially MSMEs, and it implies the change of their strategies to maintain their productivity. For example, companies must implement proper business processes and strategies effectively (Widarti, Desfitrina, & Zulfadhli, 2021). WHO states that e-commerce can increase business transactions during the Covid-19 pandemic so that companies can survive (Jovanovic et.al, 2020). During the Pandemic, MSMEs had faced various problems such as labor force, cash in-flow, and decreased demand, which, if not resolved, would make business no longer exist (Li et al., 2021). Therefore MSMEs need a strategy to survive, especially using online media or e-commerce (Ajmal, 2017)

One of the solutions, in IT utilization, is the use of online technology through online business, namely e-commerce (Fathimah, 2019). Intensive use of e-commerce technology can increase competitiveness and increase value chain efficiency for companies. E-commerce offers various kinds of opportunities for MSMEs without having to spend more to increase efficiency (Triandra et al., 2019). Market information is needed to determine the current economic conditions so that MSMEs can see opportunities and threats to make it easier to develop marketing strategies (Anwar, Rehman, & Shah, 2018). The developments of Information Technology (IT) make it easier for people to carry out business transactions, communicate, and in the long run, can maintain business continuity. Information technology will increase performance through business scale, efficiency, and productivity leading to a competitive strategy. Information technology can reduce lower transaction costs and better allocation of resources (Agwu, 2018). Several studies have explained that IT's use through the acquisition of software and hardware has made MSMEs continue to grow and remain in the competition. The presence of technology even eliminates some manual procedures so that business processes become faster. Technology can also clearly provide information so that the results of the work will be faster with more significant numbers (Tsambou & Fomba Kamga, 2018).

Based on data released by the Directorate General of Population and Civil Registration, Indonesia has an ever-increasing total population. Until 2019, the total population was approximately 266,514,927 people, an increase of 0.99 percent from 2018. Given the increasing number of Indonesia's population every year, the Ministry of Cooperatives and Small and Medium Enterprises setting their targets for new MSMEs to grow by around 5 percent at the end of 2019. Therefore, it is necessary to increase the number of MSMEs from each region in Indonesia, especially in Yogyakarta. However, the Covid-19 pandemic has a significant impact, disrupting human health and disrupting economic health throughout the world, especially the national economy in achieving the target of increasing the number of MSMEs (Ubaidillah, 2020). The government's appeal to prevent the spread of Covid-19, including social distancing and closing tourism areas, has made business actors, especially MSMEs, experience a decrease in income. The worst risk that will be experienced by MSMEs in the face of the Covid-19 pandemic is bankruptcy. Due to the data taken from the Cooperative Development System and Business in Yogyakarta, currently, there are more than 2,332 MSMEs affected by Covid-19.

There has been more research on MSMEs performance in Indonesia, but limited to one district, such as Purwokerto (Fahmi & Mudiantono, 2019); Medan (Fathimah, 2019); Semarang (Harini, Darsin, & Praptono, 2017); Bantul (Muafi, 2015); Sleman (Mardiana, Warsiki, & Heriningsih, 2020). This study expands the object into five regions in Yogyakarta to obtain a better generalization (Alharbi & Drew, 2014). Expanding the object of research can provide more comprehensive information and better reflect the actual condition of MSMEs (Sekaran & Bougie, 2014). Moreover, Several previous studies have partially tested e-commerce, information technology, business networks, and MSMEs' performance (Triandra et al., 2019; Anwar et al., 2018; Djatikusumo, 2016) and examined the effect of performance on business sustainability (Pramudiati et al., 2019). While this study uses a structural model because this method can more accurately describe the complex relationship between variables simultaneously without imposing distributional assumptions on the data (Hair et al., 2019).

This study provides two contributions, namely theoretical and practical. The theoretical contribution explains the significant findings between the use of e-commerce with performance and sustainability. Furthermore, the finding of this study is challenging for further research to test the direct effect between information technology and

sustainability. The practical contribution explains the finding of e-commerce that crucial to maintain the MSMEs business, especially facing the Covid-19 Pandemic.

2. THEORETICAL FRAMEWORK AND HYPOTHESES

Contingency Theory

There are some proponents describe contingency theory. Contingency theory is related to the design, strategy formulation, and achievement of an organization (Noor, Khan, & Azizi, 2009). Other researchers such as McMahon & Perritt (1973) introduced the contingency theory and then developed by Pennings (1975). They argued that organizational performance will depend on environmental factors. In addition,, contingency theory is often called a situational theory because this theory suggests that certain variables will depend on certain situations (Verkerk, 1990). Research on MSMEs is exciting when connected with contingency theory because the MSMEs are very susceptive to environmental changes (Lutfi, Md Idris, & Mohamad, 2016). Therefore, several studies have attempted to explain from a contingency perspective that organizational success will be influenced by several uncertainties such as strategy, structure, and management style (Martins & Rialp, 2013). Other findings also suggest that MSMEs' success or performance depend on the alignment of the technology used. The right technology will make it easier for organizations to implement a low-cost strategy to maintain sustainability (Budiarto et al., 2018). Based on some of the arguments above, this is why this current research uses contingency theory to test the factors that affect MSMEs' performance and sustainability.

E-Commerce, Information Technology and Business Network

It is commonly accepted that one of the obstacles faced by MSMEs is the limited use of technology (Alzougool, 2019). To solve technical problems, organizations usually hire experts, but MSMEs have limited resources, so it will be the subsequent problems (Budiarto et al., 2018). Therefore, a strategy is needed to implement technology at an affordable cost, namely online media. Online media or e-commerce is the most appropriate alternative because it has most accessible tool to influence consumer behavior (Kim & Ko, 2012). Business strategy is crucial for MSMEs in dealing with environmental uncertainty, primarily due to the Covid-19 pandemic. Expanding business networks is one strategy that can deal with uncertain situations (Li et al., 2021). Small firms can expand the business network by maintaining good relationships with suppliers/buyers to ensure product quality to increase the revenue (Ajmal, 2017).

Business Performance and Sustainability

Performance measurement is fundamental to identify problems, monitor business, and maximize the use of resources (Maduekwe & Kamala, 2016). Planning the right strategy is a vital tool for MSMEs towards good performance to guarantee their survival and growth (Dubihlela & Sandada, 2014). Generally, performance measurement at MSMEs using two approaches, namely financial performance, and non-financial performance. The financial performance uses financial data while non-financial uses subjective statements from MSMEs owners. However, because hard to find the financial data, non-financial performance measurements are widely used by researchers (Šályová et al., 2015).

Hypotheses Development

All aspects of life are experiencing rapid changes in the current era of globalization, which is marked by technology advances. E-commerce, for example, has revolutionized and changed traditional commerce and transcends the boundaries of time and space. The most significant function of e-commerce is recruiting users quickly at manageable costs wherever they are. E-commerce is beneficial for MSMEs to expand the market without difficulty in terms of both financial and organizational resources (Pradana, 2016).

E-commerce is one of the scientific achievements in the 20th century that impacts business and people's lifestyles (Jovanovic et al., 2020) E-Commerce is also essential for MSMEs because it can provide sales flexibility. E-commerce allows faster delivery to customers without having to come face to face with the buyer. E-commerce offers real-time information and facilitates transactions for MSMEs (Wahyu, Malabay, & Simorangkir, 2020). E-commerce can improve the performance of MSMEs by reducing promotional costs through the marketplace because it can present various sales promotion programs with a broad and efficient potential reach (Triandra et al., 2019; Fathimah, 2019). Based on the above arguments, the following hypothesis is proposed:

H_1: There is a positive influence of E-Commerce on business performance

Access to MSMEs' business processes can be done quickly by utilizing information technology to

achieve organizational goals easily. Information technology is an integrated method or tool to process, send and present data electronically into information in various formats that are beneficial to the user. The implementation of information technology is expected to increase the ability of MSMEs in overcoming environmental uncertainty (Bucşă, 2019).

The contribution of MSMEs in developed and developing countries, including Indonesia, is very significant (Lubis & Junaidi, 2016). The role of MSMEs is very strategic, but the intense competition, especially in the face of large companies, has put MSMEs in a position that continues to be threatened. MSMEs that continue to grow can expand the economic base and make a significant contribution to accelerating structural change, namely increasing regional economies and national economic resilience (Hendriyanto, 2015). For MSMEs to continue to be sustainable, they need to identify future businesses' risks and feasibility to bring up actions that must be taken (Lutfi et al., 2016). In this condition, information technology can help MSMEs improve competitiveness, process, and transmit information effectively and efficiently and improve service quality to support business processes. Information technology is widely considered a critical factor in improving organizational performance (Werastuti, 2014; Djatikusumo, 2016), especially on MSMEs (Budiarto et al., 2017). Based on the above arguments, the following hypothesis is proposed:

H_2: There is a positive effect of information technology on business performance

Contingency theory explains that there is no one best way to manage different organizations under different conditions. The management style and organizational structure will depend on the environmental context of the organization. The network is an essential resource to support MSMEs that do not have sufficient resources. The networks owned by MSMEs will develop relationships with their environment, such as suppliers, distributors, and customers. Through network development, the sales of MSMEs products will increase so that they can develop in production, marketing, and product innovation (Handayani & Handoyo, 2020; Haryono, 2016).

MSMEs are directed to maintain their existence and develop business activities so that their business activities can continue. Competition between MSMEs players and compete with large businesses is often an obstacle for MSMEs to grow and expand their business (Lestari, Lubis, & Widayanto, 2015). Facing business challenges, MSMEs need to commercialize new products adapted to market conditions through business networks (Fahmi & Mudiantono, 2019). One of the critical strategies for MSMEs in dealing with the Covid-19 Pandemic is by expanding business networks. An extensive network will push MSMEs to be more dynamic, efficient, and innovative (Abbas et al., 2019). MSMEs can improve business performance by building a more comprehensive social network. The better the business network that is owned, the higher the performance of MSMEs. MSMEs must foster cooperation with suppliers, financial institutions, labor, or intermediaries so that their business can grow (Madzimure, 2019). Based on the above expectations, the following hypothesis is proposed:

H_3: There is a positive effect of business networks on business performance

There is a tendency that UMKM activities are not always able to keep up with and adapt to changes in the business environment that occur in the market. Environmental changes have great potential and have an impact on business sustainability. The level of sales that is always increasing, the support of assets for increased sales, and the availability of operational funds are indicators of MSMEs' sustainability. Therefore, the dependence between organizational values, organizational conditions, and business continuity is authentic (Mulya, 2017).

The ability to innovate and keep up with the times is the key to a company's success. Financial and non-financial performance indicate business success for both large companies and MSMEs (Pramudiati et al., 2019). Creating valuable products following market conditions and high competitiveness, allowing MSMEs to obtain profits above average, will significantly impact business sustainability (Umar, 2008). Success in managing sales, namely identifying consumer needs, is the first step towards better business performance (Sumiati, 2015). The success of MSMEs in innovating, managing employees and customers, and returning to their initial capital shows good business sustainability. Business sustainability will show that the company can develop and see opportunities for continuous innovation (Aribawa, 2016). Performance is a tool used to measure the success of MSMEs in achieving their business goals (Fathimah,

2019). Based on the above expectations, the following hypothesis is proposed:

H_4: There is a positive effect of business performance on business sustainability

Research Model

MSMEs have a substantial contribution, in creating employment opportunities, especially in developing countries. Even though they have a significant role, MSMEs have various problems, especially on strategy and performance, so that they cannot compete with large companies (Alzougool, 2019; Adomako, Danso, & Ofori Damoah, 2016; Maduekwe & Kamala, 2016). Some of the strategies that MSME owners can carry out are to take advantage of social media (Rachmawati, Hapsari, & Cita, 2018) , implements the technology (Budiarto et al., 2017) and expand the business networks (Tham et al., 2017). The use of the right strategy will increase efficiency so that the company can improve performance and make innovations that will create sustainability in the long term. Sustainability will place MSMEs in a strategic position and be able to compete with their competitors (Klewitz & Hansen, 2011). Based on several findings in previous research, a research model is now develioped as shown in Figure 1.

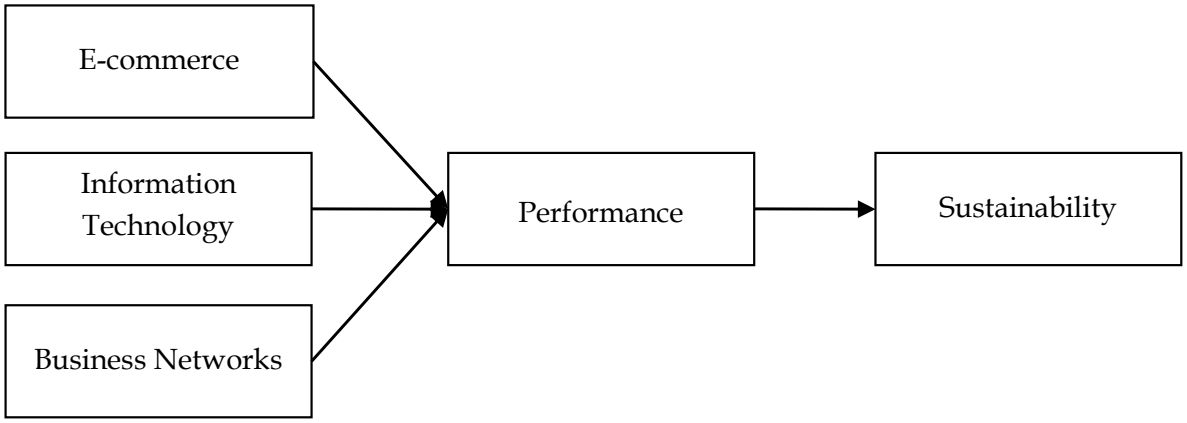

Figure 1. Research Model

3. RESEARCH METHOD

The data used in this study are primary data taken by using questionnaires distributed to MSMEs owners in the Special Region of Yogyakarta. This research was conducted in Yogyakarta considering that the Province of Yogyakarta is a city of tourism with high growth of trade MSMEs (Purnomo & Adyaksana, 2021) and the tourism and trade sectors were most severely affected by the Covid-19 Pandemic (Department of Cooperatives and SMEs, 2020). In addition, the development of MSMEs in Yogyakarta is experiencing obstacles, mainly due to insufficient technological adoption (Muafi, 2015).

There were 250 questionnaires distributed, both offline and online. The sample was selected using a non-probability sampling technique because the researchers did not know the number of MSMEs population. The target of the questionnaire is 100 respondents, and this is under the rule of thumb, which states that 30-100 respondents are adequate (Sekaran & Bougie, 2014). The questionnaires attined were 225, and those that fit the criteria were 193. This study used a purposive sampling, which was based on the predetermined criteria. The criteria include the MSMEs located in the Special Region of Yogyakarta; take advantage of e-commerce, and has been established for more than one year. The data were analyzed using structural equation modeling of SmartPLS.

This study used a questionnaire with a 5-point Likert scale; namely, one strongly disagrees, two disagree, three neutral, four agree, and five strongly agree. Questions on the E-commerce variable consist of 5 indicators (Harini et al., 2017). Questions on information technology variables consist of 3 indicators (Fahmi & Mudiantono, 2019). The business network variable consists of 3 indicators (Fahmi & Mudiantono, 2019). Business performance variables consist of 5 indicators (Fathimah, 2019). Questions on business sustainability variables comprise two indicators (Pramudiati et al., 2019). The variables and their measurements are presented in Table 1.

Table 1. Variable measurement

Variable	Indicators
E-commerce (Harini et al., 2017)	1. Through online marketing, friendliness is created between site users 2. Through online sales, effective interaction and communication occurs 3. I can provide quality product information for online sites 4. The product catalog that I put on an online shopping site attracts users to access my site 5. I can increase the effectiveness in selling products
Information Technology (Fahmi & Mudiantono, 2019)	1. MSMEs has someone responsible for the management of information technology 2. The information technology used can help improve the quality and speed of completing work 3. The technology used helps in increasing competitiveness to attract customers
Business Network (Fahmi & Mudiantono, 2019)	1. We build good relationships with customers by providing friendly and pleasant service by employees on duty 2. Financial institutions help me in expanding business capital 3. I have a license following applicable government regulations
Performance (Fatimah, 2019)	1. There was a growth in product sales after using online marketing media 2. Profitability increased after using online marketing media 3. The productivity of the company increases with e-commerce 4. I always maintain and improve product quality to increase customer satisfaction 5. I always try to improve the quality of service
Sustainability (Pramuadiati et al., 2019)	1. During the sale, I never experience a loss, at least sales are at the break-even point 2. I take advantage of product testimonials to determine the level of customer satisfaction

4. DATA ANALYSIS AND DISCUSSION

This research was conducted for four months, starting from September to December 2020. After the researchers managed to collect data, an analysis was carried out to determine the description of MSMEs. The next stage was data quality testing (validity and reliability tests) and hypothesis testing. The respondents' characteristics presented in Table 2 show that most (70.9 percent) are micro-businesses. This is not surprising because micro-businesses are the easiest businesses to do with low financial capital. Then the most exciting thing is that most of the respondents have a high school education level (79 percent) with the use of e-commerce <3 years (95 percent). This characteristic is interesting to study in more depth, especially concerning understanding the use of information technology and e-commerce.

After analyzing the characteristics of the respondents, the next is testing the hypothesis using SmartPLS. PLS analysis uses two approaches, namely measurement models and structural models (Hair et al., 2019). The measurement model uses a validity test, namely convergent validity with AVE score (Table 3) and discriminant validity with outer loading score (Table 4) and cross-loading (Table 5). In addition to the validity test, the measurement model also uses a reliability test, namely indicator reliability using the Cronbach alpha value and composite reliability (Table 3).

Table 2. Demographics of Respondents

		District					Total
		Yogyakarta	Bantul	Gunung Kidul	Sleman	Kulon Progo	
Business Size	Micro	22	24	33	28	30	137
	Small	11	18	9	8	7	53
	Medium	-	1	2	-	-	3
Owners Age	11 – 25 year	9	7	-	-	10	26
	26 – 30 year	10	24	18	32	23	107
	>30 Year	14	12	26	4	4	60
Gender	Male	16	28	27	29	11	111
	Female	17	15	17	7	26	82
Education	High school	20	34	41	22	36	153
	Bachelor	13	9	3	14	1	40
Using of e-commerce	<3 year	33	36	42	36	37	184
	3 – 5 year	-	7	1	-	-	8
	6 – 10 year	-	-	1	-	-	1
Running of business	2 year	-	-	-	7	12	19
	3 – 5 year	22	-	14	20	16	72
	6 – 10 year	11	42	28	9	9	99
	>10 year	-	1	2	-	-	3
Type of business	Culinary	15	5	10	16	19	65
	Fashion	18	5	28	11	9	71
	Furniture	-	1	-	-	-	1
	Textiles	-	-	-	-	1	1
	Craft	-	28	-	9	-	37
	Others	-	4	6	-	8	18

Sources: Primary data

The convergent validity test in this study uses the AVE value. It shows that all variables have an AVE value> 0.5; this means that the indicators used are valid (Table 3). Testing discriminant validity using the outer loading value shows that all indicators are valid with the value > 0.7 (Table 4). The next validity test is to use the cross-loading value (Table 5). A value of the cross-loading target variable, which is greater than other variables, means that the indicator used is valid. Reliability testing shows that all constructs are reliable with Cronbach and alpha and composite reliability > 0.7.

Table 3. Construct Reliability and Validity

	ronbach's Alpha	Rho-A	Composite Reliability	Average Variance Extracted (AVE)
E-Commerce (X1)	0.826	0.825	0.877	0.589
Business Network (X3)	0.775	0.783	0.870	0.691
Business Performance (Y)	0.823	0.843	0.875	0.584
Information Technology (X2)	0.755	0.786	0.841	0.584
Business Sustainability (Z)	0.701	0.702	0.870	0.770

Sources: SmartPLS output.

Table 4. Outer Loading Value

E-Commerce	Business performance	Information technology	Business Network	Business Sustainability
X1.1: 0.701	Y.1: 0.743	X2.1: 0.723	X3.1: 0.770	Z.1: 0.881
X1.2: 0.773	Y.2: 0.788	X2.2: 0.726	X3.2: 0.876	Z.2: 0.874
X1.3: 0.792	Y.3: 0.694	X2.3: 0.816	X3.3: 0.844	-
X1.4: 0.796	Y.4: 0.769	X2.4: 0.753	-	-
X1.5: 0.772	Y.5: 0.820	-	-	-

Sources: SmartPLS output.

Table 5. Cross Loading

Indicators	E-commerce (X1)	Information Technology (X2)	Business Networks (X3)	Performance (Y)	Sustainability (Z)
X1.1	**0.701**	0.423	0.202	0.338	0.171
X1.2	**0.773**	0.367	0.251	0.289	0.199
X1.3	**0.792**	0.448	0.408	0.260	0.142
X1.4	**0.796**	0.469	0.337	0.291	0.188
X1.5	**0.772**	0.410	0.300	0.292	0.148
X2.1	0.413	**0.723**	0.255	0.155	0.071
X2.2	0.476	**0.726**	0.202	0.230	0.032
X2.3	0.333	**0.816**	0.391	0.317	0.205
X2.4	0.497	**0.753**	0.360	0.229	0.100
X3.1	0.335	0.425	**0.770**	0.255	0.144
X3.2	0.344	0.306	**0.876**	0.289	0.258
X3.3	0.285	0.309	**0.844**	0.307	0.192
Y.1	0.328	0.355	0.284	**0.743**	0.418
Y.2	0.385	0.317	0.231	**0.788**	0.456
Y.3	0.356	0.308	0.128	**0.694**	0.414
Y.4	0.251	0.136	0.309	**0.769**	0.575
Y.5	0.224	0.181	0.322	**0.820**	0.797
Z.1	0.149	0.089	0.185	0.644	**0.881**
Z.2	0.244	0.175	0.237	0.627	**0.874**

Sources: SmartPLS output.

Table 6 shows the structural model testing using the R square coefficient for business performance and business sustainability variables. The structural model test results show that the small R square value is in the business performance equation (0.202) and the sustainability equation (0.505). These results provide an opportunity for further research to test various variables related to sustainability, such as the product life cycle (Widarti et al., 2021) business strategy (Martins & Rialp, 2013); financial literacy (Iramani et al., 2018) and entrepreneurial orientation (Li et al., 2021). Also, a low R square result is still acceptable for social science research because it does not predict the model (Moksony, 1999). The VIF (Variance Inflation Factor) shows the structural model test in addition to using R square. The ideal VIF value is <3 (Table 7).

Table 6. *R Square*

	R Square	Adj. R Square
Business Performance	0.202	0.189
Business Sustainability	0.525	0.523

Sources: SmartPLS output.

Table 7. VIF Testing

	Business Performance	Sustainability
E-commerce → Business performance	1.505	-
Information technology → Business performance	1.544	-
Business network → Business performance	1.258	-
Business Performance → Business sustainability	-	1.000

Sources: SmartPLS output.

The results of hypothesis testing are presented on Table 8, using bootstrapping techniques with a significance level (p-value) <0.05. The results show that only three hypotheses can be accepted. They are hypothesis 1, 3, and 4. Table 8 explains that the results of testing the first hypothesis prove that e-commerce affects MSMEs' performance. This result is in line with the findings, which state that e-commerce is an alternative to maximize performance by reaching more customers (Harini et al., 2017). MSMEs can do

promotions anywhere and anytime without being limited by time. Besides, e-commerce allows companies to transact without borders at a low cost. However, not all MSMEs have the capability to use and take full advantage of e-commerce. Limited user knowledge and expertise can hinder the use of e-commerce (Triandra et al., 2019). An exciting discussion is the result of research that proves an indirect relationship between e-commerce and the performance of MSMEs (Jovanovic et al., 2020). They explained that additional factors affect the relationship between e-commerce and performance, such as technology readiness and financial resources. Jovanovic's findings are in line with this research which found that information technology does not affect performance because information technology may be a mediating variable between e-commerce and performance.

Table 8. Hypotheses Testing

	Beta	Mean	SD	T Statistics	P Value
E-commerce → Business performance	0.258	0.267	0.072	3.560	0.000**
Information technology → Business performance	0.097	0.115	0.090	1.077	0.282
Business network → Business performance	0.204	0.219	0.094	2.160	0.031*
Business Performance → Business sustainability	0.725	0.725	0.041	17.526	0.000**

Sources: SmartPLS output

**Sig < 1%, * sig < 5%

However, the second hypothesis stating that information technology has a significant effect on business performance is not accepted. This finding can be due to MSMEs' main obstacle, outdated technology and limited IT resources expertise, and low profitability of MSMEs (Manzilati, 2015). Besides, most MSMEs are still at the nucleation stage at the technology implementation level. At this level, the use of IT is still lacking and always depends on the owner with less optimal system control (Budiarto et al., 2017). This study's results are interesting because the technology used by MSMEs is still not reliable, even though the government has provided various supports such as training and provision of free software for the daily operations of MSMEs.

The third hypothesis results state that the business network has a significant effect on the performance of MSMEs. These results are accordance by Yoon, Kim, & Dedahanov, (2018) who says that information and knowledge will strengthen between companies, customers, and suppliers. Closer relationships with suppliers will substantially contribute to MSMEs' performance, including cost efficiency, improving quality, and meeting the needs of raw materials that are always available at all times (Ajmal, 2017). This study's results strengthen the theory of the importance of selecting strategies for MSMEs in improving performance. One of the techniques that MSMEs can adopt is the implementation of a business process lifecycle, namely by developing business networks by increasing consumer awareness (Widarti et al., 2021). A good business network will drive organizations to be more efficient in identifying and developing business opportunities (Abbas et al., 2019)

Finally, the fourth hypothesis test results state that business performance has a significant effect on business sustainability. This study supports previous research that explains that sustainability will be a severe problem if MSMEs' performance is less optimal (Pramudiati et al., 2019). MSMEs need to innovate to maintain business sustainability. Therefore, companies must always develop and see opportunities to innovate on an ongoing basis (Mckague et al., 2011).

5. CONCLUSION, IMPLICATION, SUGGESTION, AND LIMITATIONS

It is the closing of the article which reflects the There is a significant influence of e-commerce and business networks on performance. Besides that, the business performance affects business sustainability. However, information technology does not have a significant effect on performance. This research has implications, especially for MSME owners, to maximize the use of e-commerce to maintain sustainability. The use of e-commerce will reduce costs when compared to traditional methods. E-commerce can also reach broader consumers so that it can increase market share.

This study has two main limitations: First, the number of samples of this study is still limited, so that further research can expand the object of research because a large sample can represent the real condition of MSMEs. Second, this study does not consider the type of technology used in MSMEs. Further research can focus more on using this type of technology because the use of the right technology can increase the speed and efficiency of business transformation (Werastuti, 2014). Finally,

further research can add variables that are following the environmental conditions where MSMEs are located

REFERENCES

Abbas, J., Raza, S., Nurunnabi, M., Minai, M. S., & Bano, S. (2019). The impact of entrepreneurial business networks on firms' performance through a mediating role of dynamic capabilities. *Sustainability (Switzerland)*, 11(11), 1–28.

Adomako, S., Danso, A., & Ofori Damoah, J. (2016). The moderating influence of financial literacy on the relationship between access to finance and firm growth in Ghana. *Venture Capital*, 18(1), 43–61.

Agwu, M. E. (2018). Relevance of information technology in the effective management of selected SMEss in Lagos state Nigeria. *Academy of Strategic Management Journal*, 17(1), 1–15.

Ajmal, et al. (2017). Critical success factors influencing e-commerce adoption in SMEs: A review and model. *International Journal of Advanced and Applied Sciences*, 4(7), 159–172.

Alharbi, S., & Drew, S. (2014). Using the technology acceptance model in understanding academics' behavioural intention to use learning management systems. *International Journal of Advanced Computer Science and Applications*, 5(1), 143–155.

Alzougool, B. (2019). The use and continuance use of social media applications by small and medium enterprises in Kuwait. *Global Knowledge, Memory and Communication*, 68(6–7), 471–490.

Andriyanto, I. (2018). Penguatan daya saing usaha mikro kecil menengah melalui e-commerce. *Jurnal Bisnis Dan Manajemen Islam*, 1(2), 87-100.

Anwar, M., Rehman, A. U., & Shah, S. Z. A. (2018). Networking and new venture's performance: mediating role of competitive advantage. *International Journal of Emerging Markets*, 13(5), 998–1025.

Aribawa, D. (2016). Pengaruh literasi keuangan terhadap kinerja dan keberlangsungan UMKM di Jawa Tengah. *Siasat Bisnis*, 20(1), 1–13.

Bucşă, R. (2019). Efficiency of using IT resources in small businesses. *Economy Transdisciplinarity Cognition*, 22(1), 83–89.

Budiarto, D. S., Prabowo, M. A., & Herawan, T. (2017). An integrated information system to support supply chain management & performance in SMEs. *Journal of Industrial Engineering and Management*, 10(2), 373–387.

Budiarto, D. S., Rahmawati, Prabowo, M. A., Bandi, Djajanto, L., Widodo, K. P., & Herawan, T. (2018). *Accounting information system (AIS) alignment and non-financial performance in small firm: a contingency perspective*. Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics) (Vol. 10961 LNCS).

Department of Cooperatives and SMEs, 2020. *Semua sektor UMKM terguncang akibat Covid, accessed on 20th October 2020*, https://dinkopukm.slemankab.go.id/tag/covid-19/

Djatikusumo, K. N. (2016). Pengaruh penggunaan teknologi informasi dan komputer terhadap kinerja organisasi (Studi kasus di UMKM Kota Malang). *Industri Research Workshop and National Seminar: IRONIS*, 66–71.

Dubihlela, J. & Sandada, M. (2014). Impact of strategic planning on small and medium-sized enterprises' (SMEs) performance: The role of employee participation, implementation incentives and evaluation and control. *Journal of Economics*, 5(1), 45–55.

Fahmi, A. K. A., & Mudiantono. (2019). Analisis pengaruh jaringan, teknologi informasi dan komunikasi serta inovasi terhadap keunggulan bersaing dan kinerja usaha (Studi pada UMKM di Purwokkerto). *Diponegoro Journal of Management*, 8(4), 74–84.

Fathimah, V. (2019). Determinan adopsi e-commerce dan dampaknya pada kinerja usaha mikro kecil menengah (UMKM). *Jurnal Riset Akuntansi Dan Keuangan*, 7(3), 445–464.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24.

Handayani, R. & Handoyo, R. D. (2020). Better Performance Prospect of Large-Medium Enterprises: The Role of Innovation. *Journal of Economics, Business, & Accountancy Ventura*, *22*(3), 411-423.

Harini, C., Darsin, & Praptono, S. (2017). Pengembangan pemasaran kewirausahaan dalam upaya meningkatkan kinerja perekonomian UMKM dI Kota Semarang. *Prosiding SNATIF*, 4(1), 1–12.

Haryono, N. (2016). Pengembangan UMKM melalui program corporate social responsibility memasuki pasar bebas. *Jejaring Administrasi Publik*, 8(1), 887–898.

Hendriyanto, A. (2015). Analisis pengaruh jaringan usaha dan inovasi terhadap kinerja UMKM. *Jurnal Ilmu Manajemen Dan Akuntansi Terapan (JIMAT)*, 6, 45–50.

Iramani, Fauzi, A. A., Wulandari, D. A., & Lutfi. (2018). Financial literacy and business performances improvement of micro, small, medium-sized enterprises in East Java Province, Indonesia. *International Journal of Education Economics and Development*, 9(4), 303–323.

Jovanovic, J. Š., Vujadinovic, R., Mitreva, E., Fragassa, C., & Vujovic, A. (2020). The relationship between E-commerce and firm performance: The mediating role of internet sales channels. *Sustainability* (Switzerland), 12(17), 1–18.

Kim, A. J. & Ko, E. (2012). Do social media marketing activities enhance customer equity? An empirical study of luxury fashion brand. *Journal of Business Research*, 65(10), 1480–1486.

Klewitz, J., & Hansen, E. G. (2011). Sustainability-oriented innvation in SME's: A systematic literature review of existing practices and actors involved. ISPIM Conference (International Society for Professional Innovation Management), *Sustainability in Innovation: Innovation Management Challenges*, (June 2011), 12–15.

Lestari, C., Lubis, N., & Widayanto. (2015). Pengaruh jaringan usaha, inovasi produk dan persaingan usaha terhadap perkembangan UMKM. *Jurnal Ilmu Administrasi Bisnis*, 4(2), 185-196.

Li, Z., Anaba, O. A., Ma, Z., & Li, M. (2021). Ghanaian SMEss amidst the Covid-19 pandemic: Evaluating the influence of entrepreneurial orientation. *Sustainability*, 13(3), 1–27.

Lubis, T. A., & Junaidi, J. (2016). Pemanfaatan teknologi informasi pada usaha mikro kecil dan menengah di Kota Jambi. *Jurnal Perspektif Pembiayaan Dan Pembangunan Daerah*, 3(3), 163–174.

Lutfi, A. A., Md Idris, K., & Mohamad, R. (2016). The influence of technological,organizational and environmental factors on accounting information system usage among Jordanian small and medium-sized enterprises. *International Journal of Economics and Financial*, 6(7), 240–248.

Maduekwe, C. C. & Kamala, P. (2016). Performance measurement by small and medium enterprises in Cape Metropolis, South Africa. *Problems and Perspectives in Management*, 14(2), 46–55.

Madzimure, J. (2019). The influence of strategic networks and logistics integration on firm performance among small and medium enterprises. *The Southern African Journal of Entrepreneurship and Small Business Management*, 11(1), 1–8.

Manzilati, A. (2015). How profit and loss sharing system (PLS) encourage Small & Medium Enterprises sustainability. *Review of Integrative Business and Economics Research*, 4(3), 99-107.

Mardiana, T., Warsiki, A. Y. N., & Heriningsih, S. (2020). Community development training with eco-print training wukirsari village, Sleman District, Indonesia. *International Journal of Computer Networks and Communications Security*, 8(4), 32–36.

Martins, I. & Rialp, A. (2013). Orientación emprendedora, hostilidad del entorno y la rentabilidad de la Pyme: Una propuesta de contingencias. *Cuadernos de Gestion*, 13(2), 67–88.

Mckague, K., Wheeler, D., Corrine, C., Comeault, J., & Ray, E. (2011). Introduction to the special issue on growing inclusive markets. *Journal of Enterprising Communities: People and Places in the Global Economy*, 5(1).

McMahon, J. T. & Perritt, G. W. (1973). Toward a contingency theory of organizational control. *Academy of Management Journal*, 16(4), 624–635.

Moksony, F. (1999). Small is beautiful: The use and interpretation of R2 in social research. *Szociologiai Szemle*, (Special Issue), 130–138.

Muafi. (2015). Green IT empowerment, social capital, creativity and innovation: A case study of creative city, Bantul, Yogyakarta, Indonesia. *Journal of Industrial Engineering and Management*, 8(3), 719–737.

Mulya, A. S. (2017). Faktor yang mempengaruhi keberlanjutan perusahaan dengan peluang investasi sebagai variabel intervening. *Proceeding* on Seminar Nasional Akuntansi dan Bisnis - *Profesionalisme Akuntan Menuju Sustainable Business Practice*, (ISSN-2252), 96–106

Noor, M., Khan, A., & Azizi, N. (2009). Pelaporan kewangan menerusi internet: perspektif teori kontingensi. *Jurnal Kemanusiaan*, 14, 68–84.

Octavia, A., Indrawijaya, S., Sriayudha, Y., Heriberta, Hasbullah, H., & Asrini. (2020). Impact on e-commerce adoption on entrepreneurial orientation and market orientation in business performance of SMEs. *Asian Economic and Financial Review*, 10(5), 516–525.

Pennings, J. M. (1975). The relevance of the structural-contingency model for organizational effectiveness. *Administrative Science Quarterly*, 20(3), 393-410.

Pradana, M. (2016). Klasifikasi bisnis e-commerce di Indonesia. *Modus*, 27(2), 163-174.

Pramudiati, N., Putri, A. Z., & Basri, A. I. (2019). Penerapan SAK ETAP, kinerja usaha, dan keberlanjutan UMKM di Provinsi Daerah Istimewa Yogyakarta. *Akuntansi Dewantara*, 3(2), 149–155.

Purnomo, A. & Adyaksana, I. (2021). Meningkatkan penerapan SAK EMKM dengan persepsi usaha dan kesiapan pelaku UMKM. *Journal of Business and Information Systems*, 3(1), 1–13.

Rachmawati, R., Hapsari, S. A., & Cita, A. M. (2018). Virtual space utilization in the Digital SMEs Kampongs: Implementation of Smart City and Region. *Human Geographies*, 12(1), 41–53.

Riwayati, H. E. (2017). Increasing the regional economic growth through small and medium enterprises. *Journal of Economics, Business, & Accountancy Ventura*, 20(2), 133-139

Šályová, S., Táborecká-Petrovičová, J., Nedelová, G., & Ďaďo, J. (2015). Effect of marketing orientation on business performance: A study from Slovak Foodstuff Industry. *Procedia Economics and Finance*, 34(15), 622–629.

Sekaran, U., & Bougie, R. (2014). *Research method for business: A skill Approach*. New Jersey: John Willey and Sons, Inc.

Sumiati. (2015). Pengaruh strategi orientasi wirausaha dan orientasi pasar pengaruhnya terhadap kinerja perusahaan UMKM di Kota Surabaya. *Jurnal Ilmu Ekonomi*, 1(1), 31-44.

Tham, J., Ab Yazid, M. S., Khatibi, A. A., & Azam, S. M. F. (2017). Internet and data security – understanding customer perception on trusting virtual banking security in Malaysia. *European Journal of Social Sciences Studies*, 2(7), 186–207.

Triandra, N., Hambali, D., Nurasia, & Rosalina, N. (2019). Analisis pengaruh e-commerce terhadap peningkatan kinerja UMKM (Studi kasus pada UMKM di Kabupaten Sumbawa). *Jurnal Ekonomi Dan Bisnis Indonesia*, 4(1), 6–10.

Tsambou, A. D. & Fomba Kamga, B. (2018). Performance perspectives for Small and medium enterprises in Cameroon: innovation and ICTs. *Timisoara Journal of Economics and Business*, 10(1), 68–87.

Ubaidillah, M. (2020). Menjaga keberlangsungan UMKM pada masa wabah Covid-19. *Inventory: Jurnal Akuntansi*, 4(1), 14–21.

Umami, Z. (2015). Social strategy pada media sosial untuk promosi pariwisata Daerah Istimewa Yogyakarta. *INTERAKSI: Jurnal Ilmu Komunikasi*, 4(2), 195–201.

Umar, S. (2008). Implementasi knowledge management pada UMKM Indonesia untuk meningkatkan daya saing UMKM. *Siasat Bisnis*, 12(2), 149–160.

Verkerk, P. (1990). Fiedler's contingency model of leadership effectiveness: Background and recent developments. *Philosophy and Social Sciences*, 9002(02).

Wahyu, S., Malabay, & Simorangkir, H. (2020). Perancangan model sistem informasi e-commerce untuk UMKM di masa pandemik Covid19. *Konferensi Nasional Ilmu Komputer* (KONIK), 1–7.

Werastuti, D. N. S. (2014). Analisis penggunaan teknologi informasi (TI) untuk meningkatkan kinerja pemasaran UMKM di Kabupaten Buleleng. *Jurnal Manajemen & Akuntansi*, 20(3), 295–316.

Widarti, W., Desfitrina, D., & Zulfadhli, Z. (2021). Business process life cycle affects company financial performance: Micro, small, and medium business enterprises during the Covid-19 period. *International Journal of Economics and Financial Issues*, 10(5), 211–219.

Yoon, J., Kim, K. K., & Dedahanov, A. T. (2018). The role of international entrepreneurial orientation in successful internationalization from the network capability perspective. *Sustainability*, 10(6), 1709

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