E-COMMERCE UTILIZATION EFFORTS ENTREPRENEURS IN INDONESIA

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Abstract

To increase competitive advantage and expand markets, digitalization brings new trends with technological innovation in the form of e-commerce. Using Sakernas data for 2021, the research intends to analyze the impact of using e-commerce on business actors between two groups, namely business actors using e-commerce and those without using e-commerce for their business. The selected sample in the research was business actors who did not yet have permits for their business activities, namely 36,703. The e-commerce category is: product promotion with internet coverage, and sales carried out through marketplaces (Tokopedia, Bukalapak, Olx, etc). The results show that business actors who utilize e-commerce have higher income than business actors without using e-commerce in their business, which is influenced by human capital (education), digital skills (use of computers and smartphones), socio-demographics (age, gender), with the Propensity Score Matching (PSM) method.

Keywords: Computer Use, E-Commerce, Income, Smartphone Use, Training.

1. INTRODUCTION

Digitalization brings new trends that have a major economic and social impact. The needs of the wider community continue to encourage the emergence of technological innovation. In this case, there is competition between online stores (e-commerce) and offline stores in selling products/services (Couclelis, 2004) ; (Zhang et al., 2016) ; (Xie et al., 2023). The big push for e-commerce is due to increasingly widespread internet penetration with 3G and 4G cellular networks, especially with the emergence of 5G networks in the near future (Nanda et al., 2021).

Quoted from the Central Statistics Agency, (2022) E-commerce refers to the buying and selling of products or services through a computer network utilizing protocols created especially for taking orders. A portion of ecommerce is included in bookings made through internet pages, extranets, EDI (Electronic Data Interchange), email, social media (Facebook, Instagram, and others), and instant messaging (WhatsApp, Line, and others).

Based on Presidential Decree (2017) Through the creation of an integrated National Electronic Trading System Road Map (e-commerce Road Map), the government must support the growth and acceleration of an electronic-based national trading system (e-commerce), startup companies, company development, and accelerated logistics. One of the pillars of the national economy and one with significant economic potential for Indonesia is the electronic-based economy, according to Law Number 74 of 2017 concerning the Road Map for an Electronic-Based National Trading System.

According to reports by We Are Social and Hootsuite (2022), at the beginning of 2022, around 73.7 percent of the total population or 204.7 million internet users in

Indonesia. Around 68.9 percent of the total population or 338.2 million devices are connected to cellular. And it is also estimated that the digital economy will grow to reach 130 billion USD in 2025. Where the e-commerce sector is estimated to be the most significant, around 50% of Indonesia's digital economy in 2022 and will continue to grow (Temasek Bain Company, 2022).

According to the results of a Central Statistics Agency (BPS) survey titled "E-commerce Statistics," businesses were observed utilizing the internet in 2021 to accept orders or provide goods and/or services. Only approximately 34.10 percent of business actors sell online, while 65.90 percent still engage in traditional offline business. This suggests that business actors in Indonesia are still adopting e-commerce at a low rate. The following is a general description of e-commerce business actors in Indonesia: they typically use informal e-commerce techniques, sales media such as social media and instant messaging, have incomes under Rp 300,000,000, are upper middle class (SMA) by education, and do not have financial reports. The most popular payment method is COD (Cash on Delivery), the delivery method is typically direct delivery, and the delivery area between the business actor and the buyer is still on the same island. One of them dominates the business.

In developing nations like Indonesia, e-commerce is still in its early stages of development. Additionally, as the market competition landscape shifts from a traditional to a digital one, businesses and organizations must embrace e-commerce to stay relevant and thrive in a cutthroat industry (Koe & Afiqah Sakir, 2020); (Makame et al., 2014); (Sila, 2013). According to research by Omar & Morales (2021), digital resources like the internet and communication platforms—like WhatsApp, Zoom, and Skype—are the primary means by which business actors sustain networks and competitive advantages. Deloitte (2015)states that businesses that heavily utilize digital technology (social media, broadband, and e-commerce) can see an increase in revenue of up to 80%. Previous studies by have demonstrated the significance of technology adoption and capability for entrepreneurs, particularly in enhancing their competitiveness and performance (Pal et al., 2008); (Brown et al., 2017); (Sadeghi & Biancone, 2017); (Zhou et al., 2019); (Blixt & Bøgh, 2020); (Hendricks & Mwapwele, 2023) ; (Räisänen & Tuovinen, 2020);(Martini et al., 2023);(Vijayaraman & Bhatia, 2002).

The digitalization of small business models serves as a driving force Therefore, the purpose of the study is to compare business actors' earnings between two groups, both with and without the use of e-commerce in their day-to-day operations. This study employs the Propensity Score Matching (PSM) method to reduce endogeneity issues, particularly differences in characteristics between the treatment group and the control group. Sakernas 2021 is the source of secondary data used in the study. The paper's systematics are as follows. Sections 2 through 5 consist of the presentation of the literature, data and methodology, results and discussion, and closing remarks. According to the processing results, digital skills (computer and smartphone use), age, gender, and human capital (education and training) all have an impact on e-commerce usage. According to the regression analysis, there is a pay gap between e-commerce-using and non-using entrepreneurs. Furthermore, the use of e-commerce has led to an increase in entrepreneurial income in Indonesia.

2. LITERATURE REVIEW

According to research, online coverage of promotions has a positive effect on business actors' monthly income (Ariansyah, 2020).The internet provides entrepreneurs with the advantage of providing them with access to information resources needed to find new business opportunities. According to research (Kantis et al., 2002), network stability, accessibility to individuals from all socioeconomic classes, and geographic locations are important factors for East Asian SME entrepreneurs. Benefits from market expansion brought about by information access also improve people's welfare. Utilizing the right information and communication technology benefits family businesses as well as SME households (ICT). However, extensive use of digital technology (such as social media, broadband, and e-commerce) helped SMEs increase their revenue by up to 80%, according to research done by (Deloitte, 2015).

European SMEs' business operations are significantly impacted by digital transformation. Research on SMEs and digital transformation has looked into how SMEs are affected by digital technologies, specifically in relation to customer relationship management (CRM). According to Khin & Ho,(2019) and (Ocloo et al., 2020) digital technology boosts customer bases, produces cutting-edge digital goods and services, and enhances small and medium-sized businesses' operational efficiency. SMEs and entrepreneurs can interact with suppliers and customers, get information instantly, and adapt to quickly shifting supply chains and markets thanks to high-speed networks (Kergroach, 2021);(Lekmat, 2018). Additionally, by developing new channels of distribution and methods for producing and delivering value to client segments, digital technology supports the innovation of SME business models (Matarazzo et al., 2021); (Ganotakis & Lindsay, 2016). Digital transformation significantly boosts SMEs' competitiveness. SMEs that embrace digital technology become more competitive through innovation in value creation, value proposition, value delivery, and value capture (Trinugroho, Pamungkas, Wiwoho, et al., 2022). SMEs can gain a competitive edge through the use of digital technologies, but there are a number of barriers to this. As a crucial component of competitiveness, digital technology adoption necessitates a highly skilled labor force, stakeholders who understand the value of digital technology, and managers who are prepared to implement the technology (Proksch et al., 2021). Furthermore, the full potential of such technologies for competitiveness is not realized if the alignment of digital skills and tools with a vision for broader digitalization/digital transformation of SMEs is not explained (Nguyen et al., 2013); (Kurnia et al., 2015);(Hasan et al., 2021).

An RCT design was employed in the research by (French et al., 2020) to examine the potential of apps for SMEs' education and revenue generation. Statistically significant improvements were observed in several measures intended to assess financial knowledge, understanding, and basic skills, as well as attitudes and motivation, for those who accept applications (treatment group). According to research by (Skare et al., 2023) digital transformation increases SMEs' adaptability and capacity to handle challenging business issues. Findings also show that SMEs that have undergone digital transformation are less concerned about regulatory changes, rising input costs, external shocks, and access to both traditional and new customers, as well as changes in competition and access to financing.

3. RESEARCH METHODS

3.1. Data

This study made use of secondary data from the National Labor Force Survey (Sakernas) for the month of August 2021. The selected samples were business actors who were not registered in the licensing system, namely 36,703. The e-commerce category in this research is promotion and sales carried out through marketplaces (Tokopedia, Bukalapak, olx, etc).

3.2. Operational Definition of Variables

The next step is to create variables in accordance with the pertinent definitions after the sample and unit of analysis have been decided upon. Table displays the operational definitions of the variables.

Table 1. Operational Definition of Variables

Variable	Initial	Code	Information
Dependent	Incometot	Income=R14A_MONEY+R14A2_BRG incometot = ln(1+income)	Income Clean During A month
Treatment	Ecommerce	R17C2==3 & R17C3==1 & R17C4==3	Perpetrator businesses that use the internet for promotion and sales done via marketplace (Tokopedia, Bukalapak , olx, etc).
Covariates	Education (dummy)	Minimum high school education Data source: Sakernas August 2021 with code 6.a	last education
	Training (dummy)	Participation in training/courses/coaching Data source: SAKERNAS 2021 with code 6.d	Participate in training = 1 Opt out = 0
	Age (dummy)	Age Data source: SAKERNAS 2021 k6	age
	Gender (dummy)	Gender Data source: SAKERNAS 2021 k4	sex = Gender sex 1 "Male" 0 "Female"
	Computer (dummy)	using a computer (PC, Laptop, Notebook) in his work Data source: SAKERNAS 2021 , with code R17A1==1	using a computer (PC, Laptop, Notebook) in his work = 1, others = 0
	Smartphone (dummy)	Using Smartphone in work	Using Smartphone in work = 1, others = 0

		Data source: SAKERNAS 2021 , with code R17A2==3	

Source: Sakernas 2021 data.

3.3. Analysis Method

Knowing the relationship between the use of e-commerce and the income of entrepreneurs who are not registered in the licensing system in Indonesia is the aim of this research. The researcher's temporary assumption is that some entrepreneurs in making decisions choose for themselves to use e-commerce in their business activities, so this could cause selection bias in some samples of entrepreneurs.

conscious efforts made by entrepreneurs to use e-commerce or not to use e-commerce in carrying out their business activities. For example, using e-commerce to consciously increase sales productivity so that it has an impact on increasing income for business actors. Likewise, on the other hand, use other strategies to increase sales productivity without using e-commerce. Therefore, the use of e-commerce will differ between those who use it and those who do not use it.

Because the status of e-commerce use by entrepreneurs is endogenous, econometric methods other than ordinary least squares (OLS) must be used to prevent estimation bias. Propensity score matching (PSM) is a suitable technique to prevent bias issues. Using a non-parametric method called Propensity Score Matching (PSM), a comparison group is identified from the non-treated (non-intervention) group that was chosen, and its observed characteristics are identical to those of the group that received the intervention (the treatment groups). Then, based on the scores of their individual tendencies, the second group was matched (propensity scores).

Propensity Score Matching (PSM) Model

The primary objective of this model is to control the respondent's outcome and intervene in it. This is how the equation is expressed :

$$Y_i = D_i Y_{1i} + (1 + Di_i) + Y_{oi} \quad (1)$$

The indicator for the treatment variable in the equation above is D_i {0,1}. Where the treatment group is symbolized D_i is 1, namely business actors who use e-commerce for their business, and 0 others. The potential outcome of business actors i is symbolized by Y_i. $Y_{1i} = 1$ is the potential outcome of the treatment group , namely business actors who use e-commerce for their business needs. On the contrary , $Y_{0i} = 0$ is potential outcomes from control group , that is perpetrator business i without use ecommerce . Treatment effects on the treat (TOT) For individual can written as follows :

$$I_l = Y_{1i} Y_{0i} \quad (2)$$

No way For observe potential outcomes from treatment group Y_{1i} and control group Y_{0i} at the same time is problem fundamental cause _ counter factual . Therefore _ that's it , just There is One potential outcomes For every observed entrepreneurship , up to estimated effect from treatment effect considered No possible . With use the average treatment effect on the treat (ATT) For estimate the average outcome entrepreneurs who use e-commerce For need business them . So it can be written as follows:

$$ATT = E[\Delta \mid D_i = 1] \quad (3)$$

$$ATT = Y_{1i}Y_{0i} + E[Y_1Y_0], Di_i = 1 \quad (4)$$

The potential results of business actors using e-commerce are symbolized by $E[Y_{1i}Di_i = 1]$ and are considered potentially observable. Meanwhile, the potential outcome for those who do not use e-commerce is symbolized by $E[Y_{0i}Di_i = 1]$ and cannot be observed because it is a missing counterfactual. To calculate ATT, we must find a substitution for $E[Y_{1i}Di_i = 1]$. One _ possible thing _ done is utilise potential entrepreneurial outcomes without use e-commerce For $E[Y_{0i}Di_i = 1]$. Because the potential outcome for individuals using the internet for work needs is $E[Y_{0i}Di_i = 1]$ and is not observed in the same period when respondents receive treatment, ATT can be assumed to be:

$$ATT = E[Y_{1i}, Di_i = 1] \, E[Y_{0i}, Di_i = 0]$$

ATT is currently the outcome of average selection bias, namely the difference between the potential outcomes of business actors who utilize e-commerce $[Y_{1i}Di_i = 1]$ and potential outcomes from actors who do not utilize e-commerce $[Y_{0i}, Di_i = 0]$.

4. DATA ANALYSIS AND DISCUSSION

This section discusses descriptive analysis, the probability of entrepreneurs using e-commerce and the difference in income between entrepreneurs who use and those who do not use e-commerce in their business.

4.1. Descriptive Analysis

Table 2 below shows the descriptive statistics of the study. The unit of analysis for this research is entrepreneurs who are not registered with the licensing system and use e-commerce (promotion and sales in the marketplace in their work activities).

Table 2. Descriptive analysis

Menggunakan ecommerce pada pekerjaan Utama	Pendidikan tertinggi yang ditamatkan		Total
	<SMP	SMA/SMK/M	
tidak ecommerce	14,606	19,951	34,557
ecommerce	408	1,738	2,146
Total	15,014	21,689	36,703

Menggunakan ecommerce pada pekerjaan Utama	Pelatihan kerja		Total
	Tidak per	Pernah me	
tidak ecommerce	28,036	6,521	34,557
ecommerce	1,596	550	2,146
Total	29,632	7,071	36,703

Menggunakan ecommerce pada pekerjaan Utama	komputer		Total
	tidak men	menggunak	
tidak ecommerce	31,749	2,808	34,557
ecommerce	1,410	736	2,146
Total	33,159	3,544	36,703

Menggunakan ecommerce pada pekerjaan Utama	smartphone		Total
	tidak men	menggunak	
tidak ecommerce	362	34,195	34,557
ecommerce	12	2,134	2,146
Total	374	36,329	36,703

Menggunakan ecommerce pada pekerjaan Utama	Kelompok Umur 5 Tahun					Total
	15-19	20-24	25-44	45-64	65+	
tidak ecommerce	529	2,091	19,359	11,844	734	34,557
ecommerce	65	257	1,342	455	27	2,146
Total	594	2,348	20,701	12,299	761	36,703

Menggunakan ecommerce pada pekerjaan Utama	Jenis Kelamin		Total
	Perempuan	Laki-laki	
tidak ecommerce	13,465	21,092	34,557
ecommerce	1,018	1,128	2,146
Total	14,483	22,220	36,703

Source : processed data , 2023

Based on the descriptive table above, entrepreneurs who are not registered in the licensing system using e-commerce in their business are dominated by a minimum education level of high school/equivalent, and entrepreneurs who use e-commerce in their business activities have a small number of participants in training/courses/training. Based on age, the dominant age range is 25-44, where this age range is the productive age. Based on gender, male entrepreneurs use e-commerce more in their business activities than women, although the ratio between men and women is not large. In terms of digital skills such as using computers and smartphones, entrepreneurship is dominated by the ability to use smartphones rather than using computers.

4.2. Comparison Between Groups *Treated* and Group *Matched Control*

Table 2. Comparison Between Groups *Treated* and Group *Matched Control* .

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 .
-> ecommerce = tidak ecommerce

    Variable |        Obs        Mean    Std. Dev.       Min         Max

pendapatan~t |     34,557     14.0829     1.677937         0     18.31532
    komputer |     34,557    .0812571     .2732334         0            1
  smartphone |     34,557    .9895246     .1018136         0            1
         age |     34,557    40.76534     11.24239        15           83
         sex |     34,557    .6103539      .487677         0            1

        kurs |     34,557    .1887027      .391278         0            1
        educ |     34,557    1.577336     .4939901         1            2


-> ecommerce = ecommerce

    Variable |        Obs        Mean    Std. Dev.       Min         Max

pendapatan~t |      2,146    14.18464     1.500009         0     17.72753
    komputer |      2,146    .3429637     .4748101         0            1
  smartphone |      2,146    .9944082     .0745863         0            1
         age |      2,146    36.11929     11.03171        15           76
         sex |      2,146    .5256291     .4994591         0            1

        kurs |      2,146    .2562908      .436686         0            1
        educ |      2,146    1.809879     .3924881         1            2
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Source : processed data , 2023

Table 2 shows amount sample namely 36,703 entrepreneurs who are not registered in the licensing system in his business from all over population throughout Indonesia . The results are revealing that around 2.146 entrepreneurs are using it e-commerce For objective work them and the average entrepreneur who does not use e-commerce amounting to 34,557. This thing show that use e-commerce For activity business still very small for entrepreneurs who are not registered in the licensing system in Indonesia. This thing Can So Because Still Lots entrepreneurs who are not understand method utilise e-commerce For needs business (Trinugroho et al., 2022) ;(Awa & Ukoha, 2012);(Alam et al., 2011);(Martini et al., 2023).

4.3. Probability of Business Actors Using Digital Marketing for Their Business

Table 3 *Propensity Score*

ecommerce	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
komputer	.8409871	.0281869	29.84	0.000	.7857417	.8962324
smartphone	.7796283	.1343409	5.80	0.000	.5163249	1.042932
age	-.0131087	.0010325	-12.70	0.000	-.0151324	-.0110851
sex	-.1629443	.0226869	-7.18	0.000	-.2074097	-.1184789
kurs	.0135929	.0271259	0.50	0.616	-.0395728	.0667586
educ	.3501759	.026429	13.25	0.000	.298376	.4019758
_cons	-2.476212	.1479882	-16.73	0.000	-2.766263	-2.18616

Source : Processed Data , 2023

The results of the probit regression model about the likelihood that entrepreneurs will use e-commerce for business are displayed in the above table. In this case, it is an entrepreneur who has not yet registered in the licensing system. From this table, it can be seen that digital skill variables, such as computer and smartphone use, have a significant

influence on the probability of using e-commerce . And also socio-demographic variables such as age and gender also have a significant influence, but on the human capital variable, education has an influence on the probability of using e-commerce , and training/courses/training does not have a significant influence on the probability of using e-commerce by entrepreneurs who have not registered in the licensing system (significant at the 1% level). With the common support area being in the range 0.00600325 to 0.34569822.

4.4. The Effect of Using *E-Commerce* on Business Actors' Income.

Table 4. The Effect of Using E-Commerce on Variables outcomes

Method	n. treat	n. contr	ATT	Std. Err	t
Nearest Neighbor Matching	2146	33759	0.091	0.036	2,573
Stratification Method	2146	34464	0.074	0.034	2,137
Radius Matching Method	2145	34375	0.113	0.034	3,329
Kernel Matching Method	2146	34464	0.062	0.030	2,087

Source: processed data, 2023

The average treatment effect of the PSM method is shown in Table 4. Which uses four matching techniques, namely Nearest-Neighbor , Stratification, radius, and kernel. The research results show that the use of e-commerce for business by entrepreneurs who have not registered in the licensing system has a significant impact on the entrepreneur's income.

Using Nearest Neighbor matching , leveraging e-commerce for business increases revenue by 9.1 percent (t = 2.573). With stratification matching, e-commerce utilization among entrepreneurs increased by 7.4 percent (t = 2.137). Consistent with Nearest-neighbor and stratified matching, e-commerce utilization with Radius matching increased by 11.3 percent of revenue (t = 3.329). And matching with kernel matching shows similar results. The use of e-commerce increases revenue by 6.2 percent (t = 2.087). The impact is significant at the 5 percent level.

In line with findings from (Deloitte, 2015), which show that using e-commerce can raise business actors' income by as much as 80%. which will enhance business actors' welfare inadvertently. They use the internet as a platform for trade, sales expansion, product innovation process improvement, promotions, and transactions. As per (Khandker et al., 2010), there exist multiple approaches for examining the robustness of results obtained from the PSM method. Comparing the outcomes using various matching techniques is one strategy. This study's findings using the four matching strategies are remarkably consistent.

5. CONCLUSIONS

In this study, we examine the impact of using e-commerce on the income of business actors who have not registered in the licensing system in their business activities. This research provides more in-depth results on the business impact of entrepreneurs using e-commerce on increasing income. We use goods income and money income as net income for one month. Using Sakernas data for the 2021 period, we involved 36,703 business actors who were not yet registered in the licensing system. To lessen selection bias on unobserved characteristics, business actors who have not registered with the licensing system are matched based on their business characteristics using the PSM method with probit regression.

The results show that the use of e-commerce is influenced by human capital (education), digital skills (use of computers and smartphones), socio-demographics (age, gender). The use of e-commerce for business has a positive impact on increasing the income of business actors, in this case business actors who have not yet registered in the licensing system. The internet is their medium for promotions, transactions, improvements in product innovation processes, trade and expanding sales.

Because this research only focuses on the results of increasing entrepreneurial income, especially those that have not been registered in the licensing system, the impact of using e-commerce for entrepreneurial profits is not explained further. For further research, our research encourages analyzing the impact of using e-commerce on business performance, including profits.

REFERENCES

Alam, S. S., Ali, M. Y., & Jani, M. F. M. (2011). An empirical study of factors affecting electronic commerce adoption among SMEs in Malaysia. Journal of Business Economics and Management, 12(2), 375–399. https://doi.org/10.3846/16111699.2011.576749

Ariansyah, K. (2020). The Importance of the Internet on Improving Economic Welfare : An Empirical Evidence from Indonesian Rural Household. 2018 International Conference on ICT for Rural Development (IC-ICTRuDev), 118–123.

Awa, H. O., & Ukoha, O. (2012). Integrating TAM adn TOE Frameworks and Expanding Their Characteristic Constructs for e-commerce adoption by SME's. 9781610442, 162–185.

Badan Pusat Statistik. (2022). Statistik E-Commerce 2021.

Blixt, E., & Bøgh, S. (2020). Arti fi cial intelligence and internet of things in small and medium-sized enterprises : A survey. August. https://doi.org/10.1016/j.jmsy.2020.08.009

Brown, N. D., Grzybowski, L., & Romahn, A. (2017). The Impact Of Online Sales On Consumers and Firms Evidence From Consumer Electronics. https://doi.org/10.1016/j.ijindorg.2017.01.009

Couclelis, H. (2004). Pizza over the internet: E-commerce, the fragmentation of activity and the tyranny of the region. Entrepreneurship and Regional Development, 16(1), 41–54. https://doi.org/10.1080/0898562042000205027

Deloitte. (2015). SMEs powering Indonesia's success: The connected archipelago's growth engine. December.

French, D., McKillop, D., & Stewart, E. (2020). The effectiveness of smartphone apps in improving financial capability. European Journal of Finance, 26(4–5), 302–318. https://doi.org/10.1080/1351847X.2019.1639526

Ganotakis, P., & Lindsay, V. (2016). E-commerce adoption within an entrepreneurial context. Academy of Management Journal, 1, 1–39.

Hasan, A., Amrusi, Musfiana, & Mardhani, M. (2021). An overview of e-commerce adoption in Indonesian SMEs. Journal of Physics: Conference Series. https://doi.org/10.1088/1742-6596/1811/1/012104

Hendricks, S., & Mwapwele, S. D. (2023). A systematic literature review on the factors influencing e-commerce adoption in developing countries. Data and Information Management, July, 100045. https://doi.org/10.1016/j.dim.2023.100045

Kantis, H., Ishida, M., & Komori, M. (2002). Entrepreneurship in Emerging Economies: The Creation and Development of New Firms in Latin America and East Asia.

Khandker, S., Koolwal, G. B., & Hussain, S. (2010). Handbook on impact evaluation: quantitative methods and practices.

Khin, S., & Ho, T. C. (2019). Digital technology , digital capability and organizational performance. https://doi.org/10.1108/IJIS-08-2018-0083

Kurnia, S., Choudrie, J., Mahbubur, R. M., & Alzougool, B. (2015). E-commerce technology adoption: A Malaysian grocery SME retail sector study. Journal of Business Research, 68(9), 1906–1918. https://doi.org/10.1016/j.jbusres.2014.12.010

Lekmat, L. (2018). Antecedents of e-commerce adoption in Thai SMEs. UTCC International Journal of Business & Economics, 10(2), 219–244. http://proxy.lib.sfu.ca/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=130847454&site=ehost-live

Martini, Setiawan, D., Adhariani, D., Harymawan, I., & Widodo, M. (2023). E-commerce and micro and small industries performance: The role of firm size as a moderator. Journal of Open Innovation: Technology, Market, and Complexity, 9(3). https://doi.org/10.1016/j.joitmc.2023.100142

Matarazzo, M., Penco, L., Profumo, G., & Quaglia, R. (2021). Digital transformation and customer value creation in Made in Italy SMEs: A dynamic capabilities perspective. Journal of Business Research, 123(February 2020), 642–656. https://doi.org/10.1016/j.jbusres.2020.10.033

Nanda, A., Xu, Y., & Zhang, F. (2021). How would the COVID-19 pandemic reshape retail real estate and high streets through acceleration of E-commerce and digitalization? Journal of Urban Management, 10(2), 110–124. https://doi.org/10.1016/j.jum.2021.04.001

Nguyen, T. H., Newby, M., & Macaulay, M. J. (2013). Information Technology Adoption in Small Business : Confirmation of a Proposed Framework. 1–21. https://doi.org/10.1111/jsbm.12058

Ocloo, C. E., Xuhua, H., Akaba, S., Shi, J., & Worwui-Brown, D. K. (2020). The Determinant Factors of Business to Business (B2B) E-Commerce Adoption in Small- and Medium-Sized Manufacturing Enterprises. Journal of Global

Information Technology Management, 00(00), 191–216. https://doi.org/10.1080/1097198X.2020.1792229

Omar, S., & Morales, C. (2021). Research in International Business and Finance Innovation as recovery strategy for SMEs in emerging economies during the COVID-19 pandemic. Research in International Business and Finance, 57(May 2020), 101396. https://doi.org/10.1016/j.ribaf.2021.101396

Pal, P., Sethi, G., Nath, A., & Swami, S. (2008). Towards cleaner technologies in small and micro enterprises : a process-based case study of foundry industry in India. 16, 1264–1274. https://doi.org/10.1016/j.jclepro.2007.06.021

PerPres, 2017. (2017). Peraturan Presiden Republik Indonesia Nomor 74 Tahun 2017 Tentang Peta Jalan Sistem Perdagangan Nasional Berbasis Elektronik (Road Map E-Commerce) Tahun 2017-2019. Republik Indonesia, Presiden Republik Indonesia, 3. https://peraturan.bpk.go.id/Home/Details/73107/perpres-no-74-tahun-2017

Räisänen, J., & Tuovinen, T. (2020). Digital innovations in rural micro-enterprises. Journal of Rural Studies, 73(September 2019), 56–67. https://doi.org/10.1016/j.jrurstud.2019.09.010

Sadeghi, V. J., & Biancone, P. Pietro. (2017). How micro , small and medium-sized enterprises are driven outward the superior international trade performance ? A multidimensional study on Italian food sector. Research in International Business and Finance. https://doi.org/10.1016/j.ribaf.2017.07.136

Sila, I. (2013). Factors affecting the adoption of B2B e-commerce technologies. In Electronic Commerce Research (Vol. 13, Issue 2). https://doi.org/10.1007/s10660-013-9110-7

Skare, M., de las Mercedes de Obesso, M., & Ribeiro-Navarrete, S. (2023). Digital transformation and European small and medium enterprises (SMEs): A comparative study using digital economy and society index data. International Journal of Information Management, 68(November 2022), 102594. https://doi.org/10.1016/j.ijinfomgt.2022.102594

Temasek Bain Company, G. (2022). Through the waves, towards a sea of opportunity. 126. https://economysea.withgoogle.com/report/

Trinugroho, I., Pamungkas, P., & Wiwoho, J. (2022). Adoption of digital technologies for micro and small business. Finance Research Letters, 45(March 2021), 102156. https://doi.org/10.1016/j.frl.2021.102156

Trinugroho, I., Pamungkas, P., Wiwoho, J., Damayanti, S. M., & Pramono, T. (2022). Adoption of digital technologies for micro and small business in Indonesia. Finance Research Letters, 45(April 2021), 102156. https://doi.org/10.1016/j.frl.2021.102156

Vijayaraman, B. S., & Bhatia, G. (2002). A framework for determining success factors of an E-commerce initiative. Journal of Internet Commerce, 1(2), 63–75. https://doi.org/10.1300/J179v01n02_05

We Are Social and Hootsuite, . (2022). Digital 2022 Indonesia. Global Digital Insights, 103. https://datareportal.com/reports/digital-2022-indonesia

Xie, C., Chiang, C. Y., Xu, X., & Gong, Y. (2023). The impact of buy-online-and-return-in-store channel integration on online and offline behavioral intentions: The role of

offline store. Journal of Retailing and Consumer Services, 72(December 2022), 103227. https://doi.org/10.1016/j.jretconser.2022.103227

Zhang, D., Zhu, P., & Ye, Y. (2016). The effects of E-commerce on the demand for commercial real estate. Cities, 51(2015), 106–120. https://doi.org/10.1016/j.cities.2015.11.012

Zhou, Q., Gao, P., & Chimhowu, A. (2019). Technological Forecasting & Social Change ICTs in the transformation of rural enterprises in China : A multi-layer perspective. Technological Forecasting & Social Change, 145(June 2018), 12–23. https://doi.org/10.1016/j.techfore.2019.04.026

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