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4	Bukti konfirmasi artikel terbit online	19 April 2024

sutrisno upgris <sutrisno@upgris.ac.id>

Submission_Corporate and Business Strategy Review
3 pesan

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sutrisno upgris <sutrisno@upgris.ac.id>   9 September 2023 pukul 11.28
Kepada: info@virtusinterpress.org, olha.lytvynenko@virtusinterpress.org, mrix@uow.edu.au, beatrice.orlando@unife.it

TITLE:
"Analysis of E-commerce Adoption by SMEs in Indonesia During the Covid-19 Pandemic"

Name: Sutrisno
Affiliation: Department of Management, Faculty of Economics and Business, Universitas PGRI Semarang, Central Java, Indonesia
Email: sutrisno@upgris.ac.id

Dear Editor,

With great respect, I, Dr Sutrisno, as the author of this article would like to request that my article be immediately processed for publication this year. This article has important significance in the context of Small Business and E-commerce and will greatly contribute to the development of knowledge in this field.

I realise how valuable the review and editing process is in maintaining the quality of articles published by Virtus Interpress. However, taking into account the importance of this article in terms of my academic standing, I would like to humbly request special consideration to expedite the process.

Sincerely,
Dr Sutrisno

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519K

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sutrisno upgris <sutrisno@upgris.ac.id>   12 September 2023 pukul 12.29
Kepada: info@virtusinterpress.org, olha.lytvynenko@virtusinterpress.org, mrix@uow.edu.au, beatrice.orlando@unife.it

Dear Editor,

Please provide confirmation or feedback. Since it has been three days since today.

Thank you
[Kutipan teks disembunyikan]

Olha Lytvynenko <olha.lytvynenko@virtusinterpress.org>   12 September 2023 pukul 22.18
Kepada: sutrisno upgris <sutrisno@upgris.ac.id>

Dear Dr Sutrisno,
thank you very much for your submission to the *Corporate & Business Strategy Review* journal.
We will arrange your paper for the double-blind peer review and will get back to you with the results and further information in about 6-7 weeks.
If you have any questions, don't hesitate to contact me.
Have a nice day!

Best regards,
Olha

[Kutipan teks disembunyikan]
--

Olha Lytvynenko
Senior Managing Editor, Managing Editor of the journals "Corporate Ownership and Control", "Journal of Governance and Regulation", "Risk Governance and Control: Financial Markets & Institutions", and "Corporate & Business Strategy Review"

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Reviewer's report_Corporate & Business Strategy Review
1 pesan

Olha Lytvynenko <olha.lytvynenko@virtusinterpress.org>   13 Desember 2023 pukul 17.48
Kepada: sutrisno upgris <sutrisno@upgris.ac.id>

Dear Sutrisno,
please find the reviewer's report and the editorial note attached below. The paper "*Analysis of E-commerce Adoption by SMEs in Indonesia During the Covid-19 Pandemic*" requires certain adjustments before it can be accepted.

Please be so kind as to address the comments provided by the reviewer and the editorial team and to send your revised manuscript by **December 27.**

Please mark the introduced changes in the manuscript (with some colour, if possible) or please provide a table/a letter to the reviewer that includes information how the reviewer's comments were addressed.

If you have any questions, please let me know.

Please kindly confirm the receipt of this email.

Kind regards,
Olha

--

Olha Lytvynenko
Senior Managing Editor, Managing Editor of the journals "Corporate Ownership and Control", "Journal of Governance and Regulation", "Risk Governance and Control: Financial Markets & Institutions", and "Corporate & Business Strategy Review"

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📄 **Reviewer's report_CBSR.pdf**
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Editorial Note

1) The length of the paper should amount to no more than 8,000 words.

2) The editorial team of the journal suggests to use the following title of the article: "*Analysis of E-commerce Adoption by SMEs During the Covid-19 Pandemic*" in order to increase the readability of your paper and the citation rate.

3) Please add at least 3 JEL classification codes for your research. You can use the link: https://www.aeaweb.org/jel/guide/jel.php

4) In order to enhance the readability of the manuscript, please add in the section «Abstract» *a short* description of the conclusion and relevance of the paper. The appropriate length would be 150-200 words.

5) It is preferable that the „Abstract" contains 1-2 in-text citations of the sources mentioned in the list of references that the research is based on or that the research contributes to.

6) The recommended structure of a scholarly paper is as follows:
1. Introduction, 2. Literature review and Hypotheses Development, 3. Research Methodology, 4. Results, 5. Discussion, 6. Conclusion. Please, adjust your titles of the sections, if possible.

7) In the Introduction, is it recommended to indicate literature gap(s), research aim(s) and question(s), the theoretical/conceptual framework applied, relevance and significance of the study, research methodology used, main findings/contributions.

8) In the "Introduction" section please add one more paragraph describing in detail the general structure of the paper. *(e.g. The structure of this paper is as follows. Section 2 reviews the relevant literature. Section 3 analyses the methodology that has been used to conduct empirical research on...)*

9) It is recommended to merge sections "Literature Review" and "Hypotheses Development", as the hypotheses should be developed on the basis of the literature review and not stated as a separate section.

10) We suggest reducing the number of subsections in the "Literature review" section so that the paper has a more scholarly structure.

11) "Research Methodology" section should also contain description of alternative methods that would be suitable for conducting the research.

12) We recommend splitting up the section "Results and Discussion" into two different parts: "Results" and "Discussion".

13) Please compose the "Conclusion" as a whole section, don't include subsections therein. That is, please delete titles of subsections in **bold**. It will enhance the readability of the manuscript.

14) The list of references and all the in-text citations should be formatted in APA style:
> For journals:
> Author, A. A., Author, B. B., & Author, C. C. (Year). Title of article. *Title of Periodical, volume number* (issue number)*,* pages. https://doi.org/xx.xxx/yyyyy
> For books:
> Author, A. A. (Year of publication). *Title of work: Capital letter also for subtitle*. Publisher.
> For electronic sources:
> Author, A. A., & Author, B. B. (Date of publication). *Title of article*. Publisher/Website. Retrieved from http://www.someaddress.com/full/url/

15) Please reduce the list of references up to 50-60 sources as the current list of references seems to be a bit redundant and it shifts the focus away from the main idea and research questions of the article.

16) Please make sure that all the references cited in the paper are included in the reference list and all the sources in the reference list are properly cited in the paper.

17) Please provide editable versions of figures.

18) The paper requires English proofreading (language and typos) so that your paper may be read and cited by a wide audience of readers throughout the world.
If you want the team of Virtus Interpress to do English proofreading of your paper, you may order this service at a moderate fee (90 EURO). We'll do this work professionally, qualitatively and within a short period of time (up to one week).

Reviewer's Report

Journal:	Corporate & Business Strategy Review		
Title of the paper:	**Analysis of E-commerce Adoption by SMEs in Indonesia During the Covid-19 Pandemic**		
Date of the Review completion:	13 December 2023		
Please choose options that can characterize the paper:			
Originality and importance of the paper to the field of research:	Medium		
The **structure** of the paper:	Needs to be slightly corrected		
Please tick relevant for the **abstract**	The abstract provides an accurate summary of the manuscript (including aim, methods, key results and relevance of the study)	☐ yes	☒ no
	The abstract contains unnecessary information (please explain)	☐ yes	☒ no
	Is the abstract of appropriate size? (150-200 words)	☒ yes	☐ no
Please tick relevant for the **introduction**	Does the introduction identify the purpose of the paper or hypothesis and set the paper within the broader research perspective?	☒ yes	☐ no
	The introduction puts the rest of the paper into perspective (explains paper's structure)	☐ yes	☒ no
Methods used in the paper:	Suit the aim of the research		
	Does the methodology part allow replicating or reproducing results (to check them or to perform a similar study)?	☒ yes	☐ no
	If empirical study: is the sample size large enough and was selected in an appropriate way (leave blank if not acceptable)?	☒ yes	☐ no
Results and discussion:	Are the interpretations provided by the author(s) supported by the findings obtained in the study?	☒ yes	☐ no
Are there any **figures or tables** that have to be corrected / deleted?	No, everything is fine		
	Are the figures and/or tables clear and you can understand their essence?	☒ yes	☐ no
Conclusions:	Do not reveal main findings of the paper		
	Conclusions are supported by the findings, analysis and interpretations of the author(s)	☐ yes	☒ no
	Does the conclusion section repeat the abstract of the paper?	☐ yes	☒ no
References	Are all references in the list used in the paper?	☒ yes	☐ no
	Are the number, relevance and "age" of the citations appropriate?	☒ yes	☐ no
Language of the paper:	Is adequate (small mistakes)		
Length of the paper:	Is appropriate		
What is your main verdict?	Accept paper with the changes that should be made by the author/authors		
Field for the comments of the reviewer:			

Thank you for your hard work in discussing an interesting topic: Analysis of E-commerce Adoption by SMEs in Indonesia During the Covid-19 Pandemic. The paper still needs substantial developments before it can be considered for publication in this journal. I have some concerns that can be outlined as follows:

1. Kindly revise the abstract specially the part of the results to make the sentences more relevant and connected.

2. The motivations and contributions should be well addressed in the introduction which is missed.

3. In the literature review section identification of the main gaps in the extant literature must be

addressed and articulation of the key contributions.
4. The conclusion should reflect the study's primary policy and practitioner implications, limitations, and future recommendations, so the conclusion paragraph must be revised by merging and comparing the paper results and previous studies.

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sutrisno upgris <sutrisno@upgris.ac.id>   18 Desember 2023 pukul 19.14
Kepada: Olha Lytvynenko <olha.lytvynenko@virtusinterpress.org>

Dear Editor,
I have received this revision note, I will fix what needs to be fixed immediately.

Thank you.
Best regards
[Kutipan teks disembunyikan]

Olha Lytvynenko <olha.lytvynenko@virtusinterpress.org>   18 Desember 2023 pukul 19.15
Kepada: sutrisno upgris <sutrisno@upgris.ac.id>

Dear Sutrisno,
thank you for your reply and receipt confirmation.
I am looking forward to hearing from you.

Kind regards,
Olha
[Kutipan teks disembunyikan]

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sutrisno upgris <sutrisno@upgris.ac.id>   18 Desember 2023 pukul 22.17
Kepada: Olha Lytvynenko <olha.lytvynenko@virtusinterpress.org>

Dear Editor,

I am pleased to report that I have successfully revised my manuscript in accordance with the latest directions from the journal reviewers/editors. I have carefully considered each comment and suggestion, and implemented the necessary changes in my manuscript.

I also agreed to have the Virtus Interpress team proofread my paper for an affordable 90 EURO.

Thank you for this opportunity. I believe this revision has met the journal's standards and is ready for further processing. Please find attached my revised manuscript.

Sincerely,
Dr. Sutrisno
[Kutipan teks disembunyikan]

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sutrisno upgris <sutrisno@upgris.ac.id>

Reviewer's report_Corporate & Business Strategy Review

Olha Lytvynenko <olha.lytvynenko@virtusinterpress.org>　　　　24 Januari 2024 pukul 18.22
Kepada: sutrisno upgris <sutrisno@upgris.ac.id>

Dear Dr. Sutrisno,
thank you again for the provided revised version of the paper and your work.
Still, the paper requires a few more corrections before it may be accepted, namely:

1) The length of the paper should amount to no more than 8,000 words.
2) Kindly revise the abstract specially the part of the results to make the sentences more relevant and connected.
3) In the Introduction, is it recommended to indicate literature gap(s), research aim(s) and question(s), the theoretical/conceptual framework applied, motivations and contributions of the study, research methodology used, main findings/contributions.
4) In the literature review section identification of the main gaps in the extant literature must be addressed and articulation of the key contributions.
5) "Research Methodology" section should also contain description of alternative methods that would be suitable for conducting the research.
6) The list of references and all the in-text citations should be formatted in APA style.
7) Please provide editable versions of figures.

Please provide your final revised manuscript by **January 31.**

I am looking forward to hearing from you.

Kind regards,
Olha

[Kutipan teks disembunyikan]

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Your paper has been accepted_Corporate & Business Strategy Review
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Olha Lytvynenko <olha.lytvynenko@virtusinterpress.org>   27 Februari 2024 pukul 15.56
Kepada: sutrisno upgris <sutrisno@upgris.ac.id>
Cc: Alexander Kostyuk <alex_kostyuk@virtusinterpress.org>

Dear Sutrisno,

thank you for sending the final revised version of your manuscript "*Analyzing the Future of E-commerce Adoption by SMEs Amid the Covid-19 Pandemic".* I appreciate your attention in addressing the report's comments. The final revisions of your paper are acceptable.

I am happy to inform you that your paper has been accepted for publication in the journal *Corporate & Business Strategy Review* (under the condition of English language proofreading). In attachment you'll find the Letter of Acceptance.

Please note that your paper is planned to be published in April 2024.

The paper will be open accessed at the website of the Publisher immediately after its publication. In this way you, as the author, will take part in our Virtus open-access network program. Moreover, under this immediate open access option, you will have a right to upload your paper (a PDF file of your published paper) as full-text elsewhere (ssrn.com, Researchgate, academia.edu, EconStor, RePEc, your university repositories, personal webpages, etc.) for open public access and disseminate the paper among your colleagues that will speed up your paper citation. Also, we will immediately, after publishing your paper at our website, start promoting your paper among our international network of scholars in corporate governance, accounting and finance (more than 5400 scholars worldwide) through direct linking, social networking, etc.

The payment of publication fee (the APC) should be made by a credit card through our online payment platform at https://www.virtusgccg.org/other-information.html (780 EURO, the button "Pay Now").

As for the fee for the English language proofreading by our editorial team, you may finalise the payment of 90 EURO here: https://virtusinterpress.org/Other-information.html (the button "Pay Now").

You are kindly asked to finalise the payment **within a week,** so that we may put your paper into the publication schedule.
Please let me know once the payment is finalised and we will proceed with typesetting and proofreading your paper.

Kind regards,
Olha

--

Olha Lytvynenko
Senior Managing Editor, Managing Editor of the journals "Corporate Ownership and Control", "Journal of Governance and Regulation", "Risk Governance and Control: Financial Markets & Institutions", and "Corporate & Business Strategy Review"

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LETTER OF PAPER ACCEPTANCE

FROM: Publishing House "Virtus Interpress", Sumy, Ukraine   DATE: February 27, 2024

TO/ATTN: Sutrisno
                    Department of Management
                    Faculty of Economics and Business
                    Universitas PGRI Semarang
                    Central Java
                    INDONESIA

Dear Sutrisno,

herewith it is certified that the paper titled *"Analyzing the Future of E-commerce Adoption by SMEs Amid the Covid-19 Pandemic"* authored by you has been blind reviewed and accepted for publishing in the issue of the journal *Corporate & Business Strategy Review* (ISSN – 2708-9924 (printed version), ISSN – 2708-4965 (online version)) (under the condition of English language proofreading) in 2024.

Director, Virtus Interpress,
Oleksandr Kostyuk

sutrisno upgris <sutrisno@upgris.ac.id>

Your paper has been accepted_Corporate & Business Strategy Review

Olha Lytvynenko <olha.lytvynenko@virtusinterpress.org>   27 Februari 2024 pukul 16.38
Kepada: sutrisno upgris <sutrisno@upgris.ac.id>

Dear Sutrisno,
thank you for your response.
Surely, you may pay via PayPal.
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- name of recipient - Oleksandr Kostyuk
Please make the payment in USD, not in EUR. The equivalent of 870 EURO (780 of APC+90 of proofreading fee)
would be 945 USD. So, please transfer 945 USD to alex_kostyuk@virtusinterpress.org

I am looking forward to hearing from you.

Kind regards,
Olha

[Kutipan teks disembunyikan]

Analyzing the Future of E-commerce Adoption by SMEs Amid the Covid-19 Pandemic

by Paper Check

Analyzing the Future of E-commerce Adoption by SMEs Amid the Covid-19 Pandemic

Abstract

The COVID-19 pandemic has caused the use of technology to become increasingly massive and has an impact on increasing business trends through e-commerce. Failure to be proactive and adapt to change will cause business disruption in the near future. The adoption of e-commerce is the right solution for SMEs to be ready to compete and survive in the crisis era. This study aims to analyze technological, organizational and environmental factors on e-commerce adoption, and the impact of e-commerce adoption on the performance and competitive advantage of SMEs in the era of the covid-19 pandemic. The object of this research is 100 SMEs in Jambi City, Indonesia. The sampling technique was non-random sampling with type purposive sampling. Data were collected by distributing questionnaires online to selected respondents. The findings of this study underscore the significant influence of technological, organizational, and environmental factors on the adoption of e-commerce among SMEs in Jambi City. Moreover, SMEs in Jambi City perceive that effectively embracing e-commerce can yield desired outcomes, enhancing their performance and competitive edge in the business landscape. Furthermore, the advantages of electronic commerce extend to the convenience of round-the-clock business operations from any geographical location, thus amplifying its appeal and utility for SMEs.

Keywords: covid-19, competitive advantage, e-commerce, environment, organization, performance, SEM-PLS, technology

1. INTRODUCTION

The rapid growth and improvement of Internet technology influences the expanding field of electronic commerce. Electronic commerce's potential benefits have been widely touted, including the convenience of being able to conduct business 24/7 from any location (Subagja, 2023). Small and medium-sized enterprises (SMEs) have the same footing as multinational corporations because to online trade (Sutrisno et al., 2022). Furthermore, it can improve consumer-business interaction and boost productivity, sales, and service offerings. Scientists are optimistic that SMEs would be able to help boost the competitiveness of local products thanks to the advent of electronic commerce (Ausat et al., 2023). The research results of earlier scholars who still identified discrepancies in the adoption of electronic commerce by SMEs through technological, organizational, and environmental factors show that despite the benefits, there are impediments and problems for SMEs in adopting electronic commerce.

According to (Al-Alawi & Al-Ali, 2015), SMEs' adoption of e-commerce in Kuwait is favorably and considerably influenced by the technological background. Research (Rahayu & Day, 2015) indicated that technological considerations have a negligible impact on the adoption of electronic commerce by SMEs in Indonesia, hence their finding is at odds with that.

The degree to which an organization supports e-commerce is also a factor. Adoption of electronic commerce by SMEs in Kenya is influenced by organizational characteristics such as age of firm, business type, and firm size (Ochola, 2015). The results of this study suggest that the size of a company may play a role in determining whether or not to adopt e-commerce. Smaller businesses may struggle to purchase such a system due to a lack of funds, while larger ones can more easily do so (Ausat & Peirisal, 2021). Nonetheless, studies show that company size indicators, which represent organizational variables, have a negative and minor effect on SMEs' adoption of internet commerce (Rahayu & Day, 2015).

The setting is also important in determining the rate of e-commerce adoption. West Kalimantan's SMEs are heavily influenced by the surrounding environment, as measured by indications of government assistance (Kosasi, 2019). He argues that in order for SMEs to advance to a more advanced level of electronic commerce, the government must provide incentives including training, technical guidance, financing, and other types of support. These results run counter to previous studies that concluded that environmental variables including customer pressure, competition activity, and external support (from the government) all had a negative and minor effect on the likelihood of SMEs adopting e-commerce (Rahayu & Day, 2015).

Looking back at the study done so far, there are still mixed findings. Therefore, further research is required using new settings or materials. In addition, the current study will incorporate performance variables and competitive advantage to determine whether SMEs in the post-CoV-19 era are impacted by the adoption of e-commerce and, if so, how. Therefore, the novelty of this study lies in the fact that it employs a research model with six independent variables and five hypotheses, a combination that is still relatively uncommon in the academic literature.

Indonesia, ranking among the top 10 nations in e-commerce usage, presents an intriguing case for studying its impact on smaller businesses globally. With 88.1% of Indonesian internet users making online marketplace purchases, it boasts the world's highest percentage (Lidwina, 2021). With a population of 276.3 million, Indonesia has 212.35 million internet users, signaling a sizable and growing e-commerce market (Kusnandar, 2021). Despite a decline in the number of MSMEs from 15.5 million (May 2020) to 14.5 million (August 2021), many have yet to leverage e-commerce, with half of the expected 30 million SMEs not participating by 2023 (CNN Indonesia, 2021). In the post-COVID-19 era, technological infrastructure is essential for businesses, as in-person shopping habits shift online due to social restrictions. The anticipation is that 30 million MSMEs will engage in online trading by 2021.

The Covid-19 pandemic has severely impacted Indonesian MSMEs across six key aspects. Firstly, sales have plummeted, leading some MSMEs to shut down. Secondly, business profits have dwindled, particularly during strict enforcement of restrictions. The third aspect involves undercapitalization due to unbalanced income and operational expenses. Fourthly, many MSMEs have had to lay off employees. Fifthly, fulfilling bank obligations, such as loan installments, became challenging. Lastly, a notable aspect is the slow adoption of digital marketing, like e-commerce, with some still relying on traditional methods. The restriction on in-person shopping due to government regulations has worsened the plight of MSMEs during the pandemic. This aspect aligns with the focus of the research.

Many SMEs in Jambi City, particularly in the food and beverage sector, are likely still reliant on traditional methods, lacking reliable data on digital economy adoption (Umiyati & Achmad, 2021). Despite 3,506 SMEs in Jambi City in 2018, e-commerce studies are scarce. Research suggests 44% of processed food industry enterprises are more inclined to use digital apps than fashion and service industries (Umiyati & Achmad, 2021). Jambi City's provincial government promotes MSMEs' digital participation through extensive literacy and IT training programs. Businesses with IT training is more likely to engage in the digital economy (Umiyati & Achmad, 2021). Government support in improving ICT knowledge, especially amid the pandemic, is crucial for success (Dhewanto et al., 2018). This study aims to analyze e-commerce adoption among Jambi City SMEs, encouraging those using traditional methods to transition. It adds to existing literature and serves as a reference for future research.

In order to make it easier for readers to understand the overall content of this study, the researcher formulates the structure of this paper as follows: Section 1 explains the introduction, section 2 the literature review and hypothesis development used in formulating the researcher's thoughts, and the hypothesis development which integrates the results of relevant previous studies, section 3 the research methodology which explains that the current study adopts quantitative techniques, section 4 the research results, section 5 the detailed discussion of the research findings in a structured manner, and section 6 is the conclusion of the entire paper.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

In the context of this study, we will discuss the theoretical foundation, variables and indicators used, as well as the impact or relationship between each variable.

2.1 Diffusion of Innovation Theory and TOE Framework

Investigations into the proliferation of e-commerce utilize a diverse array of theoretical bases including those proposed by Davis (1989), Ajzen (1991), Rogers (1995), and Tornatzky & Fleischer (1990). Prominent among these are the TAM, TPB, UTAUT, DOI, and the technology, organization, and environment framework (TOE) as highlighted by various scholars (Davis, 1989; Ajzen, 1991; Venkatesh et al., 2003; Rogers, 1995; Tornatzky & Fleischer, 1990). Despite the extensive application of these theories, there exists a notable deficiency in the literature regarding their integration and comparative analysis, especially within the domain of organizational e-commerce adoption. This absence hinders a holistic grasp of the myriad factors influencing e-commerce adoption and underscores the necessity for further exploration to bridge this divide.
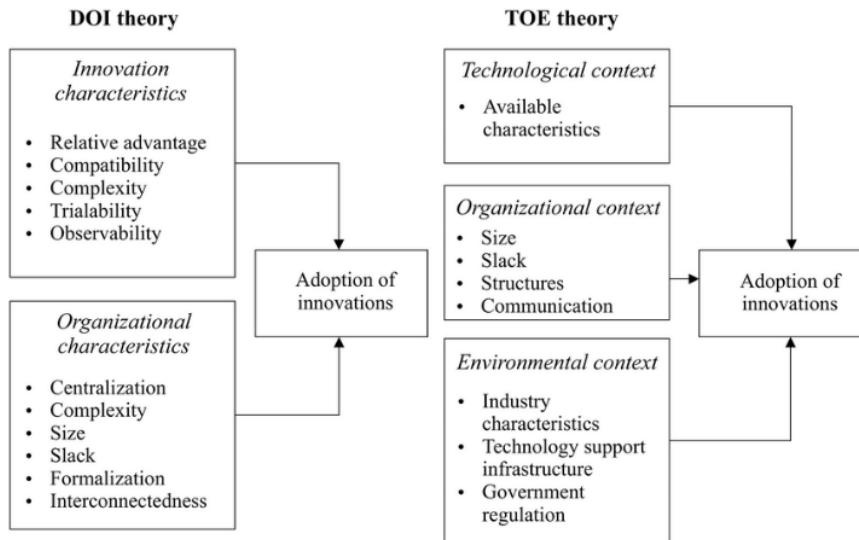
The frameworks of DOI and TOE have previously facilitated extensive research into the determinants influencing e-commerce adoption (Rogers, 1995; Tornatzky & Fleischer, 1990). However, such research predominantly isolates individual determinants without adequately addressing how these determinants, spanning technological, organizational, and environmental dimensions, synergistically affect e-commerce adoption (Rogers, 1995; Tornatzky & Fleischer, 1990). This highlights an exigency for studies that delve into the nexus of these elements within the DOI and TOE frameworks to offer insights into optimal strategies for harnessing e-commerce technologies for strategic advantage.

Moreover, although the DOI framework accentuates the significance of innovation characteristics and organizational elements in the adoption of technologies (Rogers, 1995), and the TOE framework considers a triad of technological, organizational, and environmental factors (Tornatzky & Fleischer, 1990), there remains a scant comprehension of their convergences and how they jointly elucidate e-commerce adoption (Ilin et al., 2017). Filling this void is imperative for fostering a comprehensive understanding of the dynamics driving e-commerce adoption and for guiding organizations in augmenting their e-commerce initiatives.

Therefore, as factors that influence the adoption of e-commerce by SMEs, the researchers will employ technology, organization, and environment in the current study. Additionally, the current research will also interpolate the variables of SME performance and competitive advantage in order to see the influence of factors affecting e-commerce adoption in SMEs and their impact on SME performance and competitive advantage in order to contribute to interested parties both theoretically and practically. This is done in order to contribute to interested parties both theoretically and practically. Additionally, the indications that are incorporated inside each dimension that is constructed are complementary to the DOI and TOE framework. In light of this, the conceptual model depicted in Figure 2 (see figure 2) may be understood to be an original contribution made by the research idea to the study of the adoption of information technology by enterprises.

Figure 1. DOI Theory and TOE Framework

DOI theory

Innovation characteristics

- Relative advantage
- Compatibility
- Complexity
- Trialability
- Observability

Organizational characteristics

- Centralization
- Complexity
- Size
- Slack
- Formalization
- Interconnectedness

Adoption of innovations

TOE theory

Technological context

- Available characteristics

Organizational context

- Size
- Slack
- Structures
- Communication

Environmental context

- Industry characteristics
- Technology support infrastructure
- Government regulation

Adoption of innovations

2.2 Technology

Both currently employed as well as market-available but not-yet-adopted technologies are part of the technical background since they are relevant to the business (Ausat & Suherlan, 2021). Therefore, the technological setting demonstrates how adoption is dependent on a range of technologies both within and beyond the organization. (Baker, 2012) argues that in-house tech is crucial because it serves as a benchmark for when and how an organization should incorporate new technologies, and so provides insight into the nature of the ensuing shifts. By analyzing the internal technological background, for instance, management can determine if a new technology will bring about progressive change or a rupture, rendering the previous method of work obsolete (Ausat, Suherlan, et al., 2022). To measure the state of technology, this analysis makes use of relative advantage and compatibility.

2.3 Organization

The most studied aspect of businesses' e-commerce adoption has been their organizational setting. Attributes of an organization can either help or hinder its operations. Some studies have found that organizational environments are more reliable indicators of innovation uptake than others (Chatterjee et al., 2015). In order to meet customer expectations or take advantage of external opportunities, businesses regularly implement new strategies (Subagja et al., 2022). This research uses organizational size, technological readiness, support from top management, and organizational culture as indicators of the organizational setting.

2.4 Environment

The business environment consists of internal and external elements that work together to drive the company forward. The outcomes related to behavior, resources, strengths, and weaknesses, whether within the business or internal to it, as well as those concerning customers, competitors, government agencies, and the supplier workforce, are primarily the result of decisions made throughout the management process (Ausat & Suherlan, 2022). Therefore,

it's safe to say that external factors have considerable impact on how well a company performs. To thrive in today's competitive and uncertain business climate, SMEs should take advantage of any chances to implement e-commerce that present themselves. In this investigation, indicators of the external environment include customer, competition, supplier, and support policies.

2.5 E-commerce Adoption

"Adoption" denotes the acceptance of unused electronic commerce into regular use. In the academic realm, "e-commerce" encompasses various meanings, mainly involving the use of ICTs and apps to facilitate business activities in SMEs (Ahmad et al., 2015). This term refers to the exchange of goods and services among businesses and third parties using the internet, computers, and ICT (Syuhada et al., 2020). E-commerce enables digital transformation of traditional business practices, allowing online buying, selling, and collaborative value chain activities. It involves using ICT to facilitate commercial transactions, both internally and externally. Online commerce primarily involves selling and buying through a company's website. Widespread and proper deployment of e-commerce is expected to empower SMEs in the global market and enhance competitive prospects. The study's indicators of e-commerce adoption are based on those used in earlier studies, including those of (Ausat, Siti Astuti, et al., 2022): *Internet usage during product sales, Availability of e-commerce support facilities, Readiness of human resources in e-commerce*, and *Readiness of SMEs in responding to consumers online*

2.6 SMEs Performance

Developmental SMEs in Indonesia, governed by Law No. 20 of 2008, face challenges amid the pandemic, impacting MSMEs. The government supports MSMEs with fiscal incentives through the National Economic Recovery (PEN) program, allocating IDR 171.17 trillion in 2021 to sustain growth (Kominfo, 2021). Recognizing MSMEs' vital role, the government launches the Gerakan Nasional Bangga Buatan Indonesia (Gernas BBI) program, promoting digitalization for offline MSMEs and enhancing the national branding of superior products, likely boosting exports (Kominfo, 2021). Organizational performance, measured by profitability,

service quality, and efficiency, relies on effective resource utilization and adaptation to changing environmental conditions, ultimately determining success. This study borrows various performance indicators for SMEs from earlier studies, including Increasing sales and profits and Customer satisfaction (Ausat & Peirisal, 2021).

2.7 Competitive Advantage

Each and every definition of a competitive advantage must include value creation as a cornerstone (Pilinkiene et al., 2013). A company's competitive advantage is the consequence of strategic choices that have allowed it to build a strong position relative to its rivals (Hazen & Byrd, 2012). When a company's operations in a given market or industry generate more economic value and provide better value to consumers than rivals, it has achieved competitive advantage. To do this, you can either undercut the competition's prices or offer superior benefits that justify charging more for the same or comparable services (Marinagi et al., 2014). Given the rising levels of competition across most industries, SMEs have found one area of competitive advantage to be their use of information technology (e-commerce) (Xuhua et al., 2019). This research uses indicators including cost reduction, growth, differentiation, and innovation to determine competitive advantage.

Next, we will examine the relationship between the variables employed in this study. Regular funding for IT maintenance and upgrades is essential for expanding workers' IT expertise, maintaining systems, and hiring specialists (Ramadansyah & Taufik, 2017). Technology plays a pivotal role in e-commerce adoption, with successful online business transitions relying heavily on technological aspects (Dhewanto et al., 2018). Proper operation of IT is crucial for the success of the online retail industry (Ausat, 2023). Technology readiness is identified as the most critical factor in SMEs embracing e-commerce, influencing their ability to adopt the technology (Nurrohmah & Alfanur, 2016). Openness to new technologies correlates with a higher likelihood of utilizing online stores (Nurlinda & Fatimah, 2019). Technological elements significantly impact the spread of ICT (Setiowati et al., 2015), facilitating e-business adoption (García-Moreno et al., 2018). Perceived benefit is a crucial influence on SMEs' e-commerce decisions in Indonesia (Rahayu & Day, 2015). Additionally, technology compatibility indicators greatly influence people's willingness to use e-commerce (Kosasi, 2019).

H1: *Technology has a positive and significant effect on e-commerce adoption*

Organizational variables, as measured by business size, positively affect e-commerce adoption (Ochola, 2015). Larger organizations have more resources, whereas tiny companies have few (Ausat & Peirisal, 2021). These results agree with (Dhewanto et al., 2018), who found that organization size influences e-commerce adoption.

H2: *Organization has a positive and significant effect on e-commerce adoption*

Human resource competencies within businesses are crucial for maximizing e-commerce and IT benefits (Ausat & Suherlan, 2021). Age affects IT utilization, with older employees showing less interest (Widagdo, 2016). SMEs must monitor the business climate for risks and opportunities, utilizing national and international shows and the internet (Ramadansyah & Taufik, 2017). E-commerce adoption in SMEs is driven by external factors like customers and competition, and influenced by company culture (Dhewanto et al., 2018). Environmental factors, including government policies, significantly impact e-commerce adoption (Kosasi, 2019), with government support and regulations positively influencing adoption rates (Ilin et al., 2017). Competitive

indicators in the external environment also favor e-commerce adoption (Lim et al., 2018), along with internal and external firm factors (Nurrohmah & Alfanur, 2016). These findings lead to the hypothesis of this study.

H3: *Environment has a positive and significant effect on e-commerce adoption*

E-commerce implementation enhances company performance by boosting online sales, impacting SME tactics (Alzahrani, 2019). With the rise of online shopping, companies adapt operations, improving service quality and speed, positively affecting sales and profitability (Nurlinda & Fatimah, 2019). Embracing e-commerce increases productivity and competitiveness (Ausat, Siti Astuti, et al., 2022), aligning with findings by Ramadansyah & Taufik (2017) on SME productivity. Coordination and cost reduction in economic activities yield bottom-line growth (Hanum). E-commerce automation minimizes coordination and transaction costs, enhancing efficiency (Hanum & Sinarasri, 2017).

H4: *E-commerce adoption has a positive and significant effect on performance*

When it comes to e-commerce, businesses lose some of their edge. Competitive advantage is the skill that organizations have to win competition, with important management decisions, which distinguish themselves from their competitors. Greek small and medium-sized manufacturers saw an increase in their competitive edge as a result of investments in information technology, particularly e-commerce (Marinagi et al., 2014). Another study, this one of the Jordanian food industries, found that e-interactive commerce's marketing, commodities supply chain management, and electronic transactions all contribute to the sector's competitive advantage (Aldalayeen, 2013). Based on this explanation, it's safe to say that e-commerce modifies a company's edge in the market. Accordingly, the following might be stated as the study's hypothesis.

H5: E-commerce adoption has a positive and significant effect on competitive advantage

3. RESEARCH METHODOLOGY

This study employs a quantitative approach, collecting numerical and statistical data to meet scientific criteria. Exogenous variables include technology, organization, and environment, while e-commerce adoption, SMEs performance, and competitive advantage are endogenous. The use of TOE factors in exogenous variables aligns with the DOI theory and TOE framework, where these characteristics stimulate organizational innovative behavior. Jambi SMEs can adopt e-commerce by being adaptive to technological advances, enhancing performance, and gaining a competitive advantage. Research variables are illustrated in Figure 2, and purposive sampling criteria, including company scale, assets, revenue, number of employees, and at least 5 years of operation, were employed. This selection was based on the observation that adopt e-commerce SMEs are usually older and engaged in the food and beverage sector, as discussed in the introduction.

The author aims to demonstrate that SMEs, with increased age, tend to adopt more advanced thinking due to accumulated experience and knowledge. This adaptability is crucial in improvising digital business processes, particularly in utilizing e-commerce. Purposive sampling is employed to specifically select SMEs operating for over 5 years, as the author believes the significant role of e-commerce in business has evolved in this timeframe. From June to August of 2021, a survey using a Likert scale was sent out to small and medium-sized enterprises (SMEs) in the food and beverage industry in Jambi City. We were able to get 100 valid responses after removing 9 that did not match the requirements. As shown in

Table 2, the following are the demographic details of the participants. After that, we used SEM-PLS (Structural Equation Model-Partial Least Squares) in conjunction with SmartPLS 3.2 to analyse the data and test our hypotheses. The SEM-PLS analysis included testing the hypotheses, evaluating the R-squared and Q-squared values, and assessing the convergent and discriminant validity and reliability of the outer model.

Apart from employing a quantitative approach in this study, conducting a thorough analysis of the research findings can yield significant insights into the perspectives and experiences of stakeholders regarding e-commerce adoption among SMEs in Jambi. Through a detailed examination of the data, researchers can uncover intricate patterns, trends, and relationships inherent in the qualitative data collected. This in-depth analysis facilitates a deeper understanding of the factors influencing e-commerce adoption and their implications for the performance and competitive edge of SMEs. Therefore, conducting a comprehensive analysis of the research findings is essential for attaining a more nuanced understanding of the dynamics surrounding e-commerce adoption among SMEs in Jambi.
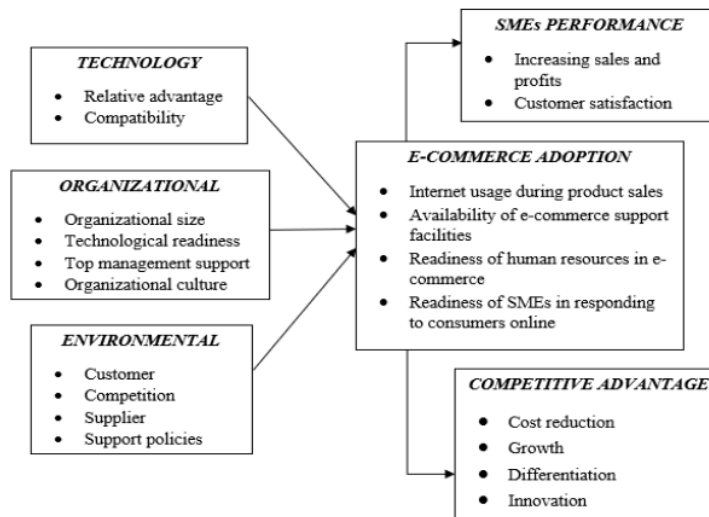
Figure 2. Research Framework

Table 1. SMEs Criteria

Enterprises Scale	Asset	Omzet	Number of Employees
Small Enterprises	>Rp 50–Rp500 million	>Rp 300 million–Rp2,5 billion	5-19 people
Medium Enterprises	>Rp 500 million–Rp10 billion	>Rp 2,5 billion–50 billion	20-99 people

Table 2. Demographic Respondents

Demographic		Frequency	Percentage
Enterprises Scale	Small	57	57%
	Medium	43	43%
	Total	100	100%
Enterprises Age	6-10 years	61	61%
	11-15 years	7	7%
	16-20 years	8	8%
	>20 years	16	16%
	Total	100	100%
Gender	Male	64	64%
	Female	36	36%
	Total	100	100%
Age	21-30 years	27	27%
	31-40 years	22	22%
	41-50 years	29	29%
	>51 years	22	22%
	Total	100	100%
Adoption of E-commerce	Yes	100	100%
	No	0	0%
	Total	100	100%

Table 2 illustrates that out of the 100 respondents surveyed in Jambi City, 57 represent small businesses, while the remaining 43 are categorized as medium-sized enterprises. Additionally, there were 36 female respondents and 64 male respondents. From these findings, it can be inferred that male respondents have made the most substantial contributions to the success of this study. Moreover, regarding the age of businesses, the majority of

respondents (61) fall within the 6 to 10 years age bracket, making them the primary contributors to this study. Furthermore, in terms of e-commerce adoption by SMEs during the pandemic, all surveyed respondents acknowledged having utilized electronic commerce.

4. RESULTS

4.1 Outer Model

In the SEM-PLS analysis, evaluating the external model constitutes the initial phase, as shown in this research by assessing convergent validity, discriminant validity, and reliability.

4.1.1 Convergent Validity

The fundamental requirement for a measure (indicator) of a construct is to exhibit a strong correlation. In Smart-PLS 3.0, assessing the convergent validity of reflexive indicators involves examining the loading factor value of each observable variable for a construct, which should exceed 0.70 as suggested by Hair et al. (2011). Upon analyzing the results presented in Table 3, it is evident that all indicators for the constructs exhibit loading factor values greater than 0.70, indicating their validity and meeting the criteria for convergent validity.

4.1.2 Discriminant Validity

Taking the square root of each construct's Average Variance Extracted (AVE) and comparing it to the correlation value between constructs is how discriminant validity is evaluated. If the square root of the AVE is greater than the correlation value between the constructs, then the discriminant validity criteria are met (Hair et al., 2011). Table 4's results confirm that the model meets these requirements, proving its dependability.

4.1.3 Reliability Test

In reliability testing, Cronbach's Alpha and Composite Reliability are assessed, with a threshold value above 0.60 indicating that a variable with reflexive indicators has passed the test, as recommended by Hair et al. (2011). The reliability test outcomes are presented in Table 3, demonstrating that all Cronbach's Alpha and Reliability values surpass 0.60, affirming the reliability of all research constructs.

Table 3. Measurement Model Analysis

Variable	Item	Factor Loading	Cronbach's Alpha	Composite Reliability	AVE
Technology (X1)	X1.1	0,951	0,862	0,935	0,878
	X1.2	0,922			
	X2.1	0,813	0,776	0,855	0,696
Organization (X2)	X2.2	0,751			
	X2.3	0,798			
	X2.4	0,722			
	X3.1	0,937	0,956	0,968	0,883
Environment (X3)	X3.2	0,938			
	X3.3	0,920			
	X3.4	0,963			
	Y1.1	0,878	0,894	0,926	0,758
E-commerce Adoption (Y1)	Y1.2	0,858			
	Y1.3	0,900			
	Y1.4	0,846			
SMEs Performance (Y2)	Y2.1	0,954	0,891	0,948	0,902
	Y2.2	0,945			
	Y3.1	0,911	0,948	0,962	0,865
Competitive Advantage (Y3)	Y3.2	0,942			
	Y3.3	0,950			
	Y3.4	0,916			

Table 4. Discriminant Validity

Var/Ind	X1	X2	X3	Y1	Y2	Y3
X1.1	**0,951**	0,437	0,283	0,631	0,555	0,590
X1.2	**0,922**	0,478	0,185	0,506	0,477	0,530
X2.1	0,398	**0,813**	0,260	0,502	0,358	0,468
X2.2	0,626	**0,751**	0,187	0,642	0,461	0,545
X2.3	0,173	**0,798**	0,113	0,470	0,243	0,250
X2.4	0,196	**0,722**	0,184	0,451	0,282	0,339
X3.1	0,225	0,282	**0,937**	0,332	0,251	0,326
X3.2	0,268	0,197	**0,938**	0,371	0,265	0,332
X3.3	0,232	0,178	**0,920**	0,263	0,231	0,284
X3.4	0,230	0,250	**0,963**	0,340	0,221	0,309
Y1.1	0,595	0,616	0,276	**0,878**	0,479	0,504
Y1.2	0,545	0,560	0,276	**0,858**	0,491	0,537
Y1.3	0,536	0,617	0,344	**0,900**	0,463	0,501
Y1.4	0,452	0,593	0,336	**0,846**	0,362	0,470
Y2.1	0,531	0,454	0,240	0,510	**0,954**	0,864
Y2.2	0,522	0,401	0,251	0,472	**0,945**	0,811

Y3.1	0,556	0,474	0,337	0,538	0,833	**0,911**
Y3.2	0,563	0,485	0,255	0,504	0,851	**0,942**
Y3.3	0,558	0,549	0,311	0,554	0,802	**0,950**
Y3.4	0,555	0,490	0,337	0,552	0,800	**0,916**

4.2 Inner Model

The subsequent phase in the SEM-PLS analysis involves evaluating the inner model, which is demonstrated in this study through the examination of R-square, Q-square, and hypothesis testing.

4.2.1 R-Square

The R-square value is utilized to determine the extent of contribution of exogenous constructs to endogenous constructs. The summarized R-square results are presented in Table 5 below. The initial R-square value indicates 0.592, signifying that the variables related to technology, organization, and environment can account for 59.2% of the variance in e-commerce adoption, while the remaining 40.8% is attributed to unexplained factors outside the scope of this study. The second R-square value for the SME performance variable is 0.268, indicating that the variables encompassing technology, organization, environment, and e-commerce adoption can explain 26.8% of the variance in SME performance, leaving 73.2% unexplained by factors not addressed in this study. Lastly, the third R-square value for the competitive advantage variable is 0.335%, indicating that the variables related to technology, organization, environment, e-commerce adoption, and performance can account for 33.5% of the variance in competitive advantage, with the remaining 66.5% attributed to unexplored factors outside this study's scope. The R-square (R2) value suggests that the SEM model is deemed appropriate and robust, as detailed by Hair et al. (2011).

Table 5. R-square

No	Variable	R-square
1	(Y1)	0,592
2	(Y2)	0,268
3	(Y3)	0,335

4.2.2 Q^2 Predictive Relevance

The assessment of the structural model entails examining the Q^2 (Predictive Relevance) value, where a model is deemed to possess adequate predictive relevance if the Q^2 value exceeds 0, as outlined by Hair et al. (2011). The formula for calculating Q^2 is as follows:

$$Q^2 = 1 - (1 - R1^2) \times (1 - R2^2) \times (1 - R3^2)$$
$$Q^2 = 1 - (1 - 0.592) \times (1 - 0.268) \times (1 - 0.335)$$
$$Q^2 = 1 - 0,198606$$
$$Q^2 = 0,801393$$

The computed Q2 value is 0.801. This value serves as an indicator to evaluate the efficacy of the model and the estimating parameters in generating the observed values, as detailed by Hair et al. (2011).

4.2.3 Hypothesis Testing

The hypothesis is considered to have a positive correlation when the path coefficient value is greater than 0.1 and is statistically significant with a P-value less than 0.05. The outcomes of hypothesis testing are presented in Table 6, and Figure 3 of the bootstrapping model is included as supplementary information. The T-statistic value from Figure 3 is referenced to further bolster the discussion on the research hypothesis model and strengthen its validity.

Table 6. Hypothesis Testing Results

Hypothesis	Variable	Path Coefficient	P-Values	Decision
H1	(X1) -> (Y1)	0,342	0,000	Accepted
H2	(X2) -> (Y1)	0,483	0,000	Accepted
H3	(X3) -> (Y1)	0,148	0,047	Accepted
H4	(Y1) -> (Y2)	0,518	0,000	Accepted
H5	(Y1) -> (Y3)	0,578	0,000	Accepted

Figure 3. Bootstrapping Model
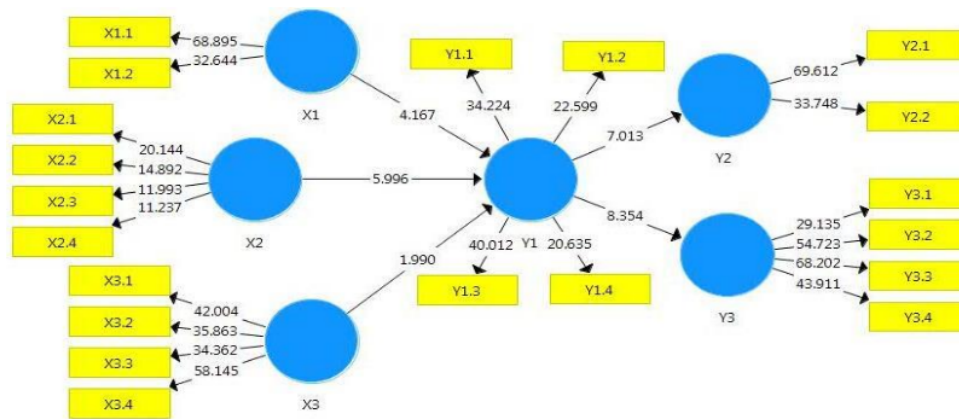
5. DISCUSSION

5.1 The effect of technology on e-commerce adoption

The impact of technology on e-commerce adoption is positively and significantly established. This conclusion aligns with the findings of previous studies (García-Moreno et al., 2018; Ausat, Siti Astuti, et al., 2022), which also support this assertion. The continuous evolution of internet technology and e-commerce has rendered information and communication technology (ICT) indispensable for businesses across various sectors. Failing to proactively embrace and adapt to these changes may lead to disruptions for businesses in the foreseeable future. E-commerce adoption emerges as a viable solution for SMEs to remain competitive and resilient amidst the challenges posed by the COVID-19 pandemic era. The technology variable in this study has two indicators, namely relative advantage and compatibility. Both indicators have different t-statistic values (figure 3), the highest value is found in the relative advantage indicator (X1.1), then compatibility (X1.2). First, relative advantage (X1.1) is an important indicator that acts as a determinant of electronic commerce adoption in technology variables. This outcome indicates that SMEs in Indonesia adopt electronic commerce when they perceive that the innovative features and benefits align with their requirements. The concept of relative advantage exhibits a positive and significant association with the adoption of electronic commerce by SMEs in Indonesia (Rahayu & Day, 2015). Second compatibility (X1.2), is an important factor that influences SMEs to continue using e-commerce technology. Thus, the adoption of e-commerce must be compatible with the prevailing system otherwise the adoption rate is low and will have no effect. Compatibility is considered a significant factor in the adoption of e-commerce by SMEs.

5.2 The effect of organizational on e-commerce adoption

Organization significantly influences e-commerce adoption, consistent with findings by Ochola (2015) and Dhewanto et al. (2018). SMEs must adapt their organizational systems to remain competitive in the face of evolving business landscapes. Swift adaptation ensures sustainability, while failure to seize opportunities from change can lead to elimination. E-commerce serves as a vital business solution, especially during the COVID-19 pandemic. The organizational variable in this study comprises organizational size, technology readiness, top management support, and organizational culture, each with varying t-statistic values. Organizational size (X2.1) exhibits the highest significance, followed by technology readiness (X2.2), top management support (X2.3), and organizational culture (X2.4).

Firstly, organizational size (X2.1) serves as a crucial determinant of e-commerce adoption within organizational variables. Contrary to the belief that only large-scale businesses possess adequate resources for technology investments, this study reveals that even SMEs can leverage e-commerce technology. SMEs have benefited from electronic business activities, particularly during the COVID-19 pandemic, indicating that e-commerce is not exclusive to large corporations. Organizational factors, as indicated by firm size, positively influence e-commerce adoption (Ausat & Peirisal, 2021), enabling SMEs to compete on par with larger counterparts. Secondly, technology readiness (X2.2) is another key indicator influencing e-commerce adoption within organizational variables. These finding highlights SMEs' possession of both technical knowledge and financial resources, facilitating e-commerce adoption. With the significant increase in internet penetration, SMEs can access ICT innovations, further supporting their readiness for e-commerce adoption. Organizational technology readiness significantly impacts the adoption of B2B e-commerce (Ocloo et al., 2020).

Thirdly, top management support (X2.3) significantly influences e-commerce adoption within organizational variables. Management's recognition of technology's potential benefits drives strategic intentions toward adoption, fostering positive perceptions among owners/managers. Clear visions of e-commerce development, coupled with government support for SME digitalization, mitigate investment risks associated with advanced technology adoption. Top management support positively affects e-commerce adoption (Mohtaramzadeh et al., 2018). Fourthly, organizational culture (X2.4) serves as a critical determinant of e-commerce adoption within organizational variables. The introduction of e-commerce transforms organizational problem-solving and processes, shaping new organizational cultures. Organizational culture plays a pivotal role in management decisions regarding new technology adoption, enabling adaptability to changing business environments and flexibility in leveraging information technology. Organizational culture significantly impacts e-commerce adoption (Setiyani & Yeny Rostiani, 2021).

5.3 The effect of environment on e-commerce adoption

The environment significantly impacts e-commerce adoption, consistent with findings by Lim et al. (2018) and Ilin et al. (2017). The dynamic business landscape, coupled with technological advancements, urges SMEs to seize opportunities amidst COVID-19 disruptions. Increasingly, invisible competitors challenge SMEs, emphasizing the need for technological innovation to bolster resilience. Various factors, including consumer, competitor, supplier pressures, and government support, influence SMEs' adoption of new technology. Environmental indicators—customers, competition, suppliers, and support policies—differ in their significance, with support policies (X3.4) showing the highest t-statistic value, followed by customer (X3.1), competition (X3.2), and supplier (X3.3).

Firstly, government support policies (X3.4) are crucial determinants of e-commerce adoption, indicating SMEs' recognition of governmental commitment, particularly during the COVID-19 pandemic. This support encompasses IT skills, financial incentives, and training programs, fostering SME enthusiasm for advanced e-commerce technology adoption. Moreover, e-commerce security laws provide SMEs with confidence in operating electronically. Government support significantly influences e-commerce adoption, supported by empirical evidence highlighting the importance of technological infrastructure, policies, and funding (Awiagah et al., 2016). It also impacts SME decisions to adopt e-commerce (Ahmad et al., 2015). Secondly, customer preferences (X3.1) are vital indicators driving e-commerce adoption, with SMEs adapting to changes in consumer purchasing behavior, especially amid COVID-19 restrictions. SMEs recognize the significance of meeting consumer needs through information technology, acknowledging consumers as a key revenue source. Customer pressure plays a pivotal role in e-commerce adoption within the external environment (Nurrohmah & Alfanur, 2016).

Thirdly, competitive pressure (X3.2) significantly drives e-commerce adoption among SMEs, compelled by intense market competition. SMEs strategically adopt e-commerce to engage potential clients, maintain customer relationships, and expedite transactions, leveraging platforms like websites, email, and WhatsApp Business (Ocloo et al., 2020; Ausat & Suherlan, 2021). This adoption is driven by the substantial impact of competition on technology uptake, enhancing SMEs' competitive positioning and strengthening supplier partnerships (Ocloo et al., 2020). Fourthly, supplier pressure (X3.3) serves as a key determinant of e-commerce adoption, prompting SMEs to embrace technological change to compete effectively. SMEs recognize the increasing adoption of ICT by suppliers, which enhances business relationships, irrespective of geographical constraints (Syuhada et al., 2020). Pressures from suppliers and business partners significantly influence e-commerce adoption in SMEs.

5.4 The effect of e-commerce adoption on SMEs performance

As expected, e-commerce adoption has a positive and significant effect on SME performance. All research respondents have utilized electronic commerce as an effort to support their business activities in the covid-19 pandemic era, and have had a direct impact on the performance of SMEs, especially on the performance indicators themselves, namely increasing sales and profits (Y2.1), and customer satisfaction (Y2.2). The e-commerce variable in this study has four indicators, namely the use of the internet during product sales (Y1.1), the availability of electronic commerce supporting facilities (Y1.2), the readiness of human resources in electronic commerce (Y1.3), and the readiness of SMEs to respond to consumers online (Y1.4). The four indicators have different t-statistic values (Figure 3), the highest value is found in the indicator of human resource

readiness/competence in electronic commerce (Y1.3). This means that the HR competency indicator in electronic commerce is a key factor that plays the most important role in the success of a business when it has adopted e-commerce which ultimately has an impact on increasing sales, profits, and even customer satisfaction. Furthermore, these findings have been established as empirical proof. MSMEs' performance is significantly and positively impacted by e-commerce adoption (Ausat, Siti Astuti, et al., 2022).

HR competencies in e-commerce if correlated with the conditions of the Covid-19 pandemic are the same as personal innovativeness which reflects the desire to change and try new things related to technology for business success. This means that personal innovativeness is an important factor for agile surfing in electronic commerce as a means of attracting purchasing decisions on SME products, customer loyalty, customer satisfaction, and of course increasing sales and profits can be achieved. HR competencies have a positive and significant effect on organizational performance (Gadzali, 2023).

5.5 The effect of e-commerce adoption on competitive advantage

E-commerce adoption has a positive and significant effect on the competitive advantage of SMEs. Information technology (IT) is a key resource that SMEs can leverage to obtain an edge in the marketplace; as such, it can provide support to SMEs' plans for gaining that edge and maintaining domestic market competitiveness in the face of the H1N1 pandemic. Results from this research show that e-commerce technology is useful for more than only gaining an edge in the market; it also aids in preserving and spreading the benefits of the sector as a whole. Adopting IT increases efficiency and effectiveness, which leads to a competitive advantage, according to research (Hazen & Byrd, 2012). Similar studies (Hamad et al., 2018) demonstrate that e-commerce helps SMEs achieve a competitive advantage by improving business efficiency, reducing expenses, and launching innovative new products and services. The competitive advantage variable in this study has four indicators, namely cost reduction, growth, differentiation and innovation. The four indicators have different t-statistic values (Figure 3), the highest value is in the differentiation indicator (Y3.3), then growth (Y3.2), innovation (Y3.4), cost reduction (Y3.1).

First differentiation (Y3.3), is an attribute achieved by SMEs after utilizing electronic commerce. Concerning differentiation, SMEs acquire a competitive advantage after adopting electronic commerce through a number of channels, including improved customer service, the introduction of novel products and services, and enhanced brand awareness and reputation. In addition, SMEs were able to distinguish themselves through raising brand recognition for their products and services. This confirms what earlier studies have shown: that embracing e-commerce does lead to some sort of distinction (Hamad et al., 2018). The second characteristic that SMEs attain after utilising e-commerce is growth (Y3.2). The use of internet commerce provides SMEs with growth-related competitive benefits, including enhanced market penetration, operational efficiency, and entry to previously inaccessible areas. This confirms what previous research has shown, that small and medium-sized enterprises (SMEs) can increase their operational efficiency by embracing internet commerce (Hamad et al., 2018). Higher growth rates can be achieved through the use of more advanced electronic commerce, according to this study. Increased e-commerce helps small and medium-sized enterprises (SMEs) grow and earn more money (Elbeltagi et al., 2016).

Third, innovation (Y3.4), is an attribute that SMEs achieve after utilizing electronic commerce. To stay ahead of the competition, SMEs must innovate by streamlining their

operations, shifting the way they do business, and decreasing the time it takes to bring a product to market. This study's findings are consistent with those of others that have shown that e-commerce is not merely a cost-cutting measure but also a conduit for innovation in the way businesses operate (Xuhua et al., 2019). Fourth, cost reduction (Y3.1), is an attribute achieved by SMEs after utilizing electronic commerce. When it comes to saving money, SMEs get an edge over their competitors by cutting back on expenses associated with promotion, publicity, information dissemination, and supplier-customer interaction. These findings are consistent with prior studies which found that e-commerce led to some type of cost savings (Hamad et al., 2018). As a result, the greater the penetration of e-commerce, the greater the savings. The more widely used internet commerce becomes, the more an edge it gives businesses (Elbeltagi et al., 2016).

6. CONCLUSION

The evolving landscape of internet technology and e-commerce has rendered ICT indispensable for businesses. Failing to proactively embrace these changes may lead to disruptions. E-commerce adoption emerges as a vital solution for SMEs to thrive in the COVID-19 era. This study, focused on Jambi City SMEs, establishes that technological, organizational, and environmental factors significantly impact e-commerce adoption. Introducing a novel e-commerce technology adoption model, beyond DOI theory and TOE framework, the research illustrates its positive and significant impact on performance and competitive advantage. The government plays a crucial role in supporting SMEs during the pandemic through essential assistance. While not solely relying on the government, SMEs should actively reduce technological barriers and strategically capitalize on e-commerce opportunities for long-term sustainability.

This first-order PLS research employs a quantitative approach, measuring observable dimensions and indicators of latent variables. Generalizing findings may be biased, and the factor analysis model can be modified based on research needs. Despite potential biases in self-evaluations through questionnaires, the research's validity remains intact. PLS-SEM proves to be a powerful tool for testing weak theories, contributing valuable insights into the positive and negative impacts of e-commerce on SMEs. For future research, a qualitative approach emphasizing in-depth analysis is recommended to explore the impact of technological, organizational, and environmental factors on e-commerce adoption, performance, and competitive advantage. This study lays the groundwork for further research focusing on individual units in SMEs, utilizing models like TPB, TAM, and UTAUT with a larger sample size. Additionally, incorporating interviews can enhance data truth and stability. Importantly, the conceptual model can be applied in various contexts to examine consistent effects across different objects or locations.

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