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Factors Influencing Adoption of E-Commerce Innovation among Village Employees

Nur Hadian[1]✉, Muhammad Rizaludin[2]

[1,2] Information Technology, SAINTEK, ITSNU Pekalongan, Indonesia

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ABSTRACT

This research investigates the factors that affect the adoption of e-commerce innovations by village government employees, who are crucial in developing village-owned enterprises (BUMDES). The study uses a literature review to explore the factors influencing the adoption of e-commerce by village employees. By searching for articles published between 2014 and 2023 in reputable journals like Scopus, EmeraldInsight, Science Direct, and EBSCOhost, 30 relevant articles were obtained. The research reveals that technological, economic, environmental, organisational, and trust factors have the greatest impact on the adoption of e-commerce in village governments. These findings can serve as a basis for future research on the effectiveness of these factors and can also assist policy makers and organizations in implementing effective strategies for e-commerce adoption by BUMDES in rural areas. This adoption is expected to have a positive impact on economic development and overall rural progress.

ABSTRAK

Penelitian ini menyelidiki faktor-faktor yang memengaruhi adopsi inovasi e-commerce oleh pegawai pemerintah desa, yang sangat penting dalam mengembangkan badan usaha milik desa (BUMDES). Penelitian ini menggunakan tinjauan literatur untuk mengeksplorasi faktor-faktor yang mempengaruhi adopsi e-commerce oleh pegawai desa. Dengan mencari artikel yang diterbitkan antara tahun 2014 dan 2023 di jurnal-jurnal terkemuka seperti Scopus, EmeraldInsight, Science Direct, dan EBSCOhost, 30 artikel yang relevan diperoleh. Penelitian ini mengungkapkan bahwa faktor teknologi, ekonomi, lingkungan, organisasi, dan kepercayaan memiliki dampak terbesar pada adopsi e-commerce di pemerintah desa. Temuan ini dapat menjadi dasar untuk penelitian di masa depan tentang efektivitas faktor-faktor ini dan juga dapat membantu pembuat kebijakan dan organisasi dalam menerapkan strategi yang efektif untuk adopsi e-commerce oleh BUMDES di daerah pedesaan. Adopsi ini diharapkan dapat memberikan dampak positif terhadap pembangunan ekonomi dan kemajuan desa secara keseluruhan.

***Corresponding Author* :**
Nur Hadian
Information Technology, Saintek, ITSNU Pekalongan, Indonesia
Jl. Karangdowo No.9, Kemoren, Karangdowo, Kec. Kedungwuni, Kabupaten Pekalongan
E-mail: nurhadian97@gmail.com

INTRODUCTION

E-commerce, or electronic commerce, is a way of transacting goods and services through digital networks without physical contact between buyers and sellers. In contrast to traditional commerce, e-commerce uses advanced software for product visualisation, electronic shopping

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carts, secure payments, and logistics. With internet access, clients can enjoy the convenience and practicality of shopping online, providing a unique experience compared to traditional methods. (Setiyani & Yeny Rostiani, 2021).

Advances in information and communication technology (ICT) have had a significant impact on various economic sectors, including rural Small and Medium Enterprises (SMEs). E-commerce is emerging as an important innovation that has the potential to improve the competitiveness of SMEs. However, the adoption of e-commerce by SMEs in rural areas is still low due to various factors. According to Nguyen et al. (Nguyen et al., 2022), variables affecting e-commerce integration include limited access and infrastructure, lack of technological knowledge, limited digital competence, and lack of support and training. Hadian et al. (Hadian et al., 2023) emphasised that perceived ease of use (PEOU) and perceived usefulness (PU) are the main factors of e-commerce adoption. In addition, Govinnage et al. (Govinnage & Sachitra, 2019a) highlighted the importance of technological literacy, government support, and technological infrastructure to improve e-commerce adoption rates in BUMDES.

There are many hurdles that hinder the adjustment of e-commerce into traditional businesses, thus requiring further research and intervention to bridge this digital divide (Prabowo et al., 2021). E-commerce involves a complex framework with important considerations, such as trust aspects that depend on the reliability of the platform, security that prevents data breaches, privacy protection that safeguards user data, accessibility that ensures ease of use, and the level of user familiarity and awareness of the platform. Public service quality standards also play an important role in the overall user experience (Abu AlSondos & Salameh, 2020). This opinion is consistent with Verkijika (Verkijika, 2018), who states that individual factors substantially influence e-commerce adoption, suggesting that personal characteristics play an important role in decision-making regarding digital commerce.

Technology integration strongly influences e-commerce acceptance, which is in line with the basic foundation of e-commerce as an information technology (Aderemi et al., 2018). In the context of BUMDes, e-commerce integration improves operational efficiency, customer satisfaction, and productivity, which depend on the interaction between technological variables, organisational architecture, and contextual environmental factors. The success of digital transformation in these entities arises from synergies between technological infrastructure, organisational structural design, and operational environmental factors (Billal et al., 2019). Setiyani and her colleagues add that economic conditions, including cost considerations and financial viability, are also key determinants in e-commerce assimilation, complementing technological, organisational and environmental factors (Nguyen et al., 2022).

RESEARCH METHODS

This study used a literature review method, which refers to (Nugraha & Susanto, 2022) to identify the factors influencing village employees' adoption of e-commerce technologies. The following sections comprise this literature review: "Introduction," "Methodology," "Factors and Discussion," "Conclusion," and "References". This research begins with research questions that are used to determine the direction of the research to be conducted. Then proceed with determining the keywords used to find answers to research questions. After that, select articles related to the main topic of this study. Here are more details.

A. Research questions

RQ1: What influences village employees' adoption of e-commerce innovations?

These research questions are used to guide research that focuses on understanding the various factors that influence the decision-making process and use of e-commerce innovation specifically among employees in a rural setting. The aim is to explore the range of influences that may include economic, technological, organisational, culture or individual factors that affect the adoption of e-commerce practices in such contexts.

B. Protocol

At this point, a systematic literature review was carried out by searching for papers on this issue in a variety of online scientific databases, including Scopus (S), EmeraldInsight (EI), Science Direct (SD), and EBSCOhost. Table 1 shows keyword strings for articles published between 2014 and 2023.

Table 1. Search protocol

Keyword	SD	S	EI	EBSC	Total
"e-commerce adoption" AND "Employee"	119	30	25	9	183
"e-commerce" AND "civil servant"	136	-	5	46	187
Screening Title & Abstract	23	13	17	12	65
Screening Full Text	17	1	7	5	30

C. Choose the article

The researcher selected scholarly articles for review at this stage in the systematic literature review process. The articles selected for review investigated the dynamics that impact village officials working within BUMDes as they navigate the adoption of e-commerce innovations. Through this analysis, the researcher discovered important themes relating to the subject matter under study. A synopsis of previous scholarly contributions relevant to this topic is presented in Table 2.

Table 2. Summary of prior research

No.	E-commerce Adoption	Reference
1.	System quality and Service Quality	(Abu AlSondos & Salameh, 2020)
2.	Quality of Information, Information or Knowledge Exchange, Trust, Quality of Relationships and Networks	(Alqahtani et al., 2018)
3.	Technology, organization, environment	(Setiyani & Yeny Rostiani, 2021)
4.	Personal, economic, ease of doing, and security	(Wasiq et al., 2022)
5.	Technology, organization, and environment	(Nguyen et al., 2022)
6.	Digital skills and infrastructure	(Ariansyah et al., 2021)
7.	Technology, trust, user experience	(Haryanti & Subriadi, 2020)
8.	Technology, organization, environment, and strategic	(Md Billal et al., 2019)
9.	Technology, organization, environment, and strategy	(Yadav & Mahara, 2019)
10.	Top management support, competitive pressure, the mediating role	(Hussain et al., 2020)
11.	Personal, environmental, subjective norms, technological, national, and organizational.	(Kareen et al., 2019)
12.	Technology, customer readiness, government policy, owner attitude	(Ajao et al., 2018)
13.	Competence, interconnectedness, and autonomy	(Koe & Afiqah Sakir, 2020)
14.	Behavioral intention	(Ezennia & Marimuthu, 2022)
15.	Technology literacy, government support, and technology infrastructure	(Govinnage & Sachitra, 2019b)
16.	Manager's age, gender, education level, and job position	(Fonseka et al., 2022)
17.	Perceived desirability, organizational readiness, and competitive pressure	(Ocloo et al., 2020)
18.	Critical considerations include relative advantage, perceived compatibility, e-commerce knowledge and skill, external change agents, and competition pressure.	(Zain et al., 2020)
19.	Organization, environment, technology	(Ahmed & Apparatus, 2018)

No.	E-commerce Adoption	Reference
20.	a lack of entrepreneurship, e-commerce capabilities, public awareness of innovation, a low literacy rate, and owner-manager characteristics	(Muhammad Arsalan Nazir, 2018)
21	Compatibility, management support, and external pressure.	(Hoang et al., 2021)
22	Senior management pressure, performance goals, competitive advantage, and consumer pressure are all factors to consider.	(Sánchez-Torres et al., 2021)
23	Technological know-how and CEO's relative advantage	(Kit-Yeng Sin & Mun-Chong Sin, 2021)
24	Perceived cost, Perceived risk, Lack of technological know-how, Forced change in business strategy, Lack of customer trust and	(Np et al., 2023)
25	confidence, Unawareness of benefits	(S. Brima & Sesay, 2019)
26	Sierra Leone authorities, policymakers, entrepreneurs, and managers	(Jameel & Ahmad, 2019)
27	Ease of use, manager willingness, and customer needs	(Profile, 2020)

RESULTS AND DISCUSSION

According to the findings of the review of existing literature, a variety of factors influence the adoption of e-commerce technology by village workers. Nguyen et al. (Nguyen et al., 2022) identified several factors affecting e-commerce incorporation in rural BUMDES, which include (1) constraints related to access and infrastructure, (2) gaps in technological knowledge, (3) deficiencies in digital competencies, and (4) inadequacies in support and training. Furthermore, Govinnage et al. (Govinnage & Sachitra, 2019a) highlighted the importance of emphasising technological literacy, government support, and technological infrastructure in the context of BUMDES. In addition to technology-based factors, we found other factors including organisation, environment, and trust in the technology to be used are also important to consider in adopting e-commerce in BUMDES as listed in table 3.

Table 3. Factors Influencing E-commerce Adoption

Variable	Factor	Reference Source
Technology	Technology, known to have major significance in the e-commerce adoption and application process, includes technological proficiency, digital capability, technological infrastructure, and simplicity of technology use.	[1, 3, 5, 6, 7, 11, 12, 15, 18, 22, 27, 30, 26, 24]
Organization	Organizational aspects include managerial support, organizational structural readiness, and the organizational structure itself.	[3, 1, 7, 6, 8, 15, 22, 20, 27, 30]
Environment	Environmental factors include external pressures, the role of mediation, and the general work environment.	[1, 7, 6, 15, 22, 27, 30]
Economy	Factors: Ease of doing, Competitive pressure, Relative advantage, Perceived compatibility	[3, 10, 20, 21, 24, 22]
Trust	Trust emerged as an essential factor, either in the context of trust in the technology itself or between the user and the service provider.	[9, 12, 24]

A. Technology Factors

Current scholarly literature emphasises extensive techniques in determining the factors that influence e-commerce adoption among SMEs, highlighting the significant contribution of technical, organisational, and environmental indices. The importance of considering these various factors when analysing the digital transformation of SMEs reveals the intricate interactions between several elements (Abu AlSondos & Salameh, 2020; Ajao et al., 2018; Billal et al., 2019; Govinnage & Sachitra, 2019a; Nguyen et al., 2022; Setiyani & Yeny Rostiani, 2021). According to Yadav et al. (Yadav & Mahara, 2019), technological parameters include compatibility, perceived utility, complexity, security issues, and relative advantage. Organisational determinants include cost, organisational readiness, organisational culture, organisational scale, and top-level

managerial support. Environmental influences include government support, competitive forces, environmental instability, and vendor quality, all of which have been empirically shown to exert a major influence on ecommerce integration.

However, the efficacy of technological aspects, while important, does not singularly ensure e-commerce success; a holistic approach requires consideration of other elements such as human factors, economic variables, and organisational issues to gain a comprehensive view of the e-commerce adoption landscape (Govinnage & Sachitra, 2019a). Additional case studies reveal heterogeneity in the determinants that drive e-commerce assimilation across different categories of businesses in the informal sector, suggesting that factors influencing e-commerce adoption may not be uniform, but context-specific and vary across different types of businesses within the sector (Aderemi et al., 2018). In addition, the relevance of firm age factor in e-commerce adoption is also important (Nguyen et al., 2022). A study in Sri Lanka proved the significant influence of government support and technological infrastructure in promoting e-commerce adoption, emphasising the integral role of supportive public policies and robust technological frameworks in facilitating the transition to digital commerce in that geographical context (Koe & Afiqah Sakir, 2020).

B. Organizational Factors

Contemporary scholarly discourse suggests that the adoption of e-government and e-commerce innovations is influenced by organisational, technological and individual factors, highlighting the multi-dimensional nature of digital adoption (Abu AlSondos & Salameh, 2020; Govinnage & Sachitra, 2019a; Hussain et al., 2020). Within the public sector, these factors shape the integration of digital practices in government operations (Abu AlSondos & Salameh, 2020). In line with Kareen et al. (Kareen et al., 2019), e-commerce integration in SMEs provides benefits such as business expansion, increased profits, and improved corporate image, influenced by individual attributes, environmental conditions, and organisational elements.

This highlights the multi-dimensional nature of e-commerce adoption and underscores the significant benefits it can confer upon SMEs when these influencing factors are duly accounted for and addressed (Hussain et al., 2020). Additionally, adopting Business-to-Business (B2B) e-commerce is substantially shaped by perceptions of desirability, organizational readiness, and the extent of competitive pressure. In contrast, senior management support and government assistance only impact B2B e-commerce adoption rates. Meanwhile, pressure from business partners appears to have little effect on the adoption process. This dichotomy indicates the varying levels of influence that different factors can exert within the specific context of B2B e-commerce adoption (Govinnage & Sachitra, 2019b).

C. Environmental Factors

Recent scholarly investigations underscore the significant influence of environmental factors in integrating mobile commerce (m-commerce) and e-commerce within SMEs. Rana et al. (Np et al., 2023) revealed that perceived risk, categorized under environmental factors considering external pressures and workplace environment perceptions, poses significant barriers to m-commerce adoption among UK-based SMEs. Conversely, Profile et al. (Profile, 2020) in Bangladesh identified environmental factors as one of the four key determinants positively influencing electronic commerce assimilation by SMEs. This highlights the critical role of environmental factors, including external pressures like market competition, mediating roles such as government regulations, and overall workplace conditions, in enhancing digital technology adoption among SMEs, emphasizing the importance of understanding and optimizing these environmental variables to facilitate smoother digital transitions in the SME sector.

D. Economic Factors

Various studies consistently demonstrate that factors such as ease of use, competitive pressure, relative benefit, and perceived compatibility significantly influence the adoption of e-commerce and m-commerce. For instance, research by Zain et al. (Zain et al., 2020) highlights the

importance of perceived relative advantage and compatibility in SMEs' adoption of e-commerce. Similarly, findings from Chau et al. (Chau et al., 2020) indicate that competitive pressure plays a significant role in e-commerce adoption among small and medium-sized firms, especially in terms of external constraints. Additionally, while consumer loyalty may not be affected, as suggested by Wasiq et al. (Wasiq et al., 2022), the ease of doing business or efficiency significantly impacts m-commerce adoption, emphasizing the importance of perceived simplicity and effectiveness in transaction processes. These insights underscore the contextual nuances and varying influences of different factors on e-commerce and m-commerce adoption, crucial considerations for SMEs when strategizing and implementing digital commerce approaches.

E. Trust Factors

The study by Alqahtani et al. (Alqahtani et al., 2018) in the context of social e-commerce in Saudi Arabia identified key factors that determine the success of this phenomenon, including information quality, knowledge exchange, trust, relationship quality, and networking. This research emphasises the importance of considering technology, trust and user experience to understand the complex interplay between technical and social elements in e-commerce adoption and utilisation, highlighting the tendency to overlook social purchasing features in the development of e-commerce platforms (Alqahtani et al., 2018; Haryanti & Subriadi, 2020; Zain et al., 2020).

The factors identified through the comprehensive literature review, which influence the adoption of e-commerce innovations by village employees, serve as the foundation for developing a model that will be used as a framework for future research. This model, illustrated in Figure 1, encapsulates the interrelationships between the various factors and visually represents the complex dynamics of adopting e-commerce within rural settings.

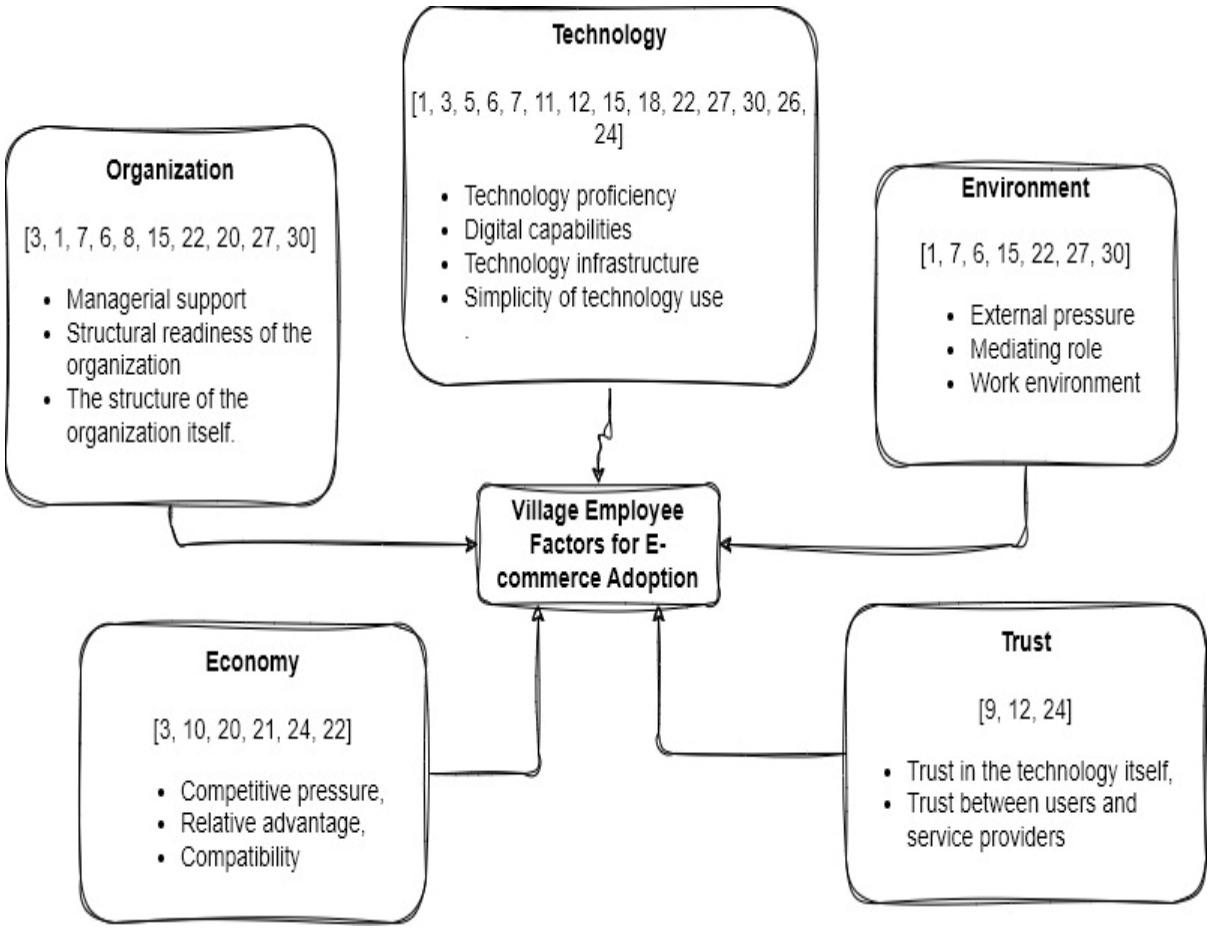

Figure 1. Village employee factors for e-commerce adoption

CONCLUSION

Rural officials have a significant role in adopting e-commerce innovations. This article aims to comprehensively and systematically review the literature on adopting e-commerce innovations from the villagers' perspective. In this study, the researchers identified factors influencing village employees in adopting e-commerce innovations, including Organization, Technology, Environment, Economics, and Trust factors, each having a relevant sub-factor. Research data is derived from 30 articles published in leading academic sources like EBSCO, EmeraldInsight, Science Direct, and Scopus. This study produced factor analysis, which can be used to inform future research into understanding and analyzing village officials' adoption of e-commerce developments. This model provides a detailed overview of the aspects to consider when developing a successful rural e-commerce implementation strategy. Furthermore, the researchers developed a framework that allows for further identification and investigation of each aspect influencing the adoption of e-commerce innovation. As a result, this article contributes significantly to our understanding of village officials' adoption of e-commerce innovation. It can guide decision-makers, practitioners, and researchers in developing effective strategies to increase e-commerce adoption in rural areas.

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