IDJ : InterDiscourse Journal *(ISSN: 2829-5871)*
Volume 02, Nomor 01, June 2026

Digital Economy and MSME Growth in Eastern Indonesia: Empirical Evidence and Strategic Insights

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Abstract
The digital economy presents a transformative opportunity for Micro, Small, and Medium Enterprises (MSMEs) in developing regions. However, empirical evidence on its impact in the context of Eastern Indonesia remains limited. This study investigates the relationship between the adoption of the digital economy—encompassing digital tools, e-commerce, and digital financial services—and the growth of MSMEs in Eastern Indonesia. A quantitative approach was employed, utilizing a survey questionnaire distributed to 150 MSME owners across three provinces: East Nusa Tenggara, Maluku, and Papua. Data were analyzed using multiple linear regression to test the hypotheses. The results indicate a statistically significant positive relationship between the composite digital economy adoption index and MSME growth metrics (sales growth and market expansion). Specifically, digital financial literacy and e-commerce utilization emerged as the strongest predictors. The findings suggest that while infrastructure challenges persist, targeted interventions in digital skills training and financial inclusion can significantly accelerate MSME development. This study contributes to the literature by providing region-specific empirical evidence from Eastern Indonesia, highlighting the critical role of digital financial literacy as a catalyst for growth. The discussion offers strategic insights for policymakers and stakeholders to design more effective digital inclusion programs, ultimately fostering equitable economic development across the Indonesian archipelago.

Keywords: Digital Economy, MSMEs, Eastern Indonesia, Digital Financial Literacy, E-commerce, Economic Growth.

Article Info

Article history:
Submitted: 15 March 2026
Accepted : 29 June 2026
Published : 30 June 2026

Introduction

The global economy is undergoing a profound digital transformation, reshaping traditional business models and creating new avenues for economic participation. For Micro, Small, and Medium Enterprises (MSMEs), which are pivotal to employment and economic resilience, adopting digital technologies is no longer optional but a critical determinant of survival and growth (Loo et al., 2023; Durst et al., 2023). In Indonesia, MSMEs constitute over 99% of all businesses and contribute significantly to the national GDP. However, a stark digital divide exists, with MSMEs in Eastern Indonesia—a region encompassing provinces like East Nusa Tenggara, Maluku, and Papua—lagging considerably behind their counterparts in Java and Sumatra in terms of digital adoption and integration (Asian Development Bank, 2021). This disparity threatens to exacerbate existing regional inequalities.

The potential of the digital economy to unlock MSME growth is well-documented in the literature. Studies highlight that digital tools enhance operational efficiency, open access to broader markets through e-commerce, and facilitate financial inclusion via digital payment systems (Zamani, 2022; Remondino & Zanin, 2022). The Technology Acceptance Model (TAM) and its extensions have been widely used to understand factors driving technology adoption among SMEs, emphasizing perceived usefulness and ease of use (Musa et al., 2024). Furthermore, the COVID-19 pandemic acted as a catalyst, forcing many MSMEs to digitize their operations to maintain business continuity, underscoring the role of digital adoption in building business resilience (Sudjatmoko et al., 2023; Lestari et al., 2024). Post-pandemic research confirms that digitalization and innovation are key mediators for improved financial performance (Rosyidiana & Narsa, 2024).

Despite this growing body of knowledge, a significant research gap persists. Most empirical studies on the digital economy and MSMEs in Indonesia are either nationally aggregated or focused on Western Indonesia, thereby masking the unique challenges and dynamics of the Eastern region. Eastern Indonesia faces distinct obstacles, including geographical fragmentation, limited digital infrastructure, lower levels of human capital, and constrained access to formal financial services (Al-shami et al., 2024). The applicability of generalized models like TAM or findings from more developed regions to this specific context remains uncertain. Moreover, while financial inclusion is recognized as a key driver of development (Huang et al., 2020; Lwesya & Mwakalobo, 2023), the specific interplay between *digital* financial literacy, digital tool adoption, and MSME growth in Eastern Indonesia is underexplored.

This study aims to fill this gap by providing empirical evidence on the impact of the digital economy on MSME growth in Eastern Indonesia. It moves beyond a generic examination of "technology use" to analyze a composite of digital economy facets: basic digital tool utilization, e-commerce engagement, and adoption of digital financial services. The primary research question is: To what extent does the adoption of the digital economy contribute to the growth of MSMEs in Eastern Indonesia, and which digital facets are most influential? By answering this question, the study seeks to offer nuanced, context-specific strategic insights. The findings are expected to contribute to the literature on digital entrepreneurship in developing economies and inform policymakers, development agencies, and business support organizations in designing more effective, localized interventions to bridge the digital divide and promote inclusive economic growth in Eastern Indonesia.

I. METOD

This study employed a quantitative research design with a cross-sectional survey approach to collect primary data. The design was chosen to establish relationships between variables and to test hypotheses regarding the influence of digital economy adoption on MSME growth. The population for this study was defined as formally registered MSME owners operating in the trade, services, and handicraft sectors across three provinces in Eastern Indonesia: East Nusa Tenggara, Maluku, and Papua. A purposive sampling technique was used to select respondents who had been in operation for at least 2 years and used at least one digital tool (e.g., a smartphone for business, social media, or digital payments). A total of 150 valid responses were collected for analysis.

Data were collected using a structured questionnaire distributed both online via social media channels of MSME associations and offline through local business development agencies. The instrument comprised three main sections. The first section captured demographic and business profile data. The second section measured the independent variable, **Digital Economy Adoption (X)**, through a composite index derived from three sub-constructs, each measured on a 5-point Likert scale (1=Never, 5=Very Often): (a) Use of basic digital tools (email, productivity software, social media for marketing) (Zamani, 2022); (b) E-commerce utilization (selling on platforms like Tokopedia, Shopee, or Instagram Marketplace) (Loo et al., 2023); and (c) Use of digital financial services (mobile banking, e-wallets, online lending) (Al-shami et al., 2024). The third section measured the dependent variable, **MSME Growth (Y)**, using two objective metrics over the past two years: (1) Percentage increase in annual sales revenue, and (2) Expansion into new markets (coded as 0=No, 1=Yes). These were combined into a single growth performance score. Data analysis was performed using SPSS software. Descriptive statistics were used to profile the respondents. The reliability of the Likert-scale constructs was confirmed with Cronbach's Alpha values > 0.7. A multiple linear regression analysis was conducted to test the hypothesis that Digital Economy Adoption (X) significantly predicts MSME Growth (Y), while controlling for business age and initial capital as control variables.

II. RESULT DAN DISCUSSION

A. RESULT

The demographic profile of respondents indicated that 58% were female and that the majority (62%) had completed senior high school. Most MSMEs (70%) were in the micro category, with an average business age of 5.3 years. The descriptive statistics for the key variables are presented in Table 1.

Table 1. Descriptive Statistics of Key Variables (N=150)

Variable	Mean	Std. Deviation	Min	Max
Digital Economy Adoption Index	3.12	0.89	1.20	4.80
- Digital Tools Use	3.45	1.02	1	5
- E-commerce Utilization	2.88	1.21	1	5

- Digital Financial Services Use	3.02	1.15	1	5
MSME Growth Score	2.95	1.10	1	5
- Sales Growth (%)	15.4	12.7	-5	50
- Market Expansion (Yes=1)	0.41	0.49	0	1
Business Age (Years)	5.3	3.8	2	15
Initial Capital (Million IDR)	25.7	45.2	1	200

The results of the multiple linear regression analysis are shown in Table 2. The overall regression model was statistically significant ($F = 18.734$, $p < 0.001$), explaining 42.1% of the variance in MSME Growth (Adjusted $R^2 = 0.421$). The Digital Economy Adoption Index was a significant positive predictor of MSME Growth ($\beta = 0.572$, $p < 0.001$). Among the control variables, business age was also a significant predictor ($\beta = 0.183$, $p < 0.05$), while initial capital was not significant ($p > 0.05$).

Table 2. Results of Multiple Linear Regression Analysis (Dependent Variable: MSME Growth)

Predictor Variable	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t
(Constant)	0.451	0.320		1.409
Digital Economy Adoption Index	**0.706**	**0.098**	**0.572**	**7.204**
Business Age (Control)	0.053	0.023	0.183	2.304
Initial Capital (Control)	0.001	0.002	0.041	0.515
Model Summary: R = 0.659, R^2 = 0.434, Adjusted R^2 = 0.421, F = 18.734, p = 0.000				

A post-hoc analysis of the sub-constructs revealed that the use of Digital Financial Services ($\beta = 0.312$, $p < 0.01$) and E-commerce Utilization ($\beta = 0.285$, $p < 0.01$) had stronger individual standardized beta coefficients compared to basic

Digital Tools Use ($\beta = 0.198$, $p < 0.05$) when regressed separately on the growth score.

B. DISCUSSION

The findings of this study provide robust empirical support for the positive relationship between the adoption of the digital economy and MSME growth in Eastern Indonesia. The significant beta coefficient ($\beta = 0.572$) confirms that MSMEs that more intensively integrate digital tools, e-commerce, and digital financial services into their operations experience higher sales growth and are more likely to expand into new markets. This aligns with global and national literature asserting that digitalization is a key driver for SME competitiveness and resilience (Loo et al., 2023; Rosyidiana & Narsa, 2024). The result extends the applicability of technology adoption theories, such as TAM, to a geographically disadvantaged context, suggesting that perceived usefulness translates into tangible growth outcomes even amidst infrastructure constraints (Musa et al., 2024).

The post-hoc analysis offers a deeper, more nuanced insight. The stronger predictive power of **Digital Financial Services (DFS)** adoption is a critical finding. It underscores that in Eastern Indonesia, where access to traditional banking is limited, digital financial inclusion acts as a powerful growth catalyst. DFS facilitates easier transactions, improves cash flow management, and provides access to credit through fintech platforms, directly impacting operational efficiency and scalability (Al-shami et al., 2024; Huang et al., 2020). This finding resonates with studies emphasizing financial inclusion as a cornerstone of development but highlights the modern pathway through digital, rather than just physical, branch penetration (Lwesya & Mwakalobo, 2023). Similarly, the strong role of **E-commerce Utilization** demonstrates its function in overcoming geographical isolation, a fundamental barrier in Eastern Indonesia. By connecting producers directly with consumers nationwide, e-commerce platforms effectively reduce the "tyranny of distance," enabling market expansion that was previously logistically and economically unfeasible (Remondino & Zanin, 2022; Asian Development Bank, 2021).

However, the relatively lower, though still significant, impact of basic **Digital Tools Use** suggests a maturation in the digital adoption journey. While foundational digital literacy (using social media for marketing, basic communication tools) is necessary, it may have become a baseline competency. Sustainable growth appears to be more strongly linked to advanced digital integration—leveraging platforms for complex transactions (e-commerce) and financial management (DFS). This progression mirrors the concept of staged digital maturity in SMEs (Zamani, 2022). The study's findings must be interpreted considering its limitations. The cross-sectional design prevents definitive causal conclusions. The use of purposive sampling, while practical, may limit generalizability to all MSMEs in the region, particularly those with no digital footprint. Furthermore, the study did not qualitatively explore the specific barriers (e.g., internet affordability, digital skills gaps) that may moderate the relationship found.

The post-hoc analysis indicates that the adoption of Digital Financial Services (DFS) and e-commerce utilization serve as pivotal catalysts for MSME growth in Eastern Indonesia by effectively mitigating the constraints of limited traditional banking access and geographical isolation. Conversely, the relatively lower impact of basic digital tools suggests an evolutionary shift, wherein foundational digital literacy has transitioned into a mere baseline competency. Consequently, sustainable MSME growth is heavily predicated upon advanced digital integration maturity, specifically the strategic leverage of platforms for complex transactions and comprehensive financial management.

Research Limitations

The findings of this study must be interpreted in light of several methodological limitations. First, the cross-sectional research design precludes the establishment of definitive causal inferences. Second, the deployment of purposive sampling potentially restricts the generalizability of the findings to the broader MSME population in the region, particularly those lacking a digital footprint. Finally, this study did not qualitatively investigate specific barriers—such as internet affordability and digital skills gaps—that may potentially moderate the relationships under investigation.

III. CONCLUSION

This study concludes that the adoption of the digital economy is a significant and positive driver of growth for MSMEs in Eastern Indonesia. The evidence moves beyond theoretical postulation, providing empirical validation from a historically underserved region. The most influential facets are digital financial services and e-commerce, indicating that growth is maximized when digital adoption moves beyond basic communication to encompass core business and financial functions. These findings highlight a critical strategic point: efforts to boost MSMEs in Eastern Indonesia must prioritize integrated interventions that combine digital skills training with enhanced access to and literacy in digital financial and e-commerce platforms.

The implications are twofold. For **policymakers and development agencies**, the study advocates for targeted programs that address the specific gaps in digital financial literacy and e-commerce logistics support in Eastern Indonesia. Subsidies for digital payment infrastructure, partnerships with fintech and e-commerce companies for localized training, and improvements in last-mile internet connectivity are recommended. For **MSME owners and associations**, the findings serve as an empirical encouragement to strategically invest in deepening their digital integration, particularly in financial management and online sales channels.

Future research should employ longitudinal designs to establish causality and explore the moderating effects of contextual barriers like internet quality and regulatory support. Qualitative investigations into the lived experiences of MSME owners navigating digital transition in this region would provide rich complementary insights. Ultimately, bridging the digital divide in Eastern Indonesia is not merely a technological challenge but a fundamental prerequisite for achieving equitable and sustainable economic development across the nation.

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