

# The Effect of Digital Economy Networks on the Growth of Small and Medium Enterprises in West Java Case Study on E-commerce Platforms

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# ABSTRACT

This research investigates the impact of the digital economy network on the growth of Small and Medium Enterprises (SMEs) operating on e-commerce platforms in West Java. Utilizing a quantitative research design, data was collected from 110 SMEs through structured questionnaires, focusing on digital economy components such as Broadband Infrastructure, Digital Skills, Online Payment Systems, and Policy Support. The analysis, conducted using regression and correlation studies with SPSS 26, unveiled significant relationships between these components and SME growth indicators—Revenue Growth, Market Expansion, and Employment Generation. The results highlight the pivotal role of Broadband Infrastructure, emphasizing its positive influence on SME performance. The interconnectedness of digital economy components underscores the need for comprehensive strategies to foster a conducive ecosystem for SMEs in the evolving digital landscape. Policymakers, businesses, and stakeholders can leverage these insights to shape interventions and strategies that support the sustainable growth of SMEs in West Java's e-commerce sector.

Keywords: Digital Economy, SME Growth, E-commerce, Broadband Infrastructure, West Java.

# INTRODUCTION

The rise of the digital economy has presented both opportunities and challenges for Small and Medium Enterprises (SMEs) in West Java, Indonesia. The region's vibrant SME sector and burgeoning digital economy have created a transformative landscape. Digital transformation and entrepreneurship play a significant role in driving the sustainability of SMEs in West Java, enabling them to streamline operations, access new markets, and adapt to changing market conditions [1], [2]. The creative economy, which focuses on industries based on creativity and talent, has also entered the digital economy era in Indonesia. MSMEs, as a driving force of the creative economy, can take advantage of e-commerce models to overcome marketing problems and promote economic growth [3], [4]. Digital marketing adoption serves as an enabler of digital transformation for MSMEs, enhancing their dynamic capabilities and driving digital transformation with actionable guidelines for managers [5], [6]. Additionally, the digital transformation of SMEs in Indonesia helps improve the implementation of the green economy, especially for SMEs with access to financial services [7]. In North Sulawesi, digitalization strategies are needed to support small and medium business owners, particularly in the agribusiness sector, by addressing limited digital literacy, internet access, and manual production processes [8], [9].

The digital economy has changed the way businesses operate and interact, offering new opportunities for SMEs to grow, innovate and be competitive [10], [11]. E-commerce platforms, which serve as a link to the global marketplace, provide SMEs with access to a broad customer base and the ability to reach customers around the world [12], [13]. This enables SMEs to expand their market reach, increase sales, and compete with larger companies [14], [15]. In addition, the integration of digital technologies into economic activities has increased production efficiency and the creation of new jobs, which contributes to sustainable economic development [15], [16]. The digital economy has become a pervasive force, driving the transformation and modernisation of societies, industries and enterprises. In this digital realm, SMEs play an important role as engines of economic growth and providers of employment.

West Java, with its diverse economic landscape, provides an interesting context for exploring the interaction between SMEs and the digital economy. Studies have shown that digital transformation and entrepreneurship play a significant role in promoting the sustainability of micro, small, and medium enterprises (MSMEs) in West Java [17], [18]. Additionally, marketing capabilities and digital marketing have been found to have a positive impact on the marketing performance of MSMEs in the region [19]. Accounting digitization has also been shown to improve efficiency, accuracy, cost reduction, customer satisfaction, and data security for SMEs in West Java [20]. Furthermore, the entrepreneurial ecosystem in West Java is shaped by government policy, funding, and networks, which are crucial for supporting entrepreneurship in the region [21]. Lastly, factors such as social capital, financial access, innovation, socioeconomic status, and market competition have been found to positively influence the growth of SMEs in West Java [22], [23]. These findings highlight the importance of digital transformation, marketing capabilities, accounting digitization, and a supportive entrepreneurial ecosystem in driving the growth and sustainability of SMEs in West Java.

While the transformative potential of the digital economy on SMEs has been widely recognized, a deeper understanding of its specific impact on SMEs operating within e-commerce platforms remains elusive. This research addresses this critical gap in knowledge by examining how digital economy networks influence the growth trajectory of SMEs in the West Java e-commerce sector. Delving into this dynamic relationship is critical to designing targeted strategies to capitalize on the opportunities and mitigate the challenges SMEs face in the digital age.

This research was conducted with several distinct objectives: (1) Examining the Current Status: Investigating the landscape of SMEs engaged in e-commerce activities in West Java. (2) Analysing the Components of the Digital Economy: Examined the various elements that make up the digital economy network that impact SME growth. (3) Assessing the Impact on SMEs: Evaluate the tangible impact of the digital economy network on the performance and expansion of SMEs in the e-commerce sector. (4) Identifying Challenges: Pinpoint the challenges faced by SMEs in utilizing the digital economy for growth. (5) Provide Recommendations: Offer appropriate recommendations to policymakers, businesses, and stakeholders based on the research findings.

#### LITERATURE REVIEW

#### The Digital Economy and SMEs

The digital economy has indeed transformed the way SMEs operate and interact, offering opportunities for enhanced efficiency, competitiveness, and overall performance. Digital technologies enable SMEs to reduce operational costs, expand their market reach, and engage with customers in new ways. Research has consistently highlighted the potential benefits of digitalization for SMEs. Studies have shown that the integration of digital technologies and digital intensity significantly drives digitalization in European SMEs, leading to positive impacts on performance [24]. Digital capability has been found to be positively related to firm performance and growth, with smaller firms having less digital capability than larger SMEs [25]. Additionally, the use of digital technologies in SMEs has been shown to bring various benefits, including increased revenue, improved customer and employee satisfaction, and enhanced efficiency and productivity [26]. These findings emphasize the importance of digital transformation for SMEs in streamlining processes, improving productivity, and fostering business growth and development.

# E-commerce Platforms and SMEs

E-commerce platforms offer significant advantages to SMEs in navigating the global market. These platforms reduce entry barriers, increase visibility, and improve customer engagement, thus enabling SMEs to compete on a larger scale [27]. Through e-commerce, SMEs can overcome geographical limitations and reach consumers beyond the boundaries of their traditional markets [28]. However, challenges such as the digital skills gap and cybersecurity concerns highlight the importance of understanding SMEs' engagement with e-commerce platforms [29]. Digital tools and platforms help SMEs improve their efficiency and determine the right direction for growth within the framework of Industry 4.0 and digitalisation trends [29]. E-commerce is essential for SMEs as it allows them to operate without a physical location, reducing costs and expanding their reach [30]. Overall, e-commerce platforms empower SMEs to compete globally, but it is important to overcome challenges and develop digital skills in order to make the most of the benefits.

# The Digital Economy Network

A robust digital economy network, which includes elements such as broadband infrastructure, digital skills, online payment systems, and supportive policies, plays a critical role in fostering SME growth [31]. Understanding how these elements synergise and impact SMEs operating on e-commerce platforms is critical to designing effective strategies for sustainable growth [32]. The digital economy, with its emphasis on information and the use of digital technologies, has a wide-ranging impact on various industries and sectors [33], [34]. The development of the digital economy increases the influence of Chinese enterprises and enhances their central position in the supply chain network [35]. The digital economy also promotes the supply chain network status of enterprises through information transmission effects and technological innovation effects. By seizing the opportunities provided by the digital economy, enterprises can build digital management strategies, accelerate digital applications and infrastructure construction, and cultivate digital

management talents, so as to adapt to the challenges and opportunities presented by the digital economy.

# **METHODS**

# **Research Design**

This study adopts a quantitative research design, aiming to gather numerical data to examine the relationships between variables and draw statistical inferences. The quantitative approach is well-suited for exploring the impact of the digital economy network on SME growth within the e-commerce sector.

# Sampling

The study utilizes a stratified random sampling technique to ensure representation from different sectors and sizes of SMEs in West Java. The strata may be defined based on industry types, company sizes, or other relevant criteria. A sample size of 110 SMEs has been determined, considering statistical considerations to ensure the study's validity and reliability.

# **Data Collection**

Data will be collected through structured questionnaires, designed to capture information on various aspects, including SME characteristics, digital economy network components, and performance indicators. The questionnaire will be pre-tested to ensure clarity, relevance, and ease of completion. Survey administration methods will include face-to-face interviews, online surveys, and phone interviews based on participants' preferences and accessibility.

#### Variables

The independent variables in this study encompass components of the digital economy network, such as broadband infrastructure, digital skills, online payment systems, and policy support. Dependent variables include SME growth indicators, such as revenue growth, market expansion, and employment generation. Control variables may include industry type, company size, and the duration of e-commerce engagement.

#### Data Analysis

The collected data will be analyzed using the Statistical Package for the Social Sciences (SPSS) version 26. The analysis will involve both descriptive and inferential statistical methods. Descriptive statistics, including mean, median, and standard deviation, will be employed to present an overview of the sample characteristics, providing a snapshot of the SMEs engaged in e-commerce activities in West Java. Inferential statistics will include regression analysis and correlation studies. Regression analysis will be used to explore the relationships between the digital economy network components and SME growth indicators. Correlation studies will examine the strength and direction of these relationships.

# **RESULTS AND DISCUSSION**

# **Descriptive Statistics**

Descriptive statistics offer a comprehensive overview of the sample characteristics, providing insights into the SMEs engaged in e-commerce activities in West Java. The following table presents the mean, median, and standard deviation for relevant variables:

Table 1 Deservice Line Chalielier

Variable	Mean	Median	Std. Deviation					
Broadband	4.23	4.50	0.67					
Infrastructure								
Digital Skills	3.98	4.00	0.72					
Online Payment Systems	4.45	4.50	0.53					
Policy Support	4.12	4.00	0.68					
Revenue Growth	25.63	25.00	7.82					
Market Expansion	32.18	31.50	6.45					
Employment Generation	15.92	16.00	3.21					

#### Source : Processing Data Analys (2024)

The assessment of key dimensions in the digital landscape for SMEs in West Java reveals notable trends. In terms of broadband infrastructure, the mean score of 4.23 signifies a high level, with a consistent standard deviation of 0.67, indicating uniformity among respondents. Digital skills exhibit moderate levels, with a mean of 3.98 and a standard deviation of 0.72, suggesting some variability in reported skills. Online payment systems enjoy widespread and effective utilization among SMEs, as indicated by the high mean score of 4.45 and a low standard deviation of 0.53, indicating consensus. The perceived policy support is favorable with a mean score of 4.12, yet the relatively high standard deviation of 0.68 implies varied opinions among respondents. In terms of revenue growth, the average reported figure is 25.63, but the standard deviation of 7.82 suggests significant variation among SMEs. Similarly, market expansion experiences vary, with an average score of 32.18 and a standard deviation of 6.45. Finally, the mean score of 15.92 for employment generation, along with a standard deviation of 3.21, indicates some variability in reported employment outcomes among SMEs in the region.

#### **Inferential Statistics**

Inferential statistics were employed to delve deeper into the relationships between the digital economy network components and Small and Medium Enterprises (SMEs) growth indicators. This section presents the results of regression analysis and correlation studies, providing insights into the impact of digital economy components on SMEs operating on e-commerce platforms in West Java.

Table 2. Regression Analysis						
Dependent Variable	Independent Variables	Coefficients	Significance Level			
Revenue Growth	Broadband	3.42	0.005			
	Infrastructure, Digital					
	Skills,					
Market Expansion	Broadband	2.91	0.012			
	Infrastructure, Digital					
	Skills,					
Employment Generation	Broadband	1.78	0.038			
	Infrastructure, Digital					
	Skills,					

Source : Processing Data Analys (2024)

The regression analyses shed light on the intricate relationships between key dimensions of the digital landscape and crucial business outcomes. In the context of Revenue Growth, the results indicate that a one-unit increase in Broadband Infrastructure, Digital Skills, Online Payment Systems, and Policy Support is significantly associated with an increase in Revenue Growth. Specifically, the coefficient for Broadband Infrastructure is 3.42, revealing that a one-unit rise in Broadband Infrastructure is linked to a substantial 3.42-unit increase in Revenue Growth. The low p-value of 0.005 underscores the statistical significance at a 0.5% significance level, providing robust evidence of the influential role of Broadband Infrastructure in shaping Revenue Growth. Similarly, in the realm of Market Expansion, a one-unit increase in the aforementioned factors corresponds to a significant increase in Market Expansion. The coefficient for Broadband Infrastructure is 2.91, signifying a noteworthy impact on Market Expansion, with a p-value of 0.012, indicating statistical significance at a 1.2% level. Lastly, in terms of Employment Generation, a one-unit increase in Broadband Infrastructure, Digital Skills, Online Payment Systems, and Policy Support is associated with a significant increase in Employment Generation, as indicated by a coefficient of 1.78. The pvalue of 0.038 suggests statistical significance at a 3.8% significance level, underscoring the substantial impact of Broadband Infrastructure on Employment Generation. These findings highlight the pivotal role of digital dimensions in influencing key business outcomes among SMEs in West Java.

	Table 3. Correlation Matrix								
	Broadband	Digita	Online	Policy	Revenu	Market	Employment		
	Infrastructu	l Skills	Paymen	Suppor	e	Expansio	Generation		
	re		t	t	Growth	n			
			Systems						
Broadband	1.000								
Infrastructu									
re									
Digital	0.45	1.000							
Skills									
Online	0.62	0.57	1.000						
Payment									
Systems									
Policy	0.38	0.42	0.51	1.000					
Support									
Revenue	0.53	0.49	0.61	0.48	1.000				
Growth									
Market	0.48	0.36	0.53	0.39	0.72	1.000			
Expansion									
Employme	0.34	0.27	0.45	0.29	0.58	0.68	1.000		
nt									
Generation									

1 ...

3.6. .

Source : Processing Data Analys (2024)

The correlation analysis among key components of the digital economy in West Java reveals meaningful relationships. Broadband Infrastructure demonstrates a moderate positive correlation with Digital Skills (0.45), Online Payment Systems (0.62), and Policy Support (0.38), suggesting interconnected growth factors. Furthermore, Digital Skills and Online Payment Systems exhibit a strong positive correlation (0.57), emphasizing a potential synergy between these components in fostering a robust digital ecosystem. In the context of SME growth indicators, Revenue Growth, Market Expansion, and Employment Generation show positive correlations with all digital economy components, indicating a collective influence on overall SME growth. Specifically, Revenue Growth exhibits a strong positive correlation (0.58), underscoring the interconnectedness of these growth dimensions. Moreover, Market Expansion and Employment Generation themselves display a strong positive correlation (0.68), suggesting that SMEs experiencing market expansion are likely to contribute significantly to employment generation. These correlations highlight the multifaceted interplay of digital economy components and their impact on key indicators of SME growth in the region.

#### Discussion

#### **Impact of Digital Economy Components**

The results highlight how important broadband infrastructure is for affecting the expansion of SMEs on e-commerce platforms. Significant gains in revenue growth, market expansion, and employment generation are correlated with improved broadband infrastructure, according to the regression analysis's significant coefficients. This is consistent with the notion that SMEs must have access to a strong and extensive broadband network in order to take advantage of the opportunities that the digital economy offers.

To differing degrees, SME growth indicators also show favorable connections with Digital Skills, Online Payment Systems, and Policy Support. The findings indicate a favorable link between Digital Skills and Online Payment Systems, indicating that SMEs can achieve success in the ecommerce sector by combining technological expertise with smooth financial operations. A supportive policy environment may also serve as a further spur for the expansion of SMEs.

# **Correlation Analysis**

The correlation matrix sheds light on how SME growth indicators and elements of the digital economy are related to one another. The variables' positive correlations point to a comprehensive and interconnected interaction inside the digital economy network. For example, SMEs with better broadband infrastructure levels are also more likely to use efficient online payment systems, have excellent digital skills, and gain from supportive policy initiatives. These interdependent links show how important it is to take a comprehensive approach to helping SMEs thrive in the digital ecosystem.

# **Practical Implications**

The implications of these findings are multifaceted. Policymakers can prioritize initiatives that enhance Broadband Infrastructure, promote Digital Skills training, and ensure a conducive policy environment to catalyze SME growth. Business practitioners can strategically invest in digital capabilities, embracing online payment systems, and adapting to digital skill requirements. The positive correlation between Market Expansion and Employment Generation underscores the potential for SMEs to contribute not only to economic growth but also to job creation.

#### Limitations and Future Research

While these results provide valuable insights, the study has limitations. The cross-sectional nature of the data captures a snapshot, and longitudinal studies could offer a dynamic perspective. Additionally, the study focuses on West Java, and extending the research to other regions could provide a more comprehensive understanding of the national landscape.

# CONCLUSION

In conclusion, this study provides a nuanced understanding of how the digital economy network influences SME growth in the context of West Java's e-commerce platforms. The empirical findings emphasize the significance of robust Broadband Infrastructure, coupled with Digital Skills, Online Payment Systems, and supportive Policy measures, in driving positive outcomes for SMEs. The positive correlations observed among these components and SME growth indicators highlight the interdependence within the digital ecosystem. Policymakers are encouraged to prioritize infrastructure development, digital skills training, and policy frameworks that facilitate SME participation in the digital economy. For businesses, strategic investments in digital capabilities and adaptation to evolving digital landscapes can amplify growth opportunities. As West Java continues to navigate the digital frontier, these findings serve as a valuable guide for fostering an environment that propels the sustainable growth of MEs in the e-commerce sector.

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