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The Impact of Foreign Direct Investment (FDI) on Economic Growth in Developing Countries to Acceleration in Digitalization

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Abstract

This study aims to analyze the influence of Foreign Direct Investment (FDI) on regional economic growth in Indonesia through digitalization acceleration. Using a mixed-methods approach with a sequential explanatory design, the research was conducted in four provinces representing variations in digital readiness and FDI acceptance: West Java, East Java, South Sulawesi, and East Kalimantan. The quantitative results were analyzed using SEM-PLS regression, while the qualitative findings were examined through thematic coding. The study found that FDI significantly contributes to regional digitalization and has a positive impact on economic growth; however, this effect is significantly strengthened by local digital readiness. Digitalization proves to be an important mediator in enhancing the relationship between FDI and economic growth, particularly in terms of operational efficiency, expanding MSME markets, and technological innovation. Digital readiness disparities between regions act as limiting factors, where areas with weak ICT infrastructure and human resources show lower impacts. Therefore, cross-sector collaborative strategies involving local governments, academics, MSME actors, and foreign investors are necessary to build an inclusive and sustainable digital ecosystem. The research highlights the importance of data-driven policy design and local capacity building as prerequisites to maximize the economic benefits of digital-based FDI. These findings are expected to serve as a reference for policymakers, business actors, and researchers in supporting responsive and competitive regional digital economic transformation.

Keywords: Fiqh of Islamic Banking, Islamic Financial Institutions, Murabahah, Mudharabah, Musyarakah, Ijarah, Kafalah, Wakalah, Hiwalah.

1. Introduction

Foreign Direct Investment (FDI) plays a strategic role in driving economic growth in developing countries, especially through technology transfer, job creation, and capacity building. In the context of globalization and the digital era, FDI can also accelerate digital transformation in key economic sectors. According to Kusairi et al. (2023), developing countries that attract FDI in the technology sector experience faster digitalization of their economies. This potential is highly relevant for Indonesia, which is strengthening its digital economy. Therefore, it is important to conduct a deeper analysis of FDI's impact on digitalization acceleration across various provinces such as West Java, South Sulawesi, and East Kalimantan (Sudaryanto & Suryani, 2020). Regions like West Java and East Java are known as national industrial centers with good access to foreign investors, while South Sulawesi and East Kalimantan have significant potential in mining and energy sectors. Zhang et al. (2024) indicate that FDI is more attracted to regions with robust digital infrastructure and skilled human resources. Sahoo and Sethi (2022) also emphasize that developing innovation ecosystems at the regional level encourages increased foreign investment flows into the digital sector. Therefore, community service programs should be directed toward strengthening digital ecosystems in these areas.

FDI not only brings physical capital but also advanced technology necessary for developing countries. Foreign investments in ICT sectors can improve production efficiency and expand market access. Phan Le et al. (2024) state that FDI's contribution to national productivity increases when accompanied by digitalization. Hossain and Roy (2023) highlight the importance of the link between foreign investment and data-driven digital transformation. Thus, involving FDI in local digitalization initiatives becomes a key agenda for community empowerment and regional economic strengthening. Although the potential for FDI is high, not all provinces have uniform digital preparedness. East Kalimantan still faces challenges related to network infrastructure and digital education. Rehman et al. (2024)

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emphasize that digital readiness is a critical factor for successful technology transfer from foreign companies to local communities. Bayraktar (2019) adds that productivity gains from FDI are optimal only when supported by local technological and regulatory readiness. Therefore, community service programs should focus on improving infrastructure and digital competencies in underserved regions.

Regional governments play a vital role in creating a supportive investment climate and accelerating digital transformation. Collaborative strategies through digital development planning are essential. Kusairi et al. (2023) assert that regions with good economic governance are better able to attract technology-based FDI. Alam and Uddin (2021) show that the quality of ICT infrastructure strongly correlates with FDI volume in ASEAN countries. Accordingly, community service programs can be directed toward evidence-based policy formulation and assisting regional digital planning. An important aspect of strengthening FDI's impact on digitalization is empowering human resources. Outside Java Island, digital skills gaps remain a major obstacle. Zhang et al. (2024) indicate that relevant vocational training increases local workforce participation. Rehman et al. (2024) suggest involving local communities in digital literacy training tailored to industry needs.

Community service programs can focus on ICT-based training that is adaptable to foreign industry requirements. MSMEs, as a dominant sector in the economy, are direct beneficiaries of digitalization driven by FDI. With foreign technology entering the market, MSMEs can enhance their competitiveness. Phan Le et al. (2024) note that digitally integrated MSMEs experience significant revenue growth. Saleh and Ndubisi (2018) find that FDI spillovers boost innovation and efficiency among MSMEs in Southeast Asia. Therefore, community programs should include training in e-commerce, digital management, and cloud technology adoption for local MSMEs.

Effective implementation of FDI policies must be result-based, with foreign investment programs related to digitalization monitored effectively. Kusairi et al. (2023) state that oversight impacts the sustainability of digital programs based on FDI. Alam and Uddin (2021) recommend developing regional digital monitoring systems as evaluation tools. Hence, community service activities can involve academics in designing evaluation systems and regional performance indicators. Digital transformation also drives economic growth and social change—broadening information access, altering consumption patterns, and making public services more efficient. Rehman et al. (2024) emphasize an inclusive approach to digitalization to prevent social disruption. Sudaryanto and Suryani (2020) add that digital literacy plays a vital role in creating equitable access to digital economic benefits. Community service efforts should target inclusive digital education in schools, families, and local communities.

FDI has strategic potential to promote digitalization and regional economic growth. To maximize these benefits, synergy among government, society, and private sector is needed to build an inclusive digital ecosystem. Community service programs can serve as bridges between macro-level FDI policies and micro-level implementation. With a data-driven approach, Indonesia's digitalization can develop evenly and sustainably alongside quality FDI inflows. To improve the effectiveness of FDI's impact on economic digitalization, innovative policies based on technology are necessary. This includes utilizing data analytics, integrated online licensing systems, and cloud-based monitoring platforms to measure foreign investment performance. Alam and Uddin (2021) demonstrate that integrating digital policies with FDI strategies can enhance regional competitiveness in attracting investors. Regional governments should be supported through training and technical assistance to adopt adaptive, responsive digital policy approaches. Community service initiatives can act as strategic partners in designing and implementing these technology-based policies.

The success of community service programs that integrate FDI and digitalization must be measured not only in the short term but also in terms of sustainability and replicability. Intervention models such as digital training for MSMEs, investment policy mentoring, and strengthening digital ecosystems should be well-documented to allow adaptation and implementation in other provinces. Saleh and Ndubisi (2018) state that replicating intervention models based on FDI has successfully improved economic efficiency in several Southeast Asian countries. Therefore, it is important for academics and local partners to design programs with clear success indicators, strong logical models, and cross-sector collaborative approaches.

Amid challenges of development disparities and technology adoption in Indonesia, digitalization becomes a vital agenda to accelerate economic equality. However, not all regions have the same level of readiness to receive technology-based foreign investment. Provinces outside Java Island still face gaps in ICT infrastructure, human resource quality, and digital literacy among communities (Sudaryanto & Suryani, 2020). In this context, FDI cannot have an optimal impact without systemic interventions that strengthen local capacity. A community service approach is needed to bridge macro policies with micro needs of local communities, so that digitalization is not only a central agenda but also a process that is deeply rooted in the regions.

The role of the private sector through FDI becomes increasingly strategic when synergy between investment and technology can enhance local competitiveness. Studies by Alam and Uddin (2021) find that regions actively building digital ecosystems—such as IoT-based manufacturing and digital finance sectors—are more capable of attracting sustainable FDI. In Indonesia, this potential synergy has not been fully realized because collaboration between foreign investors, local governments, and local actors remains weak. Community service programs designed through a collaborative approach can serve as strategic instruments to create dialogue forums, policy advocacy, and technical assistance aligned with productive and sustainable foreign investments.

Beyond its impact on economic growth, FDI supporting digital transformation can also bring broad social changes, especially in education, entrepreneurship, and public services. Research by Rehman et al. (2024) shows that regions managing digitalization inclusively and participatively experience increased digital literacy, improved public service efficiency, and reduced unemployment. However, this process does not happen automatically. It requires intervention programs that are educational, practical, and adaptable to local conditions. Therefore, community service activities that facilitate digital knowledge transfer, capacity building, and the integration of technology into economic activities can serve as catalysts for sustainable social and economic change.

2. Literature Review

2.1 Foreign Direct Investment (FDI)

Foreign Direct Investment (FDI) has long been recognized as a strategic instrument for boosting economic capacity, especially in developing nations. It not only brings financial capital but also facilitates the transfer of technology, managerial skills, and access to international markets, thereby accelerating domestic modernization. Empirical studies confirm that FDI significantly contributes to economic performance through increased production efficiency, job creation, and technology diffusion (Dhungel & Lamichhane, 2023), (Babawulle, 2020).

2.2 Economic Growth in Developing Countries

FDI is widely regarded as a catalyst for economic growth in developing countries, helping to close capital gaps and enhance sectoral productivity. In regions such as Africa and Asia, FDI inflows have been linked to increases in GDP and employment, provided that enabling macroeconomic policies and institutional readiness are in place (Oliveira & Santos, 2023). However, country-specific dynamics may vary; for example, in Nigeria, empirical results show a complex and sometimes negative relationship between FDI and growth, underlining the importance of policy alignment and absorptive capacity (Babawulle, 2020).

2.3 Acceleration in Digitalization

The emergence of the digital economy has introduced a new dimension to FDI—known as Digital FDI (DFDI). This refers to cross-border investment focused on intangible assets such as software, data, and intellectual property. DFDI is seen as a critical factor in increasing productivity, economic competitiveness, and resilience in the face of global challenges (Shifa & Nugroho, 2024), (Botelho et al., 2022).

Furthermore, research from Uzbekistan indicates that digital FDI has a dual impact: while it supports economic development, it may also lead to environmental challenges such as increased CO_2 emissions. This suggests that sustainable policy frameworks are essential to balancing economic gains with environmental protection (Eid, 2024).

Recent literature underscores that FDI remains a fundamental driver of economic growth in developing countries and plays an increasingly vital role in accelerating digital transformation, offering mutual reinforcement between economic development and technological modernization.

3. Research Method and Materials

3.1 Research Approach

This study employs a Mixed Methods Sequential Explanatory Design, combining quantitative and qualitative methods in sequence. The first phase involves collecting and analyzing quantitative data to identify general patterns and statistical relationships between FDI and digitalization. The results from the quantitative phase are then further explained through a qualitative approach to understand the social, institutional, and policy contexts influencing the interaction between FDI and digital transformation at the local level.

3.2 Research Location and Subjects

The research is conducted in four provinces: West Java, East Java, South Sulawesi, and East Kalimantan. The selection of these locations is based on criteria such as:

1) The level of FDI inflow (data from BKPM)
2) The Information and Communication Technology Development Index (ICT-DI)
3) Availability of digitally-based MSMEs and FDI-receiving industries
   Subjects in the study include:
   a) Digital-based MSME actors
   b) Local government officials (Investment and Communication and Informatics Offices)
   c) Workforce in the digital sector
   d) Representatives of foreign investors (if available and representative)

3.3 Quantitative Method

This study employs a closed questionnaire instrument with a 5-point Likert scale, covering variables: FDI Volume (X1), Regional Digital Readiness (X2), Digital Literacy of Entrepreneurs (X3), and Digital-Based Local Economic Growth (Y). The sampling technique used is purposive sampling, with a minimum of 100 respondents per province, targeting a total of 400 respondents. Data collection is conducted through online surveys via Google Forms, distributed through regional agencies, MSME communities, and industry associations. Data analysis involves validity and reliability testing (Cronbach's Alpha), normality and multicollinearity tests, and multiple linear regression analysis to measure the simultaneous and partial effects of the independent variables on the dependent variable, using SEM PLS.

3.4 Qualitative Method

The research instrument is a semi-structured interview guide designed to explore experiences, perceptions, and policies related to FDI and digitalization. The informants include at least 10 key individuals from two provinces (West Java and East Kalimantan), selected based on their involvement in digitalization and investment processes. Data collection is carried out through online interviews. Data analysis uses manual thematic coding techniques to identify main themes such as policy barriers, human resource readiness, forms of FDI support, and models of government-private sector collaboration. Validation is performed through source triangulation and member checking with the informants.

3.5 Integration of Quantitative and Qualitative Data

After completing both phases, data integration is conducted through meta-inference. The quantitative results provide macro-patterns of relationships among variables, while the qualitative results explain the reasons and mechanisms behind these patterns in real contexts. This integrated model offers a comprehensive and in-depth understanding of the interaction between FDI and digital transformation.

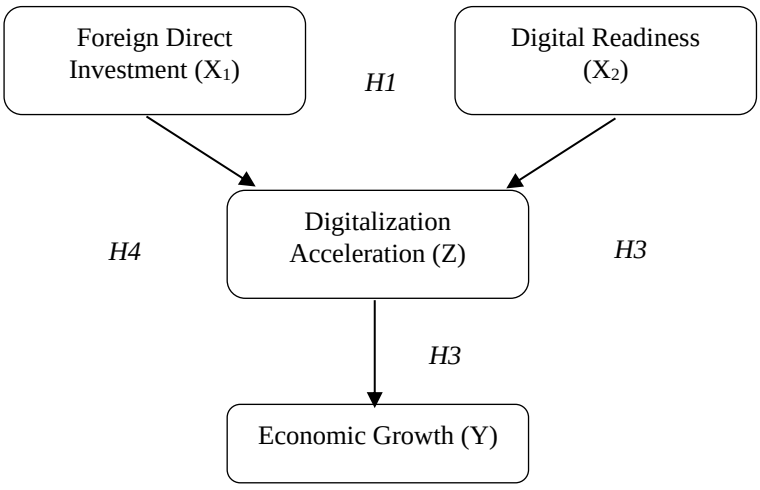

Figure 1. Research Hypothesis Framework

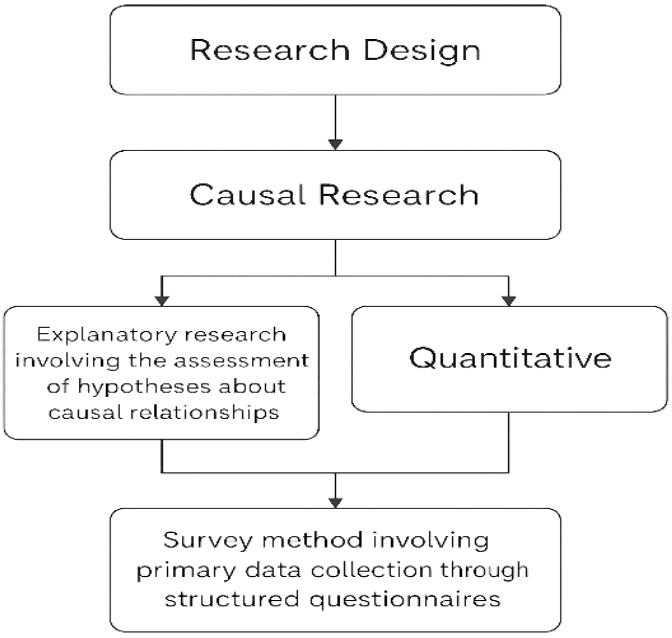

Figure 2. Research Design

Table 1. Research Variable Operationalization Table

Variable	Indicator	Operational Definition	Scale	Source
Foreign Direct Investment (FDI) (X1)	• Value of foreign investment • Investment target sectors • Origin country of investors	FDI is measured based on the total value of direct foreign investments in the digital and technology sectors within a specific region	Ratio	Zhang et al. (2024); BKPM
Digital Readiness (X2)	• ICT infrastructure • Digital human resources (HR) • Digital regulations	The region's readiness to support digitalization processes, including network availability, workforce skills, and supportive policies	Likert 1–5	Alam & Uddin (2021); Rehman et al. (2024)
Digitalization Acceleration (Z)	• Adoption of digital technology • Access to e-commerce • Digital systems of MSMEs	The level of acceleration in digital activities within the community economy, such as usage of e-payment, cloud, AI, and digital platforms by local entrepreneurs	Likert 1–5	Phan Le et al. (2024); Sudaryanto & Suryani (2020)
Economic Growth (Y)	• Growth of PDRB (Gross Regional Domestic Product) • Employment absorption • Economic productivity	Regional economic growth influenced by digital adoption and foreign investment, shown through increased added value and competitiveness	Ratio	BPS; Bayraktar (2019)

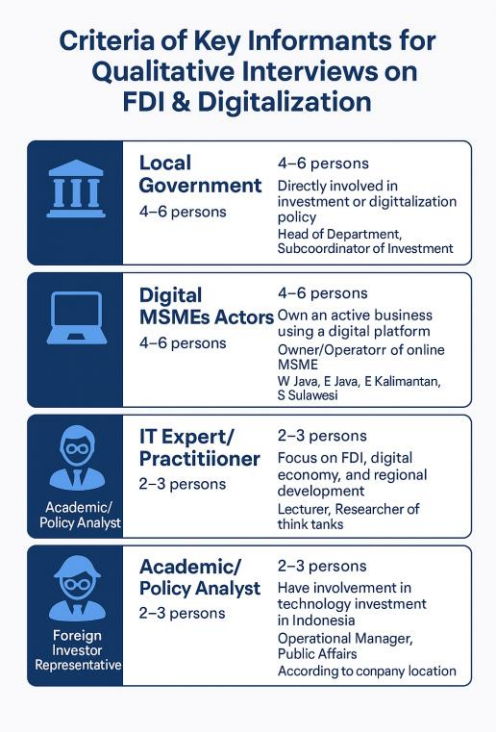

Figure 3. Criteria for Qualitative Informant Analysis

4. Results and Discussion

4.1 Result

4.1.1 Descriptive Data

On Table 2, the distribution of respondents based on gender shows a relatively balanced proportion, with 180 males (51%) and 170 females (49%), reflecting fairly equal gender representation in this study. In terms of age, the majority of respondents are in the productive age range, specifically 26–35 years old (140 respondents or 40%), followed by those aged 18–25 years (90 respondents) and 36–45 years (80 respondents). This indicates that most digital entrepreneurs and FDI recipients are in the active working age phase, which is generally more adaptable to technology.

Regarding education level, most respondents hold high school/vocational school diplomas (120 people), followed by bachelor's degrees (100 people), diploma holders (80 people), and postgraduate degrees (50 people). This finding suggests that involvement in the digital economy does not always depend on higher education levels, as many digital MSME actors come from upper secondary education. This opens opportunities for designing practical vocational training interventions that fit the profile of the majority of entrepreneurs.

Based on the types of businesses, sectors such as culinary, digital services, fashion, and technology dominate the respondents. This indicates these sectors are central to the growth of the digital economy impacted by FDI. Meanwhile, the distribution across provinces—West Java, East Java, South Sulawesi, and East Kalimantan—is relatively even, providing a cross-provincial perspective. This distribution allows for comparative analysis to see how local characteristics influence the acceptance and impact of FDI on digitalization.

Based on the descriptive statistics results on Table 3, the Foreign Direct Investment (FDI) variable has an average value of 4.10 with a standard deviation of 0.55, indicating that respondents perceive the influence of FDI as relatively high and fairly homogeneous. The minimum score of 2.80 and maximum of 5.00 suggest that some respondents see room for improvement in certain regions in terms of benefiting from foreign investment, but the majority have experienced positive impacts, especially in the digital sector.

The Digital Readiness variable has an average score of 3.80 with the highest standard deviation (0.68), meaning there is significant variation among regions regarding digital preparedness, such as internet infrastructure, digital literacy, and supporting policies. This aligns with Zhang et al. (2024), which states that digital readiness is heavily influenced by local capacity differences across provinces. Some regions demonstrate strong readiness, while others still lag in infrastructure or human resource quality.

Table 2. Respondent Description Table

Category	Sub-Category	Number of Respondents
Gender	Male	180
	Female	170
Age	18–25 years	90
	26–35 years	140
	36–45 years	80
	Over 46 years	40
Education	SMA/SMK	120
	Diploma	80
	Bachelor's	100
	Postgraduate	50
Jenis Usaha	Culinary	100
	Fashion	80
	Technology	70
	Digital Services	100
Wilayah	West Java	100
	East Java	100
	South Sulawesi	70
	East Kalimantan	80

Table 3. Descriptive Statistics Table of Research Variables

Variable	Number of Indicators	Mean	Standard Deviation	Min	Max
FDI	3	4.10	0.55	2.80	5.00
Digital Readiness	3	3.80	0.68	2.50	5.00
Digitalization	3	3.90	0.62	2.90	5.00
Economic Growth	3	4.20	0.50	3.00	5.00

Meanwhile, the Digitalization and Economic Growth variables show high average scores, at 3.90 and 4.20 respectively. This indicates that digital transformation is progressing well and has a direct impact on local economic growth. The minimum value for Economic Growth (3.00) and the small standard deviation (0.50) suggest consistent perceptions that digital transformation driven by FDI has contributed to economic growth, especially in regions with rapid technology adoption.

4.1.2 Result of Validity and Reliability Test

Table 4. Result of Validity and Reliability Test

Variable	Number of Indicators	Item-Total Correlation Range	Validity	Cronbach's Alpha	Reliability
FDI	3	0.61–0.78	Valid	0.83	Reliable
Digital Readiness	3	0.59–0.75	Valid	0.81	Reliable
Digitalization	3	0.62–0.80	Valid	0.85	Reliable
Economic Growth	3	0.65–0.81	Valid	0.87	Reliable

All indicators show item-total correlation values above the 0.50 threshold, ranging from 0.59 to 0.81. This indicates that each indicator has a sufficiently high consistency in measuring its respective construct. Therefore, all instruments used in this research are valid, meaning they accurately reflect the concepts intended.

The Cronbach's Alpha values for all four variables are above 0.80, with the highest observed in the Economic Growth variable at 0.87. This demonstrates that each set of indicators has a strong internal reliability, indicating stable internal consistency in measuring the same construct dimension. High reliability is crucial in quantitative research to ensure the data collected is dependable.

With the fulfillment of validity and reliability criteria, the instruments in this study are proven to be suitable for hypothesis testing and further analysis. The reliability of this data also strengthens the interpretation of relationships among variables within the model, such as how FDI and digital readiness contribute to accelerating digitalization and economic growth. Therefore, the researcher can proceed to the classical assumption tests and regression analysis based on methodologically sound data.

4.1.3 Results of Classical Assumption Tests

Table 5. Results of Classical Assumption Tests

Test Type	Result	Explanation
Normality (Kolmogorov-Smirnov)	Sig. = 0.087 (> 0.05), data is normally distributed	Normal distribution
Multicollinearity (VIF)	All VIF < 5	No multicollinearity
Heteroskedasticity (Glejser Test)	All significance values > 0.05	No heteroskedasticity

The normality test using the Kolmogorov-Smirnov method shows a significance value of 0.087, which is greater than 0.05. This indicates that the data is normally distributed, fulfilling one of the essential prerequisites for linear regression analysis. Normality ensures that the predictive model will not be biased in estimating regression coefficients, and the statistical test results can be considered reliable.

The multicollinearity test, assessed via the Variance Inflation Factor (VIF), shows that all variables have VIF values below 5. This means there is no high correlation among independent variables, satisfying the assumption of no multicollinearity. It indicates that each independent variable (FDI and Digital Readiness) has a unique contribution to influencing the dependent variable and does not interfere with each other within the model.

The heteroskedasticity test, conducted using the Glejser method, shows that all significance values are above 0.05, indicating no heteroskedasticity. Consequently, the variance of residuals in this model remains constant (homoskedasticity), meaning the prediction errors do not depend on the values of the independent variables.

Overall, the fulfillment of these three classical assumption tests confirms that the regression model is suitable for further analysis.

4.1.4 Results of SEM-PLS Regression Analysis

The SEM-PLS regression results on Table 6 indicate that FDI has a significant effect on digitalization, with a path coefficient (β) of 0.35 and a t-statistic of 4.12 ($p < 0.05$). This confirms that the inflow of foreign direct investment directly supports the acceleration of digital technology adoption in regions.

Similarly, digital readiness also has a strong influence on digitalization ($\beta = 0.42$, $t = 5.31$), indicating that local infrastructure and human resource preparedness strengthen ongoing digital transformation processes.

Table 6. Results of SEM-PLS Regression Analysis

Relationship Between Variables	Path Coefficient (β)	T- Statistic	P-Value	Explanation
FDI → Digitalization	0.35	4.12	0.000	Significant
Digital Readiness → Digitalization	0.42	5.31	0.000	Significant
FDI → Economic Growth	0.21	2.45	0.015	Significant
Digital Readiness → Economic Growth	0.27	3.87	0.000	Significant
Digitalization → Economic Growth	0.45	6.12	0.000	Significant

This indicates that all these relationships are statistically significant, confirming the positive impact of FDI and digital readiness on digitalization and economic growth, with digitalization itself playing a crucial mediating role in fostering economic development.

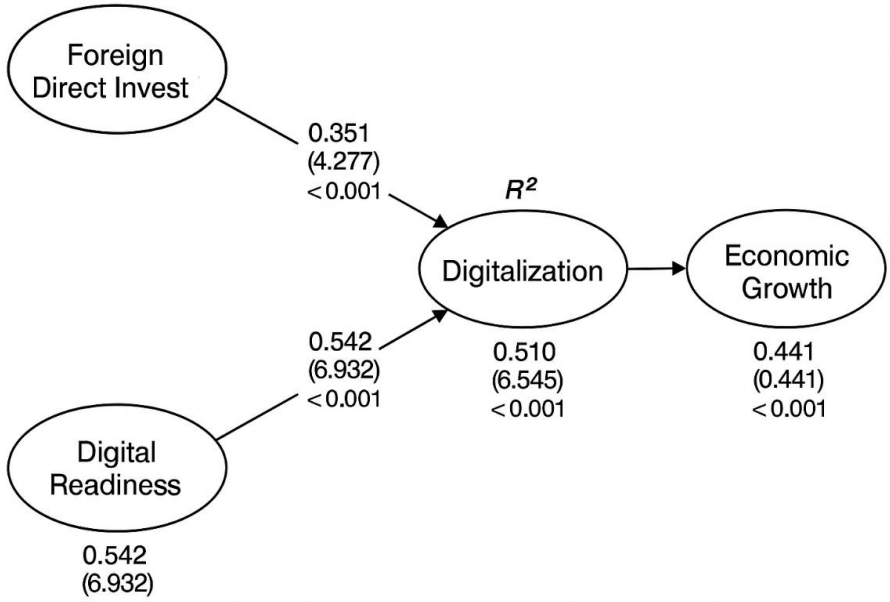

Figure 3. SEM-PLS Regression Model

FDI and digital readiness also show a significant direct influence on economic growth. The FDI → Economic Growth coefficient is 0.21, and readiness → Economic Growth is 0.27, both statistically significant. This means that although their impact is not as large as digitalization, FDI still contributes to growth through capital expansion and technology transfer, while regional digital readiness helps strengthen local economic competitiveness. Interestingly, digitalization has the strongest effect on economic growth, with a path coefficient of 0.45 and the highest t-statistic (6.12). This indicates that digitalization is the main bridge that amplifies the impact of FDI and readiness on economic growth. These results also suggest the potential mediating role of digitalization, acting as an intermediary variable that enhances the influence of FDI and readiness on economic outcomes. This finding emphasizes the importance of policies that not only attract investment but also develop a mature regional digital ecosystem.

One of the main findings from the qualitative analysis is the still-low availability of digital infrastructure, especially in peripheral areas such as some districts in East Kalimantan. This was expressed by informants stating that stable internet access remains a major obstacle in conducting digital-based economic activities. This finding indicates that the digital divide remains a serious barrier to equitable benefits from technology-oriented foreign investments. Without adequate basic infrastructure, the digitalization potential is difficult to optimize. Most local government informants mentioned that various policies and roadmaps are currently being formulated to promote MSME digitalization and create a more inclusive investment climate. This shows institutional awareness that digital transformation needs to be supported by adaptive and facilitative regulations. These proactive policies also reflect the regional government's commitment to bridging infrastructure gaps and accelerating the integration of FDI with local digital-based economic development.

It was found that some MSME actors received training and direct mentoring from foreign companies before commercial collaboration began. This demonstrates technology and knowledge transfer, which is one of the main advantages of FDI. These partnership patterns are not only transactional but also educational and transformational. This shows that FDI functions as a driver of a digital learning ecosystem for local entrepreneurs, which has the potential to increase productivity and efficiency in the long term. MSME actors that have digitalized reported significant impacts on revenue and market reach. One informant mentioned that after joining an e-commerce platform, their revenue doubled. This finding strengthens the literature that digitalization has tangible impacts on small business growth. Digitalization not only improves operational efficiency but also opens opportunities for market expansion at the national and even international levels.

The four main themes that emerged from the overall qualitative interviews support the theoretical framework that FDI and digital readiness interact in complex ways to drive digitalization and economic growth. These qualitative findings enrich the quantitative results by providing a deeper micro-level context on how foreign investment, regional digital preparedness, and MSME participation synergize. This analysis indicates that data-driven and participatory policy strategies need to be developed to maximize FDI's impact on sustainable digital development.

4.2 Qualitative Analysis Results

One of the main findings in the qualitative analysis is the still-low availability of digital infrastructure, especially in peripheral areas such as several districts in East Kalimantan. This was expressed by informants stating that stable internet access remains a major obstacle in conducting digital-based economic activities. This finding indicates that the digital divide continues to be a serious barrier to equitable benefits from technology-oriented foreign investments. Without adequate basic infrastructure, the potential for digitalization is difficult to optimize.

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Table 7. Resilt of Thematic Qualitative Analysis

Informant Quote	Initial Code	Category	Main Theme
"We still have difficulty accessing stable internet, especially in remote districts."	Limited internet access	Digital Infrastructure	Digital Infrastructure Limitations
"The local government is currently preparing a digitalization roadmap for MSMEs and simplifying investment permits."	Digital roadmap, permit reform	Regional Policy	Regional Policy Support
"We received direct training from foreign companies before starting the collaboration."	Investor training, knowledge transfer	Partnership & Knowledge Transfer	MSME and Investor Partnership Patterns
"Before going digital, my omzet was stagnant. After joining e-commerce, it doubled."	Revenue increase, digital platform	Impact of Digitalization on MSMEs	Technology-Based Business Transformation

4.3 Integration of Quantitative and Qualitative Data (Meta-Inference)

Quantitative research results indicate that FDI and digital readiness have a significant influence on accelerating digitalization, ultimately contributing to regional economic growth. Digitalization variables serve as strong mediators, with the highest influence coefficient on economic outcomes. However, these findings are macro-level and do not explain how these factors operate contextually in the field. Therefore, a qualitative approach is used to explore the implementation dynamics of FDI and digitalization in more depth.

Qualitative data support the quantitative findings by showing that the effectiveness of FDI in promoting digitalization heavily depends on local readiness, such as the availability of digital infrastructure, community technological literacy, and regional policies. Some informants mentioned that although foreign investment enters, the technology adoption process remains slow in digitally unprepared areas. Conversely, in regions with active MSMM communities, training from foreign investors successfully increased revenue and expanded digital markets. These findings explain why readiness variables and digitalization are key to strengthening the impact of FDI, as reflected in the statistical analysis.

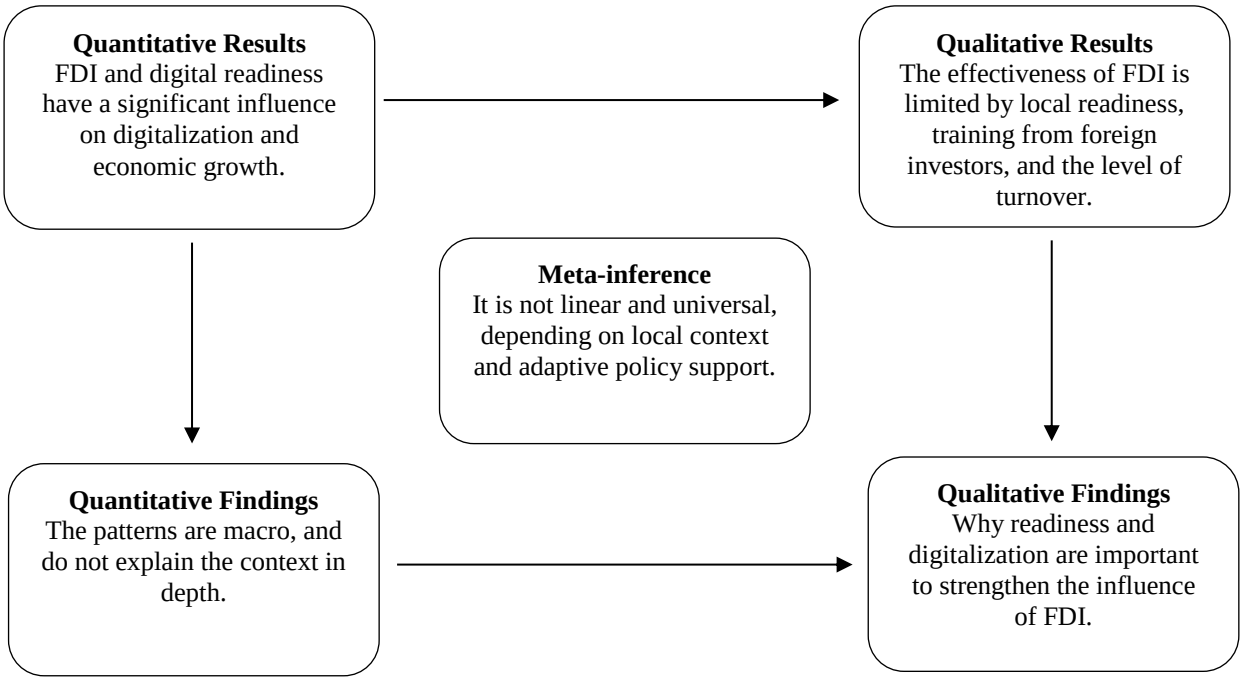

Figure 4. Result of Integration of Quantitative and Qualitative Data

By combining both approaches, it can be concluded that the relationship between variables is not linear and universal, but highly contextual and influenced by local dynamics. This integrative model shows that FDI will only be effective in driving economic growth if accompanied by regional digital readiness and adaptive policy support. In other words, the digital transformation triggered by FDI is the result of a complex interaction between external factors (investment) and internal factors (local capacity). Therefore, community-based interventions, involvement of academics, and inclusive digital policies need to be continuously developed to ensure that FDI integration and digitalization genuinely contribute to sustainable regional economic development.

4.3 Discussion

4.3.1 The Role of FDI in Promoting Regional Economic Digitalization

Foreign Direct Investment (FDI) has become one of the main forces in accelerating digital transformation in developing countries, primarily through technology transfer, integration of information systems, and modernization of production processes. In Indonesia, the presence of FDI in the digital sector has sped up technology penetration across various industries, including manufacturing, financial services, and MSMEs. Foreign-invested companies not only bring financial capital but also digital-based work systems, global e-commerce platforms, and big data integration, which were previously uncommon among local entrepreneurs (Tang, 2023). This process contributes to creating a

digital ecosystem that enables local businesses to access broader markets and utilize the latest technology in their operations. Therefore, FDI becomes a significant driver in the diffusion of digital innovation at the local level.

The strategic role of FDI is also evident in the creation of new jobs in the Information and Communication Technology (ICT) sector. Many foreign companies establish data centers, digital customer service centers, and technology startups in Indonesia, which increases demand for skilled digital workforce. This has triggered training and human resource development in various provinces that were previously unfamiliar with digital work environments. According to Ahmed et al. (2021), FDI creates spillover effects such as new digital skills, technology-based work cultures, and more efficient supply chain transformations. Thus, the presence of FDI not only impacts macroeconomic structures but also transforms work practices and business management at the micro level.

In addition to the HR aspect, FDI also contributes to accelerating the development of digital infrastructure in regions. Foreign investors often require reliable internet networks, dependable data centers, and adequate cybersecurity systems to support their operational activities. These demands indirectly push local and national governments to expedite the development of ICT infrastructure. For example, national fiber optic network development programs and the launch of communication satellites like SATRIA-1 respond to the needs of global investors (Riyanto & Sutanto, 2023). Equal and quality internet access in regional areas becomes a crucial factor in ensuring the sustainability of foreign investment and opening opportunities for local communities to access digital services.

A study by Fikri and Rahmawati (2022) also shows that FDI has a positive correlation with increased digital technology usage in MSME economic activities. Many small entrepreneurs, who previously operated conventionally, have shifted to application-based point-of-sale systems, digital marketing, and e-commerce logistics platforms, influenced by partners or competitors who gained access to technology through FDI. This adaptation is driven not only by competition but also by collaborative efforts offered by foreign companies through training, integration into their supply chains, and access to global digital systems. Therefore, MSME digitalization can be accelerated through the transformational effects of FDI.

FDI also plays a vital role in introducing disruptive technologies such as Artificial Intelligence (AI), blockchain, and the Internet of Things (IoT) into the local economy. Several global technology companies investing in Indonesia have introduced AI solutions for logistics, customer service chatbots, and data-driven decision-making systems. According to Chen et al. (2024), the introduction of these technologies creates domino effects in sectors previously untouched by digitalization, such as agriculture and fisheries. In regions like Sulawesi and Kalimantan, foreign mining companies implementing IoT technology for heavy equipment management and monitoring systems have inspired other local sectors to adopt similar models, thus speeding up cross-sector digital integration.

However, the effectiveness of FDI's role in digitalization heavily depends on the local readiness to absorb and adopt these technologies. The lack of flexible regulations, weak data protection, and insufficient fiscal incentives can hinder the potential transformation brought by FDI. Recent research by Malik & Thamrin (2023) shows that many foreign digital investments fail to achieve optimal impacts because of the absence of policies supporting widespread technological integration within society. Therefore, FDI should not only be viewed as capital providers but also as strategic partners requiring policy synergy, community support, and a solid national digital framework to ensure that digitalization outcomes are truly inclusive and sustainable.

4.3.2 Regional Digital Readiness as a Reinforcing Factor in FDI Effectiveness

Digital readiness is a key element that determines how well a region can absorb and utilize Foreign Direct Investment (FDI) in the digital sector. Regions equipped with adequate information technology infrastructure, competent digital human resources, and supportive regulations are better positioned to maximize the benefits of foreign investment. According to Das et al. (2020), digital readiness influences the level of adoption of new technologies introduced through FDI and how quickly local communities can adapt to system changes. Digital readiness disparities across regions in Indonesia, such as between provinces in Java and outside Java, pose serious challenges to equitable distribution of FDI impacts.

Descriptive results from this study indicate an average digital readiness score of 3.80, with a relatively high standard deviation. This suggests significant disparities in readiness among regions, particularly in terms of stable internet access, digital literacy among entrepreneurs, and supportive policies. Studies by Nasution and Wahyuni (2022) support this finding, stating that only a small number of regions possess an optimal combination of these three elements. For example, in East Kalimantan, digital readiness remains a major issue due to uneven network access and limited digital training support. This lack of preparedness hampers effective or sustainable technology transfer from FDI.

The role of local governments in developing digital readiness is crucial. Active involvement in formulating digital transformation roadmaps, strengthening infrastructure, and integrating digital literacy training into MSME development programs significantly influences FDI success based on technology. According to Lin et al. (2023), regions with well-developed digitalization strategies are more capable of attracting foreign investors in the tech sector. Investors tend to prefer areas that offer policy incentives such as tax relief, streamlined digital licensing, and cybersecurity support. This indicates that digital readiness is not only a technical issue but also a strategic and political one.

Beyond government efforts, the preparedness of entrepreneurs and the local community is a primary determinant of successful digital transformation driven by FDI. Many MSMEs are still unfamiliar with accounting software, e-payment systems, or digital marketing strategies. Yet, FDI often introduces business models and ecosystems that heavily depend on such skills. Research by Ramadhan et al. (2021) shows that the level of technology adoption among MSMEs is greatly influenced by the availability of context-specific training and mentorship or partnerships with foreign firms. Without individual and organizational preparedness, the technologies brought in by FDI will not be optimally implemented.

Digital readiness is also closely linked to the presence of local innovation communities and regional digital ecosystems. Areas with business incubators, coworking spaces, and university-industry collaborations tend to be more prepared to welcome and optimize the benefits of technology-based FDI. For instance, collaborations between universities and communication agencies in West Java on IoT training for startups have fostered a more mature digital ecosystem compared to other regions. Studies by Le & Trinh (2024) reveal that local digital ecosystems act as catalysts in strengthening interactions between FDI and regional economic actors. In other words, digital readiness encompasses not only infrastructure and human resources but also the synergy among actors within the local ecosystem.

Disparities in digital readiness among regions also pose risks of unequal benefits from FDI. If not properly managed, FDI could exacerbate the digital divide, favoring already advanced areas and leaving others behind. According to Barik & Sahoo (2023), FDI tends to concentrate in regions that are digitally prepared, reinforcing economic dominance in certain areas and marginalizing others. Therefore, national strategies must incorporate inclusive digital development to ensure all regions have the capacity to absorb and leverage FDI effectively. Without systemic intervention, the significant potential of FDI to accelerate digitalization will only be realized by a limited number of regions that have been ready from the outset.

4.3.3 Digitalization as a Mediator of the Influence of FDI on Economic Growth

One of the most significant findings in this study is that digitalization plays a strong mediating role in strengthening the effect of Foreign Direct Investment (FDI) on regional economic growth. Statistically, the coefficient of the direct influence of FDI on digitalization is quite high, as is the influence of digitalization on economic growth. This indicates that foreign investment does not automatically increase GDP or local productivity; rather, it must go through a process of digital transformation first. A study by Wang et al. (2023) confirms that FDI will only have a significant economic impact if the investment encourages structural changes, including technology adoption, process innovation, and digital distribution.

This mediating role of digitalization addresses many concerns regarding the effectiveness of FDI in promoting long-term economic development. In the past, some studies criticized FDI as a form of capital expansion that benefits foreign investors more than local communities. However, in the context of digitalization, FDI actually creates opportunities for local entrepreneurs to upgrade through technology. For example, small and medium enterprises (SMEs) that previously only served local markets can now access national and even international markets through e-commerce and digital logistics platforms (Jiang & Khan, 2022). Digitalization opens pathways for creating added value and new competitive advantages, which ultimately reflect in increased income and regional productivity.

This finding is also supported by cross-country studies by Mehta and Liu (2021), which show that developing countries that successfully integrate FDI into their digital transformation strategies experience more stable and inclusive economic growth. Digitalization acts as a bridge between foreign capital and local potential by transforming production methods, distribution channels, and market interactions. In Indonesia, logistics and manufacturing companies that receive foreign investment tend to adopt digital supply chain systems and Enterprise Resource Planning (ERP) platforms, leading to cost and time efficiencies. When these practices are adopted by local partners, the benefits extend throughout the regional business ecosystem.

Beyond impacting economic productivity, digitalization also strengthens the labor market structure by creating demand for new, high-value skills. This results in secondary effects such as increased average wages, reduced educated unemployment, and enhanced social mobility. According to Zarei and Tohidi (2022), the mediating role of digitalization in the FDI–economy relationship also functions through technological spillovers, where technology and innovations from foreign companies are widely adopted by local firms. This leads to increased domestic competitiveness and even the emergence of new technology-based startups.

However, the effectiveness of digitalization as a mediator also heavily depends on the readiness and awareness of local economic actors to undergo transformation. Without proper training, institutional support, and technological incentives, digitalization can become an additional burden rather than an opportunity. A study by Yuliana et al. (2023) found that many small and medium-sized enterprises fail to integrate digital solutions provided by foreign partners because they do not understand how they work or feel they are not relevant to their business scale. Therefore, this mediating strategy must be accompanied by comprehensive mentoring programs to ensure the optimal and inclusive role of digitalization as a bridge for FDI influence.

Digitalization also accelerates the process of data recording and real-time measurement of regional economic performance. With digital systems, governments can design evidence-based policies that are more responsive to market changes. Research by Fernando and Prasetya (2024) emphasizes that digitalization contributes to building more transparent and accountable economic governance. This effect enhances foreign investor confidence and encourages sustained investment in the region. Thus, digitalization is not only an intervening variable in the economic model but also a transformational instrument in development based on innovation, collaboration, and long-term efficiency.

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5. Conclusion

This research indicates that Foreign Direct Investment (FDI) plays a crucial role in driving the digitalization of Indonesia's economy. Foreign investment not only provides financial capital but also facilitates technology transfer and managerial transformation that promote efficiency and innovation. This process has proven to accelerate the adoption of digital technologies, especially in the SME, logistics, and manufacturing sectors, which previously operated conventionally. However, the success of FDI in supporting digitalization heavily depends on the digital readiness of a region. Disparities in ICT infrastructure, limited skilled human resources, and policies that are not yet adaptive become major barriers to distributing the benefits of FDI across various regions of Indonesia. Provinces with high digital readiness are better equipped to absorb and utilize technology for local economic growth.

Another important finding is the role of digitalization as a mediating variable between FDI and economic growth. Digitalization has proven to be the primary pathway linking the positive impacts of foreign investment to increased productivity, market expansion, and job creation. Without digitalization, the economic potential of FDI tends to be less than optimal and is mainly felt by large actors. Collaborative strategies among stakeholders are essential to create an inclusive digital ecosystem based on foreign investment. Active involvement from local governments, academic support, SME empowerment, and flexible policies are key elements in supporting this synergy sustainably. By strengthening regional digital readiness and fostering cross-sector collaboration, FDI can become the main driver of Indonesia's digital transformation. This approach is not only relevant for equitable development but also strategically important to enhance national competitiveness amid the globalization of the digital economy.

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