International Journal of Economics and Development
ISSN(Online): 3110-3189
Vol 1 no 2 (2025): December 2025
https://journal.as-salafiyah.id/index.php/ijed/index
Email: ijededitor@gmail.com

A Collaborative Model of Government, Private Sector, and Community in Strengthening the Regional Digital Economy Ecosystem

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Abstract: *This study investigates a collaborative model between the government, private sector, and community in strengthening the regional digital economy ecosystem. Digital transformation has become a key driver for regional economic growth, yet disparities in infrastructure, digital literacy, and coordination often hinder inclusive development. The research aims to analyze the roles, challenges, and strategic interventions of each actor in fostering an adaptive and sustainable digital economy. Using a qualitative approach through literature review, this study examines publications from 2018 to 2025, including peer-reviewed journals, government reports, and institutional documents. Data were analyzed using content analysis with thematic coding to identify patterns of cross-sector collaboration, best practices, and policy implications. Findings reveal that effective synergy among government, private sector, and communities accelerates digital adoption, expands market access, and enhances job creation. Key challenges include low digital literacy, unequal infrastructure, and limited alignment of objectives across actors. Strategic recommendations emphasize establishing structured partnership mechanisms, locally tailored digital literacy programs, and shared-value collaboration initiatives. The study contributes to policy and academic discourse by providing a conceptual framework for triple-helix collaboration in regional digital economic development. These insights are valuable for policymakers, practitioners, and researchers aiming to design inclusive, adaptive, and sustainable digital ecosystems at the regional level.*
Keywords: *Triple Helix, Collaborative Governance, Digital Economy, Local Innovation, Regional Development.*

INTRODUCTION

Digital transformation has become a major catalyst in changing the structure of the global economy. The Industrial Revolution 4.0 has given rise to a wave of digital innovation that has affected not only large industrial sectors but also community-based regional economies. Amidst these developments, there is a need to build an integrated, inclusive, and sustainable digital economic ecosystem. This ecosystem is not only about technology, but also involves the

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involvement of various stakeholders in driving local economic growth. (Martínez-Peláez et al., 2023).

According to the (World Economic Forum, 2021) cross-sector collaboration is a prerequisite for creating a digital ecosystem that is adaptive to technological changes and community needs. The government, private sector, and community each play key roles that complement each other. The government provides basic infrastructure and supporting policies, the private sector presents innovation and technology, while the community is the main subject and actor in the ecosystem.

The development of the digital economy in the regions is often hampered by the gap in infrastructure and digital literacy. Based on the the (APJII Survey, 2022), internet penetration rate in Indonesia has reached 77%, but there is still an imbalance in access between urban and rural areas. This indicates that without collaborative and targeted intervention, the potential of the digital economy in the regions will not develop optimally.

Government programs such as the National Digital Literacy Movement, 100 Smart Cities, and UMKM Go Digital are forms of state intervention in expanding the adoption of digital technology. However, the impact will be more significant if accompanied by the active involvement of the private sector that has competence in digital innovation and communities that are responsive to change. This synergy is the core of the triple-helix approach in digital-based regional development.

The private sector plays an important role as an accelerator of technology and innovation (Goswami et al., 2018) Technology companies such as Gojek, Tokopedia, and Bukalapak have shown how digital services can reach micro-entrepreneurs in the regions. However, the main challenge lies in how private companies act not only as commercial service providers, but also as development partners that support community empowerment.

From the community side, the existence of community groups such as digital cooperatives, MSME communities, and local creative business actors are the main drivers of the regional digital economy. The strength of the community lies in their ability to identify local needs, build social networks, and maintain the sustainability of digital initiatives. However, this ability can only develop optimally if supported by an environment that facilitates their growth.

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Collaboration between government, private sector, and communities requires a structured coordination model. This model includes role division, communication mechanisms, and shared governance. A study by (Priharsari et al., 2023) emphasizes the importance of a collaborative approach in designing digital economy policies, especially for regions facing digital lag. Without a clear framework, collaboration is vulnerable to becoming a symbolic initiative without real impact.

In the context of regional development, a strong digital ecosystem can encourage increased regional competitiveness, expand markets for local products, and create new jobs in the technology and digital services sector (Kraus et al., 2021). With synergy between key actors, local economic potential can be transformed into a productive force that is competitive nationally and globally.

However, there are still many challenges to overcome in implementing this collaborative model. The vision gap between the public and private sectors, limited resources at the community level, and the issue of program sustainability are issues that require special strategies. Therefore, an approach based on local needs and adaptive to the social and economic dynamics of the community is needed.

Based on this background, this article aims to critically analyze the collaborative model between government, private sector, and community in the development of regional digital economy ecosystem. Using a literature study approach, this paper describes the strategic role of each actor, identifies the main challenges, and strategic recommendations for creating an inclusive, adaptive, and sustainable ecosystem.

METHOD

This article is compiled using a descriptive qualitative approach with a library research method to explore the concept of collaboration between government, private sector, and community in developing a digital economic ecosystem in the region. This method was chosen because it allows researchers to gain a comprehensive and contextual understanding of the phenomenon being studied through a review of various literature sources.

The data sources in this study were obtained from various relevant secondary references, such as scientific journals, academic books, institutional reports, government policy documents,

and articles from credible media. Some of the main sources include publications from the Organisation for Economic Co-operation and Development (OECD), the World Economic Forum, the Ministry of Communication and Informatics of the Republic of Indonesia, and previous research results that discuss cross-sector collaboration in the context of the digital economy.

The data collection process was carried out by selecting literature published in the last eight years (2018–2025), to ensure the relevance and currency of the information used. The literature was selected based on specific inclusion and exclusion criteria: inclusion criteria included publications focusing on digital economy, collaborative governance, or regional economic development, as well as peer-reviewed journals, government reports, and institutional publications; exclusion criteria included publications before 2018, sources not relevant to the research focus, or non-verified/non-academic sources.

To enhance methodological rigor and transparency, the PRISMA framework was adapted for the literature selection process, including identification, screening, eligibility assessment, and inclusion stages. A total of 78 literature sources were finally included in the analysis.

Content analysis was conducted to systematically examine the selected literature. The process included three stages: first, coding relevant information on the roles, contributions, and interactions of each actor (government, private sector, community); second, thematic identification to detect patterns, challenges, strategies, and outcomes of collaboration; third, synthesis of the results into a conceptual framework and strategic recommendations for regional digital economy development.

The analysis steps are carried out in three stages. First, identify the role and contribution of each actor (government, private sector, and community) in the development of the digital ecosystem based on findings from various sources. Second, analyze the challenges and obstacles faced in the cross-sector collaboration process. Third, synthesize an effective collaborative strategy model based on best practices from case studies or existing experiences.

With this approach, the article does not aim to generalize the results, but rather to provide a conceptual overview that can be an academic and practical reference for various parties in building a more collaborative and sustainable digital economic ecosystem at the regional level.

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RESULT AND DISCUSSION

This literature review identifies the roles, challenges, and strategies in building a regional digital economy ecosystem through collaboration between government, the private sector, and communities. Key findings are summarized in Table 1, with a critical analysis following that highlights the implications of the data, including an in-depth explanation of the digital literacy score (3.17)

Aspect	Government	Private Sector	Community
Role	Provider of policies, infrastructure, digital literacy programs (100 Smart Cities).	Technology provider, MSME training, digital funding.	Key players in the digital economy (digital cooperatives, local MSMEs).
Challenge	Vision gap, uneven infrastructure.	Commercial orientation vs. empowerment.	Low digital literacy (score 3.17), limited resources.
Strategy	Triple helix model, locally based literacy program.	Shared value partnership, affordable innovation.	Continuous training, strengthening social networks.

Table 1. *Synthesis of Findings from Government, Private Sector, and Community Collaboration*

Analysis of Findings

In the analysis of these findings, there are several important points that are the focus, namely the government's dominance in implementing digital programs, low digital literacy among the community, infrastructure inequality, and strategic recommendations to overcome these challenges.

Government Dominance vs. Implementation Gap

The government plays a central role in providing infrastructure and regulation, as seen in the 100 Smart City program (Lom & Pribyl, 2021). However, this dominance does not automatically guarantee the effectiveness of program implementation. The vision gap between the government's regulatory orientation, private commercial interests, and the practical needs of the community is a major obstacle. For example, the 100 Smart City program often has little impact

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due to the lack of synergy with technical training from the private sector and community participation which is only a formality without real involvement (Capra, 2019).

Low Digital Literacy (Score 3.17): Impact and Solutions

A score of 3.17 out of 5 according to the 2020 Kominfo Survey shows that the digital literacy skills of the Indonesian people are still at the beginner-intermediate level (Ministry of Communication and Information (APJII Survey, 2022) In detail, digital skills in using tools scored 3.2 which makes it difficult for MSMEs to operate e-commerce platforms. Meanwhile, the digital security score, namely data protection, was only 2.9 which shows that people are vulnerable to phishing and online fraud. The implication of this condition is that private digital platforms such as Tokopedia and Gojek have not been optimally utilized. Therefore, digital literacy training programs need to be designed in stages, starting from basic training such as using WhatsApp business to advanced training such as data analysis for MSMEs.

Infrastructure Inequality and the Triple Helix Model

The ongoing infrastructure gap, especially outside Java (Ray & Ing, 2016), exacerbates the low digital literacy of people in these areas. To overcome this, a solution through the triple helix model is needed, namely by actively involving the community in bottom-up policy formulation (Aisyah et al., 2025). In addition, training programs must be tailored to the needs of disadvantaged areas, using local languages and supported by adequate infrastructure. These efforts are expected to foster inclusive digital empowerment, reduce regional disparities, and accelerate the adoption of technology in rural communities.

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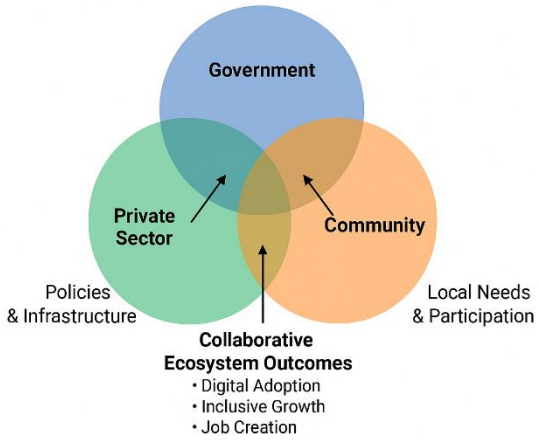

Figure 1. *Conceptual framework Of Triple Helix Collaboration*

The framework demonstrates how synergy between the three actors accelerates digital adoption, expands market access, and fosters sustainable regional development. The model emphasizes shared governance, role differentiation, and feedback mechanisms to ensure inclusivity and adaptability.

Strategic Recommendations

To overcome the various challenges above, several strategic recommendations are proposed. For the government, it is necessary to integrate digital literacy programs by providing incentives to the private sector that contribute to training, such as tax deductions (Galib et al., 2023). From the private sector side, it is recommended to simplify the platform interface and adopt a shared value approach, for example the Gojek Academy program that supports MSMEs (Kurniawati & Kustulasari, 2021). Meanwhile, for the community, it is recommended to form digital study groups facilitated by cooperatives or local communities to strengthen digital literacy sustainably (Sharma et al., 2016).

The findings from this literature study confirm that a collaborative approach to building a digital economic ecosystem has great potential, but also faces structural and cultural challenges. The role of the government is crucial as a policy initiator and incentive provider (Senyo et al., 2024). However, the success of implementation is highly dependent on its ability to be a facilitator that is open to private and community participation (Weiss et al., 2016). Initiatives such as UMKM

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Go Digital and the National Digital Literacy Movement are examples of progressive programs, but they need to be followed by strengthening local institutions so that the impact is more evenly distributed.

Meanwhile, the private sector shows great potential as a partner in providing technology and innovation (Carbonara & Pellegrino, 2020). Companies such as Tokopedia and Gojek have initiated MSME empowerment programs, but this partnership will be more optimal if it is directed at a shared value scheme , not just a CSR approach or commercial promotion.

Local communities, including MSMEs and creative community groups, are social forces that are often not fully empowered (Purnomo et al., 2025). Literature studies show that bottom-up initiatives such as local marketplaces and digital cooperatives can be successful if supported systematically. However, limited resources and digital competencies require ongoing assistance.

The digital literacy gap and infrastructure inequality are the biggest obstacles in implementing the digital economic ecosystem in the regions (Rydzewski, 2025). Without the provision of targeted training and the development of an even internet network, collaboration between parties will only take place at the discourse level.

Collaborative Strategy	Brief Explanation	Actors Involved	Supporting References
Regional Multi-Party Forum (Tripartite)	A regular coordination forum between government, private sector and local communities	All actors	(*OECD Investment Policy Reviews*, 2020), (Galib et al., 2023)
Local Needs Based Digital Training	Training is not only technical, but also business strategy and digital data security	Government, Private	(Martínez-Peláez et al., 2023) (Priharsari et al., 2023)
Digital Community Innovation Support	Funding and assistance for digital cooperatives or village marketplaces	Private, Government	(Senyo et al., 2024), (Carbonara & Pellegrino, 2020).
Even Infrastructure Development	Focus on expanding internet access and technology facilities in villages	Government	(APJII Survey, 2022), (*OECD Investment Policy Reviews*, 2020)

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Collaborative Strategy	Brief Explanation	Actors Involved	Supporting References
Private Shared Value Scheme	Private collaboration is not only CSR, but an impact-based inclusive business program	Private, Community	(Lom & Pribyl, 2021), (Capra, 2019).

***Table 2**. Collaborative Strategies in Ecosystem Strengthening Regional Digital Economy*

The strategy needed is not only to create technology-based programs, but also to build a collaborative governance model that can accommodate local social, economic, and cultural dynamics. The triple helix model that involves government, private sector, and community equally can be an adaptive and inclusive framework if applied with the principles of justice and transparency.

CONCLUSION

This literature study shows that the development of a regional digital economy ecosystem requires a collaborative approach involving three main actors: government, private sector, and community. All three have complementary roles in strengthening the structure, capacity, and sustainability of digital transformation at the local level. The government acts as a policy facilitator and provider of supporting infrastructure. The private sector contributes in the form of technology, innovation, and digital-based empowerment programs. Meanwhile, local communities are at the forefront of implementing a digital economy based on the real needs of the community. The implementation of this collaboration still faces challenges such as differences in vision between actors, low digital literacy, and infrastructure inequality. Therefore, a structured and adaptive collaborative strategy needs to be designed so that the digital economy ecosystem can grow inclusively, evenly, and sustainably. The triple helix model is a relevant framework to strengthen cross-sector synergy more effectively

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