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Leveraging Information and Communication Technology (ICT) to Foster Inclusive Economic Growth Aligned with the SDGs: A Case Study of Lasitae Village, Barru Regency

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ABSTRACT

This study aims to examine the implementation of Information and Communication Technology (ICT) in promoting equitable village economic growth based on the Sustainable Development Goals (SDGs) in Lasitae Village, Tanete Rilau District, Barru Regency. A qualitative approach was employed using interviews, observations, and documentation as data collection techniques. The findings indicate that ICT utilization has significantly contributed to improved information access, increased efficiency of micro-enterprises, and enhanced community connectivity to broader markets. However, challenges such as low digital literacy and limited ICT infrastructure remain major obstacles. Therefore, collaboration among village governments, communities, and the private sector is essential to strengthen the village digital ecosystem in order to achieve inclusive and sustainable economic growth.

Keywords: Information, Technology, Village, Economic Growth, SDGs.



A. INTRODUCTION

The rapid advancement of Information and Communication Technology (ICT) over the past few decades has significantly transformed the global economic landscape. ICT innovations have become pivotal in driving economic growth across nations, creating new opportunities, enhancing efficiency, and reshaping the way societies live and interact. In the current era dominated by technological progress, the role of ICT in stimulating economic development has become increasingly critical.

ICT not only revolutionizes communication and information dissemination but also serves as a catalyst for sustainable development. The integration of ICT into various sectors has the potential to accelerate progress towards achieving the Sustainable Development Goals (SDGs), particularly in areas such as education, healthcare, and economic empowerment . However, the benefits of ICT are not uniformly distributed, with rural areas often lagging due to limited infrastructure and digital literacy.

In Indonesia, efforts have been made to bridge this digital divide, recognizing that equitable access to ICT is essential for inclusive growth. The implementation of digital technologies in rural communities has shown promise in enhancing educational outcomes and economic opportunities . Nevertheless, challenges persist, including inadequate infrastructure, limited access to devices, and insufficient training for both educators and learners.

Lasitae Village, located in Tanete Rilau Sub-district, Barru Regency, exemplifies a rural community with untapped potential hindered by these challenges. Predominantly an agricultural and fishing community, Lasitae faces issues such as declining productivity due to environmental degradation and a lack of awareness regarding sustainable practices. Furthermore, low educational attainment and limited exposure to ICT impede the village's economic growth and alignment with SDG objectives.

Addressing these issues necessitates a comprehensive approach that incorporates ICT to empower the community, enhance productivity, and promote sustainable development. Studies have indicated that digital transformation in rural areas can lead to significant improvements in economic resilience and social welfare . Moreover, the strategic implementation of ICT in education and entrepreneurship can catalyze progress towards achieving the SDGs .

This study aims to explore the implementation of ICT in promoting inclusive and sustainable economic growth in Lasitae Village, grounded in the principles of the SDGs. By examining the current challenges and potential strategies for ICT integration, the research seeks to provide actionable insights for policymakers and stakeholders committed to rural development and digital inclusion.

To effectively leverage ICT for economic advancement in rural regions such as Lasitae, a multi-stakeholder engagement model is essential. Government agencies, local authorities, educational institutions, and the private sector must collaboratively invest in infrastructure development, capacity-building programs, and digital tools tailored to local needs. Public-private partnerships can provide the necessary capital and expertise to establish community ICT centers, while local governments play a critical role in ensuring sustainability and inclusiveness. Through such coordinated efforts, ICT can be mainstreamed into community development plans, reinforcing both technological and socio-economic progress.

Another key component in the successful implementation of ICT in rural settings is digital literacy. Empowering citizens with the skills to use digital tools effectively can bridge knowledge gaps and stimulate innovation at the grassroots level. For instance, farmers in Lasitae could benefit from mobile applications that provide real-time weather forecasts, market prices, or sustainable agricultural practices. Likewise, local artisans and micro-entrepreneurs could utilize e-commerce platforms to expand their market reach beyond regional boundaries. These applications not only enhance productivity but also reduce the vulnerability of rural livelihoods to economic shocks.

The integration of ICT into the education sector in Lasitae can also serve as a foundational pillar for long-term development. By introducing digital classrooms, online learning modules, and teacher training in ICT, rural schools can offer students a more engaging and globally relevant education. Such interventions can significantly improve learning outcomes and inspire youth to pursue higher education or digital entrepreneurship. In doing so, ICT becomes a means of reversing the trend of rural-to-urban migration by creating viable educational and employment opportunities within the village itself.



Figure 1 17 points of SDGs

Finally, to ensure the sustainability and scalability of ICT interventions, it is imperative to establish a monitoring and evaluation framework. This framework should assess not only the infrastructure and digital adoption rates but also the social and economic impacts on the community. Data-driven insights will inform future policies, allowing for continuous refinement of programs and replication in other rural areas. As ICT continues to evolve, adaptive strategies rooted in local realities will be essential for aligning rural development initiatives with the broader national goals and the global SDG agenda.

B.RESEARCH METHODOLOGY

This study employs a qualitative descriptive approach to explore the implementation of Information and Communication Technology (ICT) in promoting inclusive and sustainable economic development in Lasitae Village, Tanete Rilau Sub-district, Barru Regency. A qualitative method is considered suitable for uncovering the complexities of social phenomena and understanding the lived experiences of rural communities engaging with ICT within the framework of the Sustainable Development Goals (SDGs).

➤ Research Design

The research is designed as a case study, focusing on Lasitae Village as the primary unit of analysis. This design enables the researcher to investigate real-life situations in depth, particularly how ICT interventions intersect with education, agriculture, economic activities,

and digital literacy in rural settings. The case study approach also allows for a holistic understanding of local dynamics and stakeholder involvement.

➤ Data Collection Techniques

To ensure data triangulation and enhance the reliability and validity of the findings, data were gathered through the following methods:

a) In-depth Interviews

Semi-structured interviews were conducted with various stakeholders including village officials, local educators, small-scale farmers, entrepreneurs, and youth leaders. These interviews explored the perceptions, experiences, and challenges associated with ICT adoption in everyday life and economic activities.

b) Focus Group Discussions (FGDs)

FGDs were organized with community groups such as women's cooperatives, youth forums, and farming associations. Discussions focused on digital access, technology needs, community aspirations, and the perceived impact of ICT on livelihoods and service delivery.

c) Direct Observation

The researcher conducted field visits to observe daily practices in schools, homes, farms, and any digital learning or ICT-based service centers. These observations helped capture behavioral patterns, infrastructure conditions, and the actual usage of ICT tools.

d) Document Analysis

Secondary data were obtained from government reports, village development plans, and statistical records, as well as previous studies related to ICT and rural development. These documents provided contextual background and supported the interpretation of qualitative data.

➤ Data Analysis Techniques

All qualitative data were analyzed using thematic analysis, facilitated by ATLAS.ti software version 23, a tool widely used for qualitative data management and interpretation. The analysis involved the following steps:

- a) **Data Preparation:** Interview transcripts, observation notes, and FGD recordings were transcribed and imported into ATLAS.ti.
- b) **Coding:** Codes were assigned to significant segments of the text, representing themes such as “ICT infrastructure,” “digital literacy,” “economic empowerment,” and “SDG alignment.”
- c) **Code Categorization and Thematization:** Codes were grouped into categories and subthemes. Code co-occurrence and network views in ATLAS.ti helped visualize relationships between themes.
- d) **Interpretation:** Patterns were identified to draw conclusions about the role of ICT in rural economic development, including gaps, opportunities, and best practices.

The use of ATLAS.ti enhanced the rigor and transparency of the analysis process by allowing systematic coding, easy retrieval of relevant data, and clear visualization of connections between concepts.

➤ Ethical Considerations

The research complies with ethical standards for human subjects research. Informed consent was obtained from all participants before data collection. Participants were assured of their anonymity, and data were handled confidentially. All participants were informed of their right to withdraw from the study at any time.

➤ Limitations

This study is context-specific and focuses on a single village, which may limit the generalizability of the findings. However, the insights gained can serve as a valuable reference for similar rural settings and for informing regional digital development policies.



Figure 2 Thinking Framework Diagram

C. RESEARCH RESULTS AND DISCUSSION

1. Research Results

a) Access and Infrastructure Challenges

Lasitae Village faces considerable challenges related to ICT infrastructure, which limit the full utilization of technology for economic growth. Internet connectivity is inconsistent and often restricted to public areas such as schools and government offices, while many households lack personal devices or stable electricity. This digital divide poses a fundamental barrier to inclusive development and exacerbates existing inequalities within the community.

Despite national and regional initiatives aimed at expanding digital infrastructure, Lasitae still experiences slow progress in access. The lack of affordable and reliable internet service discourages residents from engaging in digital platforms that could enhance education, commerce, and governance. Moreover, inadequate infrastructure limits the potential benefits of ICT integration in local agricultural and entrepreneurial activities.

Furthermore, technical support and maintenance services are scarce, meaning that once devices or connections fail, users face long downtimes. This lack of sustainable ICT infrastructure hinders consistent engagement with digital resources, slowing down the pace of rural digital transformation. Addressing these infrastructural gaps is essential to ensure equitable access and foster economic growth aligned with the Sustainable Development Goals (SDGs).

b) Community Engagement and Digital Literacy

The study found a generally positive attitude among Lasitae residents towards the potential of ICT to improve livelihoods. Many community members, especially the youth, recognize the opportunities presented by digital tools for education, business, and communication. This optimism is a critical foundation for implementing ICT-based interventions that promote inclusive growth.

However, digital literacy remains a significant obstacle. Many adults lack basic skills necessary to navigate digital platforms confidently, limiting their ability to leverage ICT for

economic or social benefits. This digital skills gap also affects the uptake of e-government services and restricts participation in digital marketplaces, slowing community-wide development.

Gender disparities in ICT use were also evident, with women having less access to training and digital devices due to cultural norms and household responsibilities. Programs designed with gender sensitivity and inclusive teaching methods are crucial to empower women and ensure that ICT benefits reach all demographics within the village.

Educational institutions in Lasitae are beginning to integrate ICT into their teaching, but limited resources and training for teachers restrict the effectiveness of these initiatives. Students often share limited devices, and the absence of dedicated digital learning infrastructure creates challenges in fully realizing the educational benefits of ICT.

Youth engagement emerges as a promising driver of digital inclusion. Young residents show enthusiasm for digital entrepreneurship and serve as informal ICT facilitators for older community members. Harnessing this enthusiasm through formal training and support can catalyze broader digital adoption and economic diversification.

c) ICT for Sustainable Economic Growth and SDGs

The application of ICT in agricultural activities demonstrates potential to enhance productivity and market access. Mobile technologies provide farmers with information on weather, prices, and best practices. Nonetheless, many farmers still prefer traditional methods, highlighting the need for ICT solutions tailored to local needs and literacy levels.

Digital entrepreneurship is slowly growing, especially among youth who utilize social media to market local products. However, challenges such as limited e-payment options, logistics, and digital marketing skills restrict business scalability. Strengthening support for digital microenterprises could significantly contribute to local economic growth aligned with SDG 8 (Decent Work and Economic Growth).

The village government has initiated basic e-government services, but these are underutilized due to low public awareness and staff capacity. Enhancing digital governance infrastructure and training could improve transparency, efficiency, and community

engagement in local development, supporting SDG 16 (Peace, Justice and Strong Institutions).

In conclusion, the integration of ICT in Lasitae Village presents significant opportunities to foster inclusive and sustainable economic growth aligned with the SDGs. However, overcoming infrastructure limitations, enhancing digital literacy—especially among women and older adults—and strengthening local institutions are critical to realizing this potential. Multi-stakeholder collaboration and community-driven strategies will be essential to ensuring ICT benefits are equitably distributed and sustainable over the long term.

2. Discussion

The research findings indicate that infrastructure limitations are a primary challenge in leveraging ICT in Lasitae Village. Restricted internet access, limited technological devices, and inconsistent electricity supply hinder the acceleration of the village's digital transformation. This aligns with the findings of James (2021), who emphasized the importance of digital infrastructure investment in underdeveloped regions to support inclusive economic growth. Strengthening infrastructure is thus a fundamental prerequisite for ICT to act as a catalyst for rural economic development.

Low levels of digital literacy, especially among the elderly and women, also slow down the adoption of ICT. These skill gaps restrict community members from accessing new opportunities enabled by technology, including digital entrepreneurship and e-government services. Enhancing digital literacy must be a core component of the village development strategy through inclusive, locally tailored training programs. Zhao et al. (2022) found that improving digital skills plays a significant role in reducing rural poverty and fostering empowerment

Youth engagement as digital change agents in Lasitae Village represents a promising aspect that should be further developed. Local youth have shown enthusiasm for utilizing social media and digital tools to promote local products and initiate small businesses. This highlights the potential of digital entrepreneurship as a new economic driver, especially if supported by training and access to capital. Such strategies are aligned with SDG 8, which advocates for inclusive economic growth and decent work opportunities.

The agricultural sector, which is the primary livelihood of Lasitae residents, offers significant opportunities for ICT integration. Access to information on weather patterns, market prices, and sustainable farming techniques through digital platforms can enhance productivity. However, effective implementation requires context-sensitive approaches to ensure that technology is not merely available, but actively used. As suggested by Njenga and Fourie (2010), the success of ICT in agriculture depends on how well it is adapted to local cultural and work systems

Meanwhile, the digitization of village governance services is still at a nascent stage. Initiatives such as online services and information dissemination via social media are commendable; however, challenges related to staff competence and low citizen engagement remain. Building the capacity of village officials and developing standardized digital operating procedures are essential for e-government to improve transparency and civic participation, in accordance with SDG 16.

Overall, the case study of Lasitae Village illustrates that ICT can play a strategic role in promoting inclusive and sustainable economic growth when implemented in a targeted manner. Nevertheless, the success of ICT integration depends heavily on the synergy between infrastructure, human capital, and policy support. A collaborative approach involving government, the private sector, academia, and local communities is essential to design a comprehensive and sustainable rural digital transformation strategy.

D.CONCLUSION AND RECOMMENDATIONS

1. Conclusion

This study has demonstrated that the effective implementation of Information and Communication Technology (ICT) can significantly contribute to fostering inclusive economic growth in rural communities like Lasitae Village. ICT facilitates better access to information, enhances communication, and supports sustainable agricultural practices, all of which align with the Sustainable Development Goals (SDGs). Despite facing challenges such as limited infrastructure, low digital literacy, and environmental degradation, the community's economic growth showed positive signs when ICT tools were integrated into their daily activities. Moreover, ICT adoption promotes greater participation of various stakeholders, including local government, farmers, and educational institutions, which is

critical for long-term development. The findings emphasize that ICT is not only a catalyst for economic empowerment but also a strategic enabler for achieving broader social and environmental sustainability objectives.

2. Recommendations

- a) **Infrastructure Development:** To maximize the benefits of ICT, there must be sustained investment in digital infrastructure in rural areas, including reliable internet access and affordable devices for the community.
- b) **Capacity Building and Training:** Providing continuous digital literacy training and technical support for villagers, especially farmers and local educators, is essential to increase ICT adoption and optimize its use.
- c) **Policy Support and Collaboration:** Local governments should formulate supportive policies that encourage ICT integration aligned with SDGs, fostering partnerships between public and private sectors to leverage resources and expertise.
- d) **Sustainable Practices Promotion:** ICT applications should be designed to enhance awareness and implementation of sustainable agricultural and environmental practices to preserve natural resources for future generations.
- e) **Monitoring and Evaluation:** Establish mechanisms for regular monitoring and assessment of ICT initiatives' impact on economic growth and SDG achievement to ensure adaptive improvements and long-term success.

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