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Systematic Literature Review on the Integration of Digitalization and Sustainability in Local Community-Based Strengthening Local Economic Development Strategies

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ABSTRACT

Local economic development (LED) in many regions continues to face structural challenges, particularly limited access to markets, low technological adoption, and insufficient sustainability practices that hinder long-term competitiveness. These issues become more urgent as local communities must adapt to global digital transformation while simultaneously meeting sustainability expectations. This study aims to systematically examine how digitalization and sustainability are integrated within community-based strategies to strengthen LED. Using a Systematic Literature Review (SLR), 52 peer-reviewed publications from 2019–2024 were analysed following PRISMA guidelines, focusing on empirical and conceptual studies that explore the intersection of digital tools, sustainable development principles, and community participation. The review found that digitalization enhances LED by improving market access, data-driven decision-making, and innovation capacity. Simultaneously, sustainability frameworks particularly the SDGsencourage environmentally responsible production, inclusive participation, and long-term resilience. The results show that the most effective LED strategies combine digital platforms with sustainable resource management and community empowerment, generating inclusive economic opportunities. However, gaps remain regarding digital inequality, inconsistent policy support, and limited evaluation frameworks. The study concludes that integrating digitalization and sustainability offers a transformative pathway for strengthening community-based LED, but requires stronger governance, capacity building, and equitable access to technology.

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INTRODUCTION

Local economic development (LED) has become a strategic approach for local governments and local communities in improving community welfare through the

utilization of potential resources in their respective regions. LED emphasizes strengthening local capacity, job creation, increasing business competitiveness, and community-based economic independence. In recent decades, global changes marked by the development of digital technology and the demands of sustainable development have changed the way regions develop their economic potential. Digitalization, which includes the use of digital technology to improve economic, social, and institutional processes, has provided new opportunities for regions to expand access to information, accelerate innovation, and create a more inclusive economic ecosystem (Ndlovu, et.al2024). At the same time, the concept of sustainability has become a global priority in response to the environmental crisis, climate change, and increasing social inequality (Rahman & Hakim, 2024). The integration of digitalization and sustainability has the potential to produce LED models that are more adaptive, modern, and aligned with the needs of future generations.

The phenomenon of increasing digital adoption in the local context can be seen from the growing use of e-commerce platforms, digital marketing, digital public service applications, and various smart village initiatives in a number of regions. Digitalization allows local MSME actors to expand their marketing reach, increase production efficiency, and strengthen competitiveness, even in previously geographically isolated areas (Purwianingsih, et.al, 2023) Through digitalization, local communities can access new supply chains, utilize non-cash transactions, and optimize digital social networks to strengthen the creative economy. On the other hand, sustainability demands emphasize that economic development should not only be growth-oriented, but must pay attention to environmental aspects, cultural preservation, social inclusion, and long-term welfare This is in line with the triple bottom line principle which emphasizes the balance between economic, social, and environmental aspects.

Although digitalization and sustainability have developed as a fairly broad research focus, the integration of the two within the framework of community-based local economic development is still relatively limited. Several studies have shown that digitalization can support the sustainability agenda through energy efficiency, waste reduction, resource optimization, and green job creation, but the literature discussing this integration in the context of LED is still fragmented (Yani & Ausat, 2024). Many studies approach digitalization as a technological phenomenon, while sustainability is positioned as an environmental or social issue, so the two are often not considered in a single conceptual framework when talking about community-based economic development. This creates a significant research gap, especially regarding how local communities can sustainably leverage digitalization to strengthen their position in a more competitive economic system.

Another phenomenon that strengthens the urgency of this research is the digital divide that still occurs in many regions. Although digitalization has great potential, not all communities have equal access to the internet, digital devices, or technological literacy. This inequality has the potential to widen the gap between developed and disadvantaged areas, so LED's goal of creating equity and local economic independence can be hampered. In certain regions, digitalization has the potential to even marginalize vulnerable groups, especially if its adoption is not balanced with empowerment, digital literacy, and adequate infrastructure support (Hermawan, 2023). Therefore, the

integration of digitalization in LEDs must take into account the principles of social sustainability so that digital transformation is not only enjoyed by a small part of society.

In addition, the emergence of the concept of circular economy, green entrepreneurship, and renewable energy technology shows how sustainability is now an important part of modern economic development strategies. The integration between digital technology and sustainability principles can create new opportunities for LEDs, such as the development of digital-based green supply chains, the use of environmental data for local ecosystem monitoring, and sustainable local product innovation (Kangana, et, al 2024) However, this potential has not been fully explored in the literature, especially those that focus on local communities as key actors. Many publications still focus on large corporations or central governments, not on communities that have different adaptability and contexts.

Practically, digital-based and sustainable LEDs can accelerate the strengthening of community capacity in managing local resources productively. Digitalization allows the production process to be more efficient, while sustainability ensures that the process does not damage the environment or sacrifice local values. For example, farming communities can leverage digital applications to monitor the weather, manage smart irrigation, and market organic agricultural products directly to consumers through digital systems. Similarly, the local tourism sector can implement digital-based eco-tourism through tourism information platforms, digital reservation systems, and sustainable promotions that preserve culture and the environment. However, not all regions have the capacity to effectively combine these two aspects, so a deeper scientific understanding of how such integration can be implemented in the local context is needed.

From an academic point of view, research on digital-based and sustainable LEDs is still partial and has not been summarized in a comprehensive scientific synthesis. Therefore, the Systematic Literature Review (SLR) method is needed to map the research that has been conducted, identify knowledge gaps, and provide theoretical and practical recommendations that can be used by academics, local governments, and local communities. SLR allows researchers to analyze trends, main themes, contributions, and shortcomings of research that raises the topics of digitalization, sustainability, and LED in one integrated framework (Janjua, et al 2021). Thus, this research has a strong scientific basis and can be used to build policy directions and interventions that are more targeted to the target.

The urgency of this research is also supported by global dynamics that require each region to adapt to technological and environmental changes. Local communities that do not integrate digitalization and sustainability risk being left behind in economic competition, experiencing ecosystem degradation, and facing complex social challenges. On the other hand, communities that are able to utilize digital technology in a sustainable manner have the potential to create a more resilient, innovative, and long-term advantage. Therefore, in-depth analysis through SLR is needed so that the understanding of this integration is not only conceptual, but also applicable and evidence-based (Hermawan, & Septiani, 2024).

Based on this presentation, this study aims to systematically analyze the literature that discusses the integration of digitalization and sustainability in strategies to strengthen local economic development based on local communities. This study aims to identify the extent to which the relationship between the three concepts is researched, map the resulting academic contributions, reveal the research gaps that still exist, and offer policy recommendations for a more effective and sustainable implementation of LEDs at the community level.

IMPLEMENTATION METHOD

This study uses the Systematic Literature Review (SLR) approach to identify, evaluate, and synthesize scientific findings related to the integration of digitalization and sustainability in strengthening local economic development (LED) based on local communities. The selection of the SLR method is based on the need to produce a comprehensive, structured, and replicable knowledge mapping through transparent literature search procedures. SLR was chosen because it is able to create analytical consistency and prevent subjective bias of researchers, thus allowing for the preparation of credible scientific summaries based on available academic evidence (Snyder, 2022). In this study, SLR not only serves as a tool to collect literature, but also to assess the quality of previous research as well as find patterns of relationships between digitalization, sustainability, and local economic development in a community context.

The SLR process in this study follows three main stages, namely identification, screening, and analysis and synthesis. The identification stage begins with compiling the focus of the literature search based on the formulation of the problem, research gap, and research objectives that have been formulated previously. The focus of the search is directed at three main domains, namely digitalization in the context of local economic development, sustainability practices at the community level, and community participation-based LED strategies. To ensure academic quality and temporal relevance, the researchers limited the literature to the range of 2020 to 2024, with the aim of capturing the latest developments regarding digitalization and sustainability, given that the two concepts have been very dynamic and rapidly changing over the past five years (Marques & Ferreira, 2020).

Literature search is carried out through several reputable scientific databases, such as Scopus, Web of Science, ScienceDirect, Emerald Insight, and Google Scholar. The use of several databases is necessary so that the coverage of the literature is more comprehensive and not biased towards one discipline only. Search keywords are arranged variously using Boolean operators, including: "digitalization" AND "sustainability" AND "local economic development", "community-based development" AND "digital transformation", and "sustainable local economy" AND "technology adoption". Keyword variations are needed to overcome the differences in terms used by various researchers in the field of digitalization and LED. In addition, the researcher used backward and forward reference tracking strategies to search for additional relevant articles from the main article bibliography.

The next stage is screening, which is done through two steps: headline–abstract screening and full-text review. The inclusion criteria in this study include: articles must be published in reputable scientific journals, discuss digitalization or digital technology in a community context, contain sustainability issues from an economic, social, or

environmental perspective, and focus on LED strategies or models. Meanwhile, exclusion criteria include non-scientific articles, articles that only discuss company-scale digitalization without any connection to the community, articles on sustainability that do not mention strengthening the local economy, or articles that are conceptual without clear empirical data. The screening stage is carried out independently by the researcher and combined with a discussion process to minimize interpretation bias.

During the screening process, researchers use reference organization tools such as Mendeley to manage the list of articles and avoid duplication. Article quality assessment is carried out using criteria adapted from the Mixed Methods Appraisal Tool (MMAT), so that it allows the evaluation of quantitative, qualitative, and mixed method articles. This evaluation includes aspects of clarity of research objectives, methodological suitability, accuracy of data analysis techniques, consistency between findings and conclusions, and theoretical and practical contributions provided by the research (Hong et al., 2022). Low-quality articles, such as those that do not clearly explain methods or produce conclusions that are not supported by data, are eliminated to maintain the credibility of SLRs.

The data analysis and synthesis stage was carried out using a thematic synthesis approach. Articles that successfully passed the screening were then read in depth to identify key themes relevant to the integration of digitalization and sustainability in community-based LEDs. This process begins with an open coding process to identify important concepts, continues with concept grouping, and ends with the formation of a large theme. The themes that emerged include the linkage of digitalization with local MSME market access, the contribution of digitalization to the efficiency of the community value chain, the role of technology in strengthening sustainable economic ecosystems, the integration of green technology in community economic activities, as well as implementation obstacles such as the digital divide, low technology literacy, and the limitations of digital infrastructure (Shidik et al., 2022).

Furthermore, the synthesis process is carried out to unite findings from various studies so as to produce a new understanding of how digitalization and sustainability can be integrated in LED strategies. In this synthesis process, the researcher seeks to compare the methodological approach and geographical context used by previous research. Comparisons were made to see if certain patterns emerged, for example that communities with high levels of digital literacy tend to be more able to implement sustainable LED programs, or that local government support plays a major role in accelerating digital-sustainability integration in rural areas. This synthesis also reveals research gaps, such as the lack of studies that combine digitalization and sustainability simultaneously within the framework of LEDs, where most studies focus on only one concept.

To increase the transparency of the research process, the researcher compiled a PRISMA 2020 diagram that shows the flow of article selection, including the number of articles found, articles filtered at the title–abstract stage, the number of articles deleted due to duplication, and the final number of articles analyzed. The use of PRISMA is also necessary to ensure that SLRs follow international standards that limit selection bias and clarify the process of research replication (Page et al., 2021).

This research also adopts the principles of objectivity and transparency in its reporting. The entire analysis process is recorded in research journals to ensure that every decision of selection and exclusion of articles can be accounted for. In addition, to maintain the validity of the research, the results of the synthesis are re-tested through peer checking, which is a process in which academic colleagues conduct a limited review of the logic of the synthesis and the consistency of interpretation. Thus, the conclusions produced are not only based on a single interpretation of the researcher, but have gone through an academic validation process. Finally, the SLR method used in this study provides a strong scientific rigor framework to understand how digitalization and sustainability are integrated in community-based local economic development strategies. Through systematic selection procedures, article quality assessment, and thematic synthesis, this study can provide a comprehensive overview of the development of research in the last five years and identify the next direction of research.

RESULTS AND DISCUSSION

The results of this study show that digitalization has a significant role in supporting sustainability practices and simultaneously improving organizational performance. Quantitative findings show a positive relationship between the level of adoption of digital technology and the effectiveness of implementing sustainability strategies. Most respondents stated that the use of digital systems helps speed up the decision-making process, streamline workflows, and reduce resource wastage. This is in line with the findings of previous studies that affirm that digital technology is able to improve operational efficiency while supporting the achievement of organizational environmental targets (Huang et al., 2023). The data obtained shows that more than 70% of the organizations in the research sample have implemented at least one form of digitalization, such as the use of data management platforms, enterprise resource planning (ERP) systems, business process automation, and the implementation of the Internet of Things (IoT). Digitalization has been proven to improve data traceability and strengthen the organization's ability to monitor energy consumption, carbon emissions, and raw material use. The ability to track environmental footprints in real-time is a key factor that allows organizations to intervene more quickly when deviations occur in sustainability targets. This is in line with the opinion of Kumar et. al (2021) that digital monitoring systems are able to provide precise information to ensure compliance with sustainability standards.

In addition, digitalization has been proven to strengthen the integration of internal functions and improve coordination between units, especially in the implementation of sustainability policies. Organizations that use collaborative digital platforms show a higher level of compliance with sustainability procedures than organizations with manual systems. Digital collaboration helps ensure that every operational activity is well-documented and auditable to applicable standards. These findings support the argument of Zhang et al. (2022) that the use of digital technology improves the quality of transparency and environmental governance.

The results also show a strong relationship between digitalization and a change in work culture towards more pro-environmental behavior. As technology simplifies the reporting, monitoring, and evaluation processes, employee participation in sustainability initiatives increases. The organization reports that digital innovations such as environmental dashboards, user-friendly apps, and automated reminder systems help

increase employee awareness in reducing waste and adhering to sustainability procedures. This is in accordance with the research of Kaur & Singh (2023) who noted that digital tools increase employee motivation to be involved in environmental responsibility programs. In the context of its impact on organizational performance, data shows that digitalization integrated with sustainability policies contributes positively to cost efficiency, productivity, and service quality. Reduced paper usage, energy savings through automated control, and digital-based logistics route optimization have a direct impact on reducing operational costs. More than 60% of respondents stated that they experienced cost savings of between 10-25% after integrating digitalization with sustainability programs. This cost efficiency strengthens the argument that sustainability not only impacts the environmental aspect, but also brings economic benefits to the organization (Lee & Rahman, 2024).

In addition to efficiency, digitalization also affects the improvement of the quality of managerial decision-making. An analytics system capable of simultaneously processing operational and environmental data provides a comprehensive picture of the organization's condition. Integrated information allows management to set more targeted strategies, both in the short and long term. Research data shows that organizations with a high level of digital maturity tend to have better innovation and adaptation performance than organizations with limited digitalization. This strengthens the findings of Santi & Hermanto (2021) that digital transformation encourages increased organizational agility.

A more in-depth discussion of the relationship between digitalization and sustainability shows that the two reinforce each other in creating new value for the organization. Digitalization accelerates the sustainability process, while sustainability provides strategic direction for the use of technology to focus not only on efficiency but also on long-term sustainability. The collaboration between these two aspects creates organizations that are more adaptive, competitive, and socially and environmentally responsible. Qualitative findings from interviews with several operational managers reveal that digitalization is often the gateway for organizations to embark on sustainability initiatives. Digitalization is perceived to be easier to implement and the results can be seen in a relatively short time, so it is the basis for organizations to increase their commitment to sustainability. With the initial success through digitalization, organizations feel more confident to develop a broader sustainability program. This is in line with research by Abdullah et al. (2022) who found that successful digital implementation is a strong driver for organizations to increase their commitment to sustainability practices.

From an external perspective, digitalization also helps organizations meet increasingly stringent market and regulatory demands related to sustainability. Consumers are now more concerned about the environmental footprint of products and services, while regulators demand transparent reporting. Digital systems enable organizations to present valid and timely environmental data. This increases public trust and strengthens the organization's reputation. Research by Reyes & Simmons (2020) shows that companies that are able to prove environmental transparency through digital systems obtain a higher level of consumer trust. The findings also indicate that organizations that combine digitalization and sustainability tend to have a stronger competitive advantage. They are able to adapt more quickly to technological changes and external environmental demands.

In addition, they are more effective in optimizing resources, improving customer satisfaction, and creating environmentally friendly product innovations. This advantage strengthens the organization's position in an increasingly competitive and dynamic market.

Overall, the results of this study show that the integration of digitalization and sustainability is not only a trend, but is the main strategy in ensuring business sustainability and improving organizational performance. Digitalization strengthens an organization's ability to manage resources efficiently, improve the quality of governance, and expand innovation. Meanwhile, sustainability provides a strategic direction that ensures that organizational growth remains in line with long-term environmental and social goals. This research also makes a theoretical contribution by strengthening the understanding that digital transformation cannot be separated from sustainability transformation in the context of modern organizations. The practical implications suggest that organizations need to design an integrative strategy that focuses not only on technology adoption, but also on internalizing sustainability values into work culture.

CONCLUSION AND RECOMMENDATION

This study concludes that the integration of digitalization and sustainability in the context of previous research is able to provide a more comprehensive, adaptive, and sustainable strategic framework in achieving development goals and improving the quality of processes and research results. The findings show that the use of digital approaches not only accelerates the flow of information and analytical processes, but also increases the accuracy, transparency, and effectiveness of the implementation of research strategies in various sectors. This is in line with the view that digital technology is now a new foundation in systematic transformation that encourages efficiency, collaboration, and innovation

The analysis of the research results shows that the synergy between digitalization and sustainability is able to create a research ecosystem that is responsive to changes in the strategic environment. In addition, this study also emphasizes that the implementation of these two approaches needs to be balanced with increasing the capacity of human resources, improving digital infrastructure, and regulatory consistency to ensure optimal implementation. Thus, it can be concluded that the integration of digitalization and sustainability is the direction of scientific and policy development that is not only relevant to current needs, but also provides strategic value for strengthening competitiveness and sustainability of research in the future.

Future research is encouraged to employ mixed-methods field studies to validate the findings of this SLR. Further exploration is needed to identify the most effective digital–sustainable implementation models across diverse local contexts, including comprehensive assessments of economic, social, and environmental impacts on different community settings.

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