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Digital transformation in rural settings: Unlocking opportunities for sustainable economic growth and community empowerment

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Abstract
Purpose: This study explores the potential of digital transformation in rural settings and its role in unlocking opportunities for sustainable economic growth and community empowerment.
Method: This study employed a mixed-methods approach that included both qualitative and quantitative research methods. In-depth interviews were conducted with key stakeholders from rural communities, government agencies, and technology experts to gain insights into the current state of digital transformation in rural settings. A survey was also administered to assess their digital literacy levels and attitudes towards digital technologies.
Results: The study revealed that the adoption of digital technologies can enhance access to information, improve connectivity, and create new economic opportunities for rural communities. It also demonstrates that digital transformation initiatives can empower community members by providing them with the skills and resources necessary to participate in the digital economy. Furthermore, this study identifies several key success factors for implementing digital transformation in rural areas, including infrastructure development, capacity building, and collaboration between stakeholders.
Limitations: This study acknowledges certain limitations, such as the focus on a specific geographic area and potential for response bias in the survey. Further research is needed to explore the generalizability of the findings and to examine the long-term impacts of digital transformation in rural settings.
Contributions: This study contributes to understanding the potential benefits of digital transformation in rural settings for sustainable economic growth and community empowerment. These findings provide insights for policymakers, community leaders, and technology providers in designing and implementing effective strategies for digital inclusion and rural development.
Keywords: *Digital Transformation, Rural Settings, Sustainable Economic Growth, Community Empowerment, Digital Inclusion*
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1. Introduction

Rural areas play a vital role in the economic and social fabric of many countries by providing essential resources and contributing to national development (Gebre & Gebremedhin, 2019). However, rural communities often face unique challenges, including limited access to information, infrastructure deficiencies, and restricted economic opportunities (Bowen & Morris, 2019; Park, Freeman, &

Middleton, 2019). In recent years, digital transformation has emerged as a potential solution to address these challenges and unlock opportunities for sustainable economic growth and community empowerment in rural settings (Rowan & Casey, 2021).

Digital transformation refers to the integration of digital technologies into various aspects of society, including businesses (Kraus, Jones, et al., 2021), government services (Ulas, 2019), and community development (Rogelj, Salaj, & Bogataj, 2021). It encompasses the adoption of technologies such as the Internet, mobile devices, cloud computing, and data analytics to drive innovation (Odriozola-Fernández et al. 2019), improve efficiency, and enhance connectivity. Although digital transformation has gained significant traction in urban areas, its potential in rural settings remains relatively untapped (Bhattarai, 2021).

The research gap identified in this study pertains to the need to further explore the relationship between digital transformation in rural settings, sustainable economic growth, and community empowerment. While existing literature acknowledges the potential benefits of digital transformation in rural areas, comprehensive studies that specifically examine the interplay between digital transformation, sustainable economic growth, and community empowerment in rural contexts are lacking.

Some specific aspects of the research gap include a Limited Focus on Rural Settings: Many studies on digital transformation and economic growth have predominantly focused on urban areas, neglecting the unique challenges and opportunities faced by rural communities (Hrustek, 2020). This study seeks to bridge this gap by specifically examining digital transformation initiatives in rural settings and their impact on sustainable economic growth and community empowerment. Inadequate Exploration of Community Empowerment: While some studies have explored the impact of digital technologies on economic growth, there is a lack of comprehensive research that specifically investigates the relationship between digital transformation and community empowerment (Kraus, Schiavone, Pluzhnikova, & Invernizzi, 2021), delays in village annual development planning (Maikameng et al., 2020). This study aims to fill this gap by examining how digital transformation initiatives can empower rural communities and contribute to their overall development. Mediating Role of Digital Literacy

A literature review suggests that digital literacy levels play a mediating role between digital transformation and desired outcomes such as economic growth and community empowerment (Deja, Rak, & Bell, 2021). However, limited research has specifically examined the mediating effect of digital literacy in rural settings. This study seeks to address this gap by investigating the role of digital literacy as a mediator among digital transformation, sustainable economic growth, and community empowerment in rural areas. Lack of Comprehensive Studies: While some studies have explored certain aspects of digital transformation in rural settings or its impact on economic growth or community empowerment, there is a need for more comprehensive studies that integrate these dimensions (Dutta, Kumar, Sindhwani, & Singh, 2020). This study aims to provide a holistic examination of the relationship between digital transformation, sustainable economic growth, and community empowerment in rural contexts.

The motivation behind this study stems from the recognition of the transformative power of digital technologies and the need to explore their applications in rural contexts. By understanding the potential benefits and challenges associated with digital transformation in rural areas, policymakers, community leaders, and technology providers can develop targeted strategies to bridge the digital divide and create inclusive, sustainable rural economies.

This study investigates the role of digital transformation in unlocking opportunities for sustainable economic growth and community empowerment in rural settings. By employing a mixed-methods approach, including qualitative and quantitative research methods, this study seeks to gather insights from key stakeholders, examine the digital literacy levels and attitudes of rural residents, and analyze relevant literature and case studies. The findings of this study contribute to the understanding of the

potential benefits of digital transformation in rural areas and provide practical recommendations for effective implementation strategies.
In the following sections, the study delves into the current state of digital transformation in rural settings, explores its potential for economic growth and community empowerment, identifies success factors and challenges, and offers recommendations for policymakers and community leaders to leverage digital technologies for rural development. By doing so, this study aims to contribute to the advancement of knowledge in the field of digital transformation in rural settings and to foster sustainable and inclusive growth in rural communities.

2. Literature Review

2.1 Literatur Review

Digital Divide Theory (van Dijk, 2013): The digital divide theory examines the disparities in access to and use of digital technologies between different social groups or geographical areas (Pick & Sarkar, 2016; Reddick, Enriquez, Harris, & Sharma, 2020). It helps understand the existing gaps in digital infrastructure, connectivity, and skills in rural settings, which may affect the implementation and impact of digital transformation initiatives.

Innovation Diffusion Theory (Wani & Ali, 2015): Innovation diffusion theory explores the factors that influence the adoption and spread of new technologies within a society (Gu, Khan, Khan, & Khan, 2019). It can provide insights into the factors that facilitate or hinder the adoption of digital transformation in rural areas, such as the roles of opinion leaders, social networks, and perceived benefits.

Socio-Technical Systems Theory (Appelbaum, 1997): Socio-technical systems theory emphasizes the interplay between social and technological elements within a system (Castro, Rodrigues, & Teixeira, 2020). It can be applied to understand the complex interactions between digital technologies, social structures, and cultural contexts in rural settings and how these interactions shape sustainable economic growth and community empowerment.

Human Capital Theory (Marginson, 2019): Human capital theory focuses on the role of education, skills, and knowledge in driving economic growth and development (Hanushek & Woessmann, 2020). It can be applied to examine the relationship between digital literacy levels (mediating variable), sustainable economic growth, and community empowerment, highlighting the importance of digital skills and education in leveraging digital transformation for positive outcomes.

Community Development Theories (Ledwith, 2020; Sanders, 1958): Various community development theories, such as asset-based community development and social capital theory, can provide insights into community empowerment in the context of digital transformation (Maclure, 2023). These theories emphasize the importance of community engagement, collaboration, and the mobilization of resources to empower communities and promote sustainable development.

Economic Growth Theories (Lewis, 2013): Economic growth theories, such as the endogenous growth theory or the innovation-based perspective, can be relevant to understanding the mechanisms through which digital transformation contributes to sustainable economic growth in rural areas (Mabrouki, 2022). These theories highlight the roles of innovation, technological progress, and entrepreneurship in driving economic development.

2.2. Hypothesis Development

2.2.1 Digital Transformation In Rural Settings And Sustainable Economic Growth

The relationship between digital transformation in rural settings and sustainable economic growth provides valuable insight into the potential benefits and challenges of leveraging digital technologies for rural development. The key findings from the literature review are as follows.

Enhanced Connectivity and Access to Information: Digital transformation in rural areas improves connectivity by providing access to reliable Internet services (ElMassah & Mohieldin, 2020). This connectivity enables rural communities to access previously inaccessible information, resources, and markets. Studies have shown that improved connectivity leads to increased economic activities, knowledge sharing, and better market integration, ultimately contributing to sustainable economic growth (Lam, Nguyen, Le, & Tran, 2021).

Digital Entrepreneurship and Job Creation: Digital transformation enables the emergence of digital entrepreneurship in rural areas (Barmuta et al., 2020). It allows individuals to start online businesses or e-businesses (Naab & Bans-Akutey, 2021), access online marketplaces, and provide digital services. Digital platforms and e-commerce can facilitate the growth of rural enterprises, leading to job creation and income generation (Costa & Castro, 2021). By leveraging digital technologies, rural areas can harness local resources and develop niche markets, thereby contributing to sustainable economic growth.

Agricultural Transformation and Value Chain Integration: Digital technologies have the potential to transform agricultural practices in rural settings (Linaza et al., 2021). Through the use of precision agriculture, sensor-based technologies, and data analytics, farmers can optimize production, reduce costs, and enhance the quality of agricultural products. Furthermore, digital platforms can facilitate the integration of rural farmers into broader value chains, connecting them directly with consumers and reducing intermediaries (Rosca, Tate, Bals, Huang, & Ciulli, 2022). This integration improves market access, increases productivity and contributes to sustainable economic growth.

Skills Development and Human Capital: Digital transformation requires a skilled workforce capable of utilizing digital technologies effectively (Agrawal, Narain, & Ullah, 2019). Studies have highlighted the importance of digital literacy and skill development in rural areas to unlock the full potential of digital transformation (ElMassah & Mohieldin, 2020). Investments in digital education and training programs empower rural residents to participate in the digital economy and foster entrepreneurship, innovation, and sustainable economic growth.

Infrastructure Challenges and Policy Support: While digital transformation offers significant opportunities, rural areas often face infrastructure challenges, including limited Internet connectivity and inadequate technology infrastructure. Studies emphasize the need for policy support and investments in rural infrastructure development to overcome these barriers (Razmjoo, Østergaard, Denai, Nezhad, & Mirjalili, 2021). Governments and policymakers play a crucial role in providing incentives, regulatory frameworks, and funding to promote digital infrastructure deployment in rural settings, thus enabling sustainable economic growth.

Overall, the literature supports the hypothesis that digital transformation in rural settings contributes to sustainable economic growth. It highlights the importance of enhanced connectivity, digital entrepreneurship, agricultural transformation, skills development, and supportive policies to unlock the potential benefits of digital transformation in rural areas, with this description, we hypothesize:
H1: Digital Transformation in Rural Settings affect Sustainable Economic Growth

2.2.2 Digital Transformation in Rural Settings and Digital Literacy Levels
Bridging the Digital Divide: Digital transformation initiatives in rural areas aim to bridge the digital divide by improving the digital literacy levels among rural residents (Nikou & Aavakare, 2021). Digital literacy refers to the ability to access, understand, evaluate, and apply digital technology effectively. Studies emphasize that enhancing digital literacy is essential for rural communities to fully participate in the digital economy, access online services, and utilize digital tools for personal and economic development (Marshall, Dezuanni, Burgess, Thomas, & Wilson, 2020).

Empowerment and Inclusion: Digital literacy plays a crucial role in empowering individuals in rural settings (Radovanović et al., 2020). This enables them to access information, acquire new skills, and

connect with others. By improving digital literacy levels, rural residents gain the necessary knowledge and confidence to engage in digital technologies, fostering a sense of empowerment and inclusion in the digital age. Such empowerment can lead to increased economic opportunities, social participation, and overall community development.

Enhancing Economic Opportunities: Digital literacy is closely linked to economic opportunities in rural areas. Studies show that individuals with higher levels of digital literacy are more likely to engage in online entrepreneurship, access online job opportunities, and participate in digital marketplaces (Ollerenshaw, Corbett, & Thompson, 2021). By equipping rural residents with digital literacy skills, digital transformation initiatives can stimulate economic growth, create employment opportunities, and foster entrepreneurship in rural settings.

Education and Lifelong Learning: Digital transformation in rural areas has implications for education and lifelong learning (Tchamyou, Asongu, & Odhiambo, 2019). Digital literacy enables rural school students to access online educational resources, engage in e-learning platforms, and develop digital skills for future employment. Moreover, digital literacy programs targeting adult learners can provide them with the skills needed to adapt to technological advancements and engage in continuous learning throughout their lives (Zimmer & Matthews, 2022).

Challenges and Barriers: Literature also highlights the challenges and barriers to improving digital literacy levels in rural areas. These challenges include limited access to digital infrastructure, lack of awareness of the benefits of digital technologies, and the need for tailored training programs that address the specific needs and contexts of rural communities. Addressing these challenges requires comprehensive strategies that combine infrastructure development, awareness campaigns, and capacity-building programmes. Thus, we hypothesize the following:

H2: Digital Transformation in Rural Settings affect Digital Literacy Levels

2.2.3 Digital Literacy Levels and Sustainable Economic Growth

Human Capital and Productivity: Digital literacy is considered a form of human capital that enhances productivity and innovation. Individuals with higher levels of digital literacy are more likely to use digital tools, access online information, and adapt to technological advancements. Studies suggest that higher digital literacy levels in the workforce lead to increased productivity, efficiency, and competitiveness, thereby contributing to sustainable economic growth (Yu & Zhou, 2021).

Entrepreneurship and Innovation: Digital literacy is closely linked to entrepreneurial activities and innovation (Wardana et al., 2023). Individuals with digital literacy skills are more likely to start and manage digital businesses, leverage online platforms, and take advantage of emerging opportunities in the digital economy (Kraus, Palmer, Kailer, Kallinger, & Spitzer, 2019). Digital literacy enables individuals to identify market gaps, develop innovative solutions, and participate in the knowledge-based economy, fostering entrepreneurship and driving economic growth (Neumeyer, Santos, & Morris, 2020).

Market Access and Global Connectivity: Digital literacy enables individuals and businesses to access global markets and benefits from the interconnectedness of the digital world (Lemke, 2002). Through digital tools and platforms, individuals with higher digital literacy levels can engage in e-commerce, export their products or services, and connect with customers and partners worldwide (Amornkitvikai, Tham, & Tangpoolcharoen, 2021). Improved market access and global connectivity contribute to sustainable economic growth by expanding opportunities and increasing the market reach for businesses in rural settings.

Inclusion and Reducing Inequality: Digital literacy plays a crucial role in reducing economic inequality and promoting inclusive growth. Studies have highlighted that individuals with low digital literacy skills are more likely to be left behind in the digital economy, leading to a widening digital divide (Alkureishi et al., 2021). By improving digital literacy levels among all segments of society, including rural

communities, governments, and policymakers can promote inclusive economic growth and reduce disparities between urban and rural areas.
Lifelong Learning and Adaptability: Digital literacy is not a one-time skill, but an ongoing process of lifelong learning and adaptability to changing technologies (Blaschke, 2021) after the pandemic era (Ebuka et al., 2020). It enables individuals to continuously upgrade their skills, stay relevant to the digital economy, and seize new opportunities. Lifelong learning programs and initiatives that focus on improving digital literacy levels in rural areas can enhance the adaptability of individuals and communities, thus contributing to sustainable economic growth.
H3: Digital Literacy Levels affect Sustainable Economic Growth

2.2.4 Digital Literacy Levels As mediation
Mediating Effect of Digital Literacy: Digital literacy levels can act as a mediating variable between digital transformation and sustainable economic growth. Studies suggest that the impact of digital transformation on economic growth outcomes in rural areas is mediated by the level of digital literacy among the population (Cetindamar, Abedin, & Shirahada, 2021). Higher digital literacy enables individuals to effectively utilize digital technologies, access online markets, and participate in the digital economy, thereby fostering economic growth.

Enhanced Skills and Capabilities: Digital literacy serves as a mediator by enhancing individuals' skills and capabilities in rural settings. As digital transformation initiatives are implemented, individuals with higher digital literacy levels are more likely to acquire the skills necessary to leverage digital technologies for economic activities. These skills include digital marketing, e-commerce, data analysis, and online communication, which are essential for driving sustainable economic growth in the digital era, including human resource development (Ghorbani and Khanachah, 2020).

Empowerment and Confidence: Digital literacy plays a mediating role by empowering individuals in rural areas to actively participate in the digital economy. This provides them with the necessary knowledge and confidence to navigate digital platforms, engage in online entrepreneurship, and access digital resources. Empowered individuals are more likely to seize economic opportunities, contribute to innovation, and drive sustainable economic growth in their communities.

Access to Information and Resources: Digital literacy acts as a mediator by improving access to information and resources in rural settings. With higher digital literacy levels, individuals can effectively search for, evaluate, and utilize online information to inform their economic decisions and activities. Access to relevant information and resources is crucial for identifying market opportunities, making informed business decisions, and enhancing the overall economic growth in rural areas.

Social and Digital Inclusion: Digital literacy as a mediator contributes to social and digital inclusion in the context of digital transformation. By improving digital literacy levels, rural communities can overcome barriers related to access, knowledge, and skills, thus ensuring that all members of society participate in the digital economy. Inclusive digital participation leads to a more equitable distribution of economic benefits, and fosters sustainable economic growth in rural areas.
H4: Digital Literacy Levels As mediation Digital Transformation in Rural Settings towards Sustainable Economic Growth

2.2.5 Digital Transformation in Rural Settings and Community Empowerment
Access to Information and Knowledge: Digital transformation in rural areas improves access to information and knowledge, which is crucial for community empowerment. Through digital technology, rural communities can access educational resources, healthcare information, government services, and other relevant information. This access enhances the knowledge base of the community members, empowers them to make informed decisions, and actively participates in community development.

Participation and Engagement: Digital transformation enables greater participation and engagement of rural communities in the decision-making processes. Online platforms and digital tools can facilitate community dialogue, collaboration, and collective actions. By leveraging these technologies, community members can voice their opinions, share ideas, and contribute actively to local development initiatives. This participation fosters a sense of empowerment and ownership among community members.

Economic Opportunities: Digital transformation in rural areas can create new economic opportunities and empower community members. Digital platforms and e-commerce enable rural entrepreneurs to access larger markets, expand their customer base, and sell products or services online. Access to digital markets and the ability to participate in the digital economy can improve livelihoods, create employment opportunities, and enhance the economic well-being of rural communities.

Skill Development and Capacity Building: Digital transformation initiatives often include skill development and capacity-building programs. These programs aim to equip community members with the necessary digital skills to use digital technologies effectively. By providing training and support, digital transformation initiatives enhance rural communities' capacity to utilize digital tools, engage in online activities, and leverage digital platforms. Skill development empowers individuals to participate more actively in the digital economy and local development processes.

Social Cohesion and Networking: Digital transformation can contribute to social cohesion and networking in rural communities. Online platforms and social media networks provide opportunities for community members to connect, share their experiences, and build social networks. These connections can foster collaboration, knowledge sharing, and collective action; strengthen community bonds; and empower individuals to work together towards common goals.

H5: Digital Transformation in Rural Settings influences Community Empowerment

Based on the background and review of the literature and development hypotheses, a framework for thinking can be created, as shown in Figure 1.

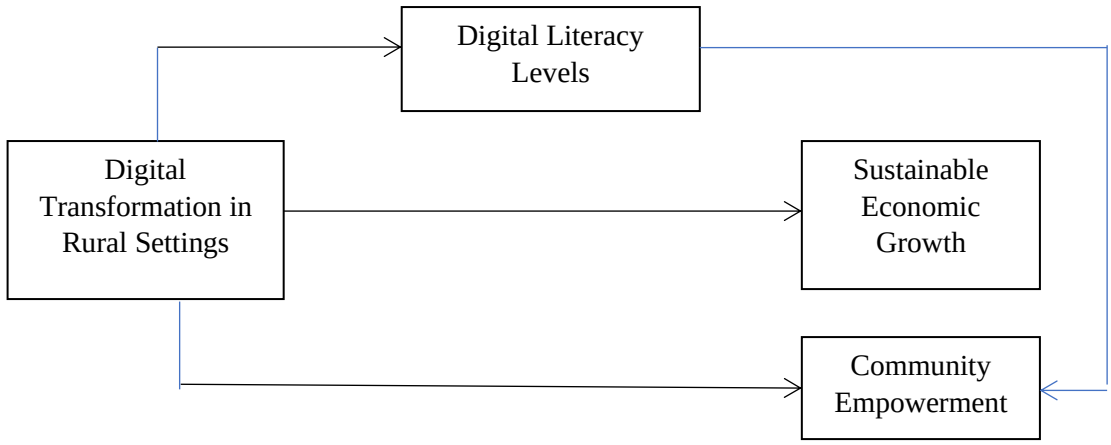

Figure 1. Conceptual Framework

3. Research Methodology

This study employed a survey-based research design to gather data and examine the relationship between digital transformation in rural settings, sustainable economic growth, and community empowerment. The study utilizes an explanatory design, which allows the intention to explain the position of the variables studied and the influence between one variable and another..

Primary data for this study were collected using a structured questionnaire. The questionnaire was designed based on the research objectives and the relevant variables identified in the literature review. The survey questionnaire includes items to measure variables such as digital transformation in rural

settings (Mergel, Edelmann, & Haug, 2019), sustainable economic growth (Khan, Zhang, Kumar, Zavadskas, & Streimikiene, 2020), community empowerment (Di Napoli, Dolce, & Arcidiacono, 2019), and digital literacy levels (Davydov, Logunova, Maltseva, Sharikov, & Zadorin, 2020). The measures used were derived from relevant literature and theories identified in the literature review section.

This study employed a purposive sampling technique to select participants from rural communities in Cirebon 194. The sample was chosen on the basis of its accessibility and relevance to the research topic. The sample size was determined based on statistical considerations to ensure the adequate representation and generalizability of the findings.

The collected data were analyzed using a statistical analysis software. This study uses data analysis methods using Smart PLS software version 3.0 PLS (Partial Least Square) (Ringle, Wende, & Becker, 2015), which is a variant-based structural equation analysis (SEM) that can simultaneously test the measurement and structural models. The study was conducted in a specific geographic area with a focus on rural settings. The specific conditions and characteristics of the study area are described to provide context and enable readers to understand the applicability of the findings in similar settings.

4. Results and discussions

4.1 Results

There are three criteria for the use of data analysis techniques with SmartPLS to assess the outer model: Convergent Validity, Discriminant Validity, and Composite Reliability. The convergent Validity of the measurement model with indicator reflection was assessed based on the correlation between item scores/component scores estimated using PLS Software. The sizes of the reflections were measured. However, according to Chin, 1998 (in Ghozali and Latan (2015)) for initial research, the development of a measurement scale for loading values of 0.50 to 0.60 is considered sufficient. In this study, a loading factor limit of 0.55. was used.

Table 1 Value of Outer Loading Factor

	Community Empowerment	Digital Literacy Levels	Digital Transformation In Rural Settings	Sustainable Economic Growth
CE1	0.801			
CE2	0.874			
DIL2		0.704		
DIL3		0.787		
DIL4		0.803		
DIL5		0.799		
DIL6		0.765		
DT1			0.783	
DT2			0.843	
DT3			0.791	
DT4			0.781	
DT5			0.78	
DT6			0.851	
DT7			0.711	
SEG1				0.858
SEG2				0.86

The above table primarily demonstrates that the loading factor exceeded the recommended value of 0.5. This indicates that the indicators used in this study are valid and achieved convergent validity.

To assess validity and reliability, the reliability value of a construct and the Average Variance Extracted (AVE) value of each construct were examined. A construct is considered to have high reliability if its value is 0.70 or above, while the AVE should be higher than 0.50. In the following:

Table 2. The Composite Reliability and AVE values are presented for all variables.

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Community Empowerment	0.581	0.597	0.825	0.703
Digital Literacy Levels	0.832	0.842	0.881	0.596
Digital Transformation In Rural Settings	0.901	0.905	0.922	0.628
Sustainable Economic Growth	0.645	0.645	0.849	0.738

From Table 2, it can be inferred that all constructs satisfy the reliability criteria. This is evident from the composite reliability (CR) value exceeding 0.70 and the AVE value surpassing the recommended threshold of 0.50.

The evaluation of the inner model, conducted through a bootstrapping test, yielded several results, including the determination coefficient (R-square), Q-square, path coefficients, and correlations among latent variables. The findings of the inner model evaluation are as follows:

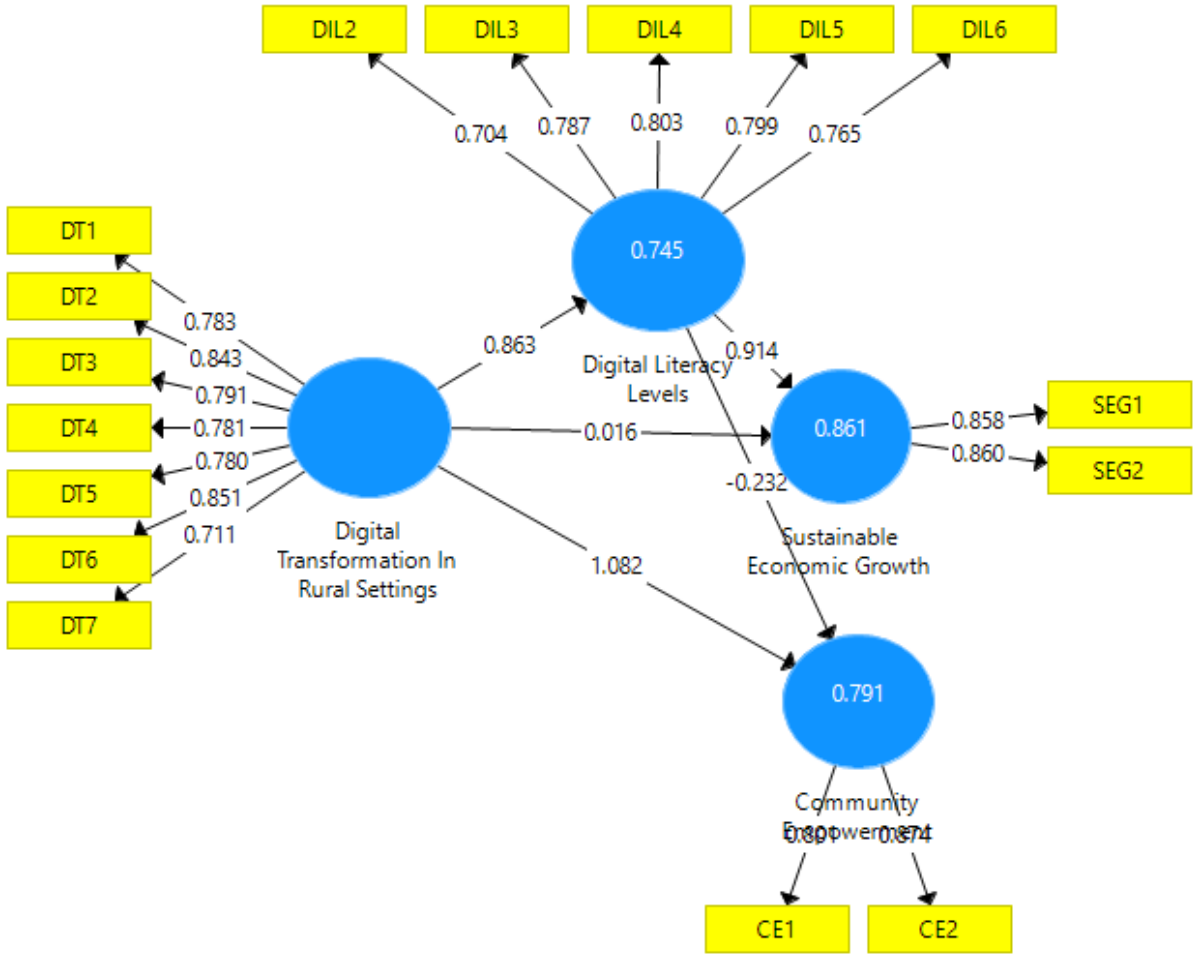

Figure 1. Research Path Diagram

The results of the direct influence test for each variable are presented in the following table.

Table 3. Indirect effect test results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Digital Transformation In Rural Settings -> Community Empowerment	0.882	0.882	0.02	44.591	0
Digital Transformation In Rural Settings -> Digital Literacy Levels	0.863	0.865	0.015	55.808	0

From the path coefficient model table provided, it is evident that the path coefficient value between Digital Transformation in Rural Settings and Community Empowerment is 0.882, indicating a positive relationship. The corresponding t_count value is 44.591, which is significantly higher than the t_table value of 1.65287, resulting in a p-value of 0.00 (lower than the predetermined significance level of α-0.05). Consequently, it can be concluded that Digital Transformation in Rural Settings has a positive yet insignificant impact on Community Empowerment.

Similarly, based on the results of the Path Coefficients Model table, the path coefficient value between Digital Transformation in Rural Settings and Digital Literacy Levels was 0.863, demonstrating a positive correlation. The associated t_count value is 55.808, significantly exceeding the t_table value of 1.65287, resulting in a p-value of 0.00 (below the predetermined significance level of α-0.05). Hence, it can be inferred that Digital Transformation in Rural Settings has a positive and significant influence on Digital Literacy Levels.

Table 4. Direct effect test result

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Digital Transformation In Rural Settings -> Community Empowerment	0.882	0.882	0.02	44.591	0
Digital Transformation In Rural Settings -> Digital Literacy Levels	0.863	0.865	0.015	55.808	0
Digital Transformation In Rural Settings -> Sustainable Economic Growth	0.805	0.805	0.03	26.839	0

Two R-Square values were obtained: one for the intervening variable Customer Preference (Y1) and the other for the dependent variable/endogenous Brand Loyalty (Y2). The determination coefficient R-Square was calculated using the SmartPLS software, and the corresponding results are presented in the following table.

Table 5. Value of R Square

	R Square	**R Square Adjusted**
Community Empowerment	0.791	0.789
Digital Literacy Levels	0.745	0.743
Sustainable Economic Growth	0.861	0.859

Table 5 shows the R-Square value for the Community Empowerment variable obtained at 0.791, and for the digital literacy level variable at 0.745.

4.2. Discussion

The research model was evaluated using path coefficients, bootstrapping tests, and coefficient of determination (R-squared) values. The findings of this study are summarized as follows:

Validity and Reliability: The outer loading factor values for the measurement items indicated that they met the recommended criterion of 0.5, demonstrating convergent validity. The composite reliability values and AVE values for all constructs met the reliability criteria, with composite reliability above 0.70 and AVE above 0.50.

Direct Effects: The path coefficient values show that digital transformation in rural settings has a positive and significant effect on both community empowerment and digital literacy. The path coefficient values were 0.882 for digital transformation and community empowerment and 0.863 for digital transformation and digital literacy levels. These effects were supported by high t-values and p-values of 0.00, indicating statistical significance.

Mediation Effect: The results indicate that digital literacy levels mediate the relationship between digital transformation in rural settings and sustainable economic growth. However, the specific results of this mediation analysis were not presented in the information provided.
R-squared Values: The R-squared values indicate the amount of variance explained by the model. The R-squared values for community empowerment, digital literacy, and sustainable economic growth were 0.791, 0.745, and 0.861, respectively.

5. Conclusion

5.1. Conclusion

This study demonstrates the significant potential of digital transformation in rural settings to unlock opportunities for sustainable economic growth and community empowerment. The findings highlight the positive impact of digital technologies on enhancing access to information, improving connectivity, and creating new economic avenues for rural communities. Additionally, digital transformation initiatives have been shown to empower community members by equipping them with the skills and resources necessary to participate in the digital economy. Overall, this study underscores the importance of digital inclusion in rural development and provides valuable insights for policymakers, community leaders, and technology providers in designing and implementing strategies for digital transformation in rural contexts.

5.2. Limitation

This study has several limitations. First, it focused on a specific geographic area (Cirebon Area, West Java), and the findings may not be fully generalizable to all rural settings. Second, there is the possibility of response bias in the survey, which could impact the accuracy of the data collected. Additionally, the study primarily relied on self-reported data from residents, which may have been subject to individual perceptions and interpretations. Furthermore, this study does not explore the long-term impacts of digital transformation in rural settings, and further studies are needed to assess the sustainability and scalability of digital initiatives in rural communities. These limitations highlight the need for continued research and exploration to address these gaps.

5.3. Suggestion

Based on the findings and limitations of this study, several suggestions for future research and practice are proposed. First, future studies could expand the scope by examining digital transformation initiatives in different rural contexts to validate the findings further and identify context-specific factors. Second, longitudinal research can be conducted to assess the long-term impact of digital transformation on sustainable economic growth and community empowerment in rural areas. More research is needed

to explore the specific mechanisms through which digital literacy levels mediate the relationship between digital transformation and sustainable economic growth. This can help to develop targeted interventions to enhance digital literacy and bridge the digital divide in rural communities. Finally, policymakers and stakeholders should consider the identified success factors, such as infrastructure development, capacity building, and collaboration, when designing and implementing digital transformation strategies in rural settings to maximize their effectiveness and ensure inclusive and sustainable outcomes.

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