Journal of Multidisciplinary Academic and Practice Studies (JoMAPS)
ISSN: 2656-2359, Vol, 3 No 3, 2025, 183-200 https://doi.org/10.35912/jomaps.v3i3.3524

Measuring the achievements of smart economics in the smart village program in Lampung Province 2020-2024

Endriyono Endriyono[1], Toto Gunarto[2], Asih Murwiati[3]
University of Lampung, Lampung, Indonesia
endrikalianda@gmail.com[1]

Article History
Received on 5 July 2025
1st Revision on 17 July 2025
Accepted on 24 July 2025

Abstract

Purpose: This study aims to measure the impact of Smart Village dimensions on rural community welfare in Lampung Province from 2020 to 2024, focusing on the Smart Economy pillar and its integration with digital transformation and technosociopreneurship.

Methods: A quantitative approach was applied using multiple linear regression (Ordinary Least Squares) on data from 70 Smart Village loci across four districts. The independent variables include Smart People, Smart Governance, Smart Mobility, Smart Environment, Smart Living, and Smart Economy, while the dependent variable is community welfare. Instrument validity and classical assumption tests ensured model reliability.

Results: All six Smart Village dimensions significantly and positively affected community welfare, with Smart People having the highest coefficient (0.8489). The model showed strong explanatory power ($R^2 = 0.9535$) and passed all classical assumption tests. Smart Economy initiatives—digitalization of MSMEs, inclusive market access, and technology-driven entrepreneurship—directly enhanced household income, job creation, and local growth.

Conclusion: Implementation of Smart Village principles, especially smart economic transformation, significantly improves rural welfare. Digital innovation, good governance, and community capacity-building strengthen service quality, economic inclusion, and sustainability.

Limitation: The study is limited to Smart Village implementations in Lampung Province, excluding interregional comparisons and long-term behavioral aspects.

Contribution: This study provides empirical evidence of Smart Village effectiveness in rural development, supporting policy formulation on digital infrastructure, entrepreneurship training, and stakeholder collaboration, while offering a replicable model for evaluating Smart Village outcomes in other regions.

Keywords: *Community Welfare, Smart Economy, Smart Village, Technosociopreneurship, Village Technology*

How to Cite: Endriyono., Gunarto, T., & Murwiati, A. (2025). Measuring the achievements of smart economics in the smart village program in Lampung Province 2020-2024. *Journal of Multidisciplinary Academic and Practice Studies*, 3(3), 183-200.

1. Introduction

The Smart Village Program in Lampung Province has been implemented since 2020 as an integral part of the vision and mission of the Governor and Vice Governor of Lampung for the 2018-2023 period. This initiative aims to realize "The Prosperity Of Lampung People" through the development of village potentials spread across 13 districts, 2 cities, 229 sub-districts, 2,435 villages, and 205 urban villages across Lampung Province. The program is based on three main pillars: Smart Government to establish excellent village administration and services, Smart Economy to create an IT-based creative economy,

and Smart People to enhance human resources in the villages through Village Incubation. The implementation of the Smart Village program has led to significant progress, with no more villages classified as "very left behind" out of the total 2,446 villages in Lampung Province, and the majority having achieved "developing," "advanced," or even "independent" status.

The Smart Village program in Lampung Province is an initiative implemented by the Ministry of Village, Development of Disadvantaged Regions, and Transmigration (KemendesPDTT) through the Development and Information Agency (BPI) and the Data and Information Center (Pusdaing) since 2020. The program aims to optimize village potentials by utilizing digital technology and developing human resources. The Smart Village locations in Lampung Province are spread across several districts, including 10 villages in Tulangbawang District, 20 villages in Pesawaran District, 15 villages in Tanggamus District, and in 2023, an additional 25 villages in Pringsewu District. This designation of locations shows the government's commitment to expanding the reach of the Smart Village program in Lampung Province, with a total of 70 villages targeted for development. To support the implementation of the Smart Village program, KemendesPDTT has formed technical assistance personnel called Digital Ambassadors. The assignment of Digital Ambassadors is regulated through an official task order (SPT) issued directly by KemendesPDTT.

The Lampung Provincial Government has also played an active role in supporting this Smart Village program. Through Governor's Decree No: G/228/II.02/HK.2020 on the Designation of Pilot Project Locations for the Smart Village Program in Lampung Province in 2020, the provincial government designated 30 additional villages spread across 13 districts in Lampung Province as Smart Village pilot project sites. This designation demonstrates the local government's commitment to expanding the scope of the Smart Village program and integrating it with village development initiatives at the provincial level. With synergy between the national and regional programs, it is hoped that the digital transformation process in the villages of Lampung Province can be accelerated. The implementation of the Smart Village program in Lampung Province has shown positive results. Through collaboration between Digital Ambassadors, Digital Cadres, and local governments, various digital innovations have been implemented in the villages where the program is active.

Lampung Province needs to develop village regulations to support good governance. Currently, 1,792 villages in Lampung have adopted the Smart Village application, a significant increase from 563 villages in 2021. Digitalization through this application not only enhances village governance but also encourages community participation in development. Additionally, the integrated Smart Economy initiative within this application aims to strengthen the local economic ecosystem. Digital services also have a positive impact on improving public service quality at the village level, contributing to the creation of a more prosperous and independent society (Angkasa, 2024).

Herdiana (2019) states that the concept of a smart village in Indonesia is built on three main elements: government, society, and the environment. The intelligent relationship between these elements aims to improve the welfare of rural communities through the utilization of technology. In its implementation, the smart village emphasizes local values, traditions, and cultures as the foundation of development. The integration of technology plays a crucial role in enhancing village governance while also encouraging active community involvement in various aspects of development.

Huda, Suwaryo, and Sagita (2020) found that Talagasari Village utilized technology to improve public services. Social media is used as a coordination tool between village officials and residents, making communication more effective. Community participation is also optimized to support decision-making and the formulation of more inclusive policies. Transparency is a priority with the implementation of the Village Information System (SID), allowing residents to easily access information. Additionally, village financial reports are shared via WhatsApp to ensure accessibility by the community, thus increasing accountability in village financial management.

The concept of a smart village is designed for the unique context of villages in Indonesia, integrating local values and traditions as an essential part of its development. This approach emphasizes a bottom-

up model focused on empowerment and community development. A smart village consists of three main elements: government, society, and the environment, which synergize through intelligent relationships to improve the welfare of rural communities by optimally utilizing technology (Herdiana, 2019).

Fatimah, Judawinata, Barkah, Trimo, and Deliana (2020) note that the development of the smart village concept in Genteng is crucial for supporting sustainable development. Community empowerment plays a key role in achieving this goal, particularly through collaboration among stakeholders that can enhance the effectiveness of smart village initiatives. Technology is one of the key elements capable of improving agricultural practices and local services, thus optimizing the resources available in Genteng to their fullest potential. Moreover, the education level of the community significantly influences technology adoption, especially in the agricultural sector. With the right approach, a smart village can reduce migration from rural areas to cities, thus maintaining a balanced development between urban and rural areas.

The objectives of this research are as follows:
1. To analyze the influence of Smart Society on the welfare of the rural community in the Smart Village locus in Lampung Province.
2. To analyze the influence of Smart Economy on the welfare of the rural community in the Smart Village locus in Lampung Province.
3. To analyze the influence of Smart Governance on the welfare of the rural community in the Smart Village locus in Lampung Province.
4. To analyze the influence of Smart Environment on the welfare of the rural community in the Smart Village locus in Lampung Province.
5. To analyze the influence of Smart Living on the welfare of the rural community in the Smart Village locus in Lampung Province.
6. To analyze the influence of Smart Mobility on the welfare of the rural community in the Smart Village locus in Lampung Province.

2. Literature Review

2.1. Literature Review

a) Community Welfare

Community welfare refers to the condition that reflects the quality of life of a community, which can be seen through the standard of living of its people. According to Pabendon (2017), there is also an opinion that community welfare is the sum of choices available to the community based on freedom. Among these choices, welfare is maximized when people are able to read, eat, and exercise their right to vote. The ability to read is important not just for the satisfaction it brings, but because reading shapes one's personality. Eating is essential not just for consumption but for life and health. Voting is significant not for increasing satisfaction but for respecting the political system or democracy.

Community welfare also means a condition in which basic needs are met, which is reflected in adequate housing, clothing, and food, affordable and quality education and healthcare, or where an individual can maximize their utility within certain limitations, or a condition where one can fulfill both physical and spiritual needs (Fathulloh & Mufidah, 2021). High levels of welfare are achieved when one is able to meet their needs and capabilities in accordance with what they have. Community welfare can be described as a state that does not prioritize one aspect over another. Welfare is not only related to economic factors but also involves several non-economic factors such as social, cultural, and political elements (Heimburg & Ness, 2021).

b) Digitalization

Digitalization is the process of converting data or information from an analog to a digital format, using data-based technology operated through automated and computerized systems. The term technology itself originates from the Greek word "technologia", this term refers to a systematic treatment or handling of something, while its root, "techne," refers to expertise, skill, or knowledge. (Nisa & Putri, 2023). Technology as a design or tool aimed at reducing uncertainty through cause-and-effect

relationships to achieve specific goals (Triyono & Febriani, 2018). Technology as a set of rationally designed methods characterized by efficiency in every human activity (Lindebaum, Moser, Ashraf, & Glaser, 2023). In the context of the Smart Village development, various digitalization programs have been launched by the Ministry of Village Development, Disadvantaged Regions, and Transmigration (KemendesPDTT) and local governments, particularly in Lampung Province at the village government level.

c) Digital Village

According to Law No. 6 of 2014 on Villages in the Republic of Indonesia, a village is defined as "a legal community unit that has territorial boundaries and is authorized to manage and regulate local government affairs, local interests based on community initiatives, original rights, and/or traditional rights recognized and respected within the governance system of the Unitary State of the Republic of Indonesia." Meanwhile, a digital village, as stated by Ramadhani and Rohmadiani (2024), is a concept that applies a system of government services, community services, and community empowerment based on the use of information technology connected to wireless networks. It aims to develop village potential, marketing, and accelerate access to public services based on the internet or digital systems connected to wireless networks. Therefore, a digital village can be said to be one that has implemented a digital system connected to the internet in its public service processes.

Villages are typically associated with remote areas where access to information is still limited. Therefore, the key factor in improving and empowering a village to become a technology-based digital village is the availability of internet access. Currently, 82.36% of rural areas in Indonesia are connected to the internet, or about 69,126 villages. However, the use of internet and digital technology must be based on knowledge and capability, so that the results of using digital technology and the internet can effectively target the goal of improving the welfare of the village community. Achieving a digital village requires several conditions to be met.

d) Smart Village

According to Hassan and Arista (2025), a smart village is a village that innovatively uses new technologies to improve the quality, efficiency, and competitiveness in economic, social, and environmental aspects. In its implementation, it not only applies information and communication technology but also develops village potential in various fields, enhances the economy, and improves the quality of life for its residents based on technology and information. Meanwhile, Herdiana (2019) explains that the concept of a smart village is a village that is not only able to apply technology but also capable of developing village potential, improving the economy, and creating a better quality of life for its residents through information-based systems.

According to Widiyarta, Haniyuhan, and Bataha (2024), a smart village is a service that utilizes information technology to carry out village activities effectively and efficiently, managed by the village community. Smart village is a concept where village communities address regional issues by utilizing their resources wisely, efficiently, and intelligently, while also honoring local customs, traditions, and norms. A smart village adopts components or indicators from the smart city concept but on a smaller scale (village or urban village level) to achieve better governance and public services for its residents. The concept of a Smart Village can be a solution to address various issues in village government operations.

2.2. Research Hypotheses

1. It is suspected that Smart Society has a positive and significant effect on the welfare of the rural community in the Smart Village locus in Lampung Province.
2. It is suspected that Smart Economy has a positive and significant effect on the welfare of the rural community in the Smart Village locus in Lampung Province.
3. It is suspected that Smart Governance has a positive and significant effect on the welfare of the rural community in the Smart Village locus in Lampung Province.
4. It is suspected that Smart Environment has a positive and significant effect on the welfare of the rural community in the Smart Village locus in Lampung Province.

5. It is suspected that Smart Living has a positive and significant effect on the welfare of the rural community in the Smart Village locus in Lampung Province.
6. It is suspected that Smart Mobility has a positive and significant effect on the welfare of the rural community in the Smart Village locus in Lampung Province.

3. Research Methodology

3.1. Types and Sources of Data

This research is descriptive in nature with a qualitative approach. The primary data used is obtained through direct observation and interviews via questionnaires, while secondary data is obtained from company documents, including the history and general description of the company. The respondents of this study are the rural communities in the Smart Village loci in Lampung Province.

3.2. Population and Sample

The population of this study consists of all Smart Village loci in Lampung Province, spread across several districts, namely 10 villages in Tulangbawang District, 20 villages in Pesawaran District, 15 villages in Tanggamus District, and in 2023, an additional 25 villages in Pringsewu District. Hence, the population in this study also serves as the sample, making this a population or census-based method. The sample is taken from a portion of the total population, which is considered to represent the entire population. The sample size is determined using the formula by (Hair, Ringle, & Sarstedt, 2013). This formula is used because the exact population size is not known. According to Hair et al. (2013), an ideal sample size ranges from 100 to 200 respondents, which can be adjusted according to the number of indicators used in the questionnaire, with the assumption of 5-10 times the number of indicators.

3.3. Operational Definition of Variables

a) Community Welfare

The Central Bureau of Statistics of Indonesia (2000) explains that to assess the welfare level of a household in a region, several indicators can be used, including family income level, household expenditure composition comparing food and non-food expenses, family education level, family health level, and the condition of housing and facilities owned by the household.

b) Smart Society

Smart Society is a concept that emphasizes the importance of developing skills, creativity, and social inclusion to create competitive and innovative communities. Skills refer to an individual's ability to effectively use technology and information, necessary for adapting to changes in the times and increasing productivity. Creativity here refers to the community's ability to generate new ideas and innovative solutions to challenges, thus driving economic and social growth. By integrating these three elements, Smart Society seeks to create an environment that fosters collaboration, active participation, and individual empowerment, thereby improving overall quality of life in the context of sustainable development (De Guimarães, Severo, Júnior, Da Costa, & Salmoria, 2020).

c) Smart Governance

Smart Governance is an approach that integrates information and communication technology (ICT) into the management of government to enhance transparency, accountability, and public participation. Data openness is a key pillar, allowing the public to access information and participate in decision-making. Online services allow easy access to various public services without the need to visit government offices directly. Overall, Smart Governance aims to create a more efficient, responsive, and inclusive government, thereby improving the quality of life for the community and encouraging active participation in development (Pereira, Parycek, Falco, & Kleinhans, 2018).

d) Smart Environment

Smart Environment is a concept that emphasizes the sustainable and integrated management of natural resources and regional development. Sustainable resource management includes practices aimed at utilizing natural resources without compromising future generations' ability to meet their needs, involving conservation, wise utilization, and ecosystem restoration (Aiguobarueghian, Adanma, Ogunbiyi, & Solomon, 2024). This is done through a participatory approach, where local communities

are involved in decision-making, as well as applying modern technology to enhance efficiency and reduce negative environmental impacts. On the other hand, sustainable regional development focuses on achieving a balance between economic growth, environmental protection, and social justice, ensuring that the needs of the present population can be met without harming future generations (Hariram, Mekha, Suganthan, & Sudhakar, 2023).

e) Smart Living

Smart Living is a concept that integrates education, health, and socio-culture to create competitive and high-quality communities (Dar, 2022). Education, in this context, includes the development of skills and knowledge relevant to current needs, using technology to enhance access and quality of learning for all segments of society. Health focuses on providing high-quality and affordable healthcare services, as well as promoting healthy lifestyles, enabling the community to live productively and prosperously. Meanwhile, socio-culture emphasizes the importance of preserving local cultural values and enhancing inclusive social interactions, encouraging diversity and mutual respect among community members. By integrating these three elements, Smart Living aims to create an environment that supports the holistic growth of individuals and communities, thus improving the overall quality of life (Supangkat, Firmansyah, Kinanda, & Rizkia, 2024).

f) Smart Economy

Smart Economy is a concept that emphasizes the importance of a culture of entrepreneurship and innovation, productivity, and market access in creating sustainable and inclusive economic growth. The entrepreneurial culture and innovation include a positive attitude towards entrepreneurship and the development of new ideas, encouraging individuals and organizations to take risks and innovate in products and services (Falaras & Moschidis, 2024). Productivity refers to the efficiency of using resources to generate higher output, which can be achieved through the application of modern technology and good management practices. Meanwhile, market access refers to providing opportunities for entrepreneurs, particularly MSMEs, to reach a wider customer base through digital platforms and effective distribution networks. By integrating these three elements, Smart Economy aims to build a dynamic economic ecosystem where innovation and creativity are the driving forces for growth and competitiveness in the global market (Shi & Wei, 2024).

g) Smart Mobility

Smart Mobility is a concept that integrates information and communication technology (ICT) with transportation infrastructure to create an efficient, sustainable, and responsive mobility system that meets the needs of society. In this context, infrastructure includes all physical elements that support transportation, such as roads, bridges, and public transportation facilities, designed to support the use of modern technology. Networks refer to communication and data systems that connect various modes of transportation, enabling real-time information exchange between users and service providers. This creates multimodal connectivity that facilitates passenger movement from one point to another with high efficiency. Public services in smart mobility involve providing integrated, safe, and comfortable public transportation for the community, while utilizing technology to improve user experience through mobile applications and travel information systems (Porru, Misso, Pani, & Repetto, 2020).

3.4. Data Collection Techniques

The questionnaire is a data collection technique that involves providing a list of questions to respondents for them to answer, either directly or indirectly. The questionnaire used is a closed-ended type, meaning the questions are designed in such a way that respondents are only required to provide their answers. The questionnaire uses a Likert scale (1-5), where each response corresponds to the following score:

1. S Very Poor = 1
2. Poor = 2
3. Fair = 3
4. Good = 4
5. Very Good = 5

The higher the score given by respondents, the more it indicates that the factor has a positive impact on community welfare.

3.5. Research Instrument Testing

The research instrument testing is a preliminary test to assess the validity and reliability of the data obtained from the questionnaire items filled by the respondents, ensuring that the data can be used as evidence to support the research hypotheses.

a) Validity Test

Validity refers to the accuracy of a measurement tool. This means that the measurement tool must have good accuracy, especially if it is the tool used to collect data. Validity increases the weight of the truth of the data that the researcher seeks. In this study, the measurement tool used is the Likert scale employed in the questionnaire. A questionnaire is considered valid if the questions within the questionnaire are capable of revealing what is intended to be measured (Boparai, Singh, & Kathuria, 2018) The validity test in this research uses factor analysis.

b) Reliability Test

The reliability test is a tool for measuring a questionnaire that has indicators of variables. According to Lestari, Watini, and Rose (2024), a questionnaire is said to be reliable or dependable if the answers given by a respondent to statements remain consistent or stable over time. Reliability is calculated using statistical software and tested for reliability using the Cronbach's Alpha measurement technique. This is expressed as:

$$R_{ii} = \left(\frac{K}{K-1}\right)\left(1 - \frac{\sum \sigma^2 b}{\sigma\, t^2}\right)$$

Explanation:

R_{ii} = reliability of the instrument
K = the number of items in the questionnaire
$\sum\sigma^2 b$ = total variance of items
σt^2 = total variance

c) Normality Test

The normality test aims to determine whether a data distribution is normal. It compares the data we have with a normally distributed data set, which has the same mean and standard deviation as our data. The normality test uses the Sig. value in the Kolmogorov-Smirnov section if the number of respondents exceeds 50, and if there are fewer than 50 respondents, the Shapiro-Wilk Sig. section is used. Since there are 105 respondents in this study, the Kolmogorov-Smirnov Sig. section is used. The decision criteria for the normality test are as follows:

1) A If the Kolmogorov-Smirnov Sig. > 0.05, the data is normally distributed.
2) If the Kolmogorov-Smirnov Sig. < 0.05, the data is not normally distributed.

3.6. Data Analysis

Data analysis to assess the relationships between variables in the Smart Village pillars (independent variables) and community welfare (dependent variable) uses both qualitative and quantitative data analysis.

3.7. Path Analysis

Path analysis is an extension of multiple linear regression analysis, also known as path analysis. This involves using regression analysis to estimate causal relationships between variables (causal models) that have been predefined based on theory. Path analysis itself cannot determine causal relationships and should not be used as a substitute for researchers to examine causality between variables. Causal relationships between variables are established through theoretical foundations. What path analysis can do is determine the pattern of relationships between three or more variables, but it cannot confirm or reject hypothetical causal relationships (Duncan, 2017).

Path analysis is used to analyze data obtained from a model in which relationships between several variables can be estimated simultaneously. Additionally, the dependent variable in one relationship will become the independent variable in the next relationship (Jäntschi, Pruteanu, Cozma, & Bolboacă, 2015). The steps in path analysis include:

1. M Designing the Model Based on Theoretical Concepts
2. Examination of Assumptions Underlying the Path Analysis

The assumptions underlying the path analysis in this study are:

1. In the path analysis model, the relationships between variables are linear.
2. Only recursive models can be considered, meaning that there is only a one-way causal flow. Path analysis cannot be applied to models with reciprocal causality.
3. Endogenous variables must be at least on an interval scale.
4. Observed variables are measured without errors (measurement instruments must be valid and reliable).
5. The analyzed model is correctly specified (identified) based on relevant theories and concepts.
   a. Parameter Estimation or Path Coefficient Calculation
   b. Model Validity Check

The next step in path analysis is to check the validity of the model. Whether the results of the analysis are valid depends on whether the underlying assumptions are met. There are two indicators of model validity in path analysis: total determination coefficient and theory trimming:

a) Total Determination Coefficient

The total variance in data explained by the model is measured using the following formula:

$$R_m^2 = 1 - X_{e1}^2 \; X_{e2}^e \ldots\ldots\ldots\ldots\ldots\ldots\ldots X_{ex}^2$$

b) Theory Trimming

The validity test of the path coefficient on each path for direct effects is the same as regression, using the p-value from the t-test, i.e., testing the regression coefficient of a variable standardized partially.

3.8. Hypothesis Testing

Hypothesis testing uses the t-test, standardized beta coefficients, R^2 values, and Sobel test (Sapria & Sutarmin, 2023).

a) t-test

This test aims to determine whether each independent variable has a significant effect on the dependent variable at a certain confidence level. H0 is accepted if the t-table > t-count, meaning there is no significant effect of the independent variable on the dependent variable. Ha is accepted if t-count > t-table, meaning there is a significant effect of the independent variable on the dependent variable.

b) Standardized Beta Coefficients

This test is used to compare regression coefficients from different equations with different units (units). A regression equation with a larger beta value means it has a greater influence on the dependent variable for a 1-unit increase in the independent variable.

c) R^2 (Coefficient of Determination)

This test aims to determine what percentage of the effect of independent variables (F) included in the model influences the dependent variable (Y), while the rest is influenced by the independent variables (F) not included in the model. R^2 is considered good if the coefficient of determination is equal to one or close to one.

d) Sobel Test or Mediation Test

Mediation testing can be done with a procedure developed by Sobel, known as the Sobel test (Ghazali, 2016:237). Sobel is conducted by testing the strength of the indirect effect of X on Y through Z. The

standard error of coefficients a and b is written as Sa and Sb, and the standard error of the indirect effect (Sab) is calculated using the following formula:

$$Sp^2\ P^3\sqrt{P3^2Sp2^2} +\ P2^2Sp3^2 +\ Sp3^2Sp3^2$$

To test the significance of the indirect effect, we calculate the t-value from the coefficient ab using the formula:

$$t = \frac{p^2p^3}{Sp^2p^3}$$

This t-value is compared to the t-table value. If the t-count > t-table, it can be concluded that there is mediation. The Sobel test assumes a large sample size. If the sample size is small, the Sobel test becomes less conservative. There are two types of mediation effects: full mediation and partial mediation. Full mediation indicates that the exogenous variable is fully mediated by the mediator because there is no direct effect of the exogenous variable on the endogenous variable. In contrast, partial mediation means that, in addition to having an indirect effect through the mediator, the exogenous variable also has a significant direct effect on the endogenous variable.

4. Results and Discussion

4.1. Research Findings

Rural economic development in the digital era demands innovation and adaptation to technological advancements. Smart Economy, as one of the pillars of the Smart Village, emphasizes the importance of utilizing technology to improve rural community welfare. With the support of regulations and policies from the Ministry of Village and Development of Disadvantaged Regions, this concept is directed at creating a sustainable, inclusive, and technology-based economic ecosystem. The concept of Smart Economic development, supporting regulations and policies, and the role of technology-based social entrepreneurship (technosociopreneurship) in driving rural economic growth will be discussed in detail. The challenges and opportunities faced in implementing Smart Economy in villages, as well as strategic steps that can be taken to continue supporting the Smart Village program in optimizing local economic potential, will also be examined.

In this study, the author examines how the dimensions and pillars of the Smart Village program influence community welfare. Specifically, the research focuses on 70 villages where the Smart Village program is being implemented. The Ministry of Village has provided support in the form of professional assistance, digital cadres, and operational support for the Village Digital Community Space (RKDD), including infrastructure aid. This includes activity fund allowances of IDR 22 million and computer and printer assistance worth IDR 30 million.

Based on the scatter plot graph between the Smart Society variable (X1) transformed into an interval scale and the community welfare variable (Y), a positive relationship between the two variables can be observed. The regression line sloping upward from left to right shows that as the level of societal intelligence increases, the tendency for the level of welfare also rises. Although there is a wide spread of data around the trend line, the general pattern of the data suggests a tendency for improvements in the Smart Society indicators to be associated with increased welfare. This indicates that communities with better access to education, information, and knowledge tend to have higher living standards. However, some outliers were found, indicating observations that deviate from the general pattern, showing that not all regions or respondents consistently follow this trend.

4.1.1. Smart Governance

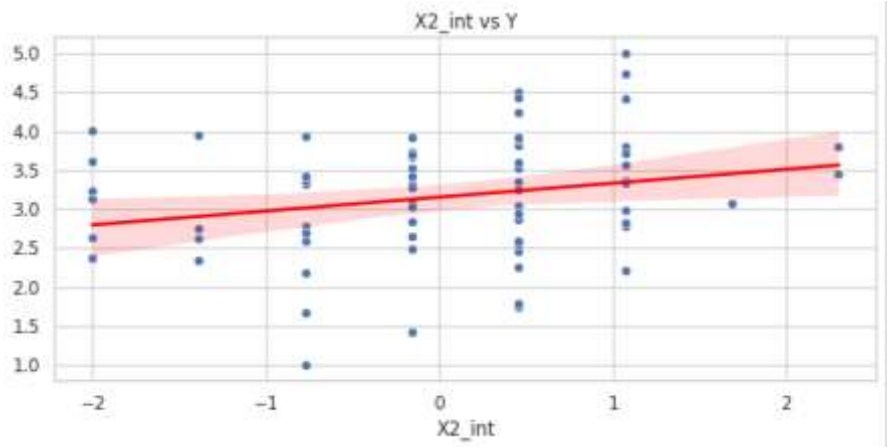


Figure 1. Smart Governance vs. Community Welfare
Source: Processed by Eviews, 2025

Figure 1 illustrates the relationship between Smart Governance (X2) and community welfare (Y), showing a positive, though relatively weak, correlation. This is reflected in the slightly upward sloping regression line, suggesting that higher values of smart governance tend to be associated with an increase in community welfare. However, the spread of data points around the trend line indicates that the relationship between these two variables is not entirely strong.

This means that although good governance, characterized by transparency, accountability, and public participation, has the potential to contribute to increased welfare, its influence is not consistent across all observations in the data. This also implies that other factors outside of governance are influencing community welfare. Nevertheless, the positive trend identified still highlights the importance of strengthening governance aspects in sustainable community welfare development strategies.

4.1.2. Smart Mobility

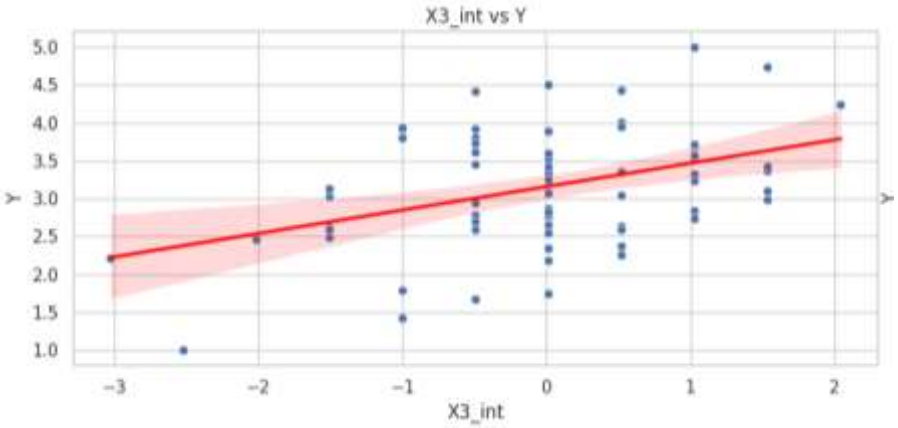


Figure 2. Smart Mobility vs. Community Welfare
Source: Processed by Eviews, 2025

Figure 2 above shows a relatively stronger positive relationship compared to some of the previous variables. The upward sloping red regression line clearly indicates that improvements in smart mobility indicators are correlated with higher levels of community welfare. This suggests that areas or individuals with better access to mobility whether in terms of transportation, inter-regional connectivity, or ease of movement tend to have higher levels of welfare. The data points being relatively concentrated around the trend line further reinforce the indication that the relationship between these two variables is more consistent. However, some outliers at the lower end still indicate conditions where improvements in mobility have not fully resulted in enhanced welfare. Overall, this graph provides

preliminary evidence that strengthening smart mobility aspects in regional development could be a key to improving the quality of life and welfare of the broader community.

4.1.3. Smart Environment

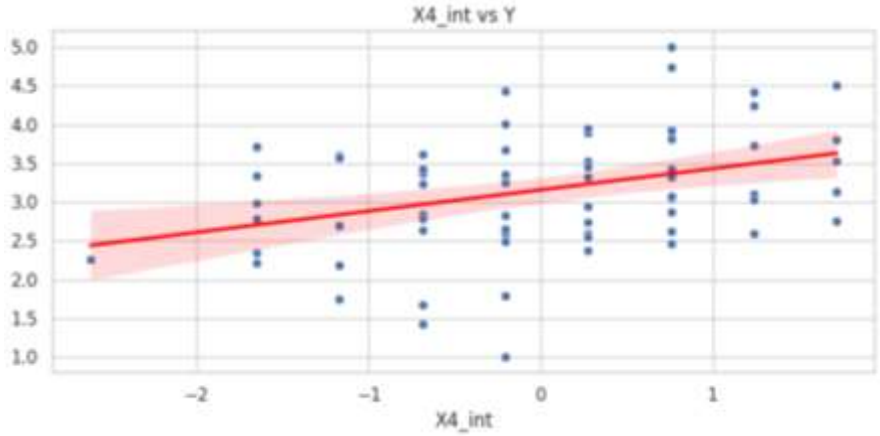


Figure 3. Smart Environment vs. Community Welfare
Source: Processed by Eviews, 2025

Figure 3 shows a tendency towards a positive relationship. The upward sloping red regression line indicates that as the score on the smart environment indicator increases, the tendency for community welfare to increase also rises. Although the spread of data points is quite varied around the trend line, the positive direction of the regression line shows the contribution of environmental quality to welfare improvement. Smart environment, in this context, includes aspects of environmental management, green open spaces, pollution control, and ecosystem sustainability, which ultimately impact community comfort and quality of life.

4.1.4. Smart Living

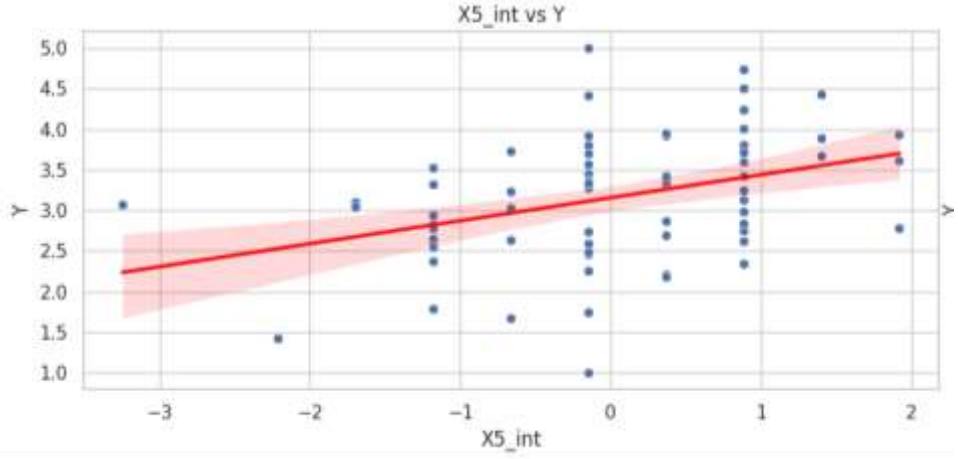


Figure 4. Smart Living vs. Community Welfare
Source: Processed by Eviews, 2025

Figure 4 shows a fairly consistent positive relationship. The upward sloping red regression line indicates that improvements in smart living indicators are associated with higher levels of community welfare. Smart living in this context includes a healthy lifestyle, the use of eco-friendly technology, and community behaviors that support sustainable living and environmental quality. The spread of data points around the trend line suggests that although there are variations among respondents or regions, the general pattern of the relationship remains stable and positive. Additionally, the red-shaded area representing the confidence interval is relatively narrow, indicating lower uncertainty in the model's predictions compared to some previous variables. This finding reinforces the assumption that the higher the level of awareness and implementation of smart living principles in daily life, the higher the potential

for communities to achieve better welfare. This makes smart living indicators an important dimension to include in social and environmental development strategies based on quality of life.

4.1.5. Smart Economy

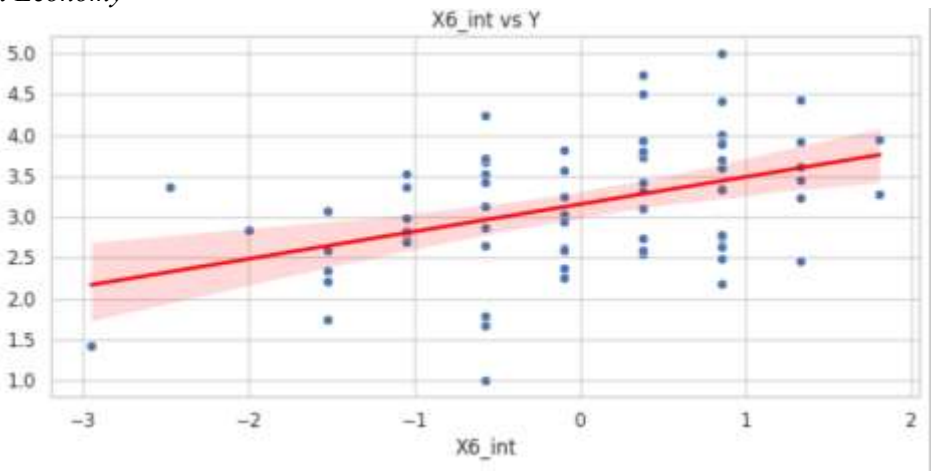


Figure 5. Smart Economy vs. Community Welfare
Source: Processed by Eviews, 2025

Figure 5 shows a relatively strong and consistent positive relationship. This is reflected in the sharply upward sloping red regression line, with the data spread following the general pattern of the line. Smart economy in this context includes economic efficiency, entrepreneurship innovation, the use of technology in economic activities, and digital economic inclusion. The pattern observed suggests that the higher the level of smart economy in a region or community, the higher the level of welfare that can be achieved by its population. Although some outliers are still present, the trend line shows a consistent and visually significant linear relationship. Additionally, the red-shaded area around the trend line is not too wide, indicating relatively low uncertainty in the model. This finding reinforces the importance of developing an adaptive, technology-based, and inclusive economic sector as part of a strategy to improve community welfare sustainably.

4.2. Multiple Linear Regression Results

To assess the extent to which the dimensions of Smart Village affect community welfare levels, multiple linear regression testing was conducted using the Ordinary Least Squares (OLS) approach. In this model, the dependent variable analyzed is community welfare, while the independent variables consist of six main dimensions: Smart People, Smart Governance, Smart Mobility, Smart Environment, Smart Living, and Smart Economy. The aim of this testing is to identify the contribution of each dimension to improving community welfare and to determine which dimension has the most dominant effect.

Table 1. Multiple Linear Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-12.553	0.4537	-27.6669	0.0000
X1	0.849	0.0435	19.5206	0.0000
X2	0.750	0.0529	14.1735	0.0000
X3	0.530	0.0441	12.0133	0.0000
X4	0.635	0.0428	14.8415	0.0000
X5	0.537	0.0449	11.9512	0.0000
X6	0.575	0.0428	13.4159	0.0000
R-squared	0.9535	F-statistic		215.275
Adjusted R-squared	0.9491	Prob (F-statistic)		0.0000

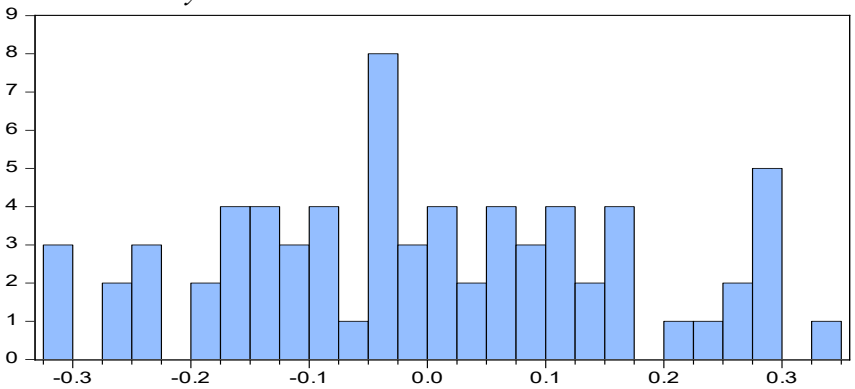
Source: Processed by Eviews, 2025

$$Y = -12{,}5526 + 0{,}8489X_1 + 0{,}7500X_2 + 0{,}5295X_3 + 0{,}6348X_4 + 0{,}5371X_5 + 0{,}5761X_6$$

1. The constant coefficient of −12.5526 means that when all independent variables are zero, the community welfare will be −12.5526.
2. The coefficient of 0.8489 with a significance level of 0.0000 < 0.05 indicates that the Smart People variable has a positive and significant effect on community welfare. This means that each 1 unit increase in Smart People will increase community welfare by 0.848958, assuming other variables remain constant.
3. The coefficient of 0.7500 with a significance level of 0.0000 < 0.05 indicates that the Smart Governance variable has a positive and significant effect on community welfare. This means that each 1 unit increase in Smart Governance will increase community welfare by 0.7500, assuming other variables remain constant.
4. The coefficient of 0.5295 with a significance level of 0.0000 < 0.05 indicates that the Smart Mobility variable has a positive and significant effect on community welfare. This means that each 1 unit increase in Smart Mobility will increase community welfare by 0.5295, assuming other variables remain constant.
5. The coefficient of 0.6348 with a significance level of 0.0000 < 0.05 indicates that the Smart Environment variable has a positive and significant effect on community welfare. This means that each 1 unit increase in Smart Environment will increase community welfare by 0.634853, assuming other variables remain constant.
6. The coefficient of 0.5371 with a significance level of 0.0000 < 0.05 indicates that the Smart Living variable has a positive and significant effect on community welfare. This means that each 1 unit increase in Smart Living will increase community welfare by 0.537115, assuming other variables remain constant.
7. The coefficient of 0.5761 with a significance level of 0.0000 < 0.05 indicates that the Smart Economy variable has a positive and significant effect on community welfare. This means that each 1 unit increase in Smart Economy will increase community welfare by 0.5761, assuming other variables remain constant.

4.3. Results of Classical Assumption Testing

4.3.1. Normality Test Results



Series: Residuals
Sample 1 70
Observations 70

Mean	5.14e-16
Median	-0.012657
Maximum	0.335366
Minimum	-0.310255
Std. Dev.	0.167297
Skewness	0.140389
Kurtosis	2.258433
Jarque-Bera	1.833876
Probability	0.399741

Figure 12 Normality Test Results
Source: Processed by Eviews, 2025

The normality test was conducted to determine whether the dependent and independent variables in the regression model follow a normal distribution. Referring to the results shown in Table 3, the obtained probability value is 0.399. Since this value is greater than the 5% significance level (0.05), it can be concluded that the data in this model are normally distributed.

4.3.2. Multicollinearity Test Results

Table 2. Multicollinearity Test Results

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.2059	470.07	NA

X1	0.0019	71.4507	1.1051
X2	0.0028	106.6998	1.0585
X3	0.0019	71.8192	1.0774
X4	0.0018	71.6058	1.1235
X5	0.0020	77.5364	1.0801
X6	0.0018	69.8664	1.1565

Source: Processed by Eviews, 2025

The analysis results show that there are no signs of multicollinearity in the model. This is indicated by the Centered Variance Inflation Factor (VIF) values for all variables being below 10. As a general guideline (rule of thumb), multicollinearity is considered to occur if the VIF value exceeds 10.

4.3.3. Heteroscedasticity Test Results

Table 3. Heteroscedasticity Test Results

*Obs*R-squared*	8.620436	*Prob. Chi-Square(6)*	0.1961

Source: Processed by Eviews, 2025

Table 3 shows that there are no signs of heteroscedasticity, meaning the data are homoscedastic. This is proven by the Prob. Chi-Square Obs*R-squared value of 0.1961, which is greater than the 0.05 significance level.

4.3.4. Autocorrelation Test Results

Table 4. Autocorrelation Test Results

*Obs*R-squared*	0.66407	*Prob. Chi-Square(2)*	0.7175

Source: Processed by Eviews, 2025

Table 4 shows that H_0 is accepted, which means there are no autocorrelation problems in the model. This is indicated by the Prob. Chi-Square Obs*R-squared value of 0.7175, which exceeds the 0.05 significance level.

4.4. Hypothesis Testing Results

4.4.1. t-Statistic Test Results

Table 5. t-Statistic Test Results

Variable	t-Statistic	t-Tabel	Prob.
X1	19.5206	1.6694	0.0000
X2	14.1735	1.6694	0.0000
X3	12.0133	1.6694	0.0000
X4	14.8415	1.6694	0.0000
X5	11.9512	1.6694	0.0000
X6	13.4159	1.6694	0.0000

Source: Processed by Eviews, 2025

Based on Table 5, the t-statistic value for the Smart People variable (X_1) is 19.5206, while the t-table value is 1.6694. This indicates that the t-statistic value is greater than the t-table value. Therefore, H_0 is rejected and H_a is accepted, meaning that the Smart People variable has a positive and significant effect on Community Welfare. Based on Table 5, the t-statistic value for the Smart Governance variable (X_2) is 14.1735, while the t-table value is 1.6694. This indicates that the t-statistic value is greater than the t-table value. Therefore, H_0 is rejected and H_a is accepted, meaning that the Smart Governance variable has a significant effect on Community Welfare.

Based on Table 5, the t-statistic value for the Smart Mobility variable (X_3) is 12.0133, while the t-table value is 1.6694. This indicates that the t-statistic value is greater than the t-table value. Therefore, H_0 is rejected and H_a is accepted, meaning that the Smart Mobility variable has a significant effect on Community Welfare. Based on Table 5, the t-statistic value for the Smart Environment variable (X_4) is

14.8415, while the t-table value is 1.6694. This indicates that the t-statistic value is greater than the t-table value. Therefore, H_0 is rejected and H_a is accepted, meaning that the Smart Environment variable has a significant effect on Community Welfare.

Based on Table 5, the t-statistic value for the Smart Living variable (X_5) is 11.9512, while the t-table value is 1.6694. This indicates that the t-statistic value is greater than the t-table value. Therefore, H_0 is rejected and H_a is accepted, meaning that the Smart Living variable has a significant effect on Community Welfare. Based on Table 5, the t-statistic value for the Smart Economy variable (X_6) is 13.4159, while the t-table value is 1.6694. This indicates that the t-statistic value is greater than the t-table value. Therefore, H_0 is rejected and H_a is accepted, meaning that the Smart Economy variable has a significant effect on Community Welfare.

4.4.2. F-Statistic Test Results

The F-test is used to determine whether all the independent variables simultaneously have an effect on the dependent variable. This test is conducted at the 5% significance level ($\alpha = 0.05$) with degrees of freedom df1 = k and df2 = n - k - 1, where n is the sample size and k is the number of independent variables. Based on the calculation results in Appendix 5, the F-statistic value is 215.274 and the F-table value is 2.246. Since the F-statistic value is greater than the F-table value, H_0 is rejected and H_a is accepted, meaning that the independent variables tested have a significant simultaneous effect on the dependent variable.

5. Conclusion

Smart People: The development of smart people through the use of technology, information, and human resource capacity building significantly improves community welfare. This is reflected in better access to public services, education, and economic opportunities, stronger participation in village development, and economic empowerment through digital marketing and skill enhancement. Smart Governance: The application of technology-based and participatory smart governance positively impacts community welfare by increasing the effectiveness of development programs, reducing poverty levels, improving public service quality, strengthening village institutional capacity, and fostering sustainable local economic growth. Successful implementation requires commitment from village governments, human resource capacity, and active community participation.

Smart Mobility: Smart mobility contributes significantly to community welfare by improving efficiency, connectivity, and accessibility. It facilitates access to education and healthcare services, strengthens the local economy through logistical efficiency and market expansion, enhances social and cultural participation, and potentially reduces carbon emissions, which overall improves the quality of life and community satisfaction. Smart Environment: Implementing smart environmental practices enhances community welfare through better governance and more effective and transparent public services, accelerating local economic growth through the digitalization of productive sectors, improving digital literacy and social participation, and managing resources sustainably, creating a cleaner and healthier environment.

Smart Living: The application of the smart living concept, which includes the use of technology, increased digital and financial literacy, and strengthened social skills, correlates strongly with improved community welfare. This is reflected in increased participation and transparency in village governance, faster growth in micro-economies, stronger social cohesion, and improved spending quality and efficiency in the use of village funds. Smart Economy: Smart economy significantly improves rural community welfare through the digitalization of SMEs, market integration, and the enhancement of digital skills. This impacts household income growth, the transparency and accountability of cooperatives, better access to education and healthcare, and the potential reduction in unemployment. Its success requires adequate infrastructure, adaptive governance, and collaboration from various stakeholders.

5.1 Recommendations

Future research can deepen the understanding of the implementation of the smart village concept by focusing on comparative analysis across different loci in Lampung Province to identify the contextual factors that most influence the success of the program in each village. This study can use both qualitative and quantitative approaches to explore differences in technology adoption, community participation, and the welfare impacts generated, thus providing deeper insights for developing more specific and effective policies.

Furthermore, future research could explore the long-term impacts of smart village initiatives on broader welfare aspects, such as the socio-economic resilience of communities to external shocks, changes in social interaction patterns, and environmental sustainability. A longitudinal study with periodic data collection would be highly valuable in measuring changes over time and identifying potential challenges or opportunities that may arise in the long term, allowing for more adaptive adjustments in implementation strategies.

Lastly, future research can focus on developing a more comprehensive and integrated evaluation model to measure the multidimensional impacts of the Smart Village program on community welfare. This model should not only consider economic indicators but also social, environmental, and governance indicators, and involve active community participation in the evaluation process. The results of this participatory and holistic evaluation will provide a more accurate picture of the program's effectiveness and provide a solid foundation for continuous improvement and replication of best practices in other regions.

References

Aiguobarueghian, I., Adanma, U. M., Ogunbiyi, E. O., & Solomon, N. (2024). An Overview of Initiatives and Best Practices in Resource Management and Sustainability. *World Journal of Advanced Research and Reviews, 22*(2), 1734-1745. doi:https://doi.org/10.30574/wjarr.2024.22.2.1519

Angkasa, N. (2024). Smart Village Sebagai Bentuk Good Village Governance Menuju Era Desa Digital. *Audi Et AP: Jurnal Penelitian Hukum, 3*(1), 23-29. doi:https://doi.org/10.24967/jaeap.v3i01.2779

Boparai, J. K., Singh, S., & Kathuria, P. (2018). How to Design and Validate a Questionnaire: A Guide. *Current Clinical Pharmacology, 13*(4), 210-215. doi:https://doi.org/10.2174/1574884713666180807151328

Dar, H. (2022). Conceptualizing the Smart Community in the Ages of Smart Tourism: A Literature Perspective. *Revista Turismo & Desenvolvimento (RT&D)/Journal of Tourism & Development*(39). doi:10.34624/rtd.v39i0.30330

De Guimarães, J. C. F., Severo, E. A., Júnior, L. A. F., Da Costa, W. P. L. B., & Salmoria, F. T. (2020). Governance and Quality of Life in Smart Cities: Towards Sustainable Development Goals. *Journal of Cleaner Production, 253*, 119926. doi:https://doi.org/10.1016/j.jclepro.2019.119926

Duncan, O. D. (2017). Path Analysis: Sociological Examples *Causal Models in the Social Sciences* (pp. 55-80): Routledge.

Falaras, A., & Moschidis, O. (2024). The Effect of Entrepreneurial Culture on Innovation in a Negative Business Environment: The Case of Greece. *EuroMed Journal of Business, 19*(4), 705-719. doi:https://doi.org/10.1108/EMJB-03-2022-0064

Fathulloh, S., & Mufidah, M. (2021). Urgensi Pelaksanaan Asas Desentralisasi dalam Mewujudkan Kesejahteraan Masyarakat dalam Pandangan Fiqih Siyasah. *Mizan: Journal of Islamic Law, 9*(2), 315-328. doi:https://doi.org/10.32832/mizan.v9i2.20311

Fatimah, S., Judawinata, M. G., Barkah, M. N., Trimo, L., & Deliana, Y. (2020). Towards Smart Village: A Case Study of Genteng Village Development in Sumedang, West Java, Indonesia. *Society, 8*(2), 663-676. doi:https://doi.org/10.33019/society.v8i2.264

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). Partial Least Squares Structural Equation Modeling: Rigorous Applications, Better Results and Higher Acceptance. *Long range planning, 46*(1-2), 1-12. doi:https://doi.org/10.1016/j.lrp.2013.01.001

Hariram, N., Mekha, K., Suganthan, V., & Sudhakar, K. (2023). Sustainalism: An Integrated Socio-Economic-Environmental Model to Address Sustainable Development and Sustainability. *Sustainability, 15*(13), 10682. doi:https://doi.org/10.3390/su151310682

Hassan, N., & Arista, N. I. D. (2025). From Tradition to Modernity: The Role of Smart Villages in Reshaping Agricultural Communities and Sustainable Development. *Holistic: Journal of Tropical Agriculture Sciences, 2*(2), 69-83. doi:https://doi.org/10.61511/hjtas.v2i2.2025.802

Heimburg, D. V., & Ness, O. (2021). Relational Welfare: A Socially Just Response to Co-Creating Health and Wellbeing for All. *Scandinavian Journal of Public Health, 49*(6), 639-652. doi:https://doi.org/10.1177/1403494820970815

Herdiana, D. (2019). Pengembangan Konsep Smart Village Bagi Desa-Desa di Indonesia (Developing the Smart Village Concept for Indonesian Villages). *JURNAL IPTEKKOM (Jurnal Ilmu Pengetahuan & Teknologi Informasi), 21*(1), 1-16. doi:https://doi.org/10.17933/iptekkom.21.1.2019.1-16

Huda, H. A., Suwaryo, U., & Sagita, N. I. (2020). Pengembangan Desa Berbasis Smart Village (Studi Smart Governance pada Pelayanan Prima Desa Talagasari Kabupaten Karawang). *Moderat: Jurnal Ilmiah Ilmu Pemerintahan, 6*(3), 539-556. doi:https://dx.doi.org/10.25157/moderat.v6i3.3406

Jäntschi, L., Pruteanu, L. L., Cozma, A. C., & Bolboacă, S. D. (2015). Inside of the Linear Relation Between Dependent and Independent Variables. *Computational and Mathematical Methods in Medicine, 2015*(1), 360752. doi:https://doi.org/10.1155/2015/360752

Lestari, S., Watini, S., & Rose, D. E. (2024). Impact of Self-Efficacy and Work Discipline on Employee Performance in Sociopreneur Initiatives. *Aptisi Transactions on Technopreneurship (ATT), 6*(2), 270-284. doi:https://doi.org/10.34306/att.v6i2.403

Lindebaum, D., Moser, C., Ashraf, M., & Glaser, V. L. (2023). Reading the Technological Society to Understand the Mechanization of Values and Its Ontological Consequences. *Academy of Management Review, 48*(3), 575-592. doi:http://dx.doi.org/10.5465/amr.2021.0159

Nisa, S. K., & Putri, E. R. (2023). Analysis of the Use of Digital Learning Media Technology in Science Lesson Materials in Primary Schools Based on the Philosophy Perspective of Progressivism. *Cognitive Development Journal, 1*(2), 67-74. doi:https://doi.org/10.32585/cognitive.v1i2.13

Pabendon, T. (2017). Analisis Dampak Pelaksanaan Otonomi Khusus Terhadap Peningkatan Kesejahteraan Masyarakat Asli Papua di Kabupaten Mimika. *JURNAL KRITIS (Kebijakan, Riset, dan Inovasi), 1*(1), 1-16.

Pereira, G. V., Parycek, P., Falco, E., & Kleinhans, R. (2018). Smart Governance in the Context of Smart Cities: A Literature Review. *Information Polity, 23*(2), 143-162. doi:https://doi.org/10.3233/IP-170067

Porru, S., Misso, F. E., Pani, F. E., & Repetto, C. (2020). Smart Mobility and Public Transport: Opportunities and Challenges in Rural and Urban Areas. *Journal of Traffic and Transportation Engineering (English Edition), 7*(1), 88-97. doi:https://doi.org/10.1016/j.jtte.2019.10.002

Ramadhani, G. A., & Rohmadiani, L. D. (2024). Readiness to Implement the Digital Village Program: A Case Study: Waru Village, Waru Sub-district, Sidoarjo Regency. *Formosa Journal of Science and Technology (FJST), 3*(12), 2629-2646. doi:https://doi.org/10.55927/fjst.v3i12.12623

Sapria, N. Y., & Sutarmin, S. (2023). The Effect of Perceived Risk on Repurchase Intention Mediated By Online Trust and Perceived Usefulness At Tokopedia. *International Journal of Economics, Business and Accounting Research (IJEBAR), 7*(2), 599-610. doi:https://doi.org/10.29040/ijebar.v7i2.9437

Shi, Y., & Wei, F. (2024). Comparative Analysis of Digital Economy-Driven Innovation Development in China: An International Perspective. *Journal of the Knowledge Economy*, 1-43. doi:https://doi.org/10.36690/2674-5208-2024-2-44-50

Supangkat, S. H., Firmansyah, H. S., Kinanda, R., & Rizkia, I. (2024). Smarter World Living Lab as an Integrated Approach: Learning How to Improve Quality of Life. *IEEE Access, 12*, 62687-62708. doi:https://doi.org/10.1109/ACCESS.2024.3392849

Triyono, & Febriani, R. D. (2018). Pentingnya Pemanfaatan Teknologi Informasi Oleh Guru Bimbingan dan Konseling. *Jurnal Wahana Konseling, 1*(2), 74-83. doi:https://doi.org/10.31851/juang.v1i2.2092

Undang-undang (UU) Nomor 6 Tahun 2014 tentang Desa.
Widiyarta, A., Haniyuhan, A., & Bataha, K. (2024). Transformasi Sosial Budaya Masyarakat pada Implementasi Program Smart Village dalam Perspektif Smart Governance. *Religion, Education, and Social Laa Roiba Journal (RESLAJ), 6*(4), 2030-2041. doi:https://doi.org/10.47467/reslaj.v6i4.1903