IJEBE INTERNATIONAL JOURNAL OF ECONOMICS, BUSINESS AND ENTREPRENEURSHIP

Vol.7, No. 2, 2024

Village Economic Progress: Exploring the Impact of the Smart Village Program in Lampung Province 2020-2024

Endriyono[1], Toto Gunarto[2], Dedy Yuliawan[3]
Master of Economics, Faculty of Economics and Business
University of Lampung, Indonesia
endrikalianda@gmail.com

ABSTRACT

The aim of this research is to analyze the feasibility of the Smart Village program as the government's flagship program in strengthening the village economy, as well as assessing the program's achievements based on the criteria set by the Ministry of Villages PDTT and the Lampung Provincial Government. It is hoped that this research can contribute to the development of more effective and sustainable village development policies in Indonesia. Smart villages are significantly influenced by a smart economy and a smart society, with both having a strong positive impact. This means that improvements in the economy and the quality of smart communities will increase the smart village index. In addition, smart mobility also has a positive effect but with a lower level of significance. However, the variables smart government and smart life do not have a significant influence on smart villages. Thus, the main focus for improving smart villages should be directed at improving the economy, community quality and mobility.

Keywords: *Lampung, Smart Economy, and Smart Village*

INTRODUCTION

The Smart Village Program in Lampung Province has been implemented since 2020, in accordance with the vision and mission of the Governor and Deputy Governor of Lampung for the 2018-2024 period. This program is also part of the Strengthening Government and Village Development (P3PD) Sub Component 2C2 Program initiated by the Ministry of Villages, Development of Disadvantaged Regions and Transmigration (Kemendes PDTT). In Lampung Province, the Ministry of Villages PDTT through BPI and Pusdaing has determined the locations of Smart Villages since 2020, namely in Tulangbawang Regency (10 villages), Pesawaran Regency (20 villages), Tanggamus Regency (15 villages), and in 2023, 25 villages will be determined in Pringsewu Regency **(Zhenrong, 2024)**.

Each Smart Village location has technical assistants who receive an Assignment Order (SPT) from the Ministry of Villages PDTT, who are then known as Digital Ambassadors. At the village level, Digital Cadres are also formed who are appointed through a Decree (SK) from the Village Head and ratified by the Ministry of Villages PDTT. In Tulangbawang Regency there are 2 Digital Ambassadors, in Pesawaran Regency 4 Digital Ambassadors, in Tanggamus Regency 3 Digital Ambassadors, and in 2023, 5 more Digital Ambassadors will be appointed in Pringsewu

Regency. Apart from that, there is also a Digital Cadre, one person per village. Thus, in Lampung Province there are 12 assistant staff from the Ministry of Villages PDTT and 70 Digital Cadres who are tasked with overseeing and making the Smart Village program a success **(Ren et al., 2024)**.

At the Lampung Provincial Government level, in accordance with Governor's Decree Number: G/228/II.02/HK.2020 concerning Determining Target Locations for the Smart Village Pilot Project for Lampung Province in 2020, 30 villages in 13 districts have been designated as targets for the Smart Village pilot project. Interestingly, the location of the village that becomes a Smart Village based on the Governor's Decree is different from the location of the Smart Village determined by the Ministry of Villages PDTT. However, there are fundamental differences in program goals and objectives between the determination of the Smart Village locus by the Lampung Provincial Government and the PDTT Ministry of Villages.

In the Lampung Gubernatorial Regulation, the Smart Village pillar includes three development strategy focuses, namely smart government, smart people, and smart economics. Meanwhile, the Ministry of Villages PDTT includes six additional main pillars, namely smart employment, smart living and smart mobility. The main focus and priority of the program, based on the Smart Village program implementation report, is smart government and smart economics. In theory, achieving smart economics is impossible without smart people, and smart government is difficult to achieve without being supported by smart mobility. Smart Villages, which are essentially a duplication of the implementation of Digital Villages, have been empirically proven in studies such as Gao Wang (Digital Village Enlightenment in the US), Vizvizi (Smart Village Initiatives in the European Union), and Chaozhu (Evidence of the Success of Digital Villages in China) **(Fang & Zhang, 2021)**.

A smart village is a development concept that encourages villages to transform by utilizing technology, aiming to improve the quality of basic services and village development through inclusive and sustainable community empowerment. This is done by increasing human resources in the effective use of technology to create innovative local development solutions, as well as building a smart village network that involves various stakeholders in a sustainable manner. The ultimate goal is to achieve sustainable development goals (SDGs) which are implemented with local measures through the Village SDGs **(Zhenrong, 2024)**. Various countries have developed this Smart Village concept. The International Telecommunication Union (ITU) has designed a blueprint for the development of Smart Villages. In the Blueprint, ITU links the Smart Village concept with Sustainable Development Goals (SDGs), known as SDGs Smart Village **(Modernization, 2020)**.

Sustainable Development Goals (SDGs) in the village context are prepared through Village SDGs with local village measurements. This approach is relevant for preparing overall village development, including concept maturation, policy and institutional support, as well as detailed data collection from within the village. Village SDGs ensure that village development reaches all residents (no one left behind), covers the entire village environment, and maintains a variety of local wisdom **(Fang & Zhang, 2021)**.

The Village SDGs include the following goals: Villages without Poverty, Villages without Hunger, Healthy and Prosperous Villages, Quality Village Education, Involvement of Village Women, Villages Decent with Clean Water and Sanitation, Villages with Clean and Renewable Energy, Equitable Village Economic Growth, Infrastructure and Innovation Villages according to needs, villages without gaps, safe and comfortable village residential areas, environmentally conscious village consumption and production, climate change responsive villages, villages that care about the marine environment, villages that care about the land environment, peaceful villages with justice, partnerships for village development, and dynamic village institutions and Adaptive Village Culture (Halim Iskandar, 2020). Village SDGs 18: Dynamic Village Institutions

and Adaptive Village Culture is a new development goal that focuses on preserving the history, culture and original institutions of villages in Indonesia. With this, the big narrative of development is applied in the micro village context **(Rijswijk et al., 2021)**.

Table 1. Relationship of Smart Village Pillars and Dimensions with SDGs Achievement

No	Smart Village Pillars	Dimensional Theme	Example	Linkage to SDGs
1	Smart Society	Skills	Literacy programs digital to improve Skills	SDG1- None poverty SDG5- Gender equality SDG10- Reduce Inequality
		Creativity	Using skills to increase online and offline creativity	
		Inclusion	Improve internet access which is more inclusive	
2	Smart Economy	Culture of Business and Innovation	Start ups and innovation	SDG8- Decent business and equitable economic growth
		Productivity	Technology for improve efficiency and productivity	
		Market Access	E Commerce Platform	
3	Smart Governance	Openness	Collection and data usage easily accessible by public	SDG16 – Peace, Justice, Institutional ones strong SDG17 – Cooperation and Partnership
		Infrastructure	Investment in digitalization offices and facilities government	
		Administration	Increase efficiency citizen services and public administration	
		Online Services	Improve access towards public services through technology	
4	Smart Environment	Sustainable and integrated natural resource management	Increase knowledge and conservation efficiency	SDG 6 – Clean water and sanitation SDG 7 – Energy clean and

		Sustainable regional development	Increase efficiency land and water use	affordable SDG 13 – Weather action SDG 14 – Life underwater SDG 15 – Life in ground level
5	Smart Life	Education	Educational Platform and online learning	SDG 3 –Health the good and well-being SDG 4- Quality Education SDG 18- Village institutions dynamic and cultural adaptive village
		Health	Remote medicine (Telemedicine) and increase efforts health tracking preventive	
		Socio-cultural	Increase knowledge culture and social networks	
6	Smart Mobility	Infrastructure	Physical development of digital infrastructure	SDG 9 – Industry, innovation and infrastructure
		Network	Application for connection person to person	
		Citizen Services	Connecting service community with village government	

The Sustainable Development Goals indicators are very in line with the Smart Village concept, because the principles underlying Smart Villages, such as sustainability, equality and inclusiveness in the fields of economy, government, society and the environment, are in line with the SDGs. These pillars and dimensions of activities clearly show the relevance of Smart Villages in achieving the Village SDGs **(Luo et al., 2023)**.

Liu & Liu (2024) several points in Permendesa Number 8 of 2022 concerning Priorities for the Use of Village Funds in 2023 which support Smart Village Development include: procurement of information and communication technology infrastructure and facilities to support the improvement and consolidation of Village SDGs data as well as data collection on village development through the developing village index; use of environmentally friendly and sustainable technology; promotion of tourist villages through cultural events and digital platforms; development of integrated agriculture, plantation, forestry, livestock and fisheries centers; as well as procurement of appropriate technological equipment for post-harvest processing.

Smart economics in the Smart Village Pillar includes the process of utilizing technology to improve the welfare and economic value of village communities now and in the future. The Smart Village Guidebook (2020) explains the basics of local economic development in accordance with the regulations and policies of the Ministry of Villages PDTT, as well as the perspective of social entrepreneurship based on information and communication technology

(technosociopreneurship) in supporting the achievement of a smart economy. By understanding the regulations, policies and concepts of smart economic development, smart village assistants are expected to be able to understand the ICT-based social entrepreneurship process to improve the quality of participation and formulate smart economic steps **(Hua et al., 2024)**.

LITERATURE REVIEW

Smart Village

The Smart Village concept combines digital technology with rural life to create a more efficient, sustainable and inclusive environment. The main idea behind Smart Village is to utilize technology to improve the quality of life of village communities in a holistic way. According to Baldwin et al. (2019), Smart Village includes the application of digital solutions in various vital sectors such as agriculture, education, health and other public services. In the agricultural sector, for example, Internet of Things (IoT) technology can be used to monitor soil, weather and crop conditions in real-time, so that farmers can make more precise and efficient decisions. In the education sector, e-learning platforms can provide access to high-quality learning materials, even in remote villages (Rijswijk et al., 2021).

Apart from that, in the health sector, telemedicine technology allows rural communities to consult doctors without having to travel long distances to the city. Public services have also become more accessible through digital platforms that provide information and administrative services online. Technologies such as big data and artificial intelligence (AI) play an important role in processing big data generated by various digital devices and applications, which is then used to identify trends, predict needs and provide more effective solutions. In this way, Smart Village not only increases the efficiency and effectiveness of services, but also encourages community participation in village development, ensuring that the solutions implemented truly meet local needs and empower communities (Ren et al., 2024).

Rural Economic Development

Rural economic development focuses on increasing the productivity and income of village communities through various sustainable and contextual strategies. One of the main approaches is economic diversification, where rural communities are encouraged to develop various sources of income other than the traditional agricultural sector. This includes the development of small and medium enterprises (SMEs), handicrafts and local tourism. Increasing market access is also a key factor, where digital technology can help farmers and village craftsmen to market their products directly to consumers, both locally and globally, without going through intermediaries who can reduce their profit margins. Apart from that, improving people's skills through training and education is another important aspect. Relevant and contextual training programs can help rural communities to utilize new technologies, manage their businesses better, and increase their work productivity (Renukappa et al., 2022).

According to Todaro and Smith (2015), rural development interventions must be adapted to local needs and potential to achieve optimal results. This means that development policies and programs must be designed taking into account the specific conditions of each village, including available natural resources, social structure, and local culture. This approach ensures that the solutions implemented are truly suited to the local context and can be adopted more easily by the community. For example, in villages that have high agricultural potential, development programs may focus more on improving agricultural technology and market access. In contrast, in villages with tourism potential, programs can focus on developing tourism infrastructure and related

skills training. With this contextual approach, rural economic development not only increases income and productivity, but also strengthens the independence and sustainability of the village economy (Zavratnik et al., 2018).

METHODS

Data for this research was obtained from various sources. First, data is taken from the District Village Government Service where the Smart Village is located, with all information centralized on the Ministry of Villages website in the form of IDM. Second, data was also obtained from technical assistants assigned by the Ministry of Villages PDTT to implement Smart Villages in Lampung Province. Third, in-depth interviews were conducted with companions known as Digital Ambassadors and Digital Cadres. Finally, we distributed a questionnaire via Google Form to measure the status and conditions of the village.

The variable data used is as follows:

1. A Smart Village (Y) is a village that is able to manage resources and assets to develop new opportunities both traditional and digital technology so as to create telecommunications, innovation and better use of knowledge.
2. The smart economy (X1) in the Smart Village program includes several important aspects. First, SME development based on local advantages and regional potential.
3. Smart communities (X2) are one of the important pillars of smart villages, which is a development concept that aims to improve the quality of life of village communities through a participatory and holistic approach.
4. A smart government (X3) must be able to manage finances well, develop human resources, carry out its duties and responsibilities professionally and accountably, and build community participation in village development.
5. Environmental intelligence (X4) is the ability to preserve the environment.
6. Smart mobility (X5) can be defined as a transportation system that is sustainable and efficient, and accessible to everyone.

1. Multiple Linear Regression Analysis

To determine the effect of the independent variable on the dependent variable, a statistical analysis tool is used, namely multiple linear regression with the OLS (Ordinary Least Squares) approach. Regression analysis is a method used to analyze the relationship between these variables.

2. Classical Assumption Testing

a. Normality test

The Normality Test is carried out to determine whether the residuals (the difference between predicted values and observed values) are normally distributed or not. This normality test uses the Jarque-Bera method. The residual is said to have a normal distribution if the Jarque-Bera value > Chi square, or probability (p-value) > α = 5%. The normality problem hypothesis proposed is as follows (Sugiono, 2013):

b. Heteroscedasticity Test

Heteroscedasticity is a situation where the variance is not constant across disturbance factors. A regression model is said to experience heteroscedasticity if there is an inequality in the variance of the residuals between one observation and another, which means the model is not homoscedastic (has the same variance). (Sugiono, 2013)

c. Autocorrelation Test

The Breusch-Godfrey Serial Correlation LM test is used to identify whether there is an autocorrelation problem in the regression model. If the value of Obs*R square (χ2-count) < Chi-square (χ2–table), then the results of this test indicate that there is no autocorrelation problem. On the other hand, if the Obs*R square (χ2-count) value > Chi-square (χ2–table), then this indicates that the model is experiencing an autocorrelation problem (Sugiono, 2013).

d. Multicollinearity Test

Testing for symptoms of multicollinearity can be done by calculating the Variance Inflation Factor (VIF) from the estimation results. If the VIF value is more than 10, it indicates multicollinearity between variables. Conversely, if the VIF value is less than 10, it indicates that there is no multicollinearity problem between the variables (Sugiono, 2013).

3. Hypothesis test

a. T-Statistics Test (partial)

This test is used to see the significance of the influence of the independent variable on the dependent variable individually. Testing uses a one-way test with a confidence level of 95% with decision making criteria (Gujarati, 2004).

Reporting Research Results

1. Multiple Linear Regression

Table 2. Multiple Linear Regression Results

Variables	Coefficient	Std. Error	t-Statistics	Prob.
C	8.5062	7.3378	11.5922	0.0000
X1	2.0024	0.7016	2.8542	0.0057
X2	3,1853	0.8100	3.9326	0.0002
X3	1.0753	0.7852	1.3695	0.1753
X4	0.6739	0.6582	1.0238	0.3095
X5	1.5503	0.9036	1.7157	0.0907
R-squared		0.274602	F-statistic	5.2240
Adjusted R-squared		0.222037	Prob(F-statistic)	0.0004

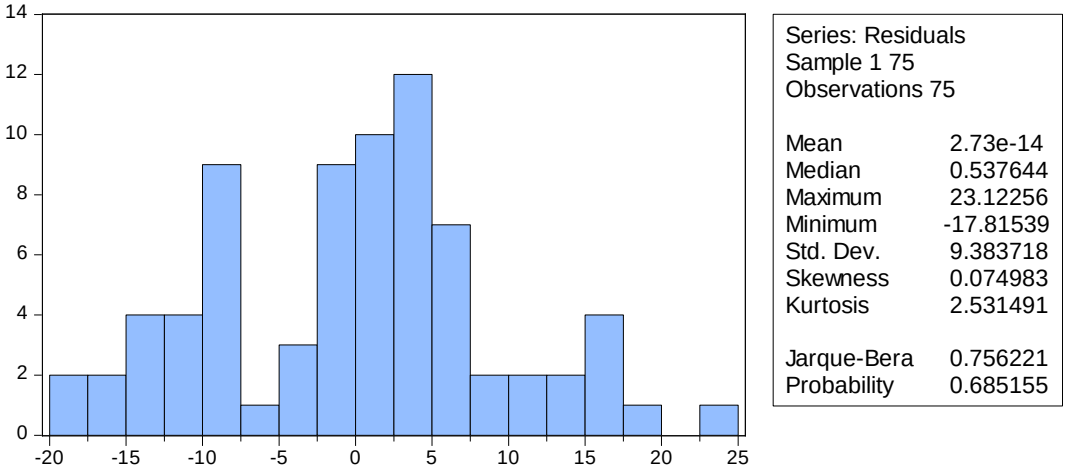
Source : Processed Eviews 9, 2024

The results of the analysis show that the ilia constant is equal to8.5062 which means that when all independent variables are equal to zero, the smart village value is 8.5062. The coefficient of the smart economic variable is 2.0024, indicating that the smart economic variable has a positive and significant effect at an alpha of 5%. So, if there is an increase in the smart economy by 1 unit, it will increase the smart village by 2.0024 units. The coefficient of the intelligent society variable is 3.1853, indicating that the intelligent society variable has a positive and significant effect at alpha 5%. So, if there is an increase in intelligent communities by 1 unit, it will increase intelligent villages by 3.1853 units. The coefficient of the smart government variable is 1.0753, indicating that the smart government variable has no significant effect at alpha 5%. The coefficient of the smart life variable is 0.6739, indicating that the smart life variable has no significant effect at alpha 5%. The coefficient of the smart mobility variable is 1.5503, indicating that the smart mobility variable has a positive and significant effect at an alpha of 10%. So if there is an increase in smart mobility by 1 unit, it will increase the smart village by 3.1853 units.

2. Classic Assumption Test Results

a. Normality

Figure 1. Normality Test Results



Source: E-views Data Processing 9, 2024

Based on Figure 1, it can be concluded that the Jarque-Bera probability value is 0.6851 > 0.05, so it can be concluded that the data in this study is normally distributed.

b. Multicollinearity Test

Table 3. Multicollinearity Test Results

Variables	Coefficient Variance	Uncentered VIF	Centered VIF
C	53.8437	42.7626	NA
X1	0.4922	39.4500	2.1116
X2	0.6561	77.3785	3.0136
X3	0.6165	74.6464	4.1390
X4	0.4332	35.4392	2.0341
X5	0.8165	59.2437	2.1078

Source: E-views Data Processing 9, 2024

Based on Table 3 above, it can be seen that the Cebtered VIF value for each variable is below <10, so it can be concluded that the data in this study is free from multicollinearity.

c. Heteroscedasticity Test

Based on the regression results, it can be seen that the Chi-Squares probability is 0.0000 < 0.05, so it can be concluded that this research is free from heteroscedasticity problems.

d. Autocorrelation Test Results

Based on the results of the regression, it can be seen that the Chi-Squares probability is 0.0000 < 0.05, so it can be concluded that this research is free from autocorrelation problems.

DISCUSSION

In order to achieve a smart economy in the Smart Village program, collaboration is needed between the government, community and other parties involved in economic development in rural areas (Górecka et al., 2022). The government needs to provide adequate support, such as infrastructure facilities, training and financial access. Meanwhile, society needs to actively participate in business development and have the enthusiasm to continue learning and innovating (Hua et al., 2024). Apart from that, other parties such as large companies and educational institutions can also provide support in the form of cooperation and research to improve the quality and competitiveness of products from village communities. In order to optimize economic development in rural areas, there is also a need for a holistic and integrated approach. This means that economic development must be carried out in an integrated manner with the development of other sectors such as education, health and the environment. This can help improve the quality of life of village communities as a whole (Ren et al., 2024). Apart from that, there is also a need to develop skills and knowledge for village communities. The government can provide training to improve skills in business development, financial management, marketing and the use of ICT. By improving skills and knowledge, village communities can be better prepared and able to face the challenges and opportunities in the current global economic era (Visvizi & Lytras, 2018).

Smart communities are an important pillar in the development of smart villages, because smart people have good knowledge, skills and attitudes to meet their living needs and improve their quality of life. Smart communities are also able to utilize the resources around them more effectively and efficiently (Zhao et al., 2022). Smart communities play an important role in the development of smart villages, because they are active agents of change and participate in various development activities. Intelligent communities are able to assist village governments in determining appropriate policies to improve the quality of life of the community, as well as participating in the implementation of these policies. In order to build a smart society, village governments need to provide education and training to the community, both related to technical knowledge such as agriculture, waste processing and water management, as well as social knowledge such as communication skills, leadership and teamwork. In addition, village governments can also hold discussion forums and workshops to facilitate the exchange of information and ideas between communities (Bakker & Ritts, 2018).

Smart mobility will bring many benefits to rural communities, including improving the quality of life, reducing congestion and reducing greenhouse gas emissions. Apart from that, smart mobility will also help rural communities to connect with the outside world and expand economic opportunities. Therefore, the government needs to pay attention to smart mobility in the smart village development program (Meng et al., 2022). Apart from the three methods mentioned previously, the government also needs to encourage the adoption of shared transportation. Shared transportation concepts, such as carpooling and bike-sharing, can improve smart mobility by sharing the same vehicle to reduce costs and exhaust emissions. Apart from that, the carpooling program will also help increase the sense of togetherness and interaction between one village resident and another (Liu & Liu, 2024). Apart from that, to achieve optimal smart mobility, it is also necessary to pay attention to safety and security aspects. The government can strengthen regulations and implementation of road safety standards, such

as installing traffic signs, checking vehicle fitness, and using helmets for motorbike riders. In order to achieve a smart economy in the Smart Village program, collaboration between the government, the community and other parties involved in the program is needed. economic development in rural areas (Luo et al., 2023). The government needs to provide adequate support, such as infrastructure facilities, training and financial access. Meanwhile, the community needs to actively participate in business development and have the enthusiasm to continue learning and innovating. Apart from that, other parties such as large companies and educational institutions can also provide support in the form of cooperation and research to improve the quality and competitiveness of products from village communities. In order to optimize economic development in rural areas, there is also a need for a holistic and integrated approach. This means that economic development must be carried out in an integrated manner with the development of other sectors such as education, health and the environment (Li et al., 2023). This can help improve the quality of life of village communities as a whole. Apart from that, there is also a need to develop skills and knowledge for village communities. The government can provide training to improve skills in business development, financial management, marketing and the use of ICT. By improving skills and knowledge, village communities can be better prepared and able to face the challenges and opportunities in the current global economic era (Zavratnik et al., 2018).

Smart communities are an important pillar in the development of smart villages, because smart people have good knowledge, skills and attitudes to meet their living needs and improve their quality of life. Smart communities are also able to utilize the resources around them more effectively and efficiently. Smart communities play an important role in the development of smart villages, because they are active agents of change and participate in various development activities (Zhenrong, 2024). Intelligent communities are able to assist village governments in determining appropriate policies to improve the quality of life of the community, as well as participating in the implementation of these policies. In order to build a smart society, village governments need to provide education and training to the community, both related to technical knowledge such as agriculture, waste processing and water management, as well as social knowledge such as communication skills, leadership and teamwork. In addition, village governments can also hold discussion forums and workshops to facilitate the exchange of information and ideas between communities(Hua et al., 2024).

Smart mobility will bring many benefits to rural communities, including improving the quality of life, reducing congestion and reducing greenhouse gas emissions. Apart from that, smart mobility will also help rural communities to connect with the outside world and expand economic opportunities. (Visvizi & Lytras, 2018) Therefore, the government needs to pay attention to smart mobility in the smart village development program. Apart from the three methods mentioned previously, the government also needs to encourage the adoption of shared transportation. Shared transportation concepts, such as carpooling and bike-sharing, can improve smart mobility by sharing the same vehicle to reduce costs and exhaust emissions. Apart from that, the carpooling program will also help increase the sense of togetherness and interaction between one village resident and another. Apart from that, to achieve optimal smart mobility, it is also necessary to pay attention to safety and security aspects. The government can strengthen regulations and implement road safety standards, such as installing traffic signs, checking vehicle fitness, and using helmets for motorbike riders (Zhenrong, 2024).

REFERENCES

Bakker, K., & Ritts, M. (2018). Smart Earth: A meta-review and implications for environmental governance. *Global Environmental Change*, *52*(November 2017), 201–211. https://doi.org/10.1016/j.gloenvcha.2018.07.011

Fang, D., & Zhang, X. (2021). The protective effect of digital financial inclusion on agricultural supply chain during the covid-19 pandemic: Evidence from china. *Journal of Theoretical and Applied Electronic Commerce Research*, *16*(7), 3202–3217. https://doi.org/10.3390/JTAER16070174

Górecka, A., Jezic, Z., & Kardum, B. (2022). Smart Villages and Rural Development. *Acta Scientiarum Polonorum. Oeconomia*, *20*(2), 39–46. https://doi.org/10.22630/aspe.2021.20.2.14

Gujarati, D. N. (2004). Econometrics. In *Science* (Vol. 328, Issue 5984). https://doi.org/10.1126/science.1186874

Hua, J., Yu, J., Song, Y., Xue, Q., & Zhou, Y. (2024). The Enabling Effect of Digital Economy on High-Quality Agricultural Development-Evidence from China. *Sustainability (Switzerland)* , *16*(9), 1–18. https://doi.org/10.3390/su16093859

Li, M., Li, X., Li, G., & Liu, Y. (2023). *Research on the Design of Digital Village Construction Indicator System from the Perspective of Policy Tools* (Vol. 2). Atlantis Press International BV. https://doi.org/10.2991/978-94-6463-016-9_85

Liu, M., & Liu, H. (2024). The Influence and Mechanism of Digital Village Construction on the Urban–Rural Income Gap under the Goal of Common Prosperity. *Agriculture (Switzerland)*, *14*(5). https://doi.org/10.3390/agriculture14050775

Luo, G., Yang, Y., & Wang, L. (2023). Driving rural industry revitalization in the digital economy era: Exploring strategies and pathways in China. *PLoS ONE*, *18*(9 September), 1–21. https://doi.org/10.1371/journal.pone.0292241

Meng, H., Chen, X., Wang, C., Zhang, B., & Zhou, Z. (2022). Research on the Evaluation of Digital Village Development Readiness Taking Changfeng County as an Example. *International Journal of Education and Humanities*, *2*(3), 155–159. https://doi.org/10.54097/ijeh.v2i3.385

Modernization, A. (2020). 数字乡村建设视角下乡村数字经济指标体系设计研究. *41*(6). https://doi.org/10.13872/j.1000-0275.2020.0079

Ren, J., Chen, X., Shi, L., Liu, P., & Tan, Z. (2024). Digital Village Construction: A Multi-Level Governance Approach to Enhance Agroecological Efficiency. *Agriculture (Switzerland)*, *14*(3), 1–21. https://doi.org/10.3390/agriculture14030478

Renukappa, S., Suresh, S., Abdalla, W., Shetty, N., Yabbati, N., & Hiremath, R. (2022). Evaluation of smart village strategies and challenges. *Smart and Sustainable Built Environment*. https://doi.org/10.1108/SASBE-03-2022-0060

Rijswijk, K., Klerkx, L., Bacco, M., Bartolini, F., Bulten, E., Debruyne, L., Dessein, J., Scotti, I., & Brunori, G. (2021). Digital transformation of agriculture and rural areas: A socio-cyber-physical system framework to support responsibilisation. *Journal of Rural Studies*, *85*(August 2020), 79–90. https://doi.org/10.1016/j.jrurstud.2021.05.003

Sugiono. (2013). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta Bandung.

Visvizi, A., & Lytras, M. D. (2018). It's not a fad: Smart cities and smart villages research in European and global contexts. *Sustainability (Switzerland)*, *10*(8).

https://doi.org/10.3390/su10082727

Zavratnik, V., Kos, A., & Duh, E. S. (2018). Smart villages: Comprehensive review of initiatives and practices. *Sustainability (Switzerland)*, *10*(7). https://doi.org/10.3390/su10072559

Zhao, W., Liang, Z., & Li, B. (2022). Realizing a Rural Sustainable Development through a Digital Village Construction: Experiences from China. *Sustainability (Switzerland)*, *14*(21). https://doi.org/10.3390/su142114199

Zhenrong, W. (2024). Research on the Impact and Mechanism of Digital Village Construction on Farmers' Livelihood Resilience. *Academic Journal of Business & Management*, *6*(5), 1–7. https://doi.org/10.25236/ajbm.2024.060501