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Measuring the Success of Smart Villages: Empowering Communities through Digital Skill Development

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Abstract: This research is motivated by the digital divide between urban and rural areas in Riau Province, especially in the transformation of villages into Smart Villages. The focus is on measuring the impact of digital skills development on three pillars: Smart People, Smart Economy, and Smart Living. Using a quantitative survey method, data were collected from 80 respondents using the Quota Sampling technique in four villages in Kampar Regency that have participated in digital skills training since 2021. Multivariate regression analysis was conducted to examine the relationship between digital skills and access to employment, entrepreneurship, and quality of life. The results showed that digital skills training contributed positively to improving access to employment (Smart People). However, its impact is still influenced by other factors such as access to relevant job markets. In the Smart Economy aspect, although field observations showed an increase in local entrepreneurship, regression analysis indicated that digital skills had a very small impact on entrepreneurship improvement, likely due to more dominant factors such as technology and innovation. The conclusion of this study reveals that digital skills development has a positive impact on transforming villages into Smart Villages. Still, it requires better infrastructure support and broader community involvement to ensure equitable benefits.

Keywords: Digital Skills, Smart People, Smart Economy, Smart Living, Smart Village

Abstrak: Penelitian ini dilatarbelakangi oleh adanya kesenjangan digital antara perkotaan dan pedesaan di Provinsi Riau, terutama dalam transformasi desa menuju Smart Village. Fokusnya adalah mengukur dampak pengembangan keterampilan digital terhadap tiga pilar: Smart People, Smart Economy, dan Smart Living. Menggunakan metode survei kuantitatif, data dikumpulkan dari 80 responden dengan teknik *Quota Sampling* di empat desa di Kabupaten Kampar yang telah mengikuti pelatihan keterampilan digital sejak 2021. Analisis dilakukan dengan regresi multivariat untuk melihat hubungan antara keterampilan digital dengan akses pekerjaan, kewirausahaan, dan kualitas hidup. Hasil penelitian menunjukkan bahwa pelatihan keterampilan digital berkontribusi

positif terhadap peningkatan akses pekerjaan (Smart People). Meskipun dampaknya masih dipengaruhi oleh faktor lain seperti akses pasar kerja yang relevan. Pada Smart Economy, hasil observasi lapangan terdapat peningkatan kewirausahaan lokal, namun analisis regresi menunjukkan pengaruh keterampilan digital yang sangat kecil terhadap peningkatan kewirausahaan. Ini disebabkan oleh faktor lain seperti teknologi dan inovasi yang lebih dominan. Kesimpulan penelitian ini menunjukkan bahwa pengembangan keterampilan digital memberikan dampak positif terhadap transformasi desa menuju Smart Village, akan tetapi memerlukan dukungan infrastruktur yang lebih baik dan keterlibatan masyarakat yang lebih luas untuk memastikan pemerataan manfaat.

Kata Kunci: Keterampilan Digital, *Smart People, Smart Economy, Smart Living, Smart Village*

Introduction

The transformation of villages into Smart Villages is a crucial strategy for empowering rural communities in the digital era. However, the success of this transformation does not solely depend on the development of technological infrastructure, but more importantly on the enhancement of digital skills among community members as the main capital for utilizing technology. Without adequate digital capabilities, sophisticated technology may become ineffective and fail to significantly improve community welfare (Bhatt, 2020; Malik et al., 2022). Although developing digital skills in villages is essential, focusing solely on training without sufficient infrastructure support will hinder its effectiveness (Ariadi, 2019).

Priyadarsini & Vijayaratnam (2016) emphasize that stable internet access and adequate technological facilities are primary prerequisites for digital skills to contribute optimally. Without these, training efforts may only reinforce the digital divide, where only a small portion of the population can access and utilize technology, while the majority remain marginalized. Community empowerment theory posits that sustainable development must be grounded in active participation and capacity building, rather than merely providing access to resources (Chambers, 1994). In the context of village digitalization, developing digital skills should be viewed as an empowerment effort that enables communities to become not only technology consumers but also key actors in the development of the economy, education, and public services (Mansuri & Rao, 2012).

Riau Province faces an intriguing dilemma. Despite its vast potential for natural resources, a significant digital divide persists between urban and rural areas. The Indonesian Digital Society Index (IMDI) reveals an irony where Pekanbaru, the provincial capital that is expected to be more advanced, actually has the lowest digital score compared to other, more rural, districts. This condition shows that digital technology access does not automatically guarantee equitable benefits

and may even widen disparities if distribution and utilization are not managed fairly (DigitalDesa.id, 2024; International Fund for Agricultural Development (IFAD), 2021).

The focus of Smart Village programs in districts with relatively high digital scores indicates the risk of exacerbating inter-regional digital gaps. This underscores the need for an in-depth study to understand how the development of digital skills contributes to bridging such disparities (Fachrurrozie, Mukhibad, Nurkhin, Hobar, & Sari, 2021). If left unaddressed, digitalization may instead reinforce socio-economic inequalities and limit opportunities for communities that most need technological access (United Nations Development Programme (United Nations Development Programme (UNDP), 2023).

Based on Previous studies by (Kalra, 2019; Sari et al., 2023) highlight how digitalization and digital literacy can contribute to community well-being, although their focus remains on conceptual understanding and implementation in urban areas or developed countries. Other studies, such as those by (Lissitsa & Chachashvili-Bolotin, 2019; Pagani et al., 2016) position digital skills as intervening variables that influence educational outcomes and perceptions of employability, particularly among vulnerable groups such as ethnic minorities. As the concept of smart villages continues to evolve, research has begun shifting its focus toward implementing digitalization in rural areas.

Studies by (Saidah et al., 2022) have started to explore digital village strategies and digital resilience in the context of digital village development. However, findings from Hakim et al., 2022 indicate that digital village initiatives without accompanying digital skills training have not produced significant impacts on improving local economies. This suggests that digital infrastructure alone is insufficient; targeted training interventions are necessary to build community capacity in utilizing technology productively.

Therefore, it can be concluded that digital skills are not merely a supplementary element in the digitalization process, but a core component that determines the success of technology-based programs in both urban and rural contexts. Previous studies consistently emphasize the importance of training and capacity building as prerequisites for ensuring that digitalization genuinely enhances community well-being. Consequently, digital skills play a significant role in enhancing the quality of life, access to employment, local entrepreneurship, and economic development, particularly within the framework of smart living and a smart economy. Therefore, a comprehensive empirical evaluation is necessary to determine the actual contribution of digital skills in the Smart Village transformation process, particularly in the context of the digital divide in Riau Province.

This study aims to measure the impact of digital skills development on the transformation of Smart Villages in Riau Province, focusing on three main pillars: Smart People, Smart Economy, and Smart Living. The research also evaluates the effectiveness of digitalization programs in reducing

the digital divide between urban and rural areas, while providing policy recommendations to ensure the equitable distribution of technological benefits throughout Riau Province.

Methods

Research Design

This study employs a quantitative approach with a survey design to examine the causal relationship between digital skills (X) and three aspects of Smart Villages: smart people (Y1), smart economy (Y2), and smart living (Y3).

Population and Sample

The research population consists of residents from four villages in Kampar Regency, Riau Province, which have been the target of digital skills training programs since 2021, namely Tanjung, Koto Mesjid, Pulau Gadang, and Gunung Sari. A total of 80 participants were selected using a quota sampling technique, with 20 respondents allocated per village. Respondents were chosen based on their active participation in digital training and involvement in village development activities. Data were collected using a structured questionnaire based on indicators of the study variables, measured on a 4-point Likert scale. The questionnaire instrument was empirically tested for validity and reliability before data collection. Validity was assessed through item-total correlation analysis, while reliability was evaluated using Cronbach's Alpha technique, which revealed that all variables had an α value of≥ 0.7, indicating acceptable reliability.

Data Collection

Before data collection, the researchers obtained ethical approval from the relevant institution and administrative permission from village authorities. Respondents were transparently informed about the research objectives, data confidentiality, and their rights as participants. Participation was voluntary and conducted after obtaining informed consent. Questionnaire administration was conducted through face-to-face interviews with trained enumerators to minimize misunderstandings and enhance response accuracy. Additionally, field observations were used as supporting data to verify the survey results, particularly regarding the implementation of digital technologies in entrepreneurship and village public services.

Data Analysis

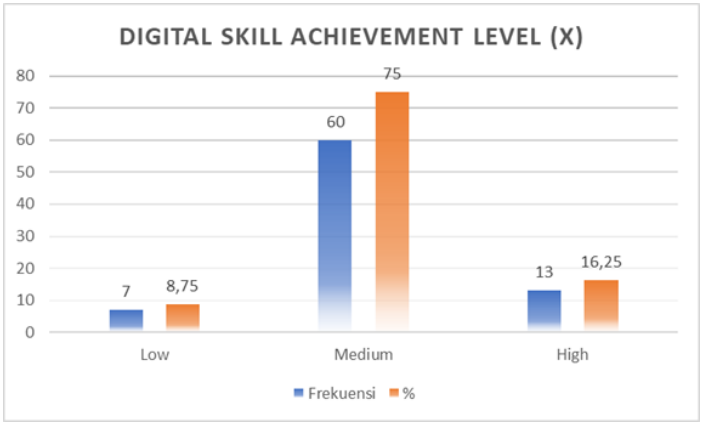
The collected data were analyzed using multivariate regression with the assistance of SPSS software version 29.0. This analysis aimed to measure the influence of digital skills on the three dependent variables, both simultaneously and partially. The T-test was used to assess the individual influence of each variable, while the F-test evaluated the overall influence. Residual normality testing was conducted using the Normal Q-Q Plot method to ensure that classical assumptions were met. Theoretically, this study draws on human capital theory to explain how skill enhancement expands access to employment opportunities (for individuals with high skills).

Economic growth theory is applied to analyze the relationship between digital technology proficiency and the development of local entrepreneurship (smart economy). Meanwhile, sustainable development theory serves as the foundation for assessing the contribution of digital skills to improving the quality of life in rural communities (smart living). The integration of these three theories is used to build a solid conceptual framework for evaluating the effectiveness of digital-based Smart Village transformation.

Results and Discussion

Digital Skill

Digital skills refer to an individual's ability to recognize, understand, and operate hardware, software, and digital operating systems related to Information and Communication Technology (ICT). Digital skills consist of four indicators: 1) Basic knowledge of the digital landscape; 2) Basic knowledge of information search engines; 3) Basic knowledge of messaging apps and social media; 4) Basic knowledge of digital wallets, marketplaces, and digital transactions (Astuti et al., 2021).



Sources: Research Finding 2024

Picture 1. Categorization of Digital Skill Achievement Levels (Y1)

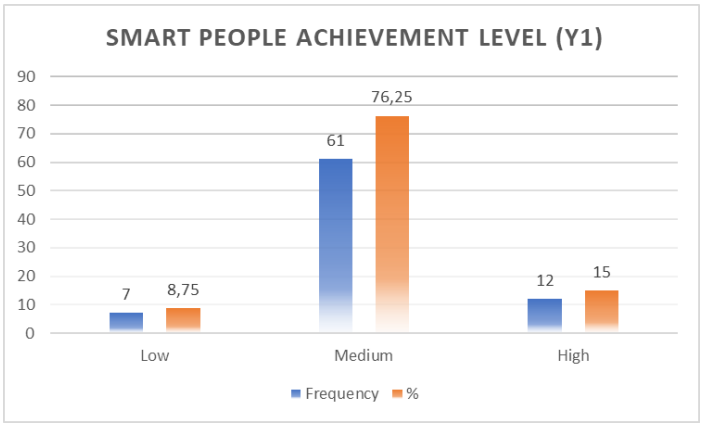
Based on Picture 1, it is shown that 75% of respondents (60 individuals) possess fairly good digital skills in their daily lives and work. They can use basic applications, search for information on the internet, and communicate digitally. In contrast, 8.75% of respondents (7 individuals) demonstrate low digital skills, with limited ability to use search engines and social media. Meanwhile, 16.25% of respondents (13 individuals) exhibit high-level skills, including the ability to operate complex software and solve technical problems. Overall, the digital training provided through this program has successfully improved the community's skills, although there is variation in achievement levels. The most significant progress was observed among participants who had a prior understanding of basic technology. However, to achieve equal outcomes, further training and ongoing mentoring are still needed.

Based on the cognitive learning theory proposed by Jean Piaget and Jerome Bruner (Paas et al., 2016), learning is an active process in which individuals construct understanding and knowledge through experience. In the context of digital skills, this means that individuals with moderate digital skills have built a fairly good understanding through their experience with technology. Respondents with low levels of digital skills are found to lack sufficient experience or opportunities to develop those skills. Furthermore, according to the diffusion of innovation theory by Everett Rogers (Dearing & Cox, 2018), this theory explains how, why, and at what rate innovations, such as digital technology, are adopted by a population. According to this theory, the population can be divided into five categories: innovators, early adopters, early majority, late majority, and laggards. Respondents with high digital skills may fall into the category of innovators or early adopters, while those with low skills may fall into the late majority or laggards.

Previous studies have also shown that digital skills are influenced by factors such as age, education, access to technology, and socio-economic status (Hargittai, 2010; Van Deursen & Van Dijk, 2014). The majority of the population generally falls within the intermediate skill level. Thus, it can be concluded that the digital training provided through the Smart Village program has made a positive contribution to improving the community's digital skills. However, sustainable strategies are still needed to reach underserved groups more equitably.

Smart People: The Impact of Digital Skills Development on Job Accessibility

Smart People is one of the key pillars of the Smart Village concept. This pillar encompasses aspects such as education, skills, and the quality of life of the community, all of which contribute to sustainable and inclusive urban development. Job accessibility is one of the primary indicators of success in realizing Smart People, as improved access to job opportunities can enhance the quality of life and well-being of the community. The Y1 variable represents the level of achievement of Smart People in terms of job accessibility, which consists of five indicators: 1) Job market growth; 2) Availability of job information; 3) Flexibility in location and working hours; 4) Training and education programs; 5) Inclusive job offerings.



Sources: Research Finding 2024

Picture 2. Categorization of Smart People Achievement Levels (Y1)

From Picture 2, it is evident that the majority of respondents, 76.25% or 61 people, indicated that the achievement level of Smart People in terms of job accessibility is at a moderate level. A smaller proportion of respondents had a high Smart People achievement level, at 15% or 12 people, followed by a low achievement level of 8.75% or 7 people. This indicates that, according to respondents, the distribution of Smart People's achievements in job accessibility tends to be concentrated in the moderate category.

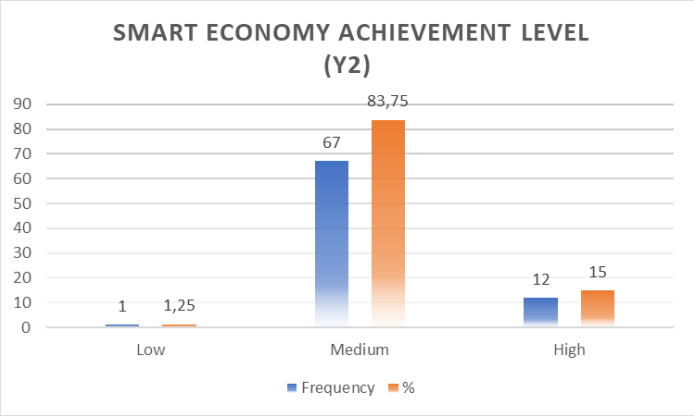
In the first indicator, (1) job market growth, digital skills play a role in expanding access to various online job opportunities, particularly through social media and job search portals. However, this improvement is more pronounced among younger individuals and those who already have an interest in technology. In the second indicator, (2) availability of job information, digital training has enhanced the community's ability to find employment information that aligns with their skills. Nevertheless, this advantage is more often utilized by working-age men, while women and older people tend to face limitations in navigating digital platforms independently. The third indicator (3), flexibility in work location and hours, suggests that digital skills enable communities, especially in remote areas, to access remote work opportunities. Interestingly, women, particularly homemakers, are more receptive to this flexibility as it accommodates their need to balance work and domestic responsibilities. In the fourth indicator, (4) training and education programs, the community has benefited from digital literacy and creative content training. However, participation is highest among younger generations, while older adults tend to resist technology-based learning methods. Finally, the fifth indicator (5), inclusive job opportunities, demonstrates that digital platforms open pathways for individuals with special needs to enter the labor market. Despite this, their access remains limited due to infrastructure barriers and a lack of training support.

The results of the regression test show that digital skills contribute 49.1% to the improvement of job accessibility. In comparison, the remaining 50.9% is influenced by other factors such as the compatibility between job vacancies and individual skills, level of formal education, work experience, and socio-economic conditions. Factors such as age, gender, and geographic location also significantly affect the extent to which individuals can benefit from digital training. For example, in Pandau Jaya Village, digital training was more successful in improving the skills of homemakers compared to elderly individuals or youth from underprivileged families, who continue to face barriers related to access and motivation. These findings are consistent with the study by Autor, D. H. (2015), which shows that digital skills can open up new employment opportunities but still require support from external factors such as social networks and educational background. Bresnahan et al. (2002) it is also emphasize that career development does not solely rely on digital skills, but must be complemented by experience and other relevant qualifications. Meanwhile, according to Beetham et al. (2007) digital competence is not limited to technical abilities, but also encompasses the ethical use of technology, critical thinking, and creativity. This is reinforced by Vuorikari et al. (2016), who state that improved digital skills correlate with increased participation in a complex digital society.

Field validation through interviews with village stakeholders revealed that digital training has had a positive impact on improving digital literacy and increasing community participation in technology-based economic activities, such as online selling, content creation, and the use of drones for productive village initiatives. However, village authorities acknowledged that significant changes were more evident among individuals who already had an initial interest in technology, while other groups have not been fully reached. Therefore, to achieve a more inclusive impact, digital training needs to be developed using an approach that considers diverse needs based on gender, age, socio-economic status, and levels of technological literacy. This more adaptive approach is believed to expand community participation and reduce the employment access gap between rural areas and more digitally advanced regions.

Smart Economy: The Impact of Digital Skills on Enhancing Local Entrepreneurship

A smart economy is an economic concept that utilizes advanced technology, innovation, and data to increase productivity, facilitate transactions, empower communities, and optimize resource allocation. Its goal is to create an economic system that adapts to global changes. The dimension of the smart economy discussed in this study is the enhancement of local entrepreneurship, with the following indicators: 1) Entrepreneurial culture (Growth of SMEs or digital businesses); 2) Increased product and service innovation through digital media; 3) Productivity; 4) Growth in the use of e-commerce and digital platforms.



Sources: Research Finding 2024

Picture 3. Categorization of Smart Economy Achievement Levels (Y2)

Based on Picture 3. the questionnaire analysis, it was found that for indicator (1), entrepreneurial culture (Increase in the number of SMEs and digital businesses): The digital training provided to the community focused on the Internet of Things (IoT) for catfish farming, aimed at enhancing technical skills in starting and managing a digital-based business. As a result, the number of new SMEs established after the training increased. These SMEs have leveraged local

potential, utilizing not only products from catfish farms but also agricultural, culinary, and handicraft products, which are now being marketed through digital platforms. The use of digital media by the community has enabled local village products to be marketed more widely, reaching markets beyond Kampar Regency and Pekanbaru City, as well as outside Riau Province. For indicator (2) Product and Service Innovation through Digital Media: Many training participants agreed that there has been an increase in their ability to innovate products and services, either by themselves or by other SME entrepreneurs online. Through digital technology, local entrepreneurs have become more creative in developing unique products that attract market attention. For example, fishery products from catfish farms, such as fish skin crackers, catfish nuggets, and other processed products managed with IoT technology, exemplify innovation that enhances product quality and streamlines business management.

Moving on to indicator (3), Increased Productivity: The digital skills acquired from the training have played a crucial role in boosting community productivity. The use of technology in small businesses helps SMEs reduce production costs and streamline processes, ultimately increasing profit margins and reducing unemployment rates, which leads to new job opportunities and an improvement in family economies. Many participants successfully started new businesses after receiving training, particularly in the digital-based small and medium enterprise sector. Lastly, for indicator (4) Growth in the Use of E-commerce Platforms: Through the digital skills training provided, villagers agreed that they have begun using e-commerce platforms to market their products. The growth in the use of digital platforms is reflected in the increase in transactions conducted by village entrepreneurs through various online marketplace applications.

Field findings from interviews indicate a positive impact of using applications and IoT in increasing productivity, particularly in the digital-based fisheries and agriculture sectors. For example, in Koto Masjid and Pulau Godang villages, business actors reported a 20–30% increase in catfish farming efficiency after adopting IoT technology. In Tanjung Village, around 40% of training participants reported starting to use digital skills to promote products through social media and e-commerce platforms. However, quantitative data from the survey shows that only 15% of respondents actively manage digital businesses after the training, while 83.75% fall into the moderate achievement category, and 1.25% are in the low category. This indicates that although digital training has had a positive practical impact, the influence of digital skills on local entrepreneurship remains relatively low and limited. Regression results further support this finding, showing that digital skills contribute only 3.5% to the smart economy (R^2 = 0.035), suggesting that other factors play a more dominant role in driving local entrepreneurial growth.

According to Digital Economy Theory, in addition to digital skills, technological infrastructure, regulations, innovation, and social capital also play vital roles in the success of the digital economy (Tapscott, 1996). Bukht & Heeks (2017) revealed that only around 30% of digital economy growth in developed countries stems from improvements in digital skills. At the same time, the rest is

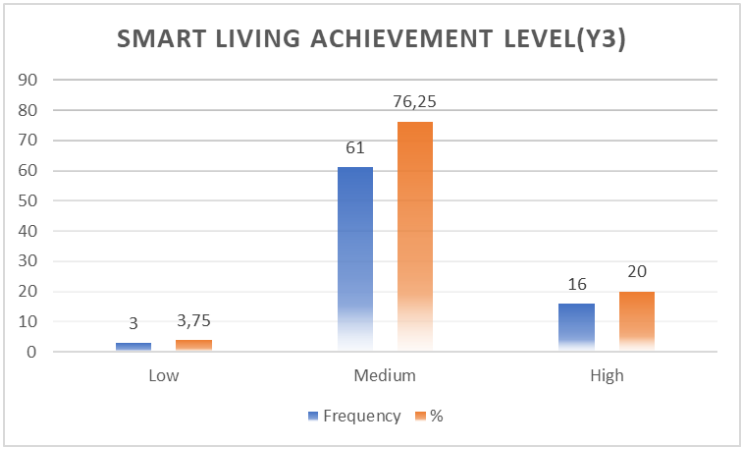
influenced by other factors such as technological innovation and government policies. These findings align with the regression results, which show that digital skills contribute only 3.5%.

The weak influence of digital skills in this study may be attributed to several factors, including: (1) Irregular levels of digital skills. Training has not yet reached all segments of society equally, resulting in many individuals lacking the mastery or comfort needed to use digital technology for economic activities (World Bank, 2016). (2) Mismatch between training content and market needs. The training materials may not align with the needs of the village's key sectors. For example, digital marketing training may be less relevant for those who require specific technological skills in agriculture or fisheries (Schleicher, 2020; World Bank, 2016). (3) Resistance to technological change. Some community members may be reluctant to adopt new technologies due to habitual reliance on conventional business practices (Scholkmann, 2021). In addition, other key factors, such as infrastructure, government policy, innovation, and social capital, also influence the development of a smart economy. Digital skills are just one factor whose impact has not yet become dominant. The effectiveness of digital training must be supported by inclusive strategies and the development of supporting factors to enhance the smart economy more broadly (Zervas & Stiakakis, 2024).

The discrepancy between survey data and interview results indicates that while digital training has the potential to enhance local entrepreneurship, its impact depends on the context and target groups. Groups such as MSME actors, homemakers, and active youth have begun utilizing digital skills to boost economic activities. With adequate digital skills, communities can leverage digital platforms to expand their markets, access information, and narrow the economic gap between rural and urban areas. Therefore, improving the effectiveness of training requires a more inclusive approach and stronger support to reach groups that have not yet been involved. Policies that strengthen digital infrastructure and improve access to and literacy in digital technologies across all segments of society are also crucial to ensure that the benefits of digitalization are evenly distributed. These findings underscore the need for targeted strategies and customized programs to effectively reach communities with varying levels of interest and digital literacy. To foster local entrepreneurship based on a smart economy, well-directed and sustainable digital training programs are needed. Training content should be tailored to real needs, such as digital marketing, e-commerce, and the use of IoT. Microfinance access, post-training business mentoring, and the strengthening of village digital infrastructure must also be prepared. Digital literacy efforts should reach all community groups through inclusive approaches. In addition, building cross-sector collaboration and conducting regular monitoring and evaluation are important to ensure programs remain adaptive to local dynamics. With this approach, digital training can generate tangible impacts in strengthening the village smart economy. Previous literature has emphasized the importance of such support in optimizing the outcomes of digital training and accelerating the adoption of technology in economic activities (World Bank, 2016). Thus, the low contribution of digital skills may be linked to the lack of integration between training and other supporting programs that ensure the sustainability and development of local entrepreneurship.

Smart Living: The Impact of Digital Skills on the Quality of Life in Society

Smart living refers to an enhanced and intelligently managed lifestyle that leverages information and communication technology to optimize daily activities. Smart living aims to create a connected, intelligent, and comfortable ecosystem where technology supports daily needs in an efficient, easy, and sustainable manner. This concept continues to evolve in tandem with technological advancements to enhance the quality of life and support contemporary lifestyles. The increase in the quality of life is marked by enhanced accessibility and quality of education, improved public health, and increased comfort in living, characterized by the behaviors, habits, and preferences of individuals or groups in specific aspects of daily life that are more positive, alongside the strengthening of norms, values, and positive practices within the socio-cultural life of the community (Herdiana, 2019).



Source: Research Findings 2024

Picture 4. Categorization of Smart Living Achievement Levels (Y3)

Based on Picture 4. the results of the quantitative survey, the majority of respondents (76.25% or 61 people) assessed that the achievement of Smart Living in the community falls within the moderate category, with 20% (16 people) rating it as high, and only 3.75% (3 people) as low. The indicators used to assess Smart Living include (1) access to and quality of healthcare services, (2) access to and continuity of education, and (3) engagement in and availability of socio-cultural infrastructure.

In terms of health, the survey results indicate that most community members are satisfied with the availability and accessibility of healthcare services, such as healthy food, health facilities, and technology-based services (e.g., online consultations). However, around 12% of respondents expressed dissatisfaction, highlighting disparities in access to services. Field findings support this, as noted by a digital ambassador, who stated that digital training has made it easier for villagers (in Gunung Sari, Koto Mesjid, and Pulau Gadang) to access healthcare services. Gunung Sari Village has

even initiated a smart posyandu (integrated health post) program, supported by the village government, to improve maternal and child healthcare services.

In the Education Aspect, Quantitatively, 81% of respondents stated that access to education in their area is good, with children generally able to complete basic education and continue to higher levels. Qualitatively, the digital facilitator from Tanjung Lila Village noted that most youth in the village can access higher education thanks to the use of digital learning platforms. This indicates that the integration of technology contributes to expanding educational access, particularly in previously underserved areas. In the Socio-Cultural Aspect, 68% of respondents reported that socio-cultural infrastructure, such as places of worship and cultural activity centers, is available and easily accessible. However, 17% stated that such facilities remain limited or difficult to access. Field findings show that participation in socio-cultural activities is relatively high in villages with adequate infrastructure. However, not all villages have yet experienced the direct benefits of digital technology in this area.

The results of the quantitative regression analysis indicate that the contribution of digital skills to improving quality of life (Smart Living) is only 5.9%, suggesting that 94.1% of the improvement is attributed to other factors. This is consistent with Weijers (2021) theory, which posits that social, economic, and environmental conditions have a more profound impact on the quality of life. Research findings also emphasize the importance of public policy, spatial planning, and access to basic services as more dominant factors (Deakin, 2014; Wirtz et al., 2021). Overall, digital skills training has made a significant contribution, particularly in enhancing access to healthcare and educational services. However, its impact on overall quality of life remains limited due to infrastructure gaps, varying levels of technology adoption across regions, and the need for ongoing policy support after training. Therefore, equitable digital infrastructure development and inclusive strategies are crucial for effectively and comprehensively implementing Smart Living within communities.

Conclusion

Digital skills training has helped communities improve access to employment, including an increase in job opportunities, easier access to job vacancy information through online platforms, and greater flexibility for remote work. In addition, there has been growth in local entrepreneurship and product innovation within smart village areas, driven by various factors. However, regression analysis results show that the impact of digital skills on the improvement of local entrepreneurship is relatively small and does not fully align with direct field observations. This is because the phenomenon is influenced by other, more dominant factors beyond digital skills. On the other hand, digital skills also contribute to improving the quality of life for communities. With better access to online healthcare services, digital education, and social facilities, rural communities have experienced greater accessibility and comfort in their daily lives. This study shows that digital skills training has bridged the gap between urban and rural communities, enabling rural populations to actively participate in the smart people, smart

economy, and smart living ecosystems. Through the appropriate use of technology, rural communities can not only enhance their quality of life but also make significant contributions to national development. This progress demonstrates that the digital era is not exclusive to major cities but offers broad benefits to all segments of society, including rural areas.

Theoretically, this study strengthens the framework that digitalization serves as one of the catalysts for social and economic transformation, though it is not the sole determining factor. This aligns with the theory of quality of life, which emphasizes the importance of social, economic, and public policy factors in shaping overall community well-being. Practically, the findings indicate that digital training alone is insufficient; it must be integrated with infrastructure development, market access, and institutional support to ensure more optimal and equitable outcomes. As a policy recommendation, local and national governments need to strengthen cross-sectoral collaboration to build an inclusive digital ecosystem in rural areas. This can be achieved through (1) equitable development of digital infrastructure, such as reliable internet access in villages; (2) post-training mentoring to ensure the sustainability of digital skills benefits; (3) incentives for local digital-based entrepreneurs; and (4) integration of digital literacy programs into community-based empowerment initiatives. Adaptive and locally responsive policies will be key to realizing sustainable and inclusive digital transformation.

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