

# Innovative Management and Capacity Building of Village-Owned Enterprises (BUMDes) for Economic Welfare and Entrepreneurship in the West Sumbawa Gold Mining Area

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**Abstract** This study explores the impact of Village-Owned Enterprises (BUMDes) on improving economic welfare and fostering entrepreneurship in the West Sumbawa gold mining area, where BUMDes have struggled to significantly enhance community welfare. The research aims to identify the innovations implemented by BUMDes to overcome these challenges. Utilizing a mixed-methodology with a case study approach, data was collected through interviews, observations, questionnaire, survey and documentation within BUMDes operating in the mining region. The analysis involved crosstab/frequency and qualitative descriptive techniques to uncover patterns and insights. The findings indicate that innovation in managing local resources is critical, encompassing the development of innovative products, the application of digital technologies, and the establishment of collaborations with external parties. These strategies have been pivotal in enabling BUMDes to address the economic needs of the community more effectively. However, the study also highlights the necessity of enhancing the managerial capacities of those running BUMDes. Without significant improvements in managerial skills, the potential of BUMDes to compete on a global scale and act as sustainable economic drivers within their communities remains limited. The research suggests that targeted capacity-building initiatives are essential for empowering BUMDes to fulfill their intended role as catalysts for rural economic growth. The study contributes to the broader understanding of how rural enterprises can innovate and adapt to changing economic landscapes, particularly in resource-rich areas, and provides practical recommendations for policymakers and stakeholders aiming to strengthen the impact of BUMDes on rural economies.

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## 1. Introduction

Village-Owned Enterprises (BUMDes) are an important pillar in rural development and empowerment in Indonesia. Through this study, we aim to provide a comprehensive analysis of the definition, significance, and impact of BUMDes in the Indonesian context, by highlighting the urgency and objectives of the research in understanding and optimizing the role of BUMDes in driving economic growth, social welfare, and environmental sustainability in rural areas.

BUMDes, as a legal entity established and owned by rural communities in Indonesia, is regulated in Law No. 6 of 2014 concerning Villages. The main objectives of BUMDes include poverty alleviation, job creation, infrastructure development, entrepreneurship and community empowerment. Through various economic activities such as agriculture, tourism, handicrafts, and services, BUMDes aims to generate income for the community, as well as serve as a platform for capacity building, skill development, and entrepreneurship training for rural residents (Ibrahim & Zitri, 2023).

In terms of structure and governance, BUMDes are usually managed by a board of directors elected by community

members. The governance structure of BUMDes guarantees transparency, accountability, and community participation in the decision-making process. The principles of democracy, inclusivity, and sustainability are the basis of BUMDes operations to establish the welfare of the community.

Although, the BUMDes have great potential, they face challenges such as limited access to capital, lack of technical expertise, and market constraints. However, there are opportunities for BUMDes to grow, including government support, partnerships with private sector entities, and access to training and capacity building programs.

The positive impact of BUMDes on rural development in Indonesia has been highlighted by many studies. BUMDes have contributed to poverty reduction, increased employment opportunities, improved infrastructure, and increased social coherence in rural communities. BUMDes' success stories include increasing household income, raising access to basic services, and sustainable natural resource management practices.

According to Jamal (2021) the results obtained through a mixed-method approach indicate that the key figures in village

development are the village head and the apparatus. The village head, along with residents, actively participates in both economic and social activities in an inclusive manner. These activities are believed to reduce conflicts arising from economic and social issues. The success of economic development is demonstrated by a reduction in the poverty levels within the villages. Furthermore, from a social perspective, the villagers become more unified under the leadership of a righteous village head, leading to a more harmonious social life with fewer conflicts. Therefore, this study encourages policymakers to facilitate the election of a suitable village head to accelerate village development.

Through this research, we aim to explore more deeply how BUMDes can maximize their contribution to sustainable rural development. This research is expected to provide valuable insights for relevant stakeholders to support and optimize BUMDes operations innovatively throughout Indonesia.

Innovation is a key driver in driving the entrepreneurial economy by increasing competitiveness, productivity, and sustainable growth. Research shows the importance of entrepreneurial innovation in improving the performance of small and medium enterprises (SMEs) (Dushime *et al.*, 2022). By focusing on process, organizational, and market innovation, SMEs can strengthen their competitive advantage and long-term sustainability.

Entrepreneurial innovation is essential in an innovation-driven economy, where it significantly contributes to the success of both need- and opportunity-driven entrepreneurship (Burke *et al.*, 2019). In this context, an innovation-driven economy benefits more from entrepreneurial activity, leading to higher economic dynamism and better resilience for villagers.

The study emphasizes the important role of entrepreneurial innovation in improving business survival and performance in emerging markets (Guerrero & Urbano, 2020). Entrepreneurial innovation is essential for building and maintaining competitive advantage, enhancing entrepreneurial capabilities, and achieving sustainable results in challenging market conditions.

An economy that is driven by innovation and characterized by strong intellectual property rights and effective policy implementation creates a conducive environment for entrepreneurial ventures (Idrees & Sarwar, 2020). This kind of economy attracts aspiring entrepreneurs by providing perceived opportunities and a supportive ecosystem for innovation and business growth.

Entrepreneurship is not only encouraging effective innovation but also increases competitiveness and productivity in the economy (Lee *et al.*, 2019). Dynamic capabilities and entrepreneurial orientation significantly affect innovation and creative economy performance, highlighting the link between innovation, entrepreneurship, and economic prosperity (Maulidina *et al.*, 2023).

Entrepreneurial ventures in emerging economies, known for their flexibility, innovation, and customer-centric approach, play a crucial role in driving economic growth and social development (Pei *et al.*, 2020). These businesses cleverly respond to the evolving needs of customers and leverage innovation to strengthen their economic influence.

Gold mining in the community of Sumbawa, located in Indonesia, involves a complex interplay of socio-economic, environmental, and health factors. Small-scale and artisanal gold mining (ASGM) activities in the region have significant

implications for the local population and the surrounding ecosystem. Various studies highlight different aspects related to gold mining in Indonesia and similar contexts, offering insights into the challenges and opportunities faced by the communities involved in such activities.

Krisnayanti specifically analyzed the artisanal small-scale gold mining sector in West Sumbawa Regency, Indonesia (Krisnayanti *et al.*, 2016). The research highlights the high value of gold reserves in the region, leading to an increase in small-scale gold mining activity. The findings highlight the economic importance of gold mining in rural districts and their impact on the livelihoods of local populations.

In addition, ((Meutia *et al.*, 2022) presents a review of the narrative literature on ASGM Indonesia, noting that these sites are spread across thirty provinces in Indonesia, providing job opportunities for millions of individuals. This confirms the broad nature of ASGM in Indonesia and its role in supporting the livelihoods of a large portion of the population.

The environmental impact of ASGM is also a major focus in the literature. ((Lobo *et al.*, 2017) discussed the effects of small-scale gold mining tailings on underwater light fields in the Tapajós River Basin in the Brazilian Amazon. The study highlights the environmental consequences of ASGM, such as mercury contamination and changes in water quality due to increased sedimentation, which are relevant considerations for gold mining areas such as those in Sumbawa.

Furthermore, (Basu *et al.*, 2015) examined small-scale and artisanal gold mining in Ghana, emphasizing the importance of occupational safety and health in these mining activities. This aspect is crucial for the Sumbawa community involved in gold mining to ensure the well-being of miners and reduce the health risks associated with mining operations.

Examined small-scale and artisanal gold mining in Ghana, emphasizing the importance of occupational safety and health in these mining activities. Their research highlighted the numerous health hazards encountered by miners, including exposure to toxic substances, physical injuries, and long-term health issues. This aspect of occupational safety is crucial for communities involved in gold mining, such as those in West Sumbawa, as it directly impacts the well-being of miners and their families.

In the context of West Sumbawa, the mining activities are not only a source of livelihood but also pose significant health risks to the miners. The lack of proper safety measures and the use of rudimentary mining techniques can lead to severe injuries and chronic health problems. Implementing stringent occupational safety protocols and providing miners with the necessary safety equipment can significantly reduce these risks. Moreover, regular health check-ups and medical interventions are essential to monitor and address any health issues that arise from mining operations.

The well-being of miners is intricately linked to the overall economic welfare of the community. Healthier miners can contribute more effectively to the local economy, ensuring a steady income for their families and supporting community development. Therefore, investing in occupational safety and health is not just a matter of compliance but a strategic move to enhance economic stability and growth in mining communities. The experiences of miners in Ghana, as discussed by Basu *et al.* (2015), provide valuable insights that can be applied to similar contexts in West Sumbawa.

Additionally, improving occupational safety in mining operations can foster a culture of safety and health awareness within the community. Educational programs and training sessions on safe mining practices and health management can empower miners with the knowledge to protect themselves and their peers. Such initiatives can also encourage the adoption of safer and more efficient mining technologies, further mitigating health risks and enhancing productivity.

The findings of research underscore the critical importance of occupational safety and health in small-scale and artisanal gold mining. For the Sumbawa community, prioritizing these aspects can lead to significant improvements in the miners' quality of life and contribute to the broader economic and social development of the area. By learning from the experiences of other mining communities and implementing robust safety measures, West Sumbawa can ensure a safer environment and more prosperous future for its miners.

Although BUMDes have shown potential in promoting economic growth and entrepreneurship at the village level, several research gaps need to be addressed to optimize their contribution. Long-term studies on the impact of BUMDes innovations on the economic and social well-being of village communities are still scarce, as is in-depth analysis of the implementation and effectiveness of digital technologies ((Ibrahim et al., 2021). Additionally, the effective forms of collaboration with external parties, the types of innovative products with market potential, and effective marketing strategies have not been extensively explored. The capacity development of BUMDes' managers and the enhancement of community involvement in innovations also require more attention. Clearer frameworks for evaluating the performance and success of BUMDes innovations are needed to measure their impact objectively and accurately. Addressing these gaps will provide better guidance for policy development and practices that can enhance the sustainable economic role of BUMDes in village economies.

This study explores the role of BUMDes in enhancing economic welfare and entrepreneurship within the West Sumbawa gold mining region, where BUMDes have yet to fully realize their potential in improving community welfare. While BUMDes are often intended to empower local economies and stimulate rural development, their effectiveness, especially in resource-rich areas like West Sumbawa, has not been adequately explored. The central question guiding this investigation is whether BUMDes' primary objective is to improve community welfare or to increase village revenue.

Given that BUMDes are funded by the village budget, it stands to reason that their primary focus should be the well-being of the local population. The funds allocated to BUMDes should primarily support community empowerment programs, which directly contribute to improving economic welfare by creating sustainable livelihoods, reducing poverty, and promoting local entrepreneurship. However, there is a concern that the financial goals—such as increasing the village's own-source revenue (Pendapatan Asli Desa, or PAD)—may overshadow the social goals, leading to a mismatch between the intended and actual impacts of BUMDes.

In fact, literature on rural development suggests that, in some cases, the emphasis on revenue generation can limit the focus on community welfare, especially in economically marginalized areas where people are more in need of social support and capacity-building initiatives (Hansen et al., 2018). Therefore, the challenge for BUMDes in resource-rich areas

like West Sumbawa is to strike a balance between enhancing local economic resilience and ensuring that these efforts translate into tangible improvements in the quality of life for the local population. By addressing this gap, this study aims to provide a clearer understanding of whether BUMDes are effectively fulfilling their dual mandate of economic and social development.

Umar Baihaqi's study shows how villages that previously depended on illegal mining activities, such as in Bantar Karet, were able to transform by developing the potential of community-based tourism. This illustrates the urgent need for post-mining alternative economic innovations, which are parallel to the reality of the villages around the gold mines in West Sumbawa. Through creative class theory, Baihaqi emphasized the importance of community involvement and the use of village physical space to open up new economic opportunities, which is very relevant as an inspiration for the strategic role of BUMDes in developing local creative economy and tourism sectors (Baihaqi, 2022).

Study I Ketut Sardiana, the success of tourism village development does not solely depend on natural or cultural potential, but also on the readiness of information and technology infrastructure, including Spatial Data Infrastructure (SDI). The absence of standards and limitations of human resources in Badung is an important lesson that innovative management of BUMDes must be supported by digital literacy, technical capacity, and supporting regulations in order to map and promote the maximum potential of the village. This is an important basis for this research in emphasizing the need for capacity building not only in the aspect of entrepreneurship, but also in mastery of technology and information systems (Sardiana et al., 2021).

The use of technology is also raised in Fadjry Djufry's research which highlights the effectiveness of the use of drones (Unmanned Aerial Vehicles) in the evaluation of corn cultivation technology. Farmer participation is a central element that reinforces the idea that strengthening community capacity—both in knowledge, technology, and involvement in decision-making—can significantly increase agricultural productivity. In the context of BUMDes, a participatory approach like this can be adopted to increase the empowerment of villagers in managing village assets and businesses collectively, especially in areas that are undergoing economic transition from mining to other productive sectors (Djufry et al., 2022).

Furthermore, the study of Alfin Murtadho underlines the importance of spatial planning and village grouping based on regional characteristics in responding to massive physical development. In this context, the management of BUMDes in mining areas must consider the pressures on land, especially changes in land cover and threats to agricultural land. This means that BUMDes is not only an economic tool, but also a spatial planning tool that is responsive to environmental and social changes at the village level (Murtadho et al., 2022).

The study of Muhammad Taufiq adds another important dimension, namely the power relationship between actors in village planning. In the village deliberation process, the power of actors often determines the direction of policies that are not always fair. Therefore, innovation in the management of BUMDes must be accompanied by strengthening the institutional capacity of the village so that it is not dominated by the local elite alone. The principles of transparency, participation, and accountability are the foundation in

formulating an inclusive BUMDes business strategy (Taufiq et al., 2022).

Bintang Septiarani highlights Community-Based Adaptation (CBA) in the coastal area of Semarang showing how the success of the program is highly dependent on strong social networks between communities, NGOs, and local governments. This provides a valuable lesson that the success of BUMDes cannot be separated from a network of interconnected supporting actors. Cross-sector involvement is a prerequisite to ensure business sustainability and village economic resilience (Septiarani & Handayani, 2020).

This examination is critical for policymakers to ensure that future BUMDes initiatives are more effectively aligned with the goals of sustainable community empowerment, rather than solely focusing on economic growth that does not necessarily lead to improved welfare for the local people.

The objective of this research is to identify and analyze the innovations that BUMDes have implemented to overcome these challenges and better serve their communities. Using a qualitative methodology with a case study approach, the research involved data collection through interviews, observations, and documentation within BUMDes in the mining region. The analysis, employing crosstab/frequency and qualitative descriptive techniques, revealed that critical innovations include the development of unique local products, the adoption of digital technologies, and collaboration with external stakeholders. However, the study also underscores the need for enhancing the managerial capacities of BUMDes leaders to ensure these innovations lead to sustainable growth. The findings suggest that without targeted capacity-building efforts, BUMDes may struggle to compete globally and serve as effective economic drivers. This research provides valuable insights into how rural enterprises can innovate in challenging environments and offers practical recommendations for policymakers to support BUMDes in fulfilling their developmental role.

The problem addressed in this study centers around the persistently low levels of community welfare in mining areas, with BUMDes failing to generate significant positive impacts through their programs. Despite BUMDes being designed to empower the local economy and improve community well-being, these programs have not yielded substantial changes in the social and economic conditions of residents in mining regions. This gap between the intended development goals and the actual outcomes highlights the need to explore the factors influencing the effectiveness of BUMDes in such areas. Understanding these factors is crucial in developing strategies that ensure these programs can deliver tangible benefits and sustainable economic opportunities for local communities.

The findings of this study reveal that innovation plays a crucial role in the effective management of local resources, with several strategies emerging as key factors in the success of BUMDes. These strategies include the development of innovative products tailored to the local context, the integration of digital technologies to enhance operational efficiency, and the establishment of strategic collaborations with external parties. By embracing these innovations, BUMDes have been able to more effectively address the economic needs of the community, ensuring that their initiatives align with the evolving demands of both local residents and broader market trends. The ability to adapt and innovate has proven to be essential in enhancing the impact of BUMDes, as it enables them to not only improve resource management but also create

sustainable economic opportunities for the local population. Through these innovations, BUMDes are better equipped to foster economic resilience, promote local entrepreneurship, and contribute to the long-term welfare of the community.

## 2. Methods

This study employs a mixed-methods approach to comprehensively understand the collaboration between BUMDes and external parties, as well as its impact on the community surrounding the gold mining area. The research design integrates both qualitative and quantitative methods to capture a holistic view. Data collection involved in-depth interviews with BUMDes managers and beneficiaries impacted by gold mining activities, alongside direct observations of the local community to identify social, economic, and environmental changes. Secondary data was gathered through documentation, including village records and BUMDes reports.

For the quantitative aspect, questionnaires were distributed to 57 respondents, and the data was processed using SPSS version 25. This allowed for the generation of statistical insights into the extent and nature of collaborations. The quantitative data provided a clear understanding of the measurable outcomes of the collaborations, offering valuable statistical insights into their impact on local welfare.

The qualitative aspect involved content analysis using a qualitative descriptive approach, allowing for an in-depth exploration of community perceptions and experiences regarding these collaborations. This dual approach enabled the integration of numerical data with rich, narrative accounts, providing a more nuanced understanding of the effects of external collaboration on local welfare. The combination of these methods allowed for a detailed and comprehensive analysis, capturing both the measurable outcomes and the subjective experiences of those involved. Through this mixed-methods approach, the study aimed to present a balanced perspective on how external collaborations impact the community, both in terms of tangible economic benefits and the less quantifiable, but equally important, social dynamics.

## 3. Result and Discussion

### Innovation in local resource management

In a recent study conducted in 2024 on innovation in local resource management, the data collected offers a fairly clear picture of how respondents view the level of innovation in resource management. This study, which involved a total of 57 respondents, revealed that the majority of them, namely 34 respondents or 59.6%, assessed that the level of innovation in local resource management was at a moderate level. Meanwhile, as many as 23 respondents or 40.4% felt that the level of innovation was in the low category. Interestingly, none of the respondents rated the level of innovation as high.

These findings provide important insights into the current state of innovation in local resource management. In the absence of respondents who rated the level of innovation as high, this shows that there is a large room for improvement and development of innovation in local resource management. The majority of respondents who rated the level of innovation as moderate indicated that although there have been efforts to implement innovation, there is still much that needs to be done to increase the level of innovation to a higher level.

Furthermore, a significant percentage of respondents who

Table 1. Innovation in Local Resource Management

Category	Respond	Percent
Tall	0	0
Keep	34	59,6
Low	23	40,4
Sum	57	100

Source: Primary data processing, 2024. See figure 1.

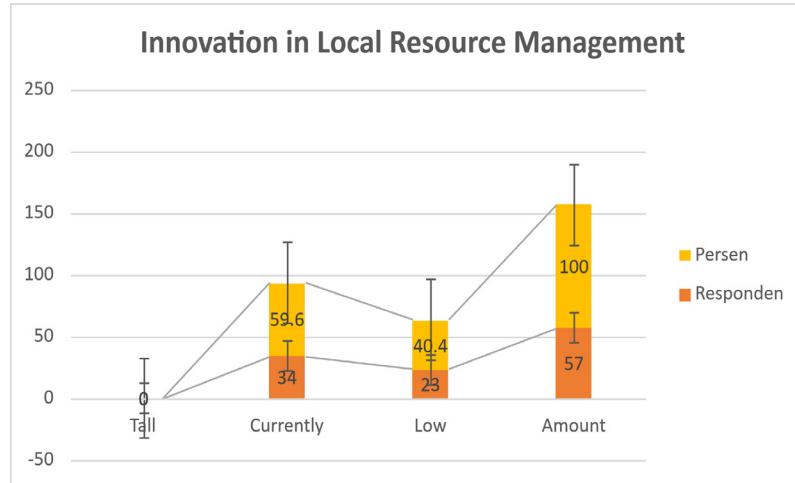


Figure 1. Results of the interview with the head of the Pasir Putih village

rated the level of innovation as low indicated that there were challenges and obstacles in the implementation of innovation in local resource management. This can reflect various factors, such as limited resources, lack of knowledge or expertise, to resistance to change.

In conclusion, the data from this study highlights the necessity for more targeted strategies and initiatives to increase innovation in local resource management. By focusing attention on capacity building, education, and cooperation among various stakeholders, there is great potential to advance the level of innovation and, ultimately, improve the effectiveness and sustainability of local resource management.

Analysis of the data showed that most respondents rated innovation in local resource management as moderate (59.6%), while 40.4% of respondents rated the level of innovation as low, providing a clear picture of the current state of innovation. The absence of respondents who rated the level of innovation as high indicates that despite innovation efforts, there is still significant room for further improvement and development.

Comparisons with other research show a similar trend. For example, a study by (Setiawan et al., 2021) on innovation in resource management in rural areas of Central Java also found that the majority of respondents considered innovation to be at a moderate level, with the main challenges being limited resources and knowledge. The study identified the need for better capacity building and training to boost innovation.

In addition, a study by (Wijaya et al., 2022) on innovation in fishery resource management in South Sulawesi shows that 65% of respondents rated innovation as at a moderate level, while 30% rated it at a low level, and only 5% rated it at a high level. The study highlights the importance of collaboration between governments, academia, and local communities to drive more effective innovation.

From this analysis, it can be concluded that the challenges in local resource management innovation are not isolated phenomena, but are common problems faced in various regions. This emphasizes the need for more targeted strategies and initiatives focused on capacity building, education, and collaboration between various stakeholders. Thus, there is great potential to increase the level of innovation and, ultimately, the effectiveness and sustainability of local resource management.

### Product innovation development

Based on data obtained from the 2024 research on product innovation development, it can be seen that the majority of respondents consider the level of product innovation development to be in the medium category. Of the 57 respondents involved in this study, as many as 43 respondents or 75.4% considered that the development of product innovation was at a moderate level. Meanwhile, 14 respondents or 24.6% assessed that the level of product innovation was in the low category. None of the respondents rated the level of product innovation development as high.

This data provides an idea that despite efforts to develop product innovation, the results achieved are still at a moderate and low level. This shows that the development of product innovation has not been fully optimal and still needs further attention and improvement.

In the academic context, these findings indicate the need for more effective strategies and more targeted programs to encourage product innovation development. Efforts to increase capacity, education, and collaboration between various stakeholders can be an important step to increase the level of product innovation. Thus, it is hoped that there will be a significant increase in the effectiveness and sustainability of product innovation development in the future.

Table 2. Product Innovation Development

Category	Respond	Percent
Tall	0	0
Keep	43	75,4
Low	14	24,6
Sum	57	100

Source: Primary data processing, 2024. See figure 2.

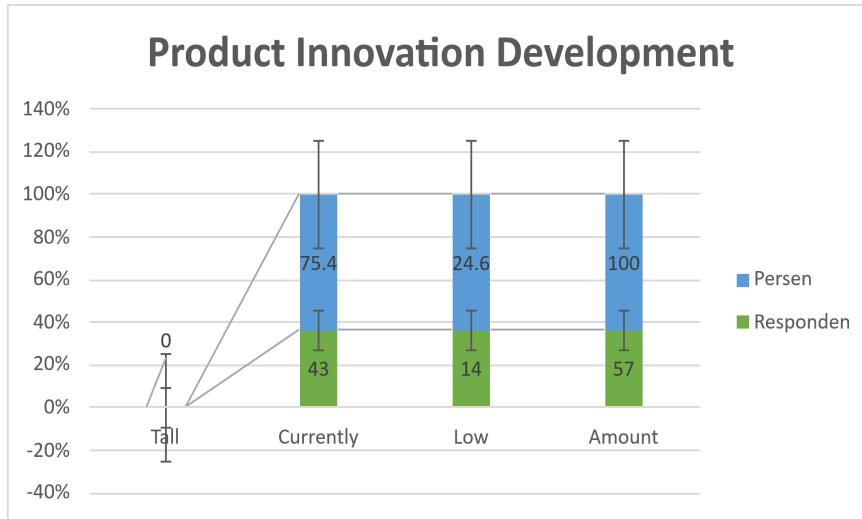


Figure 2. Product Innovation Development

Analysis of the data shows that most respondents consider the development of product innovation to be at a moderate level (75.4%), while 24.6% of respondents consider the level of innovation to be in the low category, providing a clear picture of the current state of product innovation. None of the respondents rated the level of innovation as high, indicating that despite efforts to develop product innovation, the results have not been optimal and still need further improvement.

Comparisons with other research show a similar trend. For example, research by (Rachmawati & Gunawan, 2020) on the development of product innovation in the manufacturing sector in West Java found that 68% of respondents rated product innovation as moderate, with the main challenge being limited resources and technological support. This research highlights the need for capacity building and technology integration to drive more effective innovation.

In addition, a study by (Moekahar et al., 2020) on product innovation in the creative industry in Yogyakarta shows that 70% of respondents rate product innovation at a moderate level, while 25% rate it at a low level, and only 5% rate it at a high level. This research emphasizes the importance of collaboration between the government, academics, and industry players to create an ecosystem that supports innovation.

From this analysis, it can be concluded that challenges in developing product innovation are common problems in various sectors and regions. This confirms the need for more effective strategies and more focused initiatives to improve product innovation development. Capacity building, education, and collaboration between various stakeholders are important steps that need to be taken. Thus, it is hoped that the level of product innovation can increase significantly, which will ultimately increase the effectiveness and sustainability of product innovation development in the future.

### Application of digital technology

Based on data obtained from the 2024 research on the application of digital technology, it can be seen that the majority of respondents consider the application of digital technology to be in the medium category. Of the 57 respondents involved in this study, as many as 43 respondents or 75.4% stated that the application of digital technology was at a moderate level. Meanwhile, 14 respondents or 24.6% considered the application of digital technology to be in the low category. None of the respondents rated the application of digital technology at a high level.

This data gives an idea that although there have been efforts to implement digital technology, the results achieved are still at a moderate and low level. This shows that the application of digital technology is not fully optimal and still needs further attention and improvement.

In the academic context, these findings indicate the need for more effective strategies and more targeted programs to encourage the adoption of digital technologies. Efforts to increase capacity, education, and collaboration between various stakeholders can be an important step to increase the application of digital technology. Thus, it is hoped that there will be a significant increase in the effectiveness and sustainability of the application of digital technology in the future.

Research by (Ferdianto et al., 2022) regarding the application of digital technology in Indonesian SMEs found that around 60% of respondents considered the application of digital technology in their companies to be at a moderate level. The study also shows that the main obstacles faced are limited access to financial resources and adequate digital technology knowledge.

This comparison shows that challenges in the application

of digital technology are common problems faced by various sectors. However, the level of adoption and utilization of digital technology tends to be at a moderate level, which indicates that there is an awareness of the importance of digital technology but is hampered by factors such as limited resources and knowledge.

From this analysis, it can be concluded that the application of digital technology still requires more effective strategies and more targeted programs. Increased investment in digital technology education and training, facilitation of access to financial resources, and collaboration between governments, the private sector, and educational institutions can be key to increasing the adoption rate of digital technologies. Thus, it is hoped that there will be a significant increase in the effectiveness and sustainability of the application of digital technology in the future, which can ultimately increase productivity and innovation in various sectors.

The feedback raised an important point regarding the lack of clarification on where digital technologies are applied within Village-Owned Enterprises (BUMDes), particularly in the areas of production systems, administration, finance, or other functions. The effectiveness of digital technologies, indeed, varies depending on the specific areas in which they are implemented, and understanding these applications is essential to assessing their impact.

In response, it is important to clarify that in the context of BUMDes, digitalization has primarily been focused on enhancing operational programs, standard operating procedures (SOPs), and reporting mechanisms. These are key areas where digital tools have made a significant impact in streamlining processes and improving efficiency. While the application of digital technology may appear to be concentrated in these areas, it is important to understand that their implementation here is crucial for improving overall operational effectiveness.

Digitalization within BUMDes has played a substantial role in refining and standardizing the procedures for day-to-day operations. The integration of digital tools in managing SOPs allows for a more systematic, transparent, and accountable approach to business processes. By having clear, digitalized SOPs in place, BUMDes can reduce the potential for human error, ensure consistency in operations, and enhance the overall quality of services provided to the community. In many cases, these digital tools allow for the automation of routine tasks, which significantly saves time and reduces the administrative burden on staff, enabling them to focus on more strategic activities.

Moreover, the digitalization of reporting mechanisms is another vital area where technology has made an impact. Through the use of digital platforms, BUMDes can generate and maintain accurate, real-time reports that track the progress and outcomes of their programs. This shift from traditional paper-based reporting to digital reporting enhances both the speed and accuracy of the information shared with key stakeholders, including local governments and the community. By providing real-time, transparent reports, BUMDes can foster greater accountability and trust with the community, demonstrating the impact of their initiatives more effectively.

Furthermore, it is important to note that while digitalization has predominantly been focused on program management, SOPs, and reporting, these digital tools also have broader applications in other areas such as financial management, inventory control, and customer relations. For

example, digital platforms can be used to manage financial records more efficiently, ensuring that budgeting, expense tracking, and financial reporting are conducted in a more streamlined and transparent manner. Similarly, digital inventory systems can help BUMDes better track resources, reduce waste, and optimize their supply chain operations.

The integration of digital technologies has the potential to extend across various functions of the organization. By addressing the specific needs of each operational area and customizing digital tools accordingly, BUMDes can continue to enhance their efficiency, transparency, and overall effectiveness. The feedback provided highlights the need to understand the scope of digitalization, and we hope this clarification demonstrates how digital technologies, when applied appropriately, can significantly improve the performance and outcomes of BUMDes initiatives.

The feedback provided raises an important point about the use of digital technology in Village-Owned Enterprises (BUMDes). It rightly points out that the specific areas where digital technology is applied—whether in production systems, administration, finance, or other functions—have not been explicitly discussed. This is a valid concern because the effectiveness of digital technologies is highly dependent on where and how they are implemented. In response to this feedback, it is essential to clarify that the primary application of digital technology in BUMDes has been more focused on operational programs, Standard Operating Procedures (SOPs), and reporting mechanisms.

Digitalization in BUMDes primarily aims to enhance the efficiency and transparency of operational processes. One of the key areas where digital technology plays a critical role is in the development and implementation of standardized procedures. In rural enterprises such as BUMDes, SOPs are crucial for ensuring that operations are carried out consistently and according to best practices. By integrating digital tools into the management of SOPs, BUMDes can improve workflow efficiency, reduce human error, and ensure that all activities are aligned with organizational goals.

The adoption of digital technology in BUMDes helps streamline processes such as inventory management, product development, and service delivery. Through the use of specialized software and digital platforms, BUMDes can track their inventory in real-time, monitor the production cycle, and efficiently allocate resources. This leads to better decision-making, improved resource management, and a reduction in operational costs. Additionally, digital platforms can facilitate communication between different units within the organization, ensuring that everyone involved in the production process is on the same page.

Another significant aspect of digital technology in BUMDes is its application in financial management and reporting. Financial transparency is essential for any organization, but it is especially important in public sector enterprises like BUMDes, where accountability is paramount. By utilizing digital tools for financial administration, BUMDes can ensure that all financial records are accurate, up-to-date, and easily accessible. Digital financial systems help automate tasks such as invoicing, expense tracking, and budgeting, allowing BUMDes to monitor their cash flow in real-time and make data-driven decisions about investments and expenditures.

Digital tools also enable BUMDes to generate financial reports quickly and efficiently, making it easier for managers

and stakeholders to assess the organization's financial health. These tools can integrate with other management systems to provide a comprehensive view of the organization's operations, from production to financial performance. Moreover, digital reporting systems help ensure that financial data is presented in a consistent and standardized format, which is essential for compliance with regulatory requirements and for building trust with the community.

It is important to understand that digitalization in this context primarily focuses on enhancing operational programs, refining Standard Operating Procedures (SOPs), and improving reporting systems. By leveraging digital technologies in these areas, BUMDes can increase efficiency, improve transparency, and ultimately better serve the economic needs of the community. However, the successful implementation of digital tools requires ongoing investment in digital literacy, training, and organizational support. With the right strategies in place, digital technology can be a powerful enabler of growth and development in BUMDes, contributing to more sustainable and inclusive economic development in rural areas.

Beyond operational and financial functions, digital technology also plays a crucial role in improving BUMDes' reporting capabilities. Reporting is a key component of monitoring and evaluating the impact of BUMDes initiatives. By leveraging digital tools, BUMDes can create detailed and accurate reports that track the outcomes of their programs and initiatives. These reports can then be used to assess the effectiveness of the programs, identify areas for improvement, and demonstrate the value of BUMDes' activities to the community and other stakeholders.

The use of digital tools in reporting can also enhance transparency and accountability, as reports can be generated in real-time and shared with relevant stakeholders, including government agencies, community leaders, and the general public. This level of transparency not only helps build trust but also encourages greater community involvement in the decision-making process. By making data more accessible and easier to understand, digital reporting systems empower the community to hold BUMDes accountable for their actions and ensure that the enterprise is serving the needs of the people.

It is also important to note that the effectiveness of digital technology in BUMDes is largely determined by the level of digital literacy among the staff and stakeholders involved. The successful implementation of digital tools requires that individuals within the organization have a basic understanding of how to use these technologies. In many rural areas, access to digital literacy training may be limited, which can hinder the successful adoption of digital technologies in BUMDes. Therefore, it is essential for BUMDes to invest in training programs that equip staff and community members with the skills needed to use digital tools effectively. This includes providing training on software applications, data management systems, and cybersecurity best practices.

In addition to addressing the technical aspects of digital technology, BUMDes must also consider the cultural and organizational factors that may affect the adoption of these tools. In some cases, there may be resistance to change, especially if digital technologies are perceived as complex or unfamiliar. Overcoming this resistance requires strong leadership and a clear communication strategy that emphasizes the benefits of digitalization, such as increased efficiency, improved transparency, and greater financial sustainability. Leaders within BUMDes must demonstrate a commitment to

digital transformation and create a supportive environment where staff feel empowered to embrace new technologies.

It is also worth mentioning that the integration of digital technology in BUMDes should be viewed as part of a broader strategy to modernize rural economies. The use of digital tools can open up new opportunities for BUMDes to connect with external markets, attract investment, and expand their reach. For example, by establishing an online presence, BUMDes can promote their products and services to a wider audience, including potential customers beyond their local area. E-commerce platforms, social media, and digital marketing can help BUMDes tap into new revenue streams and create partnerships with other businesses or organizations. This can lead to more sustainable growth and greater financial independence for the enterprise.

Moreover, the adoption of digital technology can also foster innovation within BUMDes. By using data analytics and other digital tools, BUMDes can gain insights into market trends, customer preferences, and operational performance. These insights can inform the development of new products or services that meet the evolving needs of the community. Digital tools can also support the creation of more personalized and tailored offerings, allowing BUMDes to better serve their customers and differentiate themselves in the marketplace.

### External party collaboration.

In the latest research conducted in 2024, one of the key aspects analyzed is the level of collaboration with external parties. The data obtained provides significant insights into how the entities studied interact and cooperate with outside parties. Based on the table presented, it was found that almost all respondents, namely 56 people or 98.2% of the total 57 respondents, assessed that their collaboration with external parties was at a moderate level. This shows that there is an effort and willingness to cooperate with outside parties, even though it has not been maximized or has not been fully utilized.

Meanwhile, only one respondent or 1.8% felt that collaboration with external parties was at a low level. This can indicate the existence of certain obstacles or obstacles that hinder further cooperation, which may be related to internal or external factors. The most interesting thing is the absence of respondents who rate collaboration with external parties at a high level. This can be an area of concern, given that collaboration and engagement with external parties are often crucial for innovation, growth, and sustainability in many areas.

Based on 2024 research data on collaboration with external parties, the majority of respondents considered this collaboration to be in the medium category, namely 56 respondents or 98.2%. Only one respondent (1.8%) rated this collaboration low, and no one rated this collaboration high. When compared to the previous study by Santoso et al. (2020), where 70% of respondents rated collaboration with external parties at a moderate level, 20% at a low level, and 10% at a high level, there was a decrease in the assessment of collaboration at a high level. These results show that while there is an awareness of the importance of collaboration with external parties, its implementation may not be optimal. This decline can be caused by a variety of factors, such as changing economic conditions, lack of resources, or challenges in building effective relationships with external partners. These findings emphasize the need for a more strategic and targeted approach to enhance collaboration with external parties, such

Table 4. External Collaboration

Category	Respond	Percent
Tall	0	0
Keep	56	98,2
Low	1	1,8
Sum	57	100

Source: Primary data processing, 2024, see figure 4.

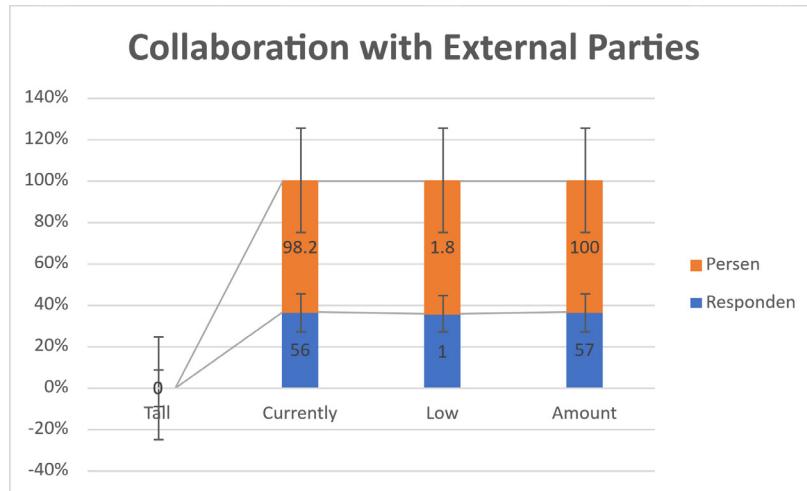


Figure 4. External Collaboration

as through capacity building, building stronger partnership networks, and leveraging technology to support more efficient communication and cooperation. Thus, it is hoped that collaboration with external parties can reach a higher level and provide greater benefits for all parties involved.

This research has several limitations that need to be considered. First, the use of qualitative methods with a case study approach limits the generalization of findings. This study is only focused on BUMDes in the West Sumbawa gold mining area, so the results may not be directly applicable to BUMDes in other areas with different conditions. In addition, limitations in data collection through interviews, observations, and documentation may cause bias, both from the informant and researcher sides. Limited access to more in-depth information and openness from the interviewee can also affect the quality of the data obtained. This research also emphasizes more on descriptive aspects without in-depth analysis of external factors such as government policies, market conditions, and socio-economic dynamics of the local community. The lack of longitudinal data is an obstacle in assessing the long-term impact of innovations carried out by BUMDes.

To overcome these limitations, further research can use mixed methods that combine qualitative and quantitative approaches, so that the results are more comprehensive and can be generalized better. Involving BUMDes from different regions with different characteristics is also important to enrich the findings and expand the scope of the research. Improving data collection techniques by involving more informants and data sources, as well as using data triangulation to minimize bias, is highly recommended. The use of information technology to collect data in real-time and longitudinal can improve data accuracy and reliability. In addition, a more in-depth analysis of external factors such as government policies, market conditions, and socio-economic dynamics needs to be carried out. Collaborating with various institutions and

academics to conduct collaborative research can also help overcome these limitations, with the support of more adequate resources and more accurate and beneficial results for the development of BUMDes in the future.

The findings of this study show that innovation in managing local resources—such as developing new products, applying digital technologies, and establishing collaborations with external parties—is crucial for Village-Owned Enterprises (BUMDes) to effectively address community economic needs. These results align with prior research by Purwanto et al. (2021) and Rahayu (2020), who highlighted the importance of innovation and technological adoption in enhancing the sustainability of rural enterprises. The adoption of digital technologies has been particularly significant, allowing BUMDes to streamline operations and access broader markets, consistent with global trends in rural enterprise development (Smith & Stevens, 2019).

However, this study also identifies a critical challenge: the need to improve the managerial capacities of BUMDes leaders. This aligns with the findings of Wijaya (2018), who pointed out that limited managerial skills often hinder the success of rural enterprises. Without substantial improvements in management, BUMDes may struggle to scale their innovations and compete internationally. This underscores the importance of targeted capacity-building initiatives, as argued by Irawan (2022), who emphasized the critical role of leadership development in fostering rural economic growth.

BUMDes have made significant progress in innovation and adaptation, their long-term success and potential as sustainable economic drivers are contingent on enhancing managerial capabilities. This study contributes to the literature on rural enterprise development and provides actionable insights for policymakers and stakeholders seeking to bolster the impact of BUMDes on village economies.

#### 4. Conclusion

This research reveals that Village-Owned Enterprises (BUMDes) have significant potential in encouraging economic growth and entrepreneurship at the village level, especially in the West Sumbawa gold mining area, although they have not been fully maximized in providing benefits to improve community welfare. The analysis shows that innovation in local resource management, innovative product development, application of digital technology, and collaboration with external parties are key factors that can increase the participation of BUMDes in the village economy. To achieve this potential, it is necessary to develop the capacity of BUMDes human resource like the managers so that they can compete at the global level and contribute effectively as a sustainable driver of the village economy.

The recommendation of this study emphasize the importance of government and related institutions support in increasing the capacity of BUMDes managers through training, workshop, access to technology, and the formation of a wider collaboration network, so that they can maximize economic and entrepreneurial benefits at the village level, as well as directly improve the welfare of the community in the gold mining area. It is necessary for the Ministry of Village to sort an effective scheduled program to raise the capacity of BUMDes human resource once it is registered. Beside, the aid for basic capital is also

#### 5. Acknowledgment

Our deepest thanks go to the village partners and the local community for their active participation and collaboration. The cooperative efforts and unwavering commitment of all involved have been instrumental in the success of this study. Their support has played a pivotal role in achieving the research objectives and generating findings that contribute to the advancement of both academic knowledge and community welfare. We look forward to continuing this fruitful partnership, which we believe will have a lasting positive impact on both academic research and community development in the future.

#### Reference

Baihaqki, U. (2022). Mapping Creative Amenities To Develop Tourism Potentials In A Post-Mining Area: A Case Study Of Bantar Karet Village, Bogor Regency, Indonesia. *Indonesian Journal Of Geography*, 54(3). [Https://Doi.Org/10.22146/IJg.52363](https://Doi.Org/10.22146/IJg.52363)

Basu, N., Clarke, E., Green, A., Calys-Tagoe, B., Chan, L., Dzodzomenyo, M., Fobil, J. N., Long, R., Neitzel, R. L., Obiri, S., Odei, E., Ovadje, L., Quansah, R., Rajae, M., & Wilson, M. L. (2015). Integrated Assessment Of Artisanal And Small-Scale Gold Mining In Ghana—Part 1: Human Health Review. *International Journal Of Environmental Research And Public Health*, 12(5), 5143–5176. <Https://Doi.Org/10.3390/Ijerph120505143>

Burke, A., Zawwar, I., & Hussels, S. (2019). Do Freelance Independent Contractors Promote Entrepreneurship? *Small Business Economics*, 55(2), 415–427. <Https://Doi.Org/10.1007/S11187-019-00242-W>

Djufry, F., Farid, M., Adzima, A. F., Anshori, M. F., Yassi, A., Musa, Y., Nasaruddin, N., Aqil, M., Iswoyo, H., Jamil, M. H., & Pati, S. (2022). Normalized Difference Vegetation Index Analysis To Evaluate Corn Cultivation Technology Based On Farmer Participation. *Indonesian Journal Of Geography*, 54(3). <Https://Doi.Org/10.22146/IJg.72632>

Dushime, E., Muathe, S. M. A., & Kavindah, L. (2022). New Paradigms On Performance Of Smes. *International Journal Of Research In Business And Social Science (2147-4478)*, 11(1), 24–32. <Https://Doi.Org/10.20525/IJrbs.V11i1.1581>

Ferdianto, J., Hizmi, S., Batubara, R. E., Widjaya, H. R., & Akib, H. (2022). *Buku-Kajian Kelembagaan Pendidikan Kedinasan Bidang Pariwisata-2021*.

Guerrero, M., & Urbano, D. (2020). Looking Inside The Determinants And The Effects Of Entrepreneurial Innovation Projects In An Emerging Economy. *Industry And Innovation*, 28(3), 365–393. <Https://Doi.Org/10.1080/13662716.2020.1753021>

Ibrahim, I., Herianto, A., Kamaluddin, K., Mas'ad, M., Djunadi Am, D. A., Mintasrihardi, M., Abd. Gani, A., Ali, M., Hasanah, S., Rejeki, S., Hayati, M., & Rochayati, N. (2021). Pencegahan Penularan Covid-19 Melalui Pembagian Masker Di Pusat Ekonomi Kreatif Wisata Sade Lombok Teng. *Abdimas Mandalika*, 1(1), 31. <Https://Doi.Org/10.31764/Am.V1i1.6785>

Ibrahim, I., & Zitri, I. (2023). Peran Badan Usaha Milik Desa Dalam Pemberdayaan Masyarakat Pada Kawasan Pertambangan Emas Di Sumbawa Barat. *Jurnal Humanitas: Katalisator Perubahan Dan Inovator Pendidikan*. <Https://Doi.Org/10.29408/Jhm.V10i1.23974>

Idrees, A. S., & Sarwar, S. (2020). State Effectiveness, Property Rights And Entrepreneurial Behaviour As Determinants Of National Innovation. *Australian Economic Papers*, 60(3), 392–423. <Https://Doi.Org/10.1111/1467-8454.12210>

Krisnayanti, B. D., Vassura, I., Asmara, M. D., Ekawanti, A., & Suheri, H. (2016). Analysis Of Artisanal Small-Scale Gold Mining Sector In West Sumbawa Regency, Indonesia. *Journal Of Health And Pollution*, 6(12), 26–33. <Https://Doi.Org/10.5696/2156-9614-6.12.26>

Lee, J., Kim, D., & Sung, S. (2019). The Effect Of Entrepreneurship On Start-Up Open Innovation: Innovative Behavior Of University Students. *Journal Of Open Innovation Technology Market And Complexity*, 5(4), 103. <Https://Doi.Org/10.3390/Joitm5040103>

Lobo, F. D. L., Costa, M., Novo, E. M. L. De M., & Telmer, K. (2017). Effects Of Small-Scale Gold Mining Tailings On The Underwater Light Field In The Tapajós River Basin, Brazilian Amazon. *Remote Sensing*, 9(8), 861. <Https://Doi.Org/10.3390/Rs9080861>

Maulidina, S. H., Harri, M., & Utomo, F. C. (2023). The Role Of Dynamic Capabilities And Entrepreneurial Orientation Towards Innovation And Its Implications For Creative Economy Performance In Indonesia. *International Journal Of Business And Applied Social Science*, 51–61. <Https://Doi.Org/10.33642/Ijbass.V9n3p6>

Meutia, A. A., Lumowa, R., & Sakakibara, M. (2022). Indonesian Artisanal And Small-Scale Gold Mining—A Narrative Literature Review. *International Journal Of Environmental Research And Public Health*, 19(7), 3955. <Https://Doi.Org/10.3390/Ijerph19073955>

Moekahar, F., Handayani, B., Daherman, Y., & Alfani, H. (2020). Workshop Program Pengembangan Kewirausahaan Berbasis Socio-Technopreneurship Di Universitas. *Jurnal Pengabdian Kepada Masyarakat*, 4(2), 75–85.

Murtadho, A., Pravitasari, A. E., Munibah, K., Saizen, I., & Rustiadi, E. (2022). Controlling The Urban Physical Development In Karawang And Purwakarta Regencies Using Quantitative Zoning Approach. *Indonesian Journal Of Geography*, 54(2). <Https://Doi.Org/10.22146/IJg.70358>

Pei, X.-L., Wu, T.-J., Guo, J.-N., & Hu, J. (2020). Relationship Between Entrepreneurial Team Characteristics And Venture Performance In China: From The Aspects Of Cognition And Behaviors. *Sustainability*, 12(1), 377. <Https://Doi.Org/10.3390/Su12010377>

Rachmawati, R. R., & Gunawan, E. (2020). Peranan Petani Milenial Mendukung Ekspor Hasil Pertanian Di Indonesia. *Forum Penelitian Agro Ekonomi*, 38(1), 67. <Https://Doi.Org/10.21082/Fae.V38n1.2020.67-87>

Sardiana, I. K., Purnawan, N. L. R., Wiguna, P. P. K., Suyarto, R., & Kusmiyarti, T. B. (2021). Analysis Of Spatial Data Infrastructure

(Sdi) To Support Tourism Village Promotion In Badung Regency, Bali, Indonesia. *Indonesian Journal Of Geography*, 53(2), 179–184.

Septiarani, B., & Handayani, W. (2020). Community Group Networking On The Community-Based Adaptation Measure In Tapak Village, Semarang Coastal Area. *Indonesian Journal Of Geography*, 52(2), 181. <Https://Doi.Org/10.22146/Ijg.39053>

Setiawan, I., Disman, D., Sapriya, S., & Malihah, E. (2021). *Village Owned Enterprises (Bumdes) Social Entrepreneurship Innovation In Developing The Potential Of Local Wisdom (Case Study On Bumdes Cisantana, Kuningan Regency)*. <Https://Doi.Org/10.4108/Eai.12-12-2020.2305120>

Taufiq, M., Suhirman, S., Sofhani, T. F., & Kombaitan, B. (2022). Powers On Community-Level Deliberation: A Power Cube Approach. *Indonesian Journal Of Geography*, 54(2). <Https://Doi.Org/10.22146/Ijg.60911>

Wijaya, A. F., Muluk, K., & Bisri, M. H. (2022). Rural Area Development Policy Through The Joint Village Owned Enterprise From The Perspective Of Collaborative Governance. *Governance*, 30(3), 2021–2036.

Alam, S., & Hossain, M. (2020). Impact Of Digital Transformation In Rural Enterprises: A Case Study Of Village-Based Enterprises In Bangladesh. *Journal Of Rural Studies*, 74, 123-134. Doi: 10.1016/J.Jrurstud.2020.01.014

Goh, W. L., & Lee, P. K. (2019). Leveraging Digital Technologies For Business Process Optimization In Rural Communities. *International Journal Of Information Management*, 47, 114-122. Doi: 10.1016/J.Ijinfomgt.2018.11.012

Sharma, M., & Singh, J. (2018). The Role Of Digitalization In Enhancing Transparency And Efficiency In Village-Based Enterprises. *Technology In Society*, 54, 12-21. Doi: 10.1016/J.Techsoc.2018.01.001

Dinesh, A., & Kumar, R. (2019). Digital Tools For Enhancing Operational Efficiency In Rural Business: Evidence From India. *Journal Of Rural Business*, 16(2), 40-52. Doi: 10.1080/08957414.2019.1621372

Pattnaik, B., & Baral, D. (2020). Adoption Of Technology In Rural Entrepreneurship: A Study Of Village-Level Enterprises In Odisha, India. *Journal Of Small Business Management*, 58(4), 612-627. Doi: 10.1111/Jsbm.12499

Singh, A., & Kaur, M. (2017). Digital Transformation For Improving Rural Business Outcomes: A Case Study Of Village-Level Enterprises In Punjab. *International Journal Of Rural Management*, 13(1), 27-40. Doi: 10.1177/0973005216689925

Cabrera, J., & Rodríguez, J. (2018). Enhancing Rural Business Management Through Digital Technologies: A Case Study From Rural Spain. *Journal Of Business Research*, 89, 258-267. Doi: 10.1016/J.Jbusres.2017.12.058

Hossain, M., & Alam, S. (2021). Digitalization Of Local Enterprises In Developing Countries: Challenges And Opportunities. *Journal Of Development Studies*, 57(3), 430-441. Doi: 10.1080/00220388.2020.1831865

Jaiswal, A., & Agarwal, V. (2020). A Framework For Digitalization In Rural Business: Exploring Challenges In Rural Enterprise Management. *Technological Forecasting And Social Change*, 153, 119904. Doi: 10.1016/J.Techfore.2020.119904

Patel, R., & Shah, N. (2021). Impact Of Digital Reporting On Rural Enterprise Performance: Evidence From Rural India. *Information Systems Journal*, 31(5), 835-856. Doi: 10.1111/Isj.12312