

Smart Village Governance Training to Strengthen Village Governance Capacity: A Community Engagement Program in Citeureup Village

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Abstract. This community engagement program aimed to strengthen the capacity of village officials and community stakeholders in understanding and applying the Smart Village Governance concept to improve village governance and public service delivery in Citeureup Village, Citeureup District, Bogor Regency. The program was conducted using a participatory training and mentoring approach involving initial observation, focused discussion, training delivery, practical exercises, and activity evaluation. The training materials focused on the integration of digital technology with good governance principles, including transparency, accountability, participation, responsiveness, efficiency, data management, and digital public services. Participants were encouraged to identify existing governance challenges and formulate practical strategies for applying Smart Village Governance according to local conditions and available resources. The effectiveness of the program was evaluated through a structured assessment of participants' understanding and engagement at different stages of the activity, supported by observations, discussions, group exercises, and participant feedback. The evaluation results demonstrated a progressive improvement across the implementation stages. The assessment score increased from 3 during the initial observation to 5 during the focused discussion, 7 during the training session, and 9 during the final activity evaluation. This increase indicates improved participant understanding and engagement following the intervention. The program therefore provided a positive foundation for strengthening village governance capacity and increasing readiness to adopt digital and participatory governance practices. Nevertheless, continued mentoring and monitoring are required to ensure that the knowledge gained through the training is translated into sustainable improvements in village administration and public services. The program highlights the importance of human-resource capacity building as a fundamental component of Smart Village Governance development.

Keywords: smart village governance; village governance; community engagement.

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1. Introduction

The rapid development of information and communication technologies (ICT) has transformed the way public institutions deliver services, manage information, and interact with citizens. This transformation is increasingly relevant at the village level, where village governments represent the closest level of public administration to local communities. Digital transformation provides opportunities to improve administrative efficiency, public service accessibility, transparency, accountability, and community participation. Consequently, the development of smart villages has emerged as an important approach to addressing rural development challenges by integrating digital technology, institutional capacity, community participation, and local innovation into village governance [1]–[4]. Recent literature further emphasizes that smart villages should not be understood merely as villages equipped with digital infrastructure, but as rural communities that utilize technology and innovation to improve governance, quality of life, economic opportunities, and social and environmental sustainability.

In the Indonesian context, the smart village agenda has become increasingly important alongside the decentralization of village governance and the strengthening of village autonomy. The availability of ICT creates opportunities for village governments to develop more efficient and responsive administrative systems while improving access to information and public services. Evidence from Indonesia indicates that ICT is an important determinant of smart village development, particularly through village information systems, communication access, and community interest in technology. Nevertheless, ICT infrastructure alone does not guarantee successful smart village implementation. Community participation and village leadership are also important determinants, indicating that technological development must be accompanied by institutional and human-capacity development [5], [6]. Indeed, empirical evidence suggests that smart village development in Indonesia is influenced by a combination of technological, social, and institutional factors rather than by technology alone.

From a governance perspective, the smart village concept provides an opportunity to strengthen the quality of village government by integrating digital technologies with the principles of good governance. Effective village governance requires transparency, accountability, responsiveness, participation, and efficient public service delivery. Digitalization can support these principles by facilitating information dissemination, improving administrative processes, strengthening data management, and creating new channels for interaction between village officials and citizens. Research on digital-based public service innovation in village governance demonstrates that digital platforms can contribute to public value creation through greater transparency, reduced administrative costs, improved accessibility, and enhanced citizen interaction [7]–[9]. Similarly, recent studies of village digital governance indicate that digital transformation can strengthen administrative capacity, data governance, transparency, accountability, responsiveness, and citizen participation when technology is embedded within appropriate institutional arrangements.

However, the implementation of smart village governance remains challenging, particularly in relation to the capacity of village government officials and the ability of local institutions to adapt to digital transformation. Village governments may face limitations in digital literacy, human resources, technological infrastructure, data management, and organizational readiness. These challenges can result in a gap between the availability of digital technologies and their actual utilization for improving governance and public services. Studies on digital village transformation have highlighted that limited technological infrastructure, inadequate human-resource competencies, and weak policy coordination can constrain the effectiveness of village digitalization initiatives [10], [11]. Likewise, research on digital literacy programs in Indonesian villages demonstrates that strengthening the competencies of village officials is essential for improving administrative capacity, data management, e-government practices, and transparency. Leadership also plays a significant role in mobilizing stakeholders and sustaining digital transformation initiatives [12], [13], [14].

Another important dimension of smart village governance is community participation. The transformation of village governance should not position citizens merely as recipients of digital public services but as active stakeholders involved in identifying problems, designing solutions, implementing programs, and evaluating governance outcomes. Community participation is particularly important because village development is closely connected to local knowledge, social capital, and community needs. Fauji et al., [15] found that the success of smart village implementation depends not only on technological infrastructure but also on community involvement throughout the planning, implementation, and evaluation processes. More recent evidence also indicates that institutional capacity, multi-stakeholder collaboration, community participation, and transparency-accountability are important dimensions in reducing governance gaps associated with digital transformation in Indonesian villages.

Furthermore, smart village governance should be understood as a socio-technical transformation, rather than simply a technological modernization project. Technology becomes meaningful when it is supported by institutional readiness, local leadership, community engagement, and organizational learning. Research on digital villages in rural Java demonstrates that village information systems are shaped by local governance structures, social practices, institutional norms, and community participation. Digital transformation can therefore generate meaningful governance changes only when technology is integrated with local agency and institutional creativity [16], [17]. Similarly, recent research on smart village governance in Indonesia emphasizes that governance arrangements and policy alignment across different levels of government are essential for translating digital technologies into sustainable improvements in rural governance. The need to strengthen village governance is particularly relevant because the quality of public services at the village level is closely associated with

administrative capacity, transparency, digitalization, and citizen participation. Villages function as frontline institutions responsible for providing various administrative and community services; therefore, weaknesses in governance capacity can directly affect citizens' access to public services. Recent evidence confirms that administrative capacity, transparency and accountability, digitalization, and community participation are important dimensions associated with the quality of village public services [7]. Digitalization can consequently be used as a strategic instrument to strengthen governance, provided that village officials possess adequate knowledge and skills to manage digital information and integrate technology into everyday administrative practices.

In this regard, capacity building through training and community engagement represents an important intervention for supporting the transition toward smart village governance. Community engagement programs can provide village officials and community members with practical knowledge concerning digital governance, public service innovation, data management, transparency, accountability, and participatory decision-making. Evidence from community engagement initiatives in Indonesia demonstrates that mentoring and training related to village information systems can strengthen administrative services, data management, and community participation [18], [19]. Similarly, community-based interventions involving demographic data management, spatial mapping, village identity development, and digital service platforms have demonstrated the practical relevance of participatory approaches for developing smart village capacities [20]. These findings suggest that smart village transformation requires not only technological solutions but also continuous learning and empowerment at the community level.

Despite the growing literature on smart villages, there remains a practical need for community engagement programs that translate the smart village concept into understandable and applicable governance practices for village officials and local communities. Much of the existing discussion focuses on conceptual frameworks, digital infrastructure, village information systems, or empirical assessments of digital transformation, while fewer community engagement studies explicitly emphasize strengthening the governance capacity of village institutions through structured training on the Smart Village Governance concept. This gap is particularly relevant for villages that are in the process of strengthening their administrative capacity and adapting to increasingly digital public-service environments. Therefore, an intervention that combines conceptual understanding, practical training, participatory discussion, and contextual application is important to bridge the gap between the smart village concept and its implementation at the local level.

Against this background, Citeureup Village, Citeureup District, Bogor Regency, provides a relevant setting for a community engagement program aimed at strengthening village governance through the Smart Village Governance concept. The program is designed to increase participants' understanding of the principles of smart village governance and to strengthen their capacity to apply these principles in village administration and public service delivery. The training emphasizes the integration of digital technology with good governance principles, including transparency, accountability, responsiveness, participation, efficiency, and innovation. By positioning village officials and community members as active participants in the transformation process, the program seeks to encourage a governance model that is not only technologically oriented but also participatory, inclusive, and responsive to local needs. Accordingly, this community engagement program aims to strengthen the capacity of village officials and community stakeholders in understanding and applying the Smart Village Governance concept as a foundation for improving village governance in Citeureup Village. Specifically, the program seeks to (1) increase participants' knowledge of the principles and dimensions of Smart Village Governance; (2) strengthen their understanding of the role of digital technology in improving village administration and public services; (3) encourage transparency, accountability, and community participation in village governance; and (4) stimulate the development of practical and locally relevant strategies for implementing smart governance at the village level. Through this approach, the program is expected to contribute to the gradual development of a more effective, transparent, participatory, and adaptive village governance system.

2. Method

This community engagement program employed a participatory training and mentoring approach to strengthen the capacity of village officials and community stakeholders in understanding and applying the Smart Village Governance concept. The program was conducted in Citeureup Village, Citeureup District, Bogor Regency, West Java, Indonesia. The target participants consisted of village government officials and selected

community representatives who were directly involved in village administration, public services, community empowerment, and local development activities. The selection of participants was based on their relevance to village governance and their potential role in supporting the implementation of smart village principles within the local institutional context. The implementation of the program consisted of several interconnected stages, namely initial assessment, preparation, training implementation, participatory discussion, practical application, and evaluation. The initial assessment was conducted to identify participants' existing understanding of village governance, digital technology utilization, public service management, transparency, accountability, and community participation. This stage was important for determining the training materials and ensuring that the intervention addressed the actual needs of the village. Information regarding the initial condition of participants was obtained through direct observation, informal interviews, and discussions with village government representatives prior to the training.

The preparation stage involved developing training materials based on the identified needs and characteristics of Citeureup Village. The materials focused on the fundamental principles of Smart Village Governance and their relevance to village administration and public service improvement. The training covered several key dimensions, including digital transformation in village administration, utilization of information technology for public services, village data and information management, transparency and accountability, participatory governance, responsiveness, institutional capacity, and local innovation. The materials were presented using practical examples and contextual cases to facilitate participants' understanding of how smart governance principles can be adapted to the needs and resources of the village.

The main activity was delivered through interactive training combining short presentations, demonstrations, question-and-answer sessions, group discussions, and participatory problem-solving exercises. The facilitators introduced the Smart Village Governance concept and subsequently encouraged participants to identify existing governance challenges in their own village. Participants were invited to discuss problems related to administrative services, information dissemination, data management, community involvement, and the utilization of digital technology. The participatory approach enabled participants to connect the conceptual materials with their everyday governance practices and to identify opportunities for improving village services through appropriate and locally feasible digital solutions. The practical component of the program was implemented through group-based exercises in which participants developed preliminary strategies for applying Smart Village Governance principles in Citeureup Village. Each group was encouraged to identify a specific governance problem, determine the potential role of digital technology in addressing the problem, and formulate an appropriate improvement strategy. The proposed strategies were then presented and discussed collectively with the facilitators and other participants. This process was intended to strengthen participants' problem-solving skills while encouraging collaboration between village officials and community representatives. The activity also emphasized that digital transformation should be accompanied by improvements in institutional capacity, transparency, accountability, and community participation.

Program effectiveness was evaluated using a combination of quantitative and qualitative approaches. A pre-training and post-training assessment was used to measure changes in participants' knowledge and understanding of Smart Village Governance. The assessment consisted of questions addressing the principles of smart village governance, digital public services, data management, transparency, accountability, community participation, and the role of technology in village administration. Changes in participants' scores before and after the training were compared descriptively to identify improvements in knowledge. In addition, observations during discussions, participants' responses, group presentations, and facilitator notes were used as qualitative evidence to assess participants' engagement, ability to identify governance problems, and readiness to formulate practical strategies. The evaluation also considered participants' perceptions of the usefulness and relevance of the training. Participants were asked to provide feedback concerning the clarity of the materials, relevance of the topics to their responsibilities, usefulness of the practical exercises, and potential applicability of Smart Village Governance principles in Citeureup Village. The evaluation findings were subsequently discussed with village representatives to identify priority areas for follow-up. Through this process, the program was designed not merely as a one-time knowledge-transfer activity but as an initial capacity-building intervention that could support the gradual adoption of more transparent, participatory, accountable, responsive, and technology-enabled village governance practices.

3. Results and Discussion

The implementation of the community engagement program in Citeureup Village demonstrated a progressive improvement in participants' engagement and understanding throughout the training process. As presented in Figure 1, the evaluation was conducted through four sequential stages: initial observation, focused discussion, training implementation, and activity evaluation. The results indicate a consistent upward trend, with scores increasing from 3 at the initial observation stage to 5 during the focused discussion, 7 during the training session, and 9 at the final evaluation. This pattern suggests that the intervention contributed positively to participants' understanding of the Smart Village Governance concept and their engagement in the learning process.

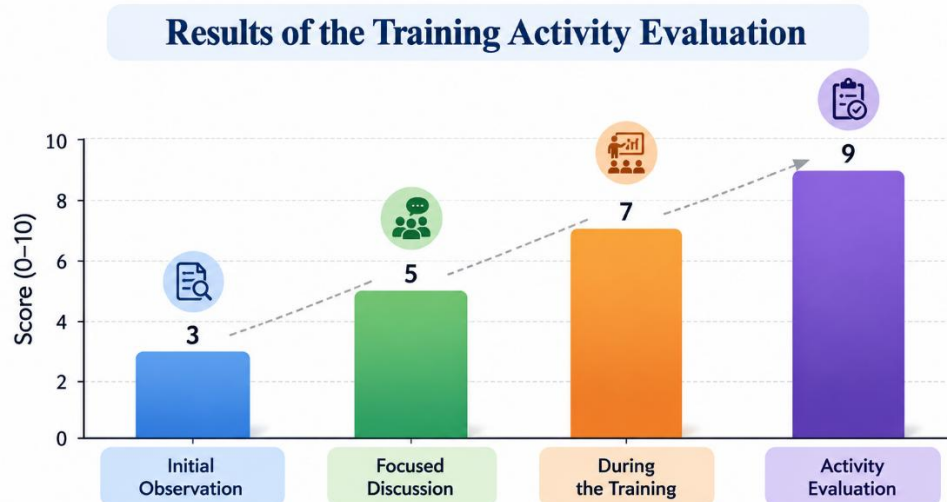


Figure 1. Results of the Training Activity Evaluation

At the initial observation stage, the score was 3 on a 10-point scale, indicating that participants' initial understanding and readiness regarding Smart Village Governance were relatively limited. The observation identified the need for a structured capacity-building intervention, particularly in relation to the integration of digital technology with village administration, public services, transparency, accountability, and community participation. This initial condition is important because the implementation of smart village governance requires not only technological infrastructure but also adequate human-resource capacity. Without sufficient knowledge and digital competence, village officials and community stakeholders may have difficulty translating the concept of smart governance into practical administrative activities.

The score increased to 5 during the focused discussion, indicating an improvement in participants' engagement after they were given opportunities to discuss their existing experiences and governance challenges. The discussion stage enabled participants to relate the Smart Village Governance concept to problems encountered in their daily activities. Participants were encouraged to identify issues related to administrative services, information management, public communication, and community involvement. This participatory process was particularly important because it shifted the activity from a one-way transfer of information toward a dialogue in which participants could express their experiences and identify locally relevant governance problems. Such an approach is consistent with the principle that smart village development should be rooted in local needs and stakeholder participation rather than being driven exclusively by technological considerations.

A further increase was observed during the training implementation stage, where the score reached 7. This improvement indicates that the delivery of structured training materials, practical examples, interactive explanations, and discussions contributed to participants' understanding of Smart Village Governance. During this stage, participants were introduced to the relationship between digital transformation and improved village governance, including the use of technology to support administrative efficiency, information dissemination, data management, public services, transparency, and accountability. The increase from 5 to 7 also suggests that participants were increasingly able to connect theoretical concepts with practical governance requirements. In the context of village development, this is important because digital transformation should be accompanied by organizational learning and improvements in the competencies of village officials.

The highest score, 9, was recorded during the final activity evaluation. This result indicates a substantial improvement compared with the initial observation score of 3. In relative terms, the score increased by 6 points, representing a 200% increase from the initial score. Although the evaluation should not be interpreted as evidence of long-term institutional change, the substantial increase provides an indication that the training successfully improved participants' immediate understanding and engagement with the Smart Village Governance concept. The final evaluation also suggests that participants were able to recognize the relevance of smart governance principles to the development of more effective, transparent, participatory, and responsive village administration.

The progressive pattern from 3 → 5 → 7 → 9 is also significant from a capacity-building perspective. Rather than showing improvement only after the final assessment, the results demonstrate gradual development across each stage of the intervention. The initial observation established the participants' baseline condition, the focused discussion facilitated problem identification and knowledge exchange, the training strengthened conceptual and practical understanding, and the final evaluation assessed the outcomes of the intervention. This sequential process indicates that participatory learning can serve as an effective mechanism for introducing new governance concepts at the village level. It also reinforces the argument that smart village transformation requires a combination of technological awareness, institutional capacity, and active stakeholder involvement.

From a community engagement perspective, the results demonstrate that the program was not limited to delivering theoretical information. The combination of observation, focused discussion, training, and evaluation created a learning process through which participants could progressively develop their understanding of Smart Village Governance. The high final score provides an encouraging indication of participants' readiness to consider digital and participatory approaches in village governance. However, the findings should be understood primarily as evidence of short-term improvements in knowledge and engagement, rather than as confirmation that Smart Village Governance has already been fully implemented in Citeureup Village.

Therefore, the main implication of the program is the importance of continuing the capacity-building process beyond the training activity. The achievement of a final score of 9 provides a strong foundation for subsequent mentoring and implementation activities, particularly in developing village digital services, strengthening data management, improving public information systems, increasing transparency, and establishing mechanisms for community participation. Future activities should ideally include periodic monitoring and mentoring to determine whether the knowledge acquired during the program is translated into concrete changes in village administration and public service delivery. In this way, the training can become an initial step toward the sustainable development of Smart Village Governance in Citeureup Village, rather than functioning merely as a one-time educational activity.

4. Conclusion

The community engagement program in Citeureup Village demonstrated that training based on the Smart Village Governance concept can serve as an effective initial strategy for strengthening village governance capacity. The progressive evaluation results, which increased from a score of 3 during the initial observation to 5 during the focused discussion, 7 during the training, and 9 in the final evaluation, indicate an improvement in participants' understanding, engagement, and readiness to apply smart governance principles. The training enabled participants to better recognize the importance of integrating digital technology with transparency, accountability, participation, responsiveness, and efficiency in village administration and public service delivery. These findings suggest that strengthening human-resource capacity is an essential component of smart village development, as technological transformation cannot be implemented effectively without adequate knowledge and institutional readiness. Nevertheless, the results primarily reflect short-term improvements following the training; therefore, continued mentoring, monitoring, and practical implementation are required to ensure that the knowledge gained is translated into sustainable improvements in village governance. Overall, this program provides a practical foundation for the gradual development of a more digital, participatory, transparent, accountable, and responsive governance system in Citeureup Village.

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