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VILLAGE INFORMATION SYSTEM DIGITALIZATION POLICY IMPLEMENTATION STUDY

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Abstract

This study explores the implementation of digitalization policies through the Village Information System based on Sumenep Regency Regulation No. 44 of 2021 in Dungkek Village, East Java. Using a qualitative descriptive method and the Edward III policy implementation model, this research analyzes how communication, resources, disposition, and bureaucratic structure influence the success of the integrated village information system. The findings reveal that clear communication, training, and strong commitment from village officials support the program's implementation. However, the study also identifies key challenges, such as limited digital literacy among village apparatus, overlapping roles due to minimal human resources, unstable internet infrastructure, and resistance to change among older residents. Despite these barriers, the village's adaptive strategies such as community mentoring, collaborative governance, and external technical support have helped facilitate meaningful progress in digital public service delivery. This study contributes to understanding rural digital transformation and offers recommendations to enhance the effectiveness and equity of e-governance at the village level.

Keywords: Policy Implementation, Digitalization, Public Service

Introduction

Digitalization has become a global transformation, integrating digital technology into almost every aspect of life, including government and public services. In the context of government, digitalization is not simply adopting technology; it also brings about a paradigm shift in how government interacts with the

public. Digital technology enables public services to be more efficient, transparent, and accountable, meeting public demands for quality service. This aligns with Law Number 25 of 2009 concerning Public Services, which emphasizes the importance of providing services that are easy, fast, affordable, and accessible to all levels of society, without exception.

Digitalization is seen as a strategic solution to address various bureaucratic challenges experienced by the public, such as complicated, slow, and a lack of transparency in service procedures. The government can simplify administrative processes, reduce operational costs, and increase public service satisfaction by utilizing digital technology. Digitalization is A critical application in information systems, namely the electronic data management process that enables fast and accurate access, processing, and distribution of information. Information systems serve as the primary infrastructure supporting technology-based public services. With reliable information systems, the government can manage large-scale data and make it available for various needs, such as population administration, development planning, and program monitoring.

This accelerates decision-making and increases transparency and accountability. At the village level, digitalization through village information systems opens up significant opportunities to improve governance and public services. This is one form of information system implementation, opening up significant opportunities for villages to enhance the quality of governance and public services. In this era of globalization, modern society demands rapid access to various services, including information systems. Digitalization is not only about speed, but also about equitable access, including for communities in remote areas. This is where the government's role becomes crucial, particularly in ensuring that digital technology is implemented at the central level and the village level as the smallest governmental unit.

This is stipulated in Law Number 6 of 2014 concerning villages, which provides a legal basis for villages to develop better governance, including through village information systems. Article 86 of the Village Law also mandates that villages have the right to access information through a system designed to increase transparency and community participation in development. However, implementing digitalization at the village level is not without challenges. One concrete example is a coastal village far from the district administrative center facing data management and public services challenges. Limited technological infrastructure, such as unstable internet connections and a lack of hardware, is a significant obstacle. Furthermore, the village officials' inadequate human resource capacity to operate digital systems poses a considerable challenge.

The Regency Government initiated the Village Information System (Village Data Integration) program through Regent Regulation Number 44 of 2021 to address these challenges. This program integrates various types of village data, such as population and education data, to facilitate data-based decision-making. The Village Information System (Village Data Integration) program allows communities to independently access village information, such as development programs and population administration. The Empowered Village Data Integration Village Information System program integrates various types of village data, from population to education data, to facilitate data-driven decision-making. With this system, village officials can provide faster and more accurate services.

The Empowered Village Data Integration Village Information System program allows communities to independently access village information, such as information related to development programs, population administration, or other village activities. This aligns with the program's main objectives, namely to improve the quality of public services and empower village communities.

One of the villages chosen as the research location is because it not only implements the village information system program but also comprehensively implements it through established regulations. This comprehensive implementation is evident in the village's efforts to integrate various types of data, provide access to information for the community, and involve village officials in the system's operation.

Due to its remote location and limited technological infrastructure, this study can provide a concrete picture of the challenges and successes of digitalization implementation in areas with similar conditions. However, implementing the village information system program, data integration, and empowered villages is not without various technical challenges. One major issue is the lack of human resource capacity at the village level. The uneven distribution of digital knowledge among village officials is a significant obstacle, given that many are unfamiliar with information technology. Intensive training is needed to ensure all village officials can operate this system effectively. Furthermore, technological infrastructure, such as unstable internet connections and limited hardware, is a significant challenge that must be addressed. Therefore, local governments must provide adequate technical and operational support to ensure the program's smooth operation.

In addition to technical issues, community participation is an essential aspect in the success of the village information system program, the empowered village data integration program. Continuous education is needed so that the community understands the benefits of this system. With a good understanding, the community can use the village information system program, the empowered village data integration program, to meet their needs, such as processing documents or reporting administrative problems they face. Active community participation accelerates the achievement of program objectives and encourages the creation of a sense of ownership of this program.

Therefore, in this case the author will raise a study entitled "Village Digitalization Through Village Information Systems (Policy Implementation Study Based on the Regent's Regulation of Sumenep Regency No. 44 of 2021 concerning the village information system program, the empowered village data integration program in Dungkek Village, Dungkek District, Sumenep Regency)". Based on the research background and problem formulation mentioned above, the objectives of this research include:

1. To describe and analyze the implementation of policies based on the Regent Regulation of Sumenep Regency No. 44 of 2021 concerning the village information system program for integrated village empowerment data in Dungkek Village, Dungkek District, Sumenep Regency.
2. To describe and analyze the supporting and inhibiting factors for policy implementation based on the Regent Regulation of Sumenep Regency No. 44 of 2021 concerning the village information system program for integrated village empowerment data in Dungkek Village, Dungkek District, Sumenep Regency.

Benefits of research

1. Theoretical Benefits

This research is expected to benefit the development of public policy science, especially in implementing public policy. It can be

used as a reference, benchmark, and/or benchmark for further research.

2. Practical Benefits

Practically, the results of this study can be used as evaluation material for the government, particularly related agencies such as the Community and Village Empowerment Office and local governments, in implementing the village information system program for integrated village data in various villages, particularly Dungek Village. The findings of this study can provide input on the obstacles faced and strategies to improve the program's effectiveness at the local level. Furthermore, the results of this study are expected to serve as a reference for policymakers in developing village digitalization programs that are more in line with community needs, as well as optimizing the role of bureaucratic structures and resource distribution so that the program can run equitably and sustainably across all levels of society.

Literature Review

Public Policy

Public policy is not simply a set of rules; it involves a long process that includes problem identification, solution formulation, implementation, and evaluation of the results. Prabawati (2020) defines public policy as "whatever governments choose to do or not to do." Public policy is whatever the government chooses to do or not to do. Akib (2010) explains that: Public policy is the steps taken by the government to address various problems that arise in society. This policy serves as a guideline for the government in making decisions and taking actions to resolve issues or achieve specific outcomes.

Islamy (2014) defines public policy as "a series of activities that have a specific purpose or objective, implemented by individuals or groups related to issues or problems of concern." This emphasizes that public policy arises from interactions between the government and society, focusing on government efforts to meet public needs and solve problems faced. Septiana et al. (2023) argue that: Public policy is a series of decisions made by the government that serve as a framework for taking action in specific areas. Public policy also provides guidelines for the government and provides accountability for citizens. The public policymaking process is highly complex because decision-making is influenced by values, not purely based on objective data, and often involves large sums of money.

Gertson also argues that public policy is an effort by the government or authorized officials to address problems at the central and regional levels ("understanding public policy, scope, and objectives," 2024). This means that this policy is not limited to decisions made by the central government but also includes local policies implemented by regional governments according to the needs of their respective regions. Public policy has several key characteristics. First, each policy is designed with a specific goal to address a particular societal problem. Second, these policies are not mere discourse but are realized through concrete government actions. Third, public policy is designed to directly impact people's lives across social, economic, and political dimensions.

Public Policy Process

The public policy formulation process can be understood as a series of assessment steps to formulate solutions to societal problems that require government intervention. Damayanti stated that this stage begins with identifying the existing problem,

including breaking it down into interconnected variables. Next, a model of the relationships between these variables is developed to understand causal patterns and simplify the analysis. Afterward, problem-solving goals and objectives align with community aspirations, government interests, and the business world are established.

The process continues by developing various alternative policy actions based on their effectiveness in addressing the problem. To determine the best policy, criteria or benchmarks are developed to be used as evaluation instruments for the available alternatives. The final stage is the development of recommendations for the selected public policy, accompanied by implementation considerations, an analysis of potential obstacles, and a plan for monitoring, performance measurement, and evaluation of the policy's success in addressing the problem at hand.

Communication is a crucial variable influencing public policy implementation. It is essential for the achievement of its objectives. Effective implementation will occur if decision-makers know what they are doing. Information that decision makers know can only be obtained through good communication. Edward III categorized organizational resources as: "Staff, information, authority, facilities; building, equipment, land, and supplies." Edward also stated that these resources can be measured by their adequacy, which implies suitability and clarity; "Insufficient resources will mean that laws will not be enforced, services will not be provided, and reasonable regulation will not be developed."

Tendencies or dispositions are among the significant consequences for effective policy implementation. If implementers have positive tendencies or attitudes or support for the policy's implementation, it is likely to be implemented according to the initial decision. Conversely, if implementers have negative attitudes or oppose policy implementation due to conflicts of interest, the policy's implementation will face serious obstacles. Bureaucracy is one of the institutions that most often, if not entirely, carries out activities. Bureaucracy exists not only in government structures but also in private organizations, educational institutions, etc. In some cases, bureaucracies are even created solely to implement specific policies.

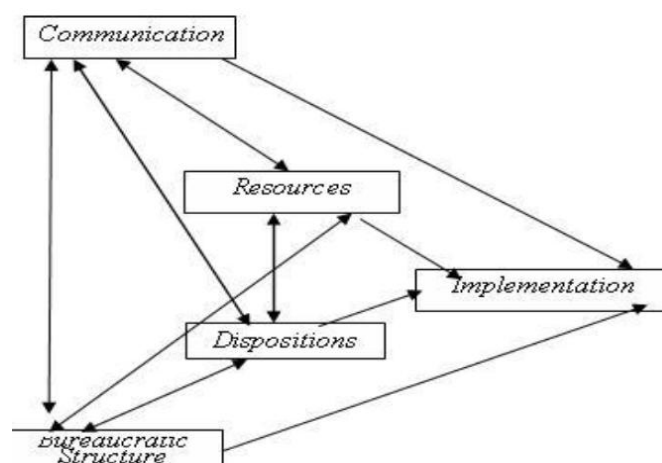


Figure 2.2 Edward III Implementation Model Pattern

Source: <https://d1wqtxts1xzle7.cloudfront.net/>

Of the various policy implementation models developed, I used the Edward III implementation model as my analytical framework. This choice was based on its suitability to the research context,

primarily because the Edward III model offers a comprehensive approach linking key factors such as communication, resources, disposition, and bureaucratic structure to the policy implementation process.

Information Systems

A system is a combination of several elements, components, or variables that are integrated to form a single unit to achieve goals and objectives (Maydianto & Ridho, 2021). Information is data processed into something of greater value to the recipient to assist decision-making (Kelvin et al., 2024). Meanwhile, Gregor (2006) defines information systems as a field of knowledge encompassing the interaction between physical systems, human behavior, and artificial artifacts, such as machines, software, or information-related technology.

Ndiege (2012) states that the success of an information system consists of six main interrelated variables that influence its success: system quality, information quality, usage, user satisfaction, individual impact, and organizational impact. System quality encompasses technical characteristics such as reliability, ease of use, and flexibility, contributing to the user experience. In contrast, information quality assesses the accuracy, relevance, and timeliness of the information produced, influencing user satisfaction.

Research Methods

Research Design

This study uses a qualitative approach. It will describe the progress of public service policy implementation through the village information system program, data integration, and empowered villages in Dungkek Village, based on Sumenep Regent Regulation Number 44 of 2021 concerning the village information system, data integration, and empowered villages.

Scope of Research

A scientific scope is needed as a limitation in conducting scientific research. The explanation obtained regarding the limitations of a subject on the problem that the author presents. With this research limitation, the author will focus more on obtaining problem-solving skills. The scope of this research is limited to the study of the implementation of the village information system policy based on the Regent Regulation of Sumenep Regency No. 44 of 2021 concerning the village information system for integrated data for empowered villages in Dungkek Village, Dungkek District, Sumenep Regency.

Research Location

This research was conducted in Dungkek Village, located in Dungkek District, Sumenep Regency, East Java. Dungkek Village is one of the villages on the east coast of Sumenep Regency, which has social, economic, and cultural characteristics typical of coastal communities. This location was chosen as the research object because Dungkek Village has initiated a digitalization initiative through the Village Information System (SYS) program, which aims to improve the quality of public services and access to information for the village community. Administratively, Dungkek Village is located where most of the population works in the fisheries, agriculture, and small-scale trade sectors. These socio-economic characteristics present unique challenges and opportunities for implementing digitalization policies at the village level.

Given the varying levels of education and technological literacy among the community, implementing a village information system with integrated village data offers the potential to address various challenges and improve the efficiency of public services. Furthermore, the information technology infrastructure in Dungkek Village is still limited, making this location relevant for identifying potential obstacles in implementing the village information system for integrated village data. The village also has a relatively high level of community participation in government programs, a crucial factor in the success of the digitalization program.

Research Informants

Marbun (2021) states that an informant is a person interviewed and asked for information, and someone who understands the data related to the research object. This informant becomes the subject who provides the information needed during the research process. Moleong (1989) views an informant as an individual who is utilized to provide information regarding the background situation and conditions of the research. This informant must be willing to provide information regarding facts or opinions to support the research. The research informants in this study include: the Community and Village Empowerment Service of Sumenep Regency as the head of the village information system program control team for the empowered village data integration, and Dungkek Village as the person in charge of the village information system for the empowered village data integration.

Data Analysis Techniques

According to Abdussamad (2021:176), Miles & Huberman (1984) state that activities in qualitative data analysis are carried out interactively and continuously until complete, resulting in data saturation. The absence of new data or information characterizes data saturation. Activities in analysis include data collection, display, condensation, and conclusion drawing/verification.

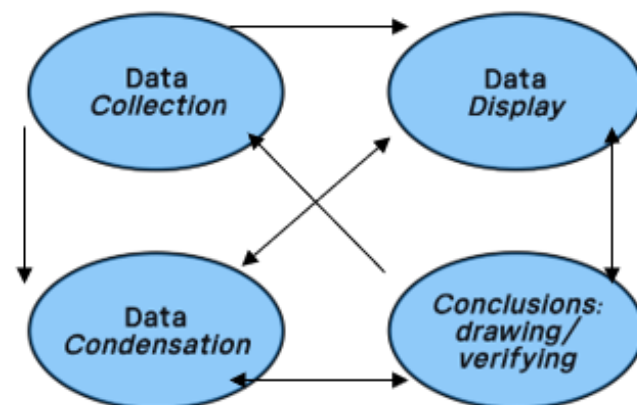


Figure 3. SEQ Figure_3. * ARABIC 1 Data Analysis Components

Source: Miles, Huberman, & Saldana (2014). Qualitative data analysis: A methods sourcebook (3rd ed.).

Miles and Huberman's data analysis has three stages, namely:

1. Data Collection

Data can be collected through interviews, observations, and various documents grouped according to the research topic. The data is then strengthened and detailed further through additional review and search processes.

2. Data Condensation

Data condensation involves selecting, shrinking (focusing), simplifying, abstracting, and transforming data.

3. Data Display

At this stage, the raw data collected will be reduced into a more manageable, organized, and structured form. This is done using data selection, abstraction, categorization, and coding techniques. This process allows researchers to gain a deeper understanding of the data and can assist in identifying patterns or themes that emerge from the data.

Research Results And Discussion

Overview of Dungkek Village

Dungkek Village is located in Dungkek District, Sumenep Regency. It consists of five hamlets: Dungkek Daja Timur, Dungkek Daja Barat, Dungkek Laok, Panjurangan, and So'ongan. Dungkek Village is led by a village head, locally known as Klebun. A hamlet head or neighborhood association head heads each hamlet.

Dungkek Village is 0–32.50 meters above sea level (masl) with a land slope of less than 3%. Its land area reaches 3.53 km² or approximately 5.57% of the total area of Dungkek District. Land use consists of dry land covering 348.42 hectares and rice fields covering 4.30 hectares. Average rainfall in Dungkek Village is relatively low, at 1,112.4 mm per year. The lowest rainfall usually occurs from June to October. The average air humidity level is around 65%, while the air temperature ranges from 24°C to 32°C.

Research Results and Discussion

The following is a data analysis regarding implementing the village information system policy for empowered village data integration in Dungkek Village, Dungkek District, Sumenep Regency.

Communication

Communication is fundamental in implementing the village digitalization policy through the village information system and empowered village data integration in Dungkek Village. In the Edward III implementation model, communication is crucial in ensuring that policies are accurately translated, accepted by all stakeholders, and effectively implemented. This section focuses on policy communication, including clarity of policy instructions and community outreach efforts.

1) Clarity of Policy Orders

Based on interviews with the Sumenep Regency Community and Village Empowerment Office, clarity regarding the village information system policy for integrated village data has been achieved through a systematic and structured approach. This process began with formal outreach to village officials, including the Dungkek Village Head and his staff. This outreach provided detailed information on the policy's objectives, expected benefits, and technical operational procedures for the integrated village data information system.

Supporting documents such as Regent Regulation No. 44 of 2021, technical guidelines, and training modules were distributed to village officials. These documents serve as working guidelines to help village officials understand the steps required to implement the policy. Technical training was also a crucial element. This training included theoretical explanations and hands-on simulations on using the village information system application, from logging in to data management and reporting.

At the village level, policy directives are translated by the Village Head and Village Secretary to other officials. For example, the Village Head of Dungkek frequently uses internal village meetings to ensure that each village official understands their responsibilities

in implementing the village information system. Technical assistants deployed in the field also provide solutions to village officials' various technical and operational challenges.

However, even though policy communication is structured, several challenges remain. The varying levels of technological literacy among village officials pose a significant obstacle. Influence communication effectiveness. Some devices previously accustomed to manual methods took longer to understand and implement this policy.

2) Policy Socialization

Policy dissemination to the community in Dungkek Village was conducted through an adaptive and diverse approach. The Village Head, Village Secretary, and village information system operator played a key role in disseminating information about the village information system, which integrates empowered villages with data. One of the most frequently used methods was the village deliberation. In this forum, the community was explained the benefits of the village information system, such as accelerating administrative processes, increasing transparency, and facilitating access to information.

In addition, village officials utilize local information media such as noticeboards at the village office, WhatsApp groups, and other social media platforms. This effort aims to reach a wider audience, particularly the younger generation, who are more familiar with technology. Village information system operators provide direct assistance for those less familiar with technology. This approach is designed to help communities understand how to use the village information system, from creating accounts based on their national identification number to submitting administrative documents.

However, challenges remain. The elderly population often found it difficult to understand and use the system. The technical language used in policy documents and guidelines also posed a barrier. Village governments recognized the need for simpler, more context-based communication to reach all levels of society.

3) Obstacles and Efforts to Overcome Obstacles

The main obstacle in communicating the village information system policy for integrated village empowerment data in Dungkek Village is the gap in technological understanding between village officials and the community. Some village officials take longer to adapt to digital systems, while the community, especially the elderly, often relies on village officials for assistance in utilizing the village information system. To overcome these obstacles, efforts are being made to address communication barriers through various strategies. At the village level, informal consultation sessions are often held in village halls to provide a space for the community to ask questions or seek assistance.

Village information system operators also frequently engage in personal outreach to communities, especially those less familiar with technology. Internal training for village officials is conducted regularly to improve their technological literacy, and the Department provides technical assistance to ensure they have access to the necessary support. The village government actively utilizes social media to disseminate policy information and technical guidance to the community.

Resource

Resources are essential in implementing the village digitalization policy through the Village Information System for Empowered Villages. In the context of Dungkek Village, resources, including

human resources, facilities, and infrastructure, determine the policy's success. This section discusses human resource readiness, the availability of facilities and infrastructure, and the challenges faced in resource management.

1) Human Resource Readiness

Human resource readiness in Dungkek Village has shown significant progress, although some challenges remain. Interviews revealed that village information system operators have received intensive technical training covering various aspects of system operation, such as data input, report generation, and technical troubleshooting. This training was conducted in stages, from the district to the national level, using simulations to ensure participants not only understand the theory but also can apply it directly.

For example, village information system operators in Dungkek Village participated in a national training organized by the Ministry of Villages. This training provided additional insights into large-scale data management, public service integration, and solutions to frequently encountered technical challenges. Furthermore, the training introduced the latest features of the village information system, Data Integration Desa Daya, designed to improve operational efficiency.

Meanwhile, other village officials are also encouraged to improve their digital literacy. The Dungkek Village Secretary explained that adapting to digital technology is a significant challenge, especially for officials previously accustomed to manual methods. However, the village officials' strong enthusiasm for learning is crucial for overcoming this obstacle. Technical assistance provided by the Village Office also provides direct support in the field, helping village officials resolve operational challenges they encounter. This assistance process includes informal retraining, discussions, and technical simulations at the village office.

2) Facilities and infrastructure

Dungkek Village stands out as one of the villages with relatively good infrastructure compared to other villages in Dungkek District. The village office is equipped with hardware such as computers, printers, and scanners to support the operation of the village information system. Furthermore, the village's internet network has achieved sufficient stability to support system accessibility.

Village information system operators stated that the available equipment generally supports policy implementation. These devices are regularly maintained to ensure optimal functionality. The computers used to manage the village information system are periodically updated according to the system's specifications. Furthermore, the printers and scanners facilitate village officials' quick and efficient processing of administrative documents.

However, technical challenges such as power outages during certain seasons require additional solutions. The village government has planned to deploy emergency lighting and small generators to address these challenges. This precautionary measure demonstrates the village government's commitment to maintaining the smooth operation of the village information system despite external challenges.

3) Obstacles and Efforts to Overcome Obstacles

Despite adequate resources in Dungkek Village, several obstacles remain. The varying levels of digital literacy among village officials are a significant obstacle to implementing the village information system for integrated village data. Some officials

require more time to understand the system, especially when managing more complex data. Village information system operators often serve as informal mentors for other village officials, guiding system operation.

Technical disruptions to village information system servers, such as system instability, pose another challenge hindering smooth operations. Unstable servers impact real-time data accessibility, slowing down public service delivery. Furthermore, server repair times often do not match village service needs, compounding this challenge. Another obstacle is the lack of ongoing training focused on developing new skills in line with system updates.

To address these obstacles, the Dungkek Village Government and the Sumenep Regency Office have implemented various strategic steps to address challenges in resource management. Continuous training for village officials is a top priority to increase their capacity. The office has also introduced a regular monitoring program to evaluate the effectiveness of the village information system implementation at the village level. Intensive technical assistance is also provided to help village officials address operational challenges.

The Dungkek village government also regularly evaluates the condition of facilities and infrastructure to ensure all equipment remains in good condition. Innovations such as using social media to disseminate policy information and technical guidance are also being implemented to reach a wider community. In the long term, the village government plans to integrate additional support systems, such as digital training for the general public, to improve digital literacy.

Conclusion And Suggestions

Conclusion

Based on the results of data presentation and discussion of research results on the implementation of village information system policies based on the Regent Regulation of Sumenep Regency No. 44 of 2021 concerning the village information system for integrated data for empowered villages in Dungkek Village, Dungkek District, Sumenep Regency, the conclusions that can be drawn in this study are as follows:

Implementing the village information system policy based on the Regent Regulation of Sumenep Regency No. 44 of 2021 concerning the village information system for integrated data for empowered villages in Dungkek Village, Dungkek District, Sumenep Regency.

Communication

Communication is an essential element in implementing the village information system policy for integrated village empowerment data in Dungkek Village, demonstrating how accurate and structured information can influence the success of policy implementation. The clarity of policy mandates conveyed by the Sumenep Regency Office through various approaches, such as formal socialization, distribution of official documents, and technical training, has provided a solid operational foundation for village officials. This approach ensures that village officials understand the policy implementation steps in depth.

However, communication challenges remain. The technological literacy gap among village officials presents a barrier that requires special attention. Some village officials accustomed to manual methods require time and guidance to master digital systems. This gap is even more pronounced at the community level, particularly

among the elderly, who struggle to understand how to use the village information system. Technical challenges, such as server outages, also impact service continuity, ultimately impacting public trust in the system.

Despite these obstacles, the Dungkek Village government has demonstrated initiative in addressing them through an adaptive approach. Outreach campaigns involving village deliberations, the use of digital media, and direct mentoring have proven effective in reaching various levels of society. These steps have successfully fostered greater understanding among village officials and the community. This demonstrates that strategic and inclusive communication is key to supporting the sustainable implementation of the village information system and integrated village empowerment data in Dungkek Village.

Resource

Resources, including human resources, facilities, and infrastructure, are key to implementing the village information system policy for integrated village data in Dungkek Village. Intensive training conducted by the Department, from the district to the national level, has improved the competency of village officials, particularly village information system operators, in understanding and operating the system. The availability of resources such as computers, printers, scanners, and a stable internet connection is also key to operating the village information system in Dungkek Village.

However, limited human resources pose a significant challenge. The roles of village information system administrator and operator, ideally shared among several individuals according to regulations, are being held by specific staff due to a limited workforce. This situation burdens village officials and requires more intensive adaptation and familiarization.

Although facilities and infrastructure in Dungkek Village are relatively adequate, technical challenges such as power outages and unstable village information system servers continue to hamper smooth implementation. These issues require sustainable solutions to ensure the policy's optimal implementation without recurring operational issues.

Disposition

The disposition of village officials in Dungkek Village toward implementing the village information system policy on integrated village data demonstrates a supportive attitude and a strong commitment to implementing the policy. The Village Head, Village Secretary, Service, and village information system operators actively ensure the policy's successful implementation. The village officials' proactive attitude is evident in their participation in training, community mentoring, and adaptation efforts to a digital system that is relatively new for some officials.

However, challenges remain, particularly related to resistance to change and the persistence of old habits among some village officials. Nevertheless, collaborative approaches, such as internal discussions and sharing experiences between officials, are effective strategies for increasing policy acceptance and adaptation. From a community perspective, attitudes toward this policy varied. Younger generations, more familiar with technology, showed significant support, while older groups struggled to understand and use the system. The personalized approach taken by village officials, such as direct outreach and operational assistance, helped gradually increase community understanding.

Overall, the disposition of village officials and the community in Dungkek Village reflects a strong commitment to supporting the successful implementation of the village information system for integrated village data. While adaptation challenges remain, a shared commitment to learning and collaboration is key to ensuring this policy meets its stated objectives.

Bureaucratic Structure

The bureaucratic structure in implementing the village information system policy for integrated village data empowerment in Dungkek Village demonstrates flexibility in adapting policies to local conditions. Regent Regulation No. 44 of 2021 provides a clear organizational framework, including the division of roles between village information system administrators and operators and a coordination mechanism with sub-district officials and the Sumenep Regency Office. However, limited human resources in Dungkek Village require village officials to adopt a simpler work structure, where several individuals share the duties of village information system administrator and operator.

Although this overlapping division of tasks increases the workload, internal coordination between village officials is quite effective. Internal meetings and direct guidance from the Village Head are the primary mechanisms for ensuring that tasks are carried out according to procedures. Furthermore, coordination with the Agency is well-established and supported by structured communication and regular technical assistance.

However, data management challenges require detailed attention and consistency, especially with digital systems that require continuous adaptation. The complexity of tasks that village officials must manage often hinders ensuring smooth service delivery.

Supporting and Inhibiting Factors for the Implementation of Village Information System Policy Based on the Regent Regulation of Sumenep Regency No. 44 of 2021 concerning the Village Information System for Empowered Village Integration Data in Dungkek Village, Dungkek District, Sumenep Regency.

Supporting Factors

The implementation of the village information system policy for integrated village data empowerment in Dungkek Village was supported by various internal and external factors that strengthened its implementation. Internally, the commitment of village officials was the primary foundation for successful implementation. Despite limited human resources, the Village Head, the secretary, and the information system operator demonstrated high enthusiasm for their duties. The readiness of village officials, including their adaptation to digital technology, was a crucial factor in driving the sustainability of this program. Furthermore, adequate facilities and infrastructure, such as computers, printers, scanners, and a stable internet connection, provided essential technical support for policy implementation.

Externally, the Sumenep Regency Office's support played a significant role in providing technical training and field mentoring. The training, held at the district and national levels, has successfully improved the competency of village officials, particularly village information system operators. Furthermore, the community, particularly the younger generation, has responded positively to this policy. They support and utilize the village information system for various administrative and informational purposes. Clear regulations, such as Regulation No. 44 of 2021, provide a strong legal basis and operational guidelines for village

officials. These regulations provide clear direction for managing data, organizing tasks, and coordinating with relevant parties.

Inhibiting Factors

Implementing the village information system policy for integrated village empowerment data in Dungkek Village also faces several obstacles that affect its effectiveness. These obstacles stem from internal and external factors, requiring more attention to be addressed with appropriate strategies. Internally, limited human resources are a significant obstacle. Despite their high commitment, village officials often have to juggle multiple tasks due to limited resources. Administrator and operator roles, which should be shared among several individuals, are forced to overlap, increasing the workload and slowing the adaptation process to digital systems. Furthermore, the technological literacy gap among village officials remains a challenge. Some officials who are accustomed to manual methods take longer to understand and master the village information system.

The gap in community understanding of technology, particularly among the elderly, presents a significant obstacle. This group tends to struggle to understand and use village information systems independently, often relying on assistance from village officials. This increases the workload of village officials, particularly village information system operators. Technical disruptions are also a hindering factor. Instability of the village information system server often causes service interruptions, which can erode public trust in the system. Furthermore, ongoing power outages in Dungkek Village, particularly during the rainy season, impact the operation of the village information system, which relies heavily on electricity and internet access.

Suggestion

Based on the conclusions above, the suggestions presented here can be used to improve the implementation of the village information system policy based on Sumenep Regency Regulation No. 44 of 2021 concerning the village information system for integrated village data in Dungkek Village, Dungkek District, Sumenep Regency. These suggestions include:

It is recommended that technical training and mentoring for village officials experiencing difficulties with digital systems be expanded, and ongoing training programs be held to accelerate technology adaptation and improve overall competency. The Dungkek Village Government is advised to separate the duties of administrators and operators to distribute responsibilities more effectively. While awaiting restructuring, improving the welfare of operators and administrators through financial incentives and training or certification is necessary to maintain motivation and ensure the sustainability of the village information system's integrated data for empowered villages.

The Dungkek Village Government is advised to utilize a personal approach through community leaders, village cadres, and local media such as bulletin boards and brochures to increase public understanding, especially among groups less familiar with technology. Dungkek Village is advised to collaborate with the village information system server to increase its capacity or build a local server to maintain data access during connection disruptions. Generator capacity and an uninterruptible power supply must be increased to protect devices from power outages. Routine maintenance of operational equipment should also be optimized to prevent technical issues.

The Dungkek Village Office and Government are advised to regularly conduct evaluations to assess success and identify areas that need improvement, with consistent monitoring to ensure that the progress of implementing the village information system for integrated village data is running optimally.

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