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Smart Village Governance through the Village Information System in Tuban Regency

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ABSTRACT

The rapid use of information technology (IT) in all aspects of life from the government to the general public despite in the village, the concept of a technology-based smart village or commonly referred to as a smart village has been applied. Indicators or basic elements of the smart village concept by looking at the indicators used in the smart city concept which are adapted to be more suitable for implementation in village government into Smart Governance, Smart Technology, Smart Resources, Smart Village Services, Smart Living, and Smart Tourism. This research uses descriptive analysis research method and combined with SWOT analysis method. The results showed that the application of the smart village concept in Tuban Regency did not have a previously designed development model. The implementation of smart villages is only focused on the development of administrative services in the form of the use of information technology which is only one indicator of the implementation of smart villages, but for other indicator elements it is still far from the general concept of what the actual implementation of smart villages is, so that various improvements are still needed, including the application of the development model. smart village, sustainable improvement of village information systems for the sake of ongoing public accountability in providing services to the community.

INTRODUCTION

The government's main task in administering government is to provide public services to the wider community. In carrying out public services today, many innovations are carried out by the government, both central and regional, one of which is the use of information technology. The use of information technology in all aspects of life from government to public affairs in general has encouraged

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several regions in Indonesia to implement information system networks in the development of public services through smart cities (Meijer and Bolívar, 2016; Wijaya, 2018). Smart city implementation is an innovation strategy supported by three aspects: government institutional capacity, human resources and technological infrastructure (Prakoso et al., 2015; Utomo, 2016). The purpose of developing a smart city is not only to integrate all aspects of government in general in an IT system that is easily accessible and accessible, it also aims to provide efficient public services in time, cost and cut long, accountable, and effective processes (Sudarto, 2006; Utomo, 2016). One of the local governments that implements the smart city concept is the Tuban Regency Government.

The real manifestation of smart city development in a smaller scope is the smart village concept, the IT-based village concept has begun to be implemented. The use of IT as an instrument is also called a management information system which is an organized series of a number of component parts that function or move together to produce information for use in organizational management (Hartono 2013). In public administration science, public sector management information systems are a very important science today, especially to be able to achieve the goals of public organizations involving various existing resources (Widodo, 2016). The main resources involved are information and communication technology. However, theoretically, the smart village has not been put forward by many experts compared to the smart city concept and also its measurement dimensions (Rachmawati, 2018). Although there is not yet a single concept of understanding regarding a smart village, in general a village is categorized as a smart village if the village uses IT innovatively to improve the quality of life, effectiveness and efficiency as well as economic competitiveness, pay attention to social aspects and smart environmental management (Hartoyo and Merdekawati, 2016). Today, the understanding of the smart village concept is generally interpreted differently, so the impact is that each village declares itself as a smart village without being supported by a model as a benchmark for standardized smart village implementation.

One of the implications of the enactment of Law Number 6 of 2014 concerning Villages is the existence of a budget that is directly transferred to the village directly called village funds. The Village Fund can be used for village development, both physical and non-physical development in various sectors according to poverty conditions, geography, population, and so on. For several village development programs, the budget will later be allocated to finance the procurement and maintenance of improving the quality of information systems and/or information management of village data that can be accounted for in the context of orderly administration, publication of potential in the village, as well as providing information to village communities by utilizing E-Government.

E-Government is the concept of using IT and communication by public organizations to be able to work more effectively in providing better public services (UNDP, 2010). This understanding is based on the distribution of information and public services from the government to the public and

businesses by utilizing digital devices. E-Government is related to the development of online administrative services to the public, namely the community and business, such as e-procurement e-tax, e-transportation, and e-participants that have been developed (Nugraha et al., 2019). With this utilization, it will create a comfortable, safe, transparent and affordable interaction relationship between Government to citizen (G2C), Government to Business (G2B) and Government to Government (G2G) relationships both vertically and horizontally.

Smart Village research has not been done much when compared to the Smart City concept. Smart village is designed as a new idea in developing village potential and resources. The smart village concept cannot be separated from the influence of the development of the smart city concept. The concept of smart village development basically utilizes the local potential of the village, infrastructure, village resources, and opportunities for interaction with urban areas (Syaodih, 2018). Smart village is referred to as a minimalist from a smart city because the basic concept and implementation of the two are almost the same, you just need to adjust a few things because the two have different coverage areas. In the future, it is hoped that the development of the Smart Village concept can be used as one of the elements of achieving Smart City implementation.

Santoso (2019) defines Smart village as the concept of community development within the community itself to do something wise in overcoming issues or problems through the availability of resources that are involved effectively and efficiently in areas inhabited by people who form their communities related to adat, local culture, values and norms that apply. Rachmawati (2018) suggests that there are six dimensions in smart village development taken from the smart city concept from Giffering and the Ministry of Communication and Information including: (1) smart governance, (2) smart community, (3) smart economy, and (4) smart environment. . These four elements are the elements that make up Smart Villages in an effort to develop a village accountability system.

The basic indicators or elements of the smart village concept by looking at the indicators used in the smart city concept from Nugraha (2019) which adopts the smart village concept from Giffinger and the Smart City Masterplan from the Ministry of Communications and Information Technology to make it more suitable to be applied in village government are 1) Smart Governance , 2) Smart Technology, 3) Smart Resources, 4) Smart Village Services, 5) Smart Living, and 6) Smart Tourism. These six elements make up the smart village order which was developed in the context of implementing E-Government at the lowest level of government, namely the village.

One of the smart village development policy strategies in Tuban regency is the development of one of the smart village elements, namely smart technology through the Village Information System or *Sistem Informasi Desa* (SID). SID is a digital-based instrument for managing information and providing online services

related to village government affairs, related to population administration, reporting, planning, asset management, public services, budgeting, and so on. Article 86 of Law Number 6 of 2014 concerning Villages states, SID is developed by the Regency/City Government. Article 86 paragraph 3 states that local governments are obliged to develop SID and Regional Development. This village website can be used so that the village can become a medium of information, communication between villages and villages with sub-districts, as well as to be able to promote various types of activities and superior products of each village.

Table 1. Number of districts, sub-districts and villages in Tuban Regency

No.	Area Scope	Total
1.	District	20
2.	Sub-district	17
3.	Village	311

Source: https://smartvillage.tubankab.go.id/

From the data at Table 1, in Tuban regency there are 20 districts, 17 sub-districts and 311 villages. That is, there are 311 village websites that have been created to be managed properly according to their objectives. For this reason, village human resources are needed who can manage the website so that it can be used according to its function.

The modernity of public services that will be taken is regarding the implementation of smart city policies. The development of the smart city program is a national program from the Ministry of Communication and Information Technology, the Ministry of National Development Planning, the Ministry of Home Affairs, the Ministry of Public Works and Public Housing, and the Presidential Staff Office to guide Regency/City local governments in the preparation of the Smart City Masterplan in maximizing the use of IT, both in improving public services and also accelerate the potential that exists in the region. The implementation of the program can be said to have not been successful, due to various problems in the technical field that substantially affect the success of the implementation of this policy program.

In the implementation of the Village Information System (SID) there are several obstacles faced, including the quality of village government human resources who have not been able to manage information systems and create information articles and inadequate facilities and infrastructure, thereby reducing commitment. community and village government in managing SID (Hartoyo and Merdekawati 2016).

The development of this program requires synergy between the actors involved in order to be able to think synergistically, have a common perception, and respect each other (Covey, 2004). In addition to the village government, digital literacy efforts are carried out with capacity building efforts from the local government through the Community and Village Empowerment Service, Social Service and the Tuban Regency Communication and Informatics Service. To achieve synergy thinking, common perception, and ideally carry out roles, village

officials are expected to have digital literacy, and other essential things related to the context of problems optimally in order to provide support for the implementation of the program in rural areas. In addition to the synergy of stakeholders, adequate competence is needed as a village government apparatus.

According to Wibowo in Iswanto (2018) competence is an ability to carry out or perform a job or task based on knowledge and skills and supported by the attitude of professionalism required by the job. This research was conducted in Mentoro Village, Soko District, Tuban Regency because the competence of the village government apparatus is still low and the use of information technology is not optimal in organizational management (Iswanto, 2021). But on the other hand, there are several things that hinder these development efforts including the low performance and competence of village government apparatus, low professionalism of village government apparatus, less effective and less innovative (Gani, Djafar, and Paramata, 2016). Thus, the lack of competence aspects of this apparatus requires the development of human resources in developing a service digitization system.

Based on the results of research in Tuban Regency, the problems that occur include village government human resources who do not understand management so that there is no updating of information in the village website system, so there are still 3 villages that have not been active at all using and managing village websites that have been provided by the Tuban regency government. From these problems, researchers are interested in looking further into the smart village development strategy through village information systems in Tuban Regency by conducting this research.

METHODS

This study used descriptive qualitative method. The purpose of the descriptive analysis method is to make a systematic study of issues and facts related to the management of SID by analyzing the data and formulating the object of research. The data collection method was carried out by looking for secondary data from research results, interviews from various credible online news sources and data from the Tuban Regency Government website which opened access to the public. This study was analyzed using the SWOT data analysis method. SWOT stands for Strengths, Weaknesses, Opportunities, and Threaths or strengths and weaknesses for the internal environment as well as opportunities and threats for the external environment analyzed. SWOT analysis aims to analyze and compare possible external opportunities and threats as well as internal strengths and weaknesses. This analysis is used to identify the government's strategy in implementing smart village policies and includes research that has been carried out in developing the smart village concept through village information systems (Oktayudianto, 2011).

This study aims to find out, analyze and describe the strategy of the Tuban regency government in managing the smart village concept through the use of the Village Information System by comparing research data with Giffering theory

regarding the dimensions of smart village development which consists of smart governance, smart community, smart economy, and smart environment. From the results of the study discussed about the management strategy with a SWOT analysis to find out the strengths, weaknesses, and challenges of the existence of policies both from the internal side; and external influences.

RESULT AND DISCUSSIONS

Smart Governance

Smart Governance covers the area of governance in the form of transparency in the implementation of village governance, village development planning processes, decision and policy making as well as performance reports and APBDes budgeting. In this system there are data and information, digitization of public services, easy access to government agency websites, government policies, and city planning for public services, both administrative services, services and public goods that are appropriate for the community. Utilization of IT makes the process of empowerment and coaching something that is no longer done in conventional and traditional ways. IT is a shared platform between the village government and the community to identify the problems and interests of each stakeholder. Utilization of IT can be used as a development program in empowering and fostering people to be technology literate.

The Tuban Regency Government in developing the smart village concept, the development of a digital government system at the village level is carried out with technical guidance on village website management which has been carried out on 14-15 May 2020 for all village operators. According to Catur Gunawan as the Section Head of Information and Communication Technology Empowerment and Services at the Tuban Communication and Information Office, he stated that the purpose of this technical guidance was to provide guidance in activating and standardizing village/sub-district websites (Tauviqurrahman, 2019). This activity is a form of capacity building for the village head or village operator to be able to manage it as part of the transparency of the village government.

Smart Technology

In the context of implementing smart technology to support the smart village program, what must be done is to develop an IT network for data communication networks, information systems, and websites through the development of DGS (digital governance service). DGS in the context of public services is intended to be able to provide services to the community at the lowest level of government by providing easy access for the community to obtain administrative services and supporting village development based on information and communication technology.

In connection with this development, the Ministry of Villages, Development of Disadvantaged Regions and Transmigration already has a Village Information System Application / SID. SID is a digital-based application and process to be able to manage information related to villages, support village administrative tasks and functions, related to development planning, population

administration, asset management, reporting, planning, public services, budget management, and others. In practice, this element of smart technology must be supported by adequate infrastructure.

The commitment of the Tuban Regency government in implementing smart villages can be seen from the provision of technology infrastructure. The idea of a village internet, for example, which has used fiber optics, started in 2018 and funding comes from village funds as an effort to realize the Tuban Smart Village. The Head of the Village Government, Community and Village Empowerment Service stated "Any village information system can only be done if the village prepares adequate network infrastructure and secure connections" (Widyi, 2020). From this statement, the availability of supporting instruments in realizing a smart village in Tuban Regency can encourage the success of this policy. In addition, the availability of village websites for 311 villages in 20 sub-districts in Tuban Regency should be able to assist in realizing this smart village program. This is supported by a statement from Heri Prasetyo as Head of the Department of Communication and Information stating that as many as 311 villages in Tuban Regency will start using the internet network as well as the SID application and website to provide services to the community as a first step towards Smart Village and will be realized in all villages in 2018 (Shodiq, 2020).

In its implementation, the problems faced by most villages that have been actively using the website have not been able to manage it properly and there is no village information and data that can be accessed by the wider community for the needs of accountability, transparency and accountability of the village government. Of the 311 villages in Tuban regency, there are 3 villages that have not used their website at all to manage it.

Table 2. Number of active and inactive village websites in Tuban Regency 2021

No.	number of villages	active village website	inactive village website
1.	311	308	3

Source: https://smartvillage.tubankab.go. id/page/website-desa

The data above indicates that there are still 3 villages that have not touched their village website at all to be managed. This is a problem in achieving the smart village program because there are still villages that have not been managed so the status of the website is not active. After the author opened several active village websites, there were still many shortcomings. These shortcomings include a lot of village information that should be displayed and uploaded, such as Village Development Planning Documents (RPJMDes), Village Budgets (APBDes), and other activities.

Smart Village Services

The development of smart villages in providing public services to village communities starts with planning for the creation of a village database, developing SID in assisting village administrative services, adding village website features, updating and digitizing the Village Medium Term Development Plan

(RPJMDes). SID is expected to facilitate village governments in carrying out public services, especially administrative services to be more efficient and effective, Village Governments are more transparent and accountable, Public Services are better and Citizens have better access to village information.

Fathul Huda as the Regent of Tuban requires all villages in Tuban Regency to activate, manage and utilize the village website provided in order to advance the community in the use of information technology so that all village potentials and achievements can be published to the community to achieve accelerated village development (Leren Wetan Village Government, 2019). This shows that the Tuban Regent's commitment to information technology-based village development can accelerate the development of both infrastructure and village human resources by providing services through this system. The types of service information available are (1) Village Population; (2) Village Financial Data; (3) Village Resource Data; (4) Dissemination of information to villagers (Shomad 2018). Based on a village website in Tuban Regency, this information system creates eight categories, including village news, village potential, village products, village regulations, village budgets and facilitation for residents to write (Leren Wetan Village Government, 2019).

Based on the results of the study, most of the SID management have not been able to take full advantage of the system that has been built. This is indicated by the absence of data updates, both village financial data, village development planning, development realization and other information data such as village statistics. On the other hand, public administrative services must be developed through digitizing population documents, not only containing information on procedures for obtaining services.

Smart Economy

The implementation of SID requires harmonization and a synergistic work culture so as to produce positive synergies between sectors in economic development and the use of information technology is an important requirement in developing competitiveness at the village level. Thus, in order to formulate the prospect of developing competitiveness at the village level through SID strengthening in the future, an early indication is needed by identifying problems and conditions for using SID at this time. The application of Smart Economy in the Smart Village concept can help economic growth both at the local and national levels. Regarding smart villages in the economic field of rural communities, ICT can assist in developing and marketing superior village products, both from the agricultural sector, Village Owned Enterprises (BUMDes), as well as the existing tourism potential (Rachmawati, 2018).

The implementation of the smart economy concept in the village information system has not been fully utilized. This can be seen from the absence of sustainable use of village potential in village product features as a medium for disseminating and promoting superior village products in general and personal products to improve the economic welfare of the community. In addition, there is no use of this SID to be able to promote the business results of the Village-Owned

Enterprises which should be developed. Village potentials also need to be added, for example tourism potential that can be developed and promoted in this system. The three things above can be recommendations for improving governance in an effort to grow and improve the economy in rural communities in Tuban Regency. In addition, this platform can be a promotional medium for SMEs in the village as part of the village community's welfare efforts.

Smart Living

Smart Living or smart living governance is defined as a unified environment to be able to provide comfort, continuity of resources, aesthetics of physical and non-physical beauty, visual or not, for the public interest. The rural environment in the context of Smart Village is not only defined as the natural environment, but also all the elements that make up the social and natural order that shape the characteristics of each. The rural environment in the social order consists of customs, culture and social structures. In the context of structuring a smart village, the use of information technology can be applied both at the level of the social environment and at the level of the natural environment.

At the village government level, the use of information technology can be used to develop and strengthen existing traditional values, culture and social structures, such as IT is also used to create traditional and cultural values so that they can be contextualized with the current situation without losing the essence of adat and the culture. On the other hand, traditional and cultural values can be used as an antidote to foreign cultural values that are not in accordance with traditional and cultural values that exist in the village. The correct use of information technology in the context of the social order in the village will create the sustainability of the previous social structure. In fact, traditional and cultural values contained in the social structure can be developed and preserved in accordance with the use of developing information technology.

The context of the use of IT in the community can be used in the identification of potential and sustainable use of nature (Sustainable Development). This is to prevent the use of IT from destroying the existing natural order, but it must contribute to providing people with ways and knowledge for proportional use of nature, such as the availability of up-to-date and relevant agricultural information for farmers. In the village so that farmers can follow the agricultural pattern plan, the use of technology in the end not only improves farmers' skills but also increases agricultural productivity, which in turn can improve farmers' welfare.

SID can be used as a medium of socialization, promotion and introduction of village potential in Tuban Regency. The existence of tourism potential through tourist villages and the presence of elements of traditional community culture can be an attraction in the practice of culture and culture-based tourism. There are still many strong community festival traditions in Tuban Regency including religious tourism, the earth and sea alms culture festival which is still available in almost all villages, the need for additional smart living information with the

support of the local village's Sustainable Development Goals (SDGs) program in supporting sustainable development programs village level.

Smart Tourism

Making a tourism information system in the village of Tuban Regency aims to make tourists can easily find tourist attractions. We evaluate the achievement of this programming application competency by implementing integrated modules including assessing the ability to identify problems, define problems, set up systems, profiles, locations, news, comments, web admins, dashboards, profiles, add locations, list locations, categories, add news, the news list is arranged systematically. The next step is how to set it up so that the program can be executed, what to do if something different happens from the original plans, and the ability to solve problems with a variety of condition is something that has been thought of beforehand.

The government continues to strive to encourage digital technology innovation to build Smart City-based Tourism Villages and Smart Tourism. This needs to be done to make it easier for tourists to access tourism areas. This commitment must be built together to advance the tourism village. The main goal of smart tourism is to focus on meeting the needs of tourists by combining IT development with local and cultural knowledge and innovation to promote, improve tourism management and enlarge the scale of the industry even more. The main challenge in realizing sustainable tourism based on smart tourism is that it requires community empowerment that is truly carried out by, from, and for participatory communities emerging as an alternative to a multi-faceted development approach centralized and top-down.

Based on the findings above, this article was analyzed using the SWOT method. SWOT stands for Strengths, Weaknesses, Opportunities, and Threats. A SWOT analysis organizes your main strengths, weaknesses, opportunities, and threats into an organized list and is usually presented in a simple grid bar. Smart village implementation in Tuban regency is presented in the SWOT matrix as follows.

Based on the SWOT analysis above, several strategic things can be considered to be material for formulating breakthrough alternative policies to improve smart village policies in Tuban district. The following is an analysis that the author explains through the internal and external factors of SWOT (Tabel 3).

Internal Factors of SID Management

Internal factors in the SWOT analysis are mapped into two, namely strengths and weaknesses. The strength of the Tuban regency government is to be able to improve accountability and management of the village database, so that the Village Government can carry out village transparency obligations by utilizing a village website that is integrated with the SID application as a medium for village information disclosure. Residents can also participate in monitoring the information that the village announces through the village's official website. In addition, the Village can use the data contained in the system to improve the quality of public services, open public information, planning and development at

the village level, planning and development at the regency/regional level, as well as managing village resources independently by the village community.

The obstacle in managing SID in implementing smart village governance in Tuban regency is the quality of human resources for village government officials who are not yet technologically literate and have minimal understanding of digital literature. The lack of competency of village apparatus human resources in digital literacy is an urgency where the direction of village development in Tuban Regency is smart villages through the use of IT with the Village Information System. efforts are needed to develop the capacity of an apparatus in the village to improve their abilities in their respective fields of duty. This capacity building of apparatus resources is intended to be able to form competent village officials in carrying out their duties. In an effort to develop capacity within the village government, there are three dimensions of capacity building according to Grindle (Haryono, 2012) including Human resource development, Organizational strengthening and Institutional reform. In this case, the village government's human resources development has been carried out. Several efforts have been made by both the local government and the village government internally. Both in the form of education and training, courses, socialization and others. This is done in an effort to improve the capabilities of village government apparatus resources in running the government.

Table 3. The results of the SWOT analysis of the Implementation of Smart Village in Tuban Regency

No.	Strength	Weakness	Opportunities	Treats
	Internal		External	
1.	With this system, the accountability and transparency of village government data can be improved.	Many Village Apparatus HR cannot manage the website	develop the potential that exists in the region	There is no collaboration with BUMDes to manage and use it as a promotional media, so it is very unfortunate if it is not used optimally;
2.	Can be used as a medium to promote village superior products, so that it can add to the economic value of the village community.	Many Village Apparatus HR cannot manage the website and Many villages have not managed this website optimally.	Provide complete information on village profiles and village planning and budget documents so as to increase public trust in the village government because everything is transparent	Many people are against this policy because it takes a fairly large budget.
3.	as a medium of information and electronic correspondence between villages and sub-districts and efficient administrative services.	There are no villages that use this website to promote village business results and the potential in the village.	Become a medium for BUMDes to exist and promote their products.	
4.	as a medium of information and electronic correspondence between villages and sub-districts and efficient	The village government seems to just abort the obligation by only activating the website, it has not been managed according to the directions.	Make it easier for the community to obtain village administrative services online	

Source: processed by researchers (2021)

External Factors of SID Management

Internal factors in this analysis are mapped into two, namely discussing the opportunities and challenges faced. The opportunity in implementing this SID is that it can become a forum for villages to be able to develop the potential that exists in their area and make it easier for the community to obtain village administrative services online. With this SID, it can also provide complete information on village profiles and village planning and budget documents so as to increase public trust in the village government because everything is transparent. On the other hand, the village website also acts as a medium for BUMDes to exist and promote their products.

The threat in the management of SID in the implementation of smart village governance is that there is no collaboration with BUMDes to manage and use it as a promotional medium, so it is very unfortunate if it is not used optimally. On the other hand, many people are against this policy because it consumes a fairly large budget but has not been able to provide significant benefits in its implementation, continuous development efforts are needed to be able to create an effective system so that the impact can be felt by the wider community.

CONCLUSION

The implementation of Smart Villages in the context of villages in Tuban Regency, although strongly influenced by the development of Smart City, must be designed differently. Smart Village must be understood as an effort to strengthen institutions, strengthen institutions and improve the welfare of rural communities through the use of information technology. This is based on the fact that the development of Smart Villages faces the locality of values, traditions and cultures in the city. Locality must be accommodated, maintained and developed based on the use of information technology in line with improving the quality of life of the community and village progress by strengthening inter-village competitiveness with the spirit of inter-village development. through the use of information technology to empower the community's economy.

The role of the local government through the relevant agencies as facilitators can already be carried out with efforts to develop the human resources capacity of village government apparatus by involving various actors involved. The role in education and training is also carried out with the direct contribution of training and education from the relevant agencies to foster a culture of technology literacy in providing public services within the local village so that in the future it can provide services effectively and efficiently. One aspect that needs to be improved is that there has been no consistent effort to actually carry out monitoring and evaluation on a regular basis in building this system so that in the future it is hoped that there will be improvements to the monitoring and evaluation system.

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