

Research Article

Collaborative Governance in the Development of Digital Villages in Karanganyar Indonesia

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Abstract.

Digital villages are important as one of the right solutions for increasing community participation and being more effective in the application of information and communication technology in village life. However, there are still digitalization problems in villages related to poor data quality and limited information on village potentials to reduce the quality of information services to the community and other related parties. The lack of intensive cooperation between the government, village communities, and the private sector is the main cause of this problem. This study aims to explore the impact of collaborative governance on supporting the development of a digital village in Karanganyar Indonesia. The main sources of data in this study were obtained from in-depth interviews, FGDs, and relevant secondary data. The results of the study indicate that the development of digital villages has led to an increase in the capacity of hardware and various application systems so that they can provide varied information services and serve as a medium for improving the community's economy. In addition to mutual agreement in overcoming problems, making the right decisions, collaboration, and collective learning, the capacity and commitment of the village head are also important triggers for the achievement and reputation of digitalization in Karanganyar village. The practical implications of this study recommend flexibility in implementing central government policies and provide wider space for creativity and innovation to village officials according to their capabilities in developing digitalization of services and various potentials in the village. This research also offers further studies related to collaboration procedures and mechanisms to accelerate the digital villages development.

Keywords: collaborative governance, development, digitalization, village

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Abstrak.

Desa digital menjadi penting sebagai salah satu solusi yang tepat dalam meningkatkan partisipasi masyarakat agar lebih efektif dalam penerapan teknologi informasi dan komunikasi pada kehidupan desa. Namun, masih terdapat persoalan digitalisasi di desa yang terkait dengan kualitas data yang buruk dan terbatasnya informasi potensi desa sehingga dapat mengurangi kualitas pelayanan informasi kepada masyarakat dan pihak terkait lainnya. Kurang intensifnya kerjasama antara pemerintah, masyarakat desa, dan pihak swasta menjadi penyebab utama dari permasalahan tersebut. Penelitian ini bertujuan untuk menelusuri dampak *collaborative governance* dalam mendukung pengembangan desa digital Karanganyar. Sumber utama data penelitian ini diperoleh dari wawancara mendalam, FGD, dan data sekunder yang relevan. Hasil penelitian menunjukkan bahwa pengembangan desa digital telah mengarah kepada peningkatan kapasitas perangkat keras dan sistem aplikasi yang variatif sehingga dapat menyediakan pelayanan informasi yang variatif dan sebagai media peningkatan perekonomian masyarakat. Selain, kesepakatan bersama dalam mengatasi persoalan, pengambilan keputusan yang tepat, adanya kerjasama serta pembelajaran kolektif, selanjutnya kapasitas dan komitmen kepala desa juga menjadi pemicu penting prestasi dan reputasi digitalisasi di desa Karanganyar. Implikasi praktis dari kajian ini merekomendasikan fleksibilitas dalam mengimplementasikan kebijakan pemerintah pusat dan memberikan ruang kreativitas dan inovasi yang lebih luas kepada aparat desa sesuai kapabilitasnya dalam pengembangan digitalisasi pelayanan dan berbagai potensi di desa. Penelitian ini juga menawarkan kajian lebih lanjut terkait dengan prosedur dan mekanisme kolaborasi untuk mempercepat pengembangan desa digital.

Katakunci: *governance*, pengembangan, digitalisasi, desa

1. Introduction

The direction of village policies in Indonesia or the Village Sustainable Development Goals (SDGs) is village development and village community empowerment [1]. The Village SDGs are an integrated village development effort to accelerate the achievement of sustainable development goals. Meanwhile, village community empowerment is an effort to develop independence and community welfare by increasing knowledge, attitudes, skills, behavior, abilities, awareness, and utilizing resources through the establishment of policies, programs, activities and assistance in accordance with the essence of the problem and priority needs of the village community. Village development that

has taken place so far is influenced by two main factors. The first factor is to make the village the subject of development. While the second factor is President Joko Widodo's Nawa Cita program, which firmly prioritizes development from the outskirts and villages [2]. Achievements in village development on these two factors provide a positive signal, in addition to the various challenges faced.

The concept of a digital village is important as a solution to increase community participation to be more empowered in implementing technology in village life. The concept of a digital village is carried out to drive the economy of rural communities through empowering rural communities that can provide economic benefits [2] and technically operations are carried out based on general guidelines for village development and empowerment [3]. Furthermore, in realizing a smart village, the Ministry of Communication and Information through the Directorate of Government Information Application Services (LAIP) has a digital village program [4]. This program, will provide technical guidance to operators and village governments to provide online services to become the smallest unit in the government, village or *kelurahan* to support the creation of a smart city or smart city. Digital transformation in villages or sub-districts is considered to be able to help realize a smart government/state as well.

One of the villages that has used the internet network in providing services to the community is Karanganyar Village, Purbalingga Regency. The population of Karang Anyar Village is 7,830 people who live in five hamlets. The existence of the Karanganyar digital village which was launched by Purbalingga Regent Dyah Hayuning Pratiwi in 2021 is virtually the first village to implement digital in Purbalingga Regency and is used as a pilot project for other villages. The uses with digital villages are 1) to store village maps and village data; 2) accelerate population administration services; 3) informing the community regarding the performance of their village apparatus as well as information on laws and regulations; 4) promoting village micro, small and medium enterprises through the village *lapak* website; 5) increase the business of village-owned enterprises.

In implementing a digital village, it is not as easy as turning the hand, because in this case there are many parties who have interests involved. The village head cannot decide for himself in setting his village into a digital village. Therefore, collaborative governance is needed in decision making. Collaborative governance is a control model in which one or more public institutions directly involve non-state stakeholders in a collective decision-making process that is formal, consensus-oriented, deliberative and aims to make or implement public policies, manage public programs or public assets [5].

The main challenge in developing digital villages is how to implement a system of government services, community services, and community empowerment based on the use of information technology. The purpose of this digital village program is to develop village potential, marketing and accelerating access, as well as public services. The increasing trend of using information technology seems to require people to adapt in their daily lives, especially rural communities.

In Indonesia, there are around 75 thousand villages that need attention and support and monitoring each village's potential and development is not an easy task [4]. The development of telecommunications infrastructure from the Ministry of Communication and Information which has not been evenly distributed in all villages also has an impact on the ease and speed of service to the community in managing online licensing and has an economic impact, especially in promoting economic activities. In addition, active users of village digital services are still limited.

Stakeholder relationships and interactions in the digital village sector are influenced by various factors, such as power, trust, financial ability, external support, educational background, level of awareness and entrepreneurial skills. The study of collaboration to meet the expectations of stakeholders in digital village development is very important for the effectiveness of digital village development and the benefits can be shared by all stakeholders. For this purpose, this study seeks to determine the form of collaboration of digital village stakeholders in contributing to the development of digital villages, as one of the priority digital village development areas in Central Java Province of Indonesia.

Considering the lack of effective stakeholder collaboration in digital village development is an ongoing challenge in many villages. The effectiveness of stakeholder relations in the development of digital villages in interacting and creating reciprocal relationships that lead to collaboration is still problematic. In addition, the important contribution of a digital village is limited by many factors, such as the presence of different stakeholders with competing interests due to the complexities inherent in developing a digital village. Using data collected in the field and secondary data, this study identifies digital village data and information, as well as processes and collaboration strategies of all stakeholders needed to effectively develop a digital village of Karanganyar. This article concludes with recommendations for innovation in the collaboration process and a discussion on increasing the role of stakeholders in overcoming barriers to collaboration to support digital village development.

2. Digital Village

2.1. Village Government

The village is a legal community unit that has territorial boundaries that are authorized to regulate and manage government affairs, the interests of the local community based on community initiatives, origin rights, and/or traditional rights that are recognized and respected in the government system of the Unitary State of the Republic of Indonesia [2]. Policies regarding regional government, the village is distinguished from the kelurahan. While the kelurahan is a government administrative unit under the sub-district which is the administrative service area of the Regency/City [6].

From the perspective of villages in Indonesia, there are three kinds of interpretation, namely sociological, economic, political, and geneological understandings [7]. Sociological understanding which describes a form of community unit or community of residents who live and define in an environment, where among them know each other well and their life style is relatively homogeneous, and depends a lot on the goodness of nature. Economically, the village is a community environment that tries to meet the needs of daily life from what is provided by the surrounding nature. Political definition, where the village as a government organization or power politically has certain authority because it is part of the state government. The geneological understanding of the village is that the residents of a village generally have close blood ties, because they come from the same lineage or if there are those who come from outside they are already bound in marriage bonds with the original inhabitants of the village.

With local capacity, the village is ready to accept responsibility and carry out tasks independently. For this reason, it is ready to accept the delegation of authority [8]. On the other hand, in the position of the Village as a subsystem of the national government administration system and at the forefront of national government administration, the village is also given the authority to carry out government affairs as a consequence of the existence of the village as a government entity. In essence, the village is an important subject in government and public services [8].

Regional government in Indonesia consists of provinces, districts/cities, special regions, special regions, and customary law community units. Apart from the five types of regional government under the regency/municipality, there is also a village government. Village government is the administration of government affairs and the interests of the local community in the government system of the Unitary State of the Republic of Indonesia [2]. Meanwhile, what is meant by village government is the village

head or what is called by another name assisted by village officials as an element of village administration. The village apparatus consists of: a) the village secretariat; b) territorial executor; and c) technical implementers [3].

The village head is in charge of administering village government, carrying out village development, developing village communities, and empowering village communities. In carrying out his duties, the village head is authorized to: a) lead the administration of the village administration; b) appoint and dismiss village officials; c) holds the power to manage village finances and assets; d) establish village regulations; e) determine the village revenue and expenditure budget; f) fostering the life of the village community; g) fostering peace and order in the village community; h) fostering and improving the village economy and integrating it in order to achieve a productive-scale economy for the greatest prosperity of the village community; i) developing village income sources; j) propose and accept the delegation of part of the state's wealth in order to improve the welfare of the village community; k) develop the socio-cultural life of the village community; l) utilizing appropriate technology; m. coordinating participatory village development; n) represent the village inside and outside the court or appoint a legal representative to represent it in accordance with the provisions of the legislation; and o) exercise other authorities in accordance with the provisions of laws and regulations.

2.2. Digital Village

In the implementation of development, it must be accounted for, including in the use of village funds, and such accountability must be published [3]. Publication of the village income and expenditure budget shall at least contain the name of the activity, the location of the activity, and the amount of the budget. Starting with the publication, many villages have built information systems using information technology or currently known as digital villages. The digital village project started with one main goal in mind and that is to bridge the digital divide that exists between rural and urban areas [8]. The hope of implementing the digital village program is that villages can create profiles and village potentials in an integrated manner and publish them to various information media [9]. The emergence of the concept of smart villages refers to rural areas and communities building on their existing strengths and assets as well as developing new opportunities [10]. It is possible to be used by residents in technology smart villages in line with the development of their infrastructure [11].

The digital small and medium enterprise village for development initiatives is one of the important areas of state development at the grassroots level. A process model that

aims to describe and explain how small and medium entrepreneurs examine the support of digital platform service providers, drive digital transformation through managerial cognition renewal, managerial social capital development, business team building, and organizational capability building [12]. For example, in Malaysia, the UN Sustainable Development Solutions Network is quite aggressive in improving community welfare with smart village development [13].

In Indonesia, the indicator of the success of the smart village program is if there are supporting elements that include 5 smart technologies, namely: (1) smart sensors, (2) communication from one machine to another, (3) cloud computing, (4) social media, and (5) geographic information system technology [14]. Small and medium enterprises have proven successful in creating jobs while increasing people's income [15]. However, there are some of the issues related to internal aspects such as marketing and finance [16], promotion, technology, human resources [17], high cost of raw materials, and lack of capital [18]. He stated that the decision to use information technology is not affected by the success of competitors, but because of the personal experience of the decision makers [19]. The development of ICT-based entrepreneurs need to increase their growth and performance [20]. Small businesses if managed by people who understand information technology will be able to increase the efficiency and effectiveness of the organization [21].

3. Collaborative Governance

There is a lot of research on collaborative and "whole-of-society" (WOS) and "whole-of-government" (WOG) governance and how these concepts relate to digitalization in villages [22]. The concept of the "whole-of-government" (WOG) first emerged in the 1990s on how to overcome departmentalism in government agencies and collaborate to produce consistency in policies that address complex policy problems [23]. So it needs the support of resources, information sharing and decision making of all relevant parties.

The weakness of WOG is that it does not consider other stakeholders as an important element in solving complex policy problems. The "whole community" (WOS) approach emerged as an answer to the weaknesses of WOG's thinking and emphasized the need for non-government stakeholder participation [24]. With the WOS approach, civil society, government, NGOs, businesses, and all participate actively to be represented in decision making [25]. From a theoretical perspective, WOG can be replaced by WOS because the concept already includes government. However, WOS and WOG are often

combined. Some researchers juxtapose the two into a “whole nation” approach [26], pointing to concerns that in WOS, government may be treated as the sole player and the need for intergovernmental cooperation may be overlooked.

This study uses a combination of WOS and WOG to emphasize the importance of collaboration within government (horizontally and vertically) and between government and other actors. In addition, the community and the government need each other, because the government cannot work alone without the support of the community. The WOG-WOS approach is a form of collaborative governance because all parties make meaningful contributions and their expectations are accommodated in decision making, as a shift from governance to governance in modern society [27].

Collaborative governance has been analyzed in a variety of different policy contexts, such as environmental governance and climate change, combating natural disasters, housing regeneration, business innovation, outsourcing of social services and urban community development [22]. All these studies discuss the strong leadership role of the state in local governance and collaboration between organizational units. However, meaningful participation is often a challenge at the grassroots level [28]. Collaboration theory emphasizes that decisions have a high probability of implementation and success when key stakeholders participate sincerely and compressively in problem identification, setting direction, structuring and endorsement [29]. Stakeholders need to agree on the relevance, urgency and complexity of the problem and demonstrate a commitment to collaborative efforts in addressing the identified issues [30].

Collaboration is determined by the following factors: (1) interdependence, (2) accommodative (3) shared ownership of decisions, (4) collective responsibility for future direction, (5) trust, (6) external support of various kinds, (7) decentralized power, (8) perceived benefits (9) democracy and (10) number of participants and diversity of issues [31]. Collaboration theory is used to understand the effectiveness of a stakeholder collaborative framework. Collaborative efforts are considered effective (1) when a fair and lasting agreement is reached and whether agreed issues are implemented [29], (2) when collaboration requires joint decision-making among participating stakeholders to resolve planning and development issues [32] and (3) if collaborative efforts are sufficiently inclusive and promote collective learning so as to lead to consensus building [33].

Collaborative governance is a control model in which one or more public institutions directly involve non-state stakeholders in a formal, consensus-oriented, deliberative collective decision-making process that aims to make or implement public policies, manage public programs or public assets. [5]. Collaborative criteria such as (1) forum

initiated by public institutions; (2) participants in this forum include non-state actors; (3) participants are involved in decision making and not just consulted; (4) the forum is officially convened; (5) the forum aims to make decisions by consensus; and (6) the focus of cooperation is public policy or public management [5].

4. Theoretical Framework

The existence of community demands to obtain services that are fast, efficient, and encourage the community's economy encourages the government to continue to improve the village information system. The development process includes a policy of digitizing services and village information systems. Also, making various applications needed by the community to support business transactions and the economy in the village. In addition, the success of digital village development is also determined by the collaboration of various stakeholders.

In this study, collaboration in decision making for digital village development was carried out by various stakeholders using the WOG-WOS concept in developing digital villages in Karanganyar village. Aspects of collaborative governance include agreement and implementation of problem solving, decision making, and inclusive collaboration and collective learning.

5. Reserach Result and Discussion

5.1. Digital Village Development Policy

The digital village emerged because of government policies that required publication using information technology. The preparation and alignment of the direction of village development policies and village community empowerment is carried out through the village information system. The village government is obliged to publish the determination of priorities for the use of village funds. Publications consist of: a) the results of the village deliberations; and b) village data, maps of development potential and resources, village medium-term development plan documents, village government work plan documents, priorities for the use of village funds, and village income and expenditure budget documents.

Digital villages with the use of information technology have integrated government service systems, community services, and community empowerment. This application contributes to developing village potential, marketing and accelerating access and

public services. The existence of a digital village makes it easier for people to take care of anything. The procedure that must be followed is that the community registers online, then within the specified time, the community can take their needs to the village office without waiting anymore.

Mandatory applications are applications that are mandated by several ministries or institutions to the village government, among the Ministry of Home Affairs; Ministry of Villages, Disadvantaged Regions and Transmigration; Ministry of Informatics and the Financial and Development Supervisory Agency. The applications mandated to the village government are as follows:

TABLE 1: List of Mandatory Applications.

No	Application	Usability	Builder
1.	Online Village Financial System	Ministry of Home Affairs together with the State Audit Board and Development	Village financial administration
2.	Village Asset Management System 2.0	Ministry of Internal Affairs	Village asset administration
3.	Village Profile	Ministry of Internal Affairs	Knowing the potential of the village and village development
4.	Evaluation of Village Development	Ministry of Internal Affairs	To find out the effectiveness in governance, development, community and community empowerment (fast developing/developing/less developing)
5.	Village Information System	Ministry of Communication and Information	Applications To Provide Services
6.	Building Village Index	Ministry of Villages, Disadvantaged Regions and Transmigration	To find out the status of the villages (very underdeveloped /underdeveloped/developed/independent

Source: Karanganyar Village Office, 2022

In the digital village of Karanganyar, there are already 6 applications as mandatory applications used, namely, village information systems, village websites with the desa.id domain, village financial systems, digital mapping, letter C applications, and e-commerce applications. In order to provide services to the community and improve the economy of the Karanganyar village community, an application named "Karanganyar Village

Application” was developed. This village application is intended for the people of Karanganyar Village who are trying and joining in kicro, small and medium businesses. The goal is to facilitate interaction between sellers and buyers. The applications in question are as follows:

- a. Aska Art Project Printing;
- b. Imas Oemah Rias’s bride and groom;
- c. Express Laundry;
- d. Bu Yuni’s rice stall provides rames rice, mendoang, fried foods, and gasoline;
- e. Bu Bawor’s rujak and pecel stalls provide rujak, pecel, coffee, fried foods;
- f. Berkah Tobacco provides quality tobacco;
- g. Freshy Drinks provides skewered meatballs and various ices;
- h. Warung Manda provides meatballs and chicken noodles;
- i. Mitro Cell provides credit quota vouchers, starter packs, cellphone accessories;
- j. Warung Puspita provides rice rames, major vegetables, and side dishes; and
- k. Utama Jaya Mandiri provides bird feed.

5.2. Karanganyar Village Government Application Development

5.2.1. Village Financial System Application

This application strongly supports the implementation of village duties and functions in the administration of government and village development in all its aspects in accordance with the authority they have. In accordance with government policy, village funds are allocated which are budgeted annually in the state revenue and expenditure budget which is given to each village as a source of village income. This policy simultaneously integrates and optimizes all existing budget allocation schemes from the government to villages. However, this policy has consequences for the management process which should be carried out professionally, effectively and efficiently, and accountable based on the principles of good public management in order to avoid the risk of irregularities, fraud and corruption.

The availability of village revenue and expenditure budgets is very decisive in the success of regional development, financing and managing government administration and achieving village government performance. In addition, the government together with the Ministry of Home Affairs and the Development Finance Supervisory Agency have encouraged accountability in village financial management by developing applications

for village financial management through the village financial system. The application of the village financial system has created an accountable management of village funds with a supervisory mechanism involving the community, the sub-district head, the Village Consultative Body, Village Level Facilitators, and the Supreme Audit Agency, and even the Corruption Eradication Commission.

The ministries that supervise village funds are the Ministry of Finance, the Ministry of Home Affairs, and the Ministry of Disadvantaged Villages and Transmigration so that the supervisory function really involves all relevant parties. The advantages of the village financial system are that it complies with regulations, facilitates village financial management, ease of use of applications, is equipped with an internal control system (Built-in Internal Control), and is supported by implementation instructions and application manuals.

5.2.2. Village Asset Management System Application

The village asset management system application has been started since 2018. This system is an application for recording village asset administration referring to the Regulation of the Minister of Home Affairs Number 1 of 2016 concerning Village Asset Management starting from planning, procurement, administration to the presentation of reports equipped with codification and labeling. village assets in accordance with the general guidelines for village asset codification. This system application was initially initiated by the Directorate General of Village Government of the Ministry of Home Affairs which aims to facilitate transparent and accountable management of village assets, minimize the risk of loss of village assets, facilitate village heads in submitting village wealth reports, and as a tool for village government in village asset management.

5.2.3. Village and Village Profile Application

Based on the Minister of Home Affairs Regulation Number 12 of 2007 concerning Guidelines for Compiling and Utilizing Village and Sub-District Profile Data, it is stated that the village and kelurahan profile is a comprehensive description of the character of the village and kelurahan which includes basic family data, potential natural resources, human resources, institutional , infrastructure and facilities as well as the development of progress and problems faced by villages and sub-districts. Village and kelurahan profiles consist of basic family data, village and kelurahan potentials, and village and kelurahan development levels.

The basic family data contains a comprehensive picture of the potential and development of the family which includes: a. human resource potential; b. health development; c. educational development; d. control of family economic and social assets; e. participation of family members in government, development and community processes; f. various family welfare problems; and g. development of security and order in the environment.

5.2.4. Village Development Evaluation Application

This application policy is stipulated through the Minister of Home Affairs Regulation Number 81 of 2015 concerning Evaluation of Village and Sub-District Development. This regulation came into force after being promulgated by the Director General of Legislation at the Ministry of Law and Human Rights in 2015. Evaluation of the development of villages and sub-districts is intended to determine the specific status of the achievements of the development of a village and sub-district as well as to determine the effectiveness in governance, development, community development and community empowerment and knowing the level of community welfare, competitiveness of villages and sub-districts in accordance with the values of Pancasila. This regulation aims to see the stages and determine the success of village development in the period from January to December every year.

The regulation also includes an implementation evaluation process to assess the level of government, regional, and community administration based on the evaluation instrument for the development of villages and sub-districts in order to determine the effectiveness and status of development as well as the stages of village and sub-district progress. Evaluation of village and kelurahan development is intended to: (1) determine the specific status of the achievement of the development results of a village and kelurahan as well as to determine effectiveness in governance, development, community development and community empowerment; and (2) knowing the level of community welfare, the competitiveness of villages and sub-districts in accordance with the values of state ideology.

5.2.5. Village Information System Application

In the context of developing information systems in villages, the government issued Law Number 6 of 2014 concerning Villages which states that village information systems are developed by district/city governments. Local governments (districts/municipalities) are

obliged to develop village information systems and regional development. This system application is a computer-based information and data processing system that can be managed by the government and village communities in two domains: (1) Offline, where the application is installed on a server computer at the village office and operated as a local server (data center). Because it is not connected to the internet, the offline village information system can only be accessed on the local network. This offline system is recommended to be applied in daily use of system applications. The database from the results of the offline data processing can be uploaded to the online system on a regular basis; and (2) Online, the village information system will be optimal if it is connected to the internet as a web-based online system, web. SID will automatically function as a village website. This village website has a function that is divided into two parts, namely the front which can be accessed by the public and the inside which can only be accessed by the system administrator.

The system application is designed to manage basic village data and village information. The basic data that is managed includes basic population data and basic data on village assets/resources. This basic data is the responsibility of the village government in its management. Only users from the village government and the team coordinated by the village government will have the authority and access rights to the system. Meanwhile, users outside the village government will only have limited access to the information processing function for the village website.

5.2.6. Build Village Index Application

The village development index (VDI) application is developed by the Ministry of Villages, Development of Disadvantaged Areas and Transmigration based on the Regulation of the Minister of Villages, Development of Disadvantaged Regions and Transmigration Number 2 of 2016 concerning the Village Building Index. The VDI consists of a social resilience index, an economic resilience index and an environmental/ecological resilience index: (1) The Social Resilience Index consists of the dimensions of social capital (indicators of social solidarity, tolerance, residents' sense of security, social welfare); the health dimension (indicators of health services, community empowerment, and health insurance); the education dimension (indicators of access to primary and secondary education, access to non-formal education and access to knowledge); and the settlement dimension (indicators of access to clean water, access to sanitation, access to electricity, and access to information and communication); (2) The Economic Resilience Index consists of the economic dimension (indicators of the diversity of rural community

production, available trade service centers, distribution/logistics access; (3) Access to financial and credit institutions, economic institutions, and regional openness); and (4) Environmental/Ecological Resilience Index consists of ecological dimensions (indicators of environmental quality and potential for disaster-prone and disaster-response).

VDI is structured to support the government's efforts in dealing with alleviating underdeveloped villages and increasing independent villages. The objectives are to determine the status of village progress and independence; and provide basic data and information for village development. VDI photographed the development of village independence based on the implementation of village laws with the support of village funds and village assistants. This policy directs the accuracy of intervention in the policy with the appropriate correlation of development interventions from the government in accordance with community participation which is correlated with the characteristics of the village area, namely typology and social capital.

In determining the status of village progress and independence, which is determined based on the developing village index, it is classified into 5 village statuses, namely: (1) independent village, or can be called self-sufficient village; (2) developed villages, or can be referred to as pre-sufficient villages; (3) developing villages, or can be referred to as intermediate villages; (4) underdeveloped villages, or can be called pramadya villages; and (5) very underdeveloped villages, or can be called pratama villages. Classification of villages in order to determine interventions, both budgets and village development policies. The following are 5 (five) village statuses: independent village, developed village, developing village, underdeveloped village, and very underdeveloped village. Karanganyar Village in addition to implementing mandatory applications as mandated by the government, also develops applications in order to provide easy services to the community, namely: (1) information on development reports; (2) financial report information on the use of village revenue and expenditure budgets; (3) information on village stalls; and (4) village map information.

5.3. Collaboration in Digital Village Development

5.3.1. Agreement and Implementation of Problem Resolution

Agreements and concrete steps in solving problems and developing digitalization in Karanganyar Village can be seen from the strong commitment of the village head. In 2015, Karanganyar Village initially collaborated with the Yogyakarta government to use the village information system in Yogyakarta through the application of the village

financial system from the Development Finance Supervisory Agency. Furthermore, in 2016 with the support of the central and local governments as well as the community, information technology-based village services were developed using 6 computer devices.

Since 2017 the creation of a village website has been initiated to simplify and expand the operation of the village information system. This system is integrated with population databases, mail services, statistics, village asset inventories, integrated village administration for various mail administration services for business licensing and so on. There is also a village financial system. In addition, there is a village development system application and a village asset data collection system from the Ministry of Home Affairs that are complementary and integrated with the village information system.

The existence of a digital village accelerates and simplifies the process, as stated by the Head of the Village Community Empowerment Service that the existence of a digital village facilitates and accelerates the resolution of agricultural and livestock marketing problems, facilitates the service of certificates, family cards, explores village potential, helps solve village land problems. However, the implementation of these various applications is not in line with the support for employee competence so that it needs to be followed by training and development of employee competencies and appropriate qualifications. Another benefit, as stated by the Secretary of the Karanganyar Camat, is that using information technology will speed up the service process, such as making a birth certificate cover letter to the Population and Civil Registry Office, it takes 5 minutes and is free of charge.

The village information system was developed again in 2019, including the village basket application, an application for the directory of micro, small and medium enterprises. In addition, for population administration, it is already in the play store and can be downloaded for processing new letters and registration as a pioneer. The other is the application of Letter C for land administration, land status or land legal standing but this system has not been fully successful. The use of the village information system application through the open source community village information system throughout Indonesia in collaboration with various non-governmental organizations. In addition, in 2019 testimonials were also conducted to sub-districts for independent training of the village financial system.

Since 2020, the village information system using information technology has facilitated the service process, this is as stated by the Village Secretary, that the village information system can store large amounts of data and is easily accessible. In addition, there is also the support of technologically literate human resources, as emphasized

by the Karanganyar Village Secretary that employees born in the 1980s as a technology literate generation can also use village information system applications to work effectively.

The declaration of a digital village began in 2022 which was facilitated by the Department of Population and Civil Registration to disseminate information to all village officials centered in Karanganyar village. In Karanganyar sub-district there are already 10 digital villages out of 30 villages, from almost 7000 villages in Indonesia. The obstacle faced is that the application policies of each central, provincial, and district/city governments vary and often change and it is difficult to apply the right application. The process of digitizing the first Karanganyar Village in all of Indonesia is the initiative of the village head who is indeed competent in the field of information technology and continues to be committed to developing applications, easy access through open sources, and free of charge.

5.3.2. Decision Making Problem Solving Planning and Development

In Purbalingga Regency, there are 224 villages and 15 sub-districts, all of which have used the application and already have a website. The village financial system is all online, such as the implementation of financial administration services from the village to the sub-district where data is sent to the Regional Coordinating Board for payment activities using servers from the Ministry of Communication and Information. In general, all villages are digital, although the level is different for each village. In addition, the criteria as a digital village have been met. In Purbalingga Regency there are many features compared to other districts or villages and online services are also still limited.

The existence of a village service information system is actually a mandate from the Ministry of Home Affairs. The impact of the application can speed up the service process. Also, problems can be solved at the Ministry of Village level through requests and assisted by village experts as village assistants to make all programs from the Ministry of Villages successful. The existence of applications from four ministries, namely the Ministry of Finance, Ministry of Home Affairs, Ministry of Villages, Ministry of Communication and Information can increase the index of developing villages to be more advanced and independent. Efforts to improve the capacity of village officials are carried out by the Department of Population and Civil Registration in the form of optima training for free online services. Other guidance is also carried out by village-owned enterprises in the agricultural sector to increase the ability and income of farmers. To strengthen the legal status, village-owned enterprises must be legal entities. Currently, there are more

than 40 village-owned enterprises that are legal entities and the remaining 150 are still in the process.

Achievements that have been achieved by Karanganyar Village in 2015 won 1st place in Purbalingga village, nominee for information disclosure, village website awards, village heads became resource persons for various digital village trainings. In addition, Karanganyar Village was visited by the Ministry of Villages as well as being proclaimed as a pioneer of digital villages in Purbalingga. With the support of adequate employee competence and mastery of information technology by the village head, much progress has been made. In 2017 there was already information disclosure in the village, after it was registered and approved for the village ID domain by the Ministry of Communication and Information and then a village website was built. There is disclosure of information in

In 2020, there will be a simplification or integration of existing applications, in the form of application integration into the village information system. The disclosure of public information in the form of programs and budgets is an achievement of Karanganyar Village at the Central Java Province level. Since then, all village officials have worked well in utilizing the village information system. Existing tools such as publication of regulations on the website include decrees, land books that have been administered in general. Specifically, the head of the service section has an application to regulate social programs and social assistance from the central, provincial, and district levels.

The application facilitates the completion of village apparatus tasks, also includes mapping of poor households in the form of open village information system data about poverty and village potential, inadequate housing, physical disabilities, pregnant women, toddlers and diseases. The data is continuously updated so that the public can get the latest information. For the community welfare improvement program in the form of housing development in the village, there is information on the location and amount of the budget, development progress, including uninhabitable houses. All of this information can be accessed by the entire community as a form of information transparency.

In the 2021/2022 budget year, there will be an promotion of information dissemination through the application of the digital village information system. The activity stage starts in December 2021 and is launched on December 28, 2021 as a digital village. At the same time, a community of wine growers was launched, building appreciation and achievements. The new application system is the processing of a child's certificate of introduction, the time it takes is only 5 minutes, free of charge and directly processed at the Civil Registry Service. As a form of appreciation for the achievements achieved

by Karanganyar Village, the Village Head at the invitation of the Ministry of Villages was sent to India to take part in an international achievement village event as a representative of Central Java. As a follow-up to this achievement, the sub-district head was asked to continue the achievements of Karanganyar Village to other villages by submitting digital village budgeting to the district head such as internet subscriptions, hardware and software procurement. One of the applications that can be installed is the mandatory application for village-owned enterprises that has been successful and can be used independently in every village.

In 2022, the village financial system will also be online for corrections, checks, and verifications so that services are faster. Village-owned enterprises consist of several business units and labor information such as village markets, internet, selling LPG gas, processing export sugar, and collaborating with PT Natural for export needs. For ease of operation, each village is supported by an operator. The village secretary is in charge of coordinating for equipment needs, and there are officers who carry out socialization and training functions. However, there are still villages that have data constraints. In the financial sector, the application is very helpful in managing village finances, especially evaluating the use of the budget for planning further program activities.

Utilization of information technology greatly facilitates and accelerates problem solving. There was a previous service from 15 days that can only be completed now it can be 5 minutes. For example, the service for managing certificates and family cards can be served quickly. This achievement makes Karanganyar Village a digital village as an object of appeal, as has been done by the Banyuwangi Regency Government which has also become a digital village. At present, the digital village of Karanganyar can be said to be good, but the optimization of utilization is highly dependent on the awareness and participation of the community. One example that the community has benefited the most is the family card service, including information on community economic development. Also, family card information is available on the playstore but it still needs to be socialized. Other obstacles in the use of digital villages are low website visits and limited smartphone ownership. Village communities also want more varied accounts/content such as youtube, tiktok, and others. For service acceleration through free or open source applications, for example a certificate, currently it can be completed in 5 minutes where previously it was 15 minutes. For comfort, tidiness, and improvement of the service image, the provision and arrangement of rooms for each service unit is carried out supported by one operator with the approval of the Regent and other officials.

The development of village-owned enterprises is also continuously carried out based on the potential of village land data in accordance with the MoU with the village community so that the land can be more productive. In addition, there is a village lapak, a directory of micro, small and medium enterprises in the Karanganyar product account, including prices, contact numbers, addresses, and locations. A food center will be built that can be managed by a village-owned business entity. However, there are still shortcomings in the development process. Efforts continue to be made to meet people's expectations, such as letters that can be made via cellphones and need to be continuously disseminated. In the future, the focus of village officials is to master the application of information technology in services to be at the forefront of education for the community. The level of community response to technology-based services is not the same so it takes time, commitment and intense effort to change people's behavior.

5.3.3. Collaboration and Enhancing Collective Learning

In developing a digital village, Karanganyar Village has collaborated with several institutions such as the Department of Population and Civil Registration in making identity cards and family cards, where the requirements for filling out documents can be filled out online without the community having to attend the village office. The impact of this collaboration, Karanganyar Village becomes a local tourist destination so that it has an economic impact on the community. Village-owned enterprises have also become icons in the Ministry of Villages, absorbing thousands of workers, many business units with various livestock businesses, internet rentals, plant fertilizers. All village-owned enterprises and businesses are legal entities. Karanganyar Village also collaborates with universities and local governments.

The collaboration between the Department of Population and Civil Registration with Karanganyar Village begins with the launch of the first digital village that is most ready to become a digital village. Cooperation is also carried out with the State Audit Board and the Ministry of Home Affairs to carry out supervisory functions. As a priority program for village digitization by the Regent, Karanganyar Village is exploring collaboration with private companies to form village independent internet. Currently, Karanganyar Village has the most ready digital numbers, all villages are facilitated by a web in collaboration with the Ministry of Communication and Information. Cooperation is also carried out with other villages. The challenge faced is the data that is not yet strong and still minimal. All information is already available on the web or portal for providing information to the public, such as services and e-commerce for transactions. Cooperation is also

carried out between village-owned enterprises in the tourism sector through the use and development of tourism facilities in the village with financial support from the central government. There are private companies cooperating with several sub-districts to become suppliers in certain product transactions in the village. The challenge faced in inter-village cooperation is that some have complete documents and some do not.

Starting at the beginning of 2018, according to marketing problems from farmers and traders, a cooperation on the marketing of agricultural commodities with PT Infood was held, such as the cassava type of cimanggu for chips. Farmers want no difficulty in marketing agricultural products at stable prices. Another problem is the occurrence of crop failures which have an impact on farmers' income. In 2022, the Karanganyar Village product marketing cooperation model will be implemented in 10 other villages. Currently, marketing is good and village-owned enterprises have planted special soybeans and the marketing has been contracted with companies from Japan. The problem that is commonly faced is crop failure. Another collaboration with PT Gali Estetika is by planting export types of sweet potatoes where the village in Purbalingga becomes the supplier, not from other regions.

Village-owned enterprises have also collaborated with companies as suppliers, including all regions in Central Java, all suppliers from business entities owned by Karanganyar Village. Also, there is already a pilot project to be implemented in other villages including a price guarantee to reduce the level of losses. Various central policies for agricultural products can also be handled by the village. Digitization has been carried out by village-owned enterprises to develop confections and can be sold on Shopee. In utilizing the village website, village-owned enterprises introduce products but have not been fully utilized, only by word of mouth. To attract more cooperation, it is necessary to expand the dissemination of information after the cooperation agreement is established.

6. Conclusion

The use of information technology in Karanganyar Village and after being designated as a digital village has changed the face of the village because it provides convenience, speed of service and encourages creativity for community economic growth. The progress that has been made in this village has also become a model in responding to future trends in the development of other digital villages. Decisions in the development of digital villages are not easy because the expectations of each party are not the same. Another problem, related to the application system policies of the central, provincial,

and district/city governments, is still varied and often changing, making it difficult to implement the right application. The public's interest in digital services is also not the same because of the lack of socialization so that it takes time and intense effort to change people's behavior.

The collaborative governance approach offers a way to achieve common steps to reach a mutual agreement in the sustainable development of digitalization in Karanganyar Village. The optimism for digital village development is strongly supported by the commitment, competence, and initiative of the Karanganyar village head. The digital village of Karanganyar already has many features compared to other districts or villages. Karanganyar Village has collaborated with several institutions and the private sector. As a result of this collaboration, Karanganyar Village has become a model for village digitization in Indonesia. The challenge faced in inter-village cooperation is the variety of document completeness that slows down the collaboration process. To attract more cooperation, it is necessary to expand the dissemination of information after the cooperation agreement is established.

In order to build a digital village, it is necessary to develop and strengthen the internet network to every remote village throughout Indonesia in general, especially remote villages, because there are still many villages that are not connected to the internet network. In order for the system built to be applicable, it is necessary to build a village information system that is simpler, applicable and in accordance with the needs of the village community and is easily implemented by village officials as operators. For the effective implementation of digital village development, it is necessary to conduct guidance, monitoring and evaluation of each village, both those that have implemented digital villages and those that have not. It is also recommended that the implementation of the central government's digital policy can be adjusted to the needs of each village. This research also offers further studies related to the right collaboration system to accelerate the development of digital villages in Indonesia in general.

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