"SMART VILLAGE" DIGITIZATION PROGRAM: ENCOURAGING THE DEVELOPMENT OF VILLAGE POTENTIAL IN JURUAN DAYA, SUMENEP

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Abstract: Amid this modernization era, many areas in Indonesia still do not have good facilities and accessibility. This village is having difficulties, especially in the irrigation system, infrastructure, and accessibility to the internet. Hence, the authors proposed bringing Juruan Daya Village into a smart village digitalization program to overcome the problem. This program focuses on three significant aspects, such as (1) village administration and governance services; (2) village branding and its development and; (3) community empowerment through improving community business marketing management so that they can rely on more effective and efficient forms of digitalization. The method of this study used action research participatory and supported by secondary library research through journals, books, and other relevant resources. Then, after conducting training and pre-test and post-test to know the participants' understanding of the program, the result shows that the residents are satisfied. They feel the benefits of the tower after attending the digitalization training in the aspects of village government services, village branding, and online marketing. Furthermore, there has been a development and improvement in participants' understanding of the implemented program. It is hoped that the villagers of Juruan Daya will be able to experience better community services in the future.

Keywords: smart village, digitalization, village branding, community empowerment

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INTRODUCTION

Juruan Daya Village is located about 8 km^2 from Batuputih Sub-district and about 40 km^2 from Sumenep Regency. Its location is less strategic than the road access (quite far and "remote"). The village consists of 6 backwoods with 25 neighborhoods and 11 hamlets as follows:

Table 1. Distribution of Hamlets and Population in Juruan Daya Village

No	Name of Hamlets	Number of Neighbourhood	Number of Hamlets	Male Resident	Female Resident
1	Jurak Laok	2	1	176	202
2	Jurak Daya	3	1	236	278
3	Talaran	4	2	319	263
4	Mungguk	4	2	287	301
5	Gaccereng	6	3	550	589
6	Panjalain	6	2	408	434
Amount		**25**	**11**	**1.976**	**2.067**
				4.043	

Source: Juruan Daya Village Archieve (2021)

The community is dominated by livelihood as farmers and ranchers. Those economically capable usually have a large rice fields/gardens, hence obtaining more yields. The area of the village of Juruan Daya: 1122.33 Ha. The existing land area is divided into several designations: Public settlement: 742.14 Ha, Semi-Technical Rice Fields: 0 Ha, Rainfed Rice Fields: 20,456 Ha, Field/Moor: 350.06 Ha, a Village Cash Land: 0 Ha.

Graveyard: 5.24 Ha CC Land: 0 Ha However, since the structure and contours of the soil are dominated by alluvial soil types; it is only during the rainy season that the results will be better (rainfed). Therefore, the irrigation system and springs are limited in some village areas. Then, the complete regional profile is as follows.
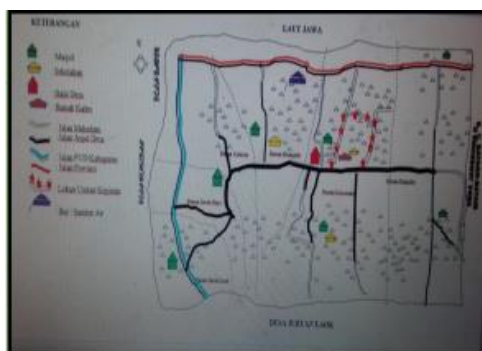
Source: Team Documentation
Figure 1. Overview of Juruan Daya Village

In addition to the irrigation system, which in most areas is still limited, accessibility also requires a lot of attention in terms of road infrastructure. Direct observations in the field often found potholes, unpaved roads, and many residents have initiations to cover them with limestone. Nevertheless, many large potholes in the road will be flooded during the rainy season. This condition adds to the declining competitiveness of the village because apart from being quite far from the city, it is not strategic (its position), its accessibility also still requires a lot of improvement (Figure 2).

Moreover, in terms of its accessibility to the internet, the network in the Juruan Daya Village also relies more on cellular data from certain providers since it has only relied on one cellular network (Telkomsel), which has an unstable connection. According to the residents and village officials, this village needs a transmitting tower for internet and cellular networks. If it is viewed from the budget, village officials believe it is sufficient and possible to be allocated through village funds. However, they need assistance in the procurement process and various consultations.

Source: Team Documentation

Figure 2. Road Conditions

Albeit Juruan Daya Village is not strategically located compared to other villages, it has a lot of potentials to be developed. To the north, it is bordered by the Java Sea, to the east by Jangkong Village, Batang-Batang Subdistrict, to the south by Juruan Laok Village, and the west by Tengedan Village. **The first potential** comes from the agricultural complex sector (agriculture and plantations, animal husbandry, and fisheries). The agricultural sector is supported mainly by rainfed rice (paddy), corn, chili herbs, tobacco, cassava, palm sugar, peanuts, etc. Meanwhile, from farms, Juruan Daya Village is famous for its production of broiler eggs, quail eggs, meat (broilers), and typical Madura cattle, almost owned by many residents. As for fisheries, although the current regeneration of anglers continues to decline, the craftsmen of processed marine products such as truffles, fish crackers can still be developed. Of all these potentials, chicken eggs, quail eggs, and broilers are the most developed at this time.

According to the information from the village apparatus of Juruan Daya, currently, the number of breeders is more than ten, and there are indications that it will continue to grow. One of the prospects for this business is water in the soil, which contains lime. According to residents, it is good for the health and productivity of farmed chickens, either for layers, broilers, or quail.

Source: Team Documentation

Figure 3. The Livestock Sector is a Leading Potential in the Village of Juruan Daya (Results of Direct Field Observations)

The second potential comes from people who are very friendly and have many productive ages which can be developed. Even though the unemployment rate is high, almost all receive a high school education through an Islamic boarding school. Many youth activities such as youth organizations or youth mosques do positive things, such as donations to orphans, healthy walks, *tadarus*, and many other things. They are also among those who have pioneered the development of livestock businesses, are passionate about building relationships and cottage networks. Currently, the position of village officials is also participated by youth. Then, if accompanied and directed towards realizing an independent and productive village, some potentials are also possible. This potential is strengthened because they have a reasonably good literacy level, so if they are directed to digital literacy, it is hoped that it will be easier to adjust.

Source: Team Documentation
Figure 4. One of The Donation Activities with Tahfidz and Orphans in Juruan Daya Village

Next, the third potential is the village funds which create "confusion" for the chief of the urban village and village officials. Apart from the need for caution, concerns about its use not being targeted in the future also often arise. The presence of the chief of the urban village and village officials who tend to be young requires a lot of assistance and direction. For example, when there is a desire to increase access to the internet network that requires towers, they face limitations in the relation and access to consultations. On the other hand, service access in the village still tends to be modest in today's digital era. Therefore, assistance and direction are needed to provide more efficient, effective, and flexible services.

Source: Team Documentation
Figure 5. Interesting Spots in Juruan Daya Village

The fourth potential is that the village of Juruan Daya has exciting spots that are "instragramable" or interesting to visit because of their beauty. Many people from out of town have recently come to see the place for pre-wedding purposes and model photos. If it can be adequately packaged, digital marketing and branding can be developed in the current era of digitalization

The analysis of the situation and potential of the village that has been described illustrates that the possibility in Juruan Daya Village arises

from its youth resources, village apparatus, natural potential, and resource development, especially for the livestock sector. Based on these four potentials, it becomes interesting to do community service in Juruan Daya Village. Also, it can be justified that the initiation of the "Smart Village" Digitalization Program to Encourage the Development of the Potential of Juruan Daya Village, Batu Putih Sub-district, Sumenep Regency is quite relevant. The digitalization program will focus on three significant aspects, such as (1) village administration and governance services; (2) village branding and its development, and; (3) community empowerment through improving community business marketing management so that they can rely on more effective and efficient forms of digitalization. These three things are interrelated in improving the quality of welfare and village empowerment, especially in the Juruan Daya Village for a better future.

This research adopts and develops previous studies such as assistance activities for the construction of internet transmitter towers in the village (Susilo et al., 2021); assistance and training activities for village officials in the use of digital media (He and Wang, 2017); training activities create simple and exciting creative content about the village (Sangchumnong, 2019); training activities optimize to improve village branding (Nurcandrani et al., 2020); Training activities on the use of social media for online marketing (He and Wang, 2017; Zhang & Cabage, 2017); training activities on the use of marketplaces and a shared understanding of the standards that must be met Liu et al., 2017)

METHOD

The method used Participatory Action Research (PAR). It is carried out in a participatory manner among citizens within a community or broader social sphere to encourage transformative actions (changes in living conditions for the better). Thus, according to the term, PAR has three main pillars; through research methodology in this paper used pre and post-test and the action dimension (in Table 2). It includes the participation dimension because we are involved in this community service program from beginning to end, with two main objectives apart from serving the community and doing research.

The method of this study is based on the description of the situation analysis and potential partners described before. Design solutions or strategies offered in community service that has been carried out are to build and implement the "Smart Village" Digitization Program to Encourage the Development of the Potential of Juruan Daya Village, Batu Putih Sub-district, Sumenep Regency. The solution design has been implemented from August to September 2021.

Table 2. Methods of Implementation of Community Service in Juruan Daya Village, Batu Putih Sub-district, Sumenep Regency

No	Problem	Solution (Based on the Literature)	Target
1	**Aspects of Improvement of Village Administration and Government Services**		
a	The need for assistance to build an internet network transmitter tower through the allocation of village funds.	Assistance activities for the construction of village internet transmitter towers (Susilo et al., 2021)	The emergence of the village internet transmitter tower
b	The need for assistance and training in the use of digital media in village apparatus activities.	Assistance and training activities for village officials in the use of digital media such as (google spreadsheets, google docs, and optimization of information systems on social media) (He and Wang, 2017)	Participants understand the use of digital media such as (google spreadsheets, google docs, and optimization of information systems on social media)
2	**Aspects of Village Branding Improvement and Development**		
a	Lack of understanding and skills in processing village branding materials such	Training activities create simple and exciting creative content about the	Participants understand the use of creating simple and interesting creative

| No	Problem	Solution (Based on the Literature)	Target
	as photos, videos, and similar documentation through platforms or digital social media.	village of Juruan Daya in the form of photos and videos (Sangchumnong, 2019).	content about the village of Juruan Daya in the form of photos and videos
b	Villages should lack branding exploration by utilizing digital platforms or social media.	Training activities optimize the role of social media to improve village branding (youtube) (Nurcandrani et al., 2020)	Participants understand how to optimize the role of social media to improve village branding
3	**Aspects of Increasing Village Community Business Marketing**		
a	Lack of understanding and skills in utilizing social media for online marketing purposes and increasing sales.	Training activities on the use of social media for online marketing purposes (google business, Facebook AdSense, and Instagram AdSense) (He and Wang, 2017; Zhang & Cabage, 2017)	Participants understand and can practice social media for online marketing purposes (Facebook AdSense and Instagram AdSense)
b	Lack of understanding and skills in utilizing the marketplaces for online marketing purposes and increasing sales.	Training activities on the use of marketplaces such as *Shopee, Tokopedia*, and the like and a shared understanding of the standards that must be met Liu et al., 2017)	Participants understand the use of marketplaces such as *Shopee, Tokopedia,* and the like and the standards that must be met

RESULTS AND DISCUSSION

Stage 1 Preparation

This initial stage has been carried out by direct observation in the field (Juruan Daya Village), documenting several portraits of the people's daily lives. This incident supports the mutual agreement between the community service team and the village of Juruan Daya. These parties include village officials represented by the village head, representatives of chicken farms, and the chairman of the Youth Organization / Youth Mosque represented by the same person, namely Munir.

The next stage is to prepare and coordinate internally (teams of lecturers and students). Each activity is carried out directly in the village of Juruan Daya by dividing the time format and the right team. This second stage also includes preparation and coordination with partners and potential resource persons according to their fields. Then a kind of pre-test is carried out before the program implementation to find out the current condition of how the understanding of the community (prospective participants) regarding the critical points of digitalization that is oriented towards the success of the emergence of Smart Village (Desa Pintar).
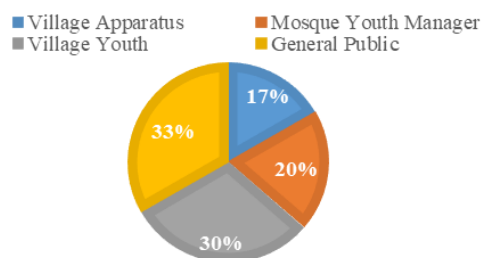
Source: Processed Data (2021)
**Figure 6. Pre Test Participant**
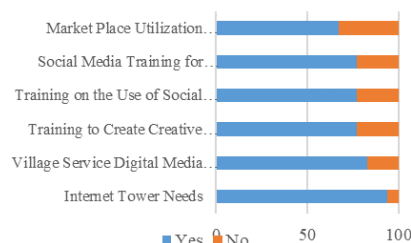
Source: Processed Data (2021)
Figure 7. Smart Village Activity Needs (Percent)

The pre-test participants were spread relatively evenly among the youth members of the mosque, the youth of village officials, and some of the general public; 66 of the 52 were under 40 years old, and 14 were over 50 years old. Based on the questionnaire as a pre-test tool that was distributed, some activities tended to be needed by the people of Juruan Daya, especially the establishment of an internet Transmitter Tower (Network Strengthening). Meanwhile, training such as: optimizing digital services for village services, creating creative content, using social media for branding, preparing on the use of social media for online marketing, and utilizing market places, is also not much different, which is reasonably necessary. Some who do not consider it essential more on the factor of resource capabilities are considered less capable of participating in the training, so they think they do not need it.

Furthermore, activities dominated by productive age in training activities oriented to partners' needs in the village of Juruan Daya. As far as the implementation of the training, 42 people were consistent during the training. The level of understanding before participating in the training was as follows.
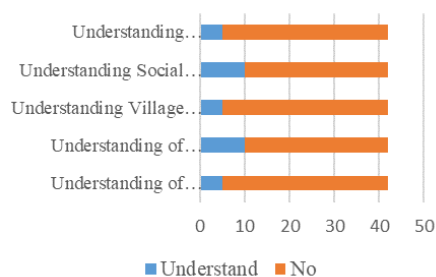
Source: Processed Data (2021)

Figure 8. Understanding of Pre-Test Training Content (people)

The pre-test results show that many people still do not understand the content of training on the use of the internet and its digital aspects for the benefit of the individual economy, village services, and other factors related to the village economy.

## Activity Implementation Phase

In contrast to the development of a smart city, a smart village can be used as a system that shows encouragement, namely from the community, to explore their potential and increase their capacity. This motivation is encouraged by the village government or its partners to provide guidance and empowerment to realize an increase in the community's welfare and quality of life. Thus, information technology is used as "tools" in its efforts, not as "goals". The concept of a smart village is understood by experts as the integration of information technology in the life of rural communities, resulting in the benefits and sustainability of information technology and rural communities. Nevertheless, conceptually, experts express several dimensions of the smart village, some of which can be explained in Table 3.

Tabel 3. Smart Village Dimensions According to the Experts

Expert Opinion	Dimension
Chatterjee & Kar (2017)	Resources, Institutions, Digital Services, Sustainability
Viswanadham & Vedula (2010)	Resources, Institutions, Technology, Service Chain
Ramachandra, Hedge, Chandran, Kumar, & Swamiji (2015)	Resources, Institutions, Technology, Sustainability
Herdiana (2019)	Resources, Technology, Service Chain, Institutions

Source: Processed Data (2021)

The dimensions of resources, institutions, and technology are fundamental for implementing smart villages, while digital services, service chains, and sustainability are the differentiating dimensions revealed by these experts. This shared understanding is based on the knowledge that the application of information technology requires the institution's capability as the authority holder and the support of resource capacity. For example, by presenting partners as exemplified in this paper, this community service team becomes a partner of the village of Juruan Daya.
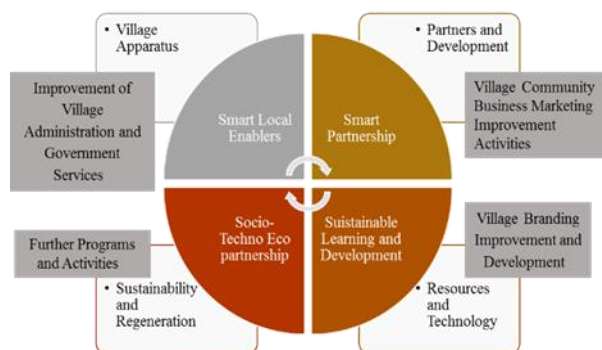
Source: Source: Processed Data (2021)

Figure 9. The Basics of Smart Villages and the Design of the Three Agendas in the Juruan Daya Village

Developing an explanation from Ramachandra, Hedge, Chandran, Kumar, & Swamiji (2015), this smart village concept was developed similarly but slightly different and evolving. These include (1) Smart Local Enablers (village institutions); (2) Smart Partnership (partners and their development); (3) Sustainable Learning and Development (Resources and Technology); and (4) Socio-techno-eco Partnership (Sustainability and regeneration). If integrated into this program, it will be developed according to the village conditions.

The key to the success of this community service program is first to fulfill the aspects of the technology dimension. This aspect is a priority because the training is based on the introduction of the digital world, and the essence of smart villages is highly dependent on the internet. Assistance in the appearance of a Wi-Fi transmitter tower is done by choosing PT Alfa Net. The construction of the tower for approximately three weeks has succeeded in providing internet access sources for about 20 houses. Without having to approach the Wi-Fi, and 3 solid Wi-Fi spots in the village (the new village hall, the old village hall, and especially the residents' hall located under the tower.
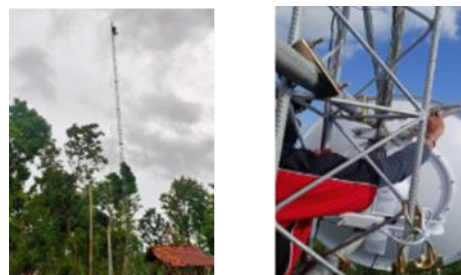
Source: Team Documentation

Figure 10. Installation of Juruan Daya Village Tower

Implementation of Village Administration and Government Service Improvement Activities

To improve administrative services that are responsive, fast, effective, and efficient, the obstacle faced by the village of Juruan Daya is the internet network. In many villages close to the city, services can be done online via WhatsApps or others. In some instances, for example, there are several cattle breeders in the village of Juruan Daya, where some of their cows will die or be poisoned and require a certificate that the cattle are slaughtered in the right way according to the Shari'a. Then the letter must be taken care of quickly so that the breeder has no difficulty selling it. This means that information and communication technology quality will be even more important for rural communities.

Source: Team Documentation

Figure 11. Improving Village Administration and Government Services Through Digital Media

Community service with the village apparatus training agenda on digital media for community services has been carried out in the village of Juruan Daya. The material provided relates to several essential matters, such as (1) Utilization of google drive for village data; (2) Utilization of google forms for community satisfaction surveys, and; (3) Utilization of

google forms for requests for community services so that requests can be sent directly from home, while village officials only need to monitor what administrative service requests are needed. This reduces queuing levels and works efficiency because it is more flexible. Due to the device's limitations (less laptop), the introduction was carried out through cellphone media and provided modules for further learning and practice. However, the emergence of village internet towers can provide new hope for village development towards smart villages.

Implementation of Village Branding Activities and Its Development

Activities to create creative, simple, and exciting village content in photos and videos are directed in a format called vlogging (video blogging) on the YouTube channel platform. Education and introduction to vlogging are essential to improve village branding and development. Since 2013, YouTube has provided income to video uploaders with many viewers through Adsense. Hence, many people have been uploading different videos to the Youtube platform for just a hobby or looking for income. It is not surprising that a vlogger has earned billions of rupiah in income, even if only from his Youtube videos.

However, the direction of this education is not on youtube income. Still, it stimulates the youth of the village of Juruan Daya, including the young village devices to create creativity to increase the selling value in the village. The community service team positioned that the participants were relative beginners in the process. Therefore, the simple approach includes (1) determining the purpose of making a vlog; (2) planning ideas; (3) preparing equipment; (4) taking pictures, editing, and uploading videos; (5) promoting videos.

Source: Team Documentation

Figure 12. Village Branding Improvement Activities Through Creative Content (Youtube)

Implementation of Village Community Business Marketing Improvement Activities

Efforts to improve community business marketing are carried out through: first, training activities on the use of social media for online marketing purposes (Google business, Facebook Adsense, and Instagram Adsense). Specific participants from business actors in the village of Juruan Daya will be encouraged to maximize the role of these marketing items by implementing strategic steps. Second, training on the use of marketplaces such as *Shopee, Tokopedia,* and others and a common understanding of the standards that must be met, such as packaging and so on.

Source: Team Documentation

Figure 13. Activities to Improve Village Community Business Training with Online Media

However, compared to AdSense and marketplace, it turns out that participants are more interested in how to make Google business and marketing on Facebook. Meanwhile, from the aspect of using marketplaces, people still tend not to be interested in using them even though they have been trained. The contributing factors

consist of several things, such as (1) the issue that circulates that utilizing the marketplace has its advertising costs; (2) not ready if there are too many orders; (3) there are obstacles to the post office which is relatively close to delivery; (4) rampant cases of fraudulent transactions, and; (5) matters related to customer management and ratings that are considered time-consuming. All of these became obstacles for the community to improve their point of interest in marketing online systems (Keles,2018).

Source: Team Documentation

Figure 14. Online Marketing of Juruan Daya Village Products Directly Marketed by Participants

However, those interested, such as the chicken egg and wonton chips business, will try to enter the marketplace or enter new markets through their Facebook in the future.

Achievement of Results

Source: Source: Processed Data (2021)

Figure 15. Satisfaction with Tower Existence

Source: Source: Processed Data (2021)

Figure 16. Understanding of Post-Test Training Content (people)

Based on the post-test results and observations of the participants about the usefulness of the tower. Generally, the residents are satisfied and feel the benefits of the tower after attending the digitalization training in the aspects of village government services, village branding, and online marketing. Furthermore, there has been a development and improvement in participants' understanding of the implemented program. It is hoped that the villagers of Juruan Daya will be able to experience better community services in the future.

CONCLUSIONS

The conclusion is that the "smart village" digitization program is implemented through assistance in building village internet transmitter towers, mentoring and training village officials, training to create exciting and straightforward creative content about the village of Juruan Daya in the form of photos and videos, training to optimize the role of social media to improve branding, training on the use of social media for online marketing purposes, and training on the use of market places such as Shopee, Tokopedia, and others that can be used to encourage the development of Juruan Daya Village, Batu Putih Sub-district, Sumenep Regency.

The advice given is to develop this program activity sustainably, especially in increasing understanding of AdSense and utilizing market places and growing business in

Juruan Daya's village. In addition, periodic inspections and assistance are required to manage village internet transmitting towers and aspects related to sustainable use of the system.

DISCLOSURE OF CONFLICTS OF INTEREST
The authors declare no conflict of interest.

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