

# Supporting Factors for Digital Village Sustainability in Dermaji Village, Banyumas Regency

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**Abstract**—Dermaji is one of the villages in Indonesia that has been categorized as a digital village. The village, which is part of the Lumbir Subdistrict, Banyumas Regency, has received various awards in the use of digital technologi, including in 2018 having been named as Informative Village by Central Java Province. Another award was on June 22, 2019 through the *DEMIT Program (Desa Melek Informasi dan Teknologi/Village Information and Technology Literacy)*, the village has won the TOP 99 Public Service Innovation Award from the Ministry of Administrative and Bureaucratic Reform. In addition, based on previous research results, the village has a very dynamic website, with many visitors, and provides several menus for public services of the village government. However, the various success that achieved by Dermaji Village is not guaranteed to be able to sustain in the future because the village head is a central figure in achieving various achievements of this village. Therefore, it is necessary to support digital village sustainability by preparing human resource competencies both for village apparatus and their communities. This paper is the result of a survey on Information and Communication Technologies (ICT) competencies of village apparatus and communities as a main factor in preparing a digital village sustainability model. Respondents were divided into two groups namely the village apparatus group and the village community group. This study analyzed subject trainings needed by the respondent as an effort for sustainability of the digital village, followed by exploring supporting factors for digital village sustainability.

**Keywords**—*digital village, information and communication technology, sustainability model*

## I. INTRODUCTION

Village is a unity of legal society with territorial borders authorized to regulate and manage local governmental affairs and people's interest under people's initiative, rights of origin and/or traditional rights acknowledged and respected in the governmental system of the Republic of Indonesia [1]. The existence of Village Law has put village as the spearhead of development and improvement of people's prosperity. Currently, village is authorized and equipped with sufficient fund for them to manage their potential in improvement of people's economy and prosperity.

The central government has put a relatively big budget for village fund annually. In 2015, the village fund budget is Rp20.7 trillion, with each village averagely allocated with Rp280 million. In 2016, the village fund increases to Rp46.98 trillion, with each village averagely allocated with Rp628 million, and increases again in 2017 to Rp60 trillion, with each village averagely allocated with Rp800 million [2].

A bigger fund allocation to a village shows that the village is at a strategic position and the fund it receives may be invested in improving people's prosperity. Village fund must be utilized by village government in a program which may lead to people's prosperity improvement. Therefore, village government must be innovative in their policies and programs to utilize this village fund.

Village's innovation is a process of development of knowledge, skill and experience learned from villages' deliverables in implementing village development, either existing or latest, in the form of goods or services which may continuously add to the values, either through development of infrastructure, management of human resources, economy or social-culture. In order to accelerate eradication of poverty in villages through utilization of Village Fund more effectively, the Ministry of Village, Development of Disadvantaged Regions and Transmigration launched the Village Innovation Program from 2017 [3].

Village innovation development is something inevitable in line with the highly rapid development of information and communication technology (TIK) today. TIK has currently entered villages, and villagers have also used TIK. According to the communication and information, about the existing 73% villages have had 3G technology based internet connection and about 55% have had 4G LTE network. In 2019, the government expects to connect more than 83,000 villages with 3G based internet. The other target in the following year is to connect 514 regencies/cities with 4G LTE network. Of this number, only 64% have had access to 4G LTE [4].

Digital village is one of the applications of the village innovation program. Digital Village generally refers to a village that has voice as well as data connectivity. Though not specified, the assumption is that both are of sufficiently high quality, with bandwidth available for most commonly used Internet applications to work on computers, tablets and mobile phones [5]. Over the years, Dermaji Village has initiated the village innovation program, which may become a strong basis for digital village development. Dermaji Village's achievement in relation to innovation and digital village is, among others, taking the first winner position for the Village Development Participative Planning (PPD) category. In 2016, Dermaji Village was awarded as Tempo's Choice of Excellent Village for the Information Technology Literate Village (IT Literate Village) category. In 2018, Dermaji Village was awarded by the Information Commission of Central Java Province as the Village with Informative Website. In 2019, Dermaji Village was awarded

as the TOP 99 2019 Public Service Innovation by the Ministry of Ministry of Administrative and Bureaucratic Reform of the Republic of Indonesia (PANRB) for the implementation of DEMIT (Internet Literate Village). Many achievements have been obtained by Dermaji Village, showing the innovation processes the Dermaji Village Government has conducted, making the village worthy of digital village title.

Dermaji Village's various achievements above generate new problems since the advanced use of digital technology is so far dominated by the village head's contribution. On the other hand, Dermaji Village officials and villagers have not been entirely, actively involved, while some digital village applications applied require village officials' and villagers' involvement as the main users. In case of a change in village head leadership, the digital village program may cease continuing. Therefore, the sustainability issue is something to pay attention to. This reason makes it imperative to conduct the research on "Supporting Factors for Digital Village Sustainability".

## II. RESEARCH METHOD

This quantitative research's data were collected from the survey of the level of competence of village administrators and villagers in information and communication technology (ICT) and respondents' response regarding trainings needed to support digital village sustainability which may eventually be taken to answer the question of what factors to support digital village sustainability. The data were analyzed using descriptive statistics technique.

The research's targets are government officials and villagers of Dermaji Village as the administrators and users of digitally administered public services. The respondents of the government officials were taken entirely and the respondents of the people were taken through a proportional random sampling to represent all components in the society. The research data were collected using Focus Group Discussion (FGD), questionnaire, observation and documentation technique.

## III. RESULTS AND DISCUSSION

Dermaji Village is administratively within Lumbr District, situated in the westernmost part of Banyumas Regency. Its center of village government is 5 km away from the center of district government and 55 km away from the capital of regency. Dermaji Village is divided into two sub-villages: Dusun I, which is the center of village government, and Dusun II, which is located separately (by a hill) 4 km away from the center of village government. The two sub-villages are divided into 7 Neighborhood Councils (RW) and 41 Neighborhood Associations (RT). Dermaji Village has a population of 6,410 people in 2019, consisting of 3,254 men and 3,123 women. There are totally 2,173 families.

Dermaji Village is situated on hill, valley and lowland area between three lines of mountains with a landscape of pine forest in the north and east. Dermaji Village covers an area of 1,302 hectares (ha), consisting of 96 hectares of agricultural land, 31 hectares of residential land, 649 hectares of dry land, 500 hectares of forest land and 26 hectares of other lands. Its villagers are graduates of Elementary School,

Junior High School, Senior High School, Associate Degree and Bachelor Degree, and some have not completed any formal education. Majority of the villagers are farmers, and the remaining are employees, self-employed, day laborers, teachers, merchants, civil servants and drivers [6].

There are totally 143 respondents, consisting of 128 common villagers and 15 village officials/BUMDes administrators. The respondents are averagely 39 years old, with the youngest one is 16 years old and the oldest one is 67 years old. The respondents' educational levels vary, including Elementary School, Junior High School, Senior High School, Associate Degree, Bachelor Degree and Master Degree, constituting 12 people with Elementary School education, 61 people with Junior High School education, 56 people with Senior High School Education, 5 people with Associate Degree education, 8 people with Bachelor Degree education and 1 person with Master Degree education. The data show that the respondents are averagely of Junior and Senior High School/equivalent graduates, constituting respectively 42.7 percent and 39.2 percent of total respondents. The research result shows that 15 respondents are of the village officials and BUMDes (Village-Owned Enterprise) administrators. The respondents of village officials were taken entirely, consisting of staffs, head of division, head of affairs and village secretary, and the respondents of BumDes consists of head, secretary and treasurer.

This study finds that most of the people of Dermaji Village have used internet relatively long. More than 69 percent have averagely used internet for three years. Some of them are able to operate the Microsoft Office application. 48.3 percent are able to operate MS-Word, 33.6 percent are able to operate MS-Excel and 22.4 percent are able to operate Power Point. Meanwhile, only few people, less than one percent, have graphic design capability.

Based on the survey above, the research is followed up with focus group discussion and survey to observe the data of what trainings are needed for digital village sustainability. 37.1 percent of the respondents are interested in making and managing website, 44.1 percent are interested in training of application development, 44.1 percent are interested in learning graphic design, and 42.7 percent are interested in learning video making/editing.

Based on the observation, the village's website is ahead of any other village's website in the form of online store (webstore) which sells village's products/commodities. However, according to the interview, this webstore is not maximally used. The product sellers do not have management capability. This research also finds that most of the respondents (54.5%) desire to learn webstore management.

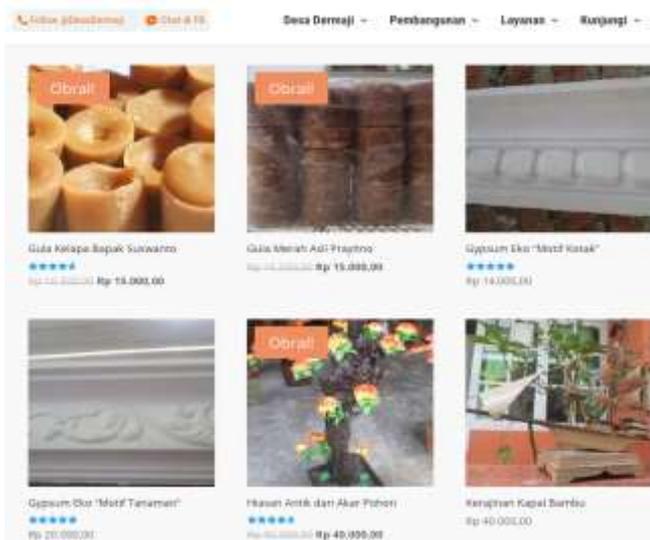


Fig 1. Webstore in Dermaji Village Website

Besides the competence in ICT, based on the observation and FGD, factors which may support digital village sustainability are (1) infrastructure, (2) availability of fund and (3) leader’s commitment. Infrastructure is very important to develop a digital village, and is even a prerequisite for a digital village. This conforms to Abdul Razak [7] that developing a digital village and knowledgeable society requires (1) well equipped with computers both for community and digital villages operators, (2) the computers should be regularly up-dated to meet up with the latest software in the market and ensure that they can be used for online purposes, (3) the digital villages should be equipped with Wireless Fidelity (WI-FI) for those who want to use their personal laptops or computers, especially when the computers in the digital villages are fully occupied (4) special arrangements should be made for disabled groups by providing assistive facilities [7] .

The availability of fund is also an important factor in developing a digital village. It is impossible to make digital applications and infrastructure available in a village without sufficient fund. However, for villages in Indonesia, the concern about fund is not the main issue since each village is allocated with village fund. Bank Indonesia even has given grants to some villages as pilot projects, including Mentawai Island, Gunung Kidul, Lombok Timur, Raja Ampat and Cirebon [8].

Leader’s commitment in digital village development is very important. Dermaji Village is a good example, thanks to the village head’s leadership until today, that the village has received many awards from both local government and the central government. At provincial level, the West Java Provincial Government is a good example in the leader’s commitment aspect. As stated by Suryani and Nuryani (2019), the provincial leader’s commitment is apparent in

digital village development since the leader believes that digital village has the capability to enhance villagers’ economy, thus urbanization is not the only choice to enhance people’s standard of living [9]. Hunt also adds that qualified and well trained leaders, employees, volunteers and skilled technical support should be employed to run the affairs of digital villages [10].

#### IV. CONCLUSION

The main factor of digital village sustainability, particularly in the Dermaji Village case, is human resources’ competence. The competence of village officials and villagers in ICT is not evenly distributed. This research finds that they still need much training, especially that which may reduce their dependence on technicians or programmers from external party. In addition, the other factors to support digital village sustainability are sufficient infrastructure and leader’s commitment

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