Formosa Journal of Science and Technology (FJST)
Vol. 3, No.12, 2024: 2629-2646

# Readiness to Implement the Digital Village Program: A Case Study: Waru Village, Waru Sub-district, Sidoarjo Regency

Galih Andika Ramadhani[1], Linda Dwi Rohmadiani[2*]
Universitas PGRI Adi Buana Surabaya
**Corresponding Author:** Linda Dwi Rohmadiani, linda@unipasby.ac.id

A R T I C L E I N F O

*Keywords:* Digital Village, Waru Village, Community Readiness, Factors

*Received : 21, November*
*Revised : 4, December*
*Accepted: 19, December*



A B S T R A C T

The readiness of the Waru Village community based on the analysis results is at the Confirmation/Expansion stage (Confirmation Provider) which shows that the Waru Village community is ready to implement the digital village program and actively participate, by utilizing resources and the role of leaders. This study aims to determine the level of readiness of the Waru Village community in implementing the digital village program, this study uses the Community Readiness Model (CRM) analysis technique through a questionnaire with weighting (scoring) on each variable consisting of community efforts, community knowledge of efforts, leadership, community climate, community knowledge of issues, and resources related to issues. The results of the study showed that the level of readiness of the Waru Village community was at level 8 with a score of 78. The factors that influence the readiness of the Waru Village community are physical factors with a score of 0.830. The physical factors referred to are good physical and mental health as a basis for community empowerment to implement the digital village program. In implementing the digital village program in Waru Village, it can improve the local economy towards markets and public services, increase community access to public services through the Simpeldesa application, and develop digital infrastructure.

ISSN-E: 2964-6804
DOI: https://doi.org/10.55927/fjst.v3i12.12623
https://journal.formosapublisher.org/index.php/fjst

## INTRODUCTION

Digital village is a village program that aims to make the village a development location that empowers the community by utilizing adequate information technology (Wijaya et al., 2013), The concept of digital villages can make it easier for village officials to evaluate and improve services based on data (Pangemanan et al., 2021) This aims to improve the welfare of village communities with the knowledge and competencies that village communities have to develop their businesses (Nugroho, 2021 in Pangaribowo, 2023).

In August 2023, the Sidoarjo Regency Government, the Ministry of Villages, Development of Disadvantaged Regions, and Transmigration (PDTT), and the Ministry of Communication and Information launched nine digital villages, one of which is Waru Village in Waru District. Digital villages are the idea of village development that uses information systems to provide government services, community services, and community empowerment connected to wireless networks to increase village potential, promotion, and access to public services (Dahiri, et al. 2019 in Pangaribowo, 2023). The concept of digital villages refers to Law Number 6 of 2014 concerning Villages, Regulation of the Minister of Villages, Development of Disadvantaged Regions, and Transmigration Number 13 of 2020 concerning the Priority Use of Village Funds article 6 paragraph 2/a, as well as Regulation of the Minister of Villages, Development of Disadvantaged Regions, and Transmigration Number 21 of 2020 concerning General Guidelines for Village Development and Empowerment article 11 paragraphs 1–5.

The area of Waru Village is 112.46 Ha (3.71% of the area of Waru District) with a slope of 0-8% (flat) and an altitude of 4-7 meters above sea level (slope) and the type of soil in the form of alluvial soil. The land use of Waru Village includes 87.77 hectares (78%) of built-up land and 24.7 hectares (22%) of non-built-up land. The population of Waru Village is 8,643 people with a population density of 77 people/ha. The number of people according to livelihood in the primary sector is 27 people (1%), the secondary sector is 2,993 people (58%), and the tertiary sector is 2,104 people (41%). Based on the 2024 Waru Village Government's Village Revenue and Expenditure Budget (APBDes), Village revenue is Rp. 2,291,731,417 and Village expenditure is Rp. 2,357,556,417, as well as a surplus/deficit of RP. 65.825.000

In this study, public knowledge about the issue of digital villages is still limited and requires improvements in technological infrastructure, training and education, pentahelix collaboration between stakeholders, community participation, and funding in the development of digital village programs (Isaiah Bela et al., 2023).

Readiness in the implementation of the digital village program is related to the availability of adequate infrastructure networks, active community participation and socialization of the use of technology. This is in line with the research (Saidah et al., 2022) with the research title Analysis of the Success Strategy of the Krandegan Digital Village in Supporting the Smart Village Program. Readiness in the implementation of the digital village program is influenced by the support from the village government and adequate resources,

this is related to research (Hartono & Widiyarta, 2023) entitled Development of Digital Villages in Visiting Village, Dukuhturi District, Tegal Regency.

The purpose of the study is (a) to identify the readiness of the people of Waru Village in the implementation of digital programs and (b) to identify factors that affect community readiness.

## THEORETICAL REVIEW

### *Theory of Digital Village*

Digital village is a concept by implementing a system of government services, community services, and community empowerment based on the utilization of information technology that will make it easier for village officials to evaluate and improve services based on data (Pangemanan et al., 2021). Digital village is a concept of ICT-based community services carried out by a village (Afrianto et al., 2022). Digital village is the utilization of information and communication technology in the implementation of public services and an integrated community economy (Hartono & Widiyarta, 2023).

The advantages of the rural digitalization program according to Nugroho (2021) are as follows: (Pangaribowo, 2023)

1. Increased knowledge and competence of rural communities to use digital technology to develop their businesses.
2. Increased welfare of village communities.
3. Increased ability of local rural businesses to improve their production, marketing, reputation and finances so that they can compete with national and even global businesses.

The disadvantages of the rural digitalization program according to Nugroho (2021) are as follows: (Pangaribowo, 2023)

1. The occurrence of digital-based criminality.
2. The emergence of social problems caused by the use of digital technology that is not on target.
3. The high investment costs for procuring infrastructure from digital technology, if not used optimally.

### *Theories of Community Readiness*

Community readiness is the ability and readiness of a community to face new environments, understand new techniques and technologies, and face social and economic changes (Kurniati et al., 2014; Delfiliana & Dewi, 2016). Community readiness is measured based on six dimensions related to the assessment of community readiness for a problem. Community readiness is a key factor in addressing the problem. The community readiness level model aims to understand the community's response to an issue. This model consists of nine levels of readiness:

1. No Awareness: The community has no knowledge or awareness of the issue.
2. Denial: People deny the existence or reality of an issue as a form of defense.

3. Vague Awareness: People are aware of the issue, but their understanding is still not specific and lacks depth.
4. Preplanning: The initial stage of gathering information and identifying issues for further planning.
5. Preparation: Preparation of resources, detailed planning, and concrete steps to address issues.
6. Initiation: The community begins to be actively involved in the formulation and implementation of the initial steps.
7. Stabilization: Community efforts stabilize under supervision to maintain balance.
8. Confirmation/Expansion: Community actions are based on facts, with decision-making according to circumstances.
9. Professionalization: Efforts are increased by paying attention to professionalism and trust in all parties involved.

The condition of community readiness is influenced by the following factors: (Kurniati et al., 2014)

1. Experience, in this condition explains that the community can organize, has experience in activities and program activities.
2. Willingness, in this condition explains that the community can spare time, motivation, actively aspire, active in the program, and active (directly or indirectly) directly in program implementation, and educated/trained.
3. Skills, in this condition explains that the community has talents, hobbies fiber interests.
4. Knowledge, in this condition explains that the community has intelligence and the ability to carry out activities.
5. Physical, this condition explains that people have good physical and spiritual health.
6. Education, in this condition explains that the community gets education at the level of education and discipline.
7. Personality, this condition explains that the community has honesty, responsibility, and tenacity in carrying out activities.

## RESEARCH METHODS

### *Research Location*

The location of the research is Waru Village, Sidoarjo Regency with an area of 112.46 hectares divided into 4 hamlets divided into 15 RWs and 49 RTs. The administrative boundaries of Waru Village are as follows: (Figure 1)

North : Kedungrejo Village, Waru District
East : Medaeng Village, Waru District
South : Sawotratap Village, Gedangan District
West : Kureksari Village, Waru District

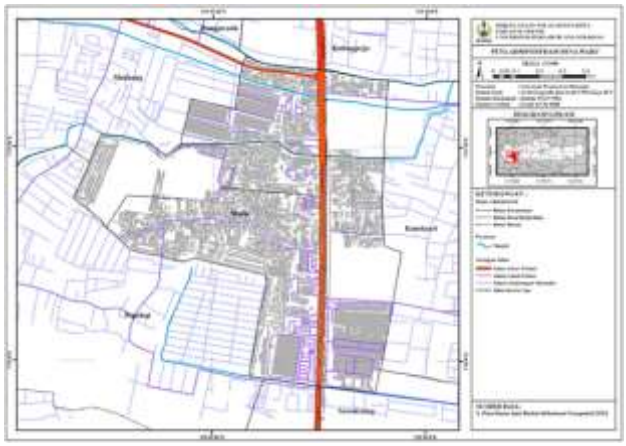

*Figure 1. Map of the Research Location*

***Research Parameters***

The research parameters can be seen in the following Table 1:

*Table 1. Research Parameters*

| No | Research Objectives | Variable |
|---|---|---|
| 1 | Community readiness conditions related to the implementation of the Digital Village program | a. Community Efforts<br>b. Public Knowledge of Efforts<br>c. Leadership<br>d. Community climate<br>e. Public knowledge of the issue<br>f. Resources related to the issue |
| 2 | Factors that affect community readiness related to the implementation of the Digital Village program | a. Experience<br>b. Desire<br>c. Skills<br>d. Knowledge<br>e. Physical<br>f. Education<br>g. Personality |

***Analysis Techniques***

*Analysis Community Readiness Model (CRM)*

The CRM model uses 6 variables, namely community efforts, community knowledge of efforts, leadership, *community climate*, community knowledge of issues, and resources related to issues (Edwards et al., 2000). Steps to measure the readiness of a society (community) for a particular issue consist of:

1. Define and explain the issues you want to solve or unravel from the results of the interview
2. Recognize and explain and delineate related communities
3. Prepare a list of questions for the questionnaire
4. Determining respondents
5. Conduct questionnaires and create transcripts
6. Scoring from the results of the questionnaire
7. Calculate the average value of each dimension.

Community readiness related to the implementation of the digital village program using Edwards Theory. The number of respondents in this study was 95 people with a degree of error of 10%. Determining the value of community readiness from the community readiness parameter as a questionnaire question is calculated using the following formula: (Sundaro & Yuliani, 2021)

$$NKM = \frac{\Sigma X1 + \Sigma X2 + \Sigma X3 + \Sigma X4 + \Sigma X5 + \Sigma X6}{Jumlah\ Responden}$$

$$PKM = \frac{NKM}{Jumlah\ Variabel}$$

Information:
PKM = Community Readiness Point
NKM = Community Readiness Value
ΣX1 = sum of the values of the sub-variable Community effort
ΣX2 = the sum of the values of the Knowledge sub-variable to the effort
ΣX3 = the sum of the values of the Leadership sub-variable
ΣX4 = the sum of the values of the Community Climate sub-variable
ΣX5 = the sum of the sub-variable values of public knowledge on the issue
ΣX6 = the sum of the values of the Resource sub-variable related to the issue

***Factor Analysis***

This analysis is used to identify factors that affect community readiness in the implementation of the digital village program using *software* SPSS.

## RESULTS AND DISCUSSION

### *The Potential of Village Areas Related to the Implementation of the Digital Village Program*

The Waru Village area is 100% served by the Telecommunication Network of the entire village with 1 *Base Transceiver Station* (BTS) available in Pesantren Hamlet. as well as served by fiber optic networks on Jalan Colonel Sugiono along 0.31 km, Jalan Letjend Sutoyo along 0.31 km, and Jalan Raya Waru along 10.91 km (figure 2).

***Figure 2. Telecommunication Network Map***

The digital Waru Village information system services available are in the form of the "Simpeldesa" application, while the available service features include public services, social services, and economic services.

The number of internet users in Waru Village is 8,366 people, consisting of 923 people (11%) in Jati Hamlet, 1,237 people (15%) in Pesantren Hamlet, 2,617 people (31%) in Krajan I Hamlet, and 3,589 people (43%) in Krajan II Hamlet.

***Community Readiness in the Implementation of the Digital Village Program***

Based on the results of the questionnaire, the results of the analysis were as follows:

1. Community Efforts

   The level of community concern related to the implementation of the digital village program was obtained by 38% of respondents who were very concerned because people between the ages of 20-30 understood the use of technology, 53% of respondents chose to care about people aged 30-40 years who understood the use of technology but needed guidance, and 9% of respondents chose to care less because people between the ages of 50-60 years needed assistance in the use of technology.

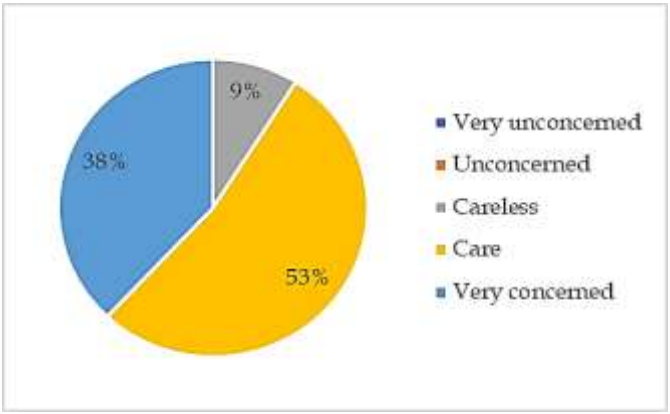


***Figure 3. Percentage of Concern Level***

The level of public understanding related to the implementation of the digital village program was obtained by 36% of respondents who chose to understand very well because the community was present and took advantage of the time to get information, 54% of respondents chose to understand because the community was present but not active in activities, and 10% of respondents chose not to understand because the community was not present at any activities.

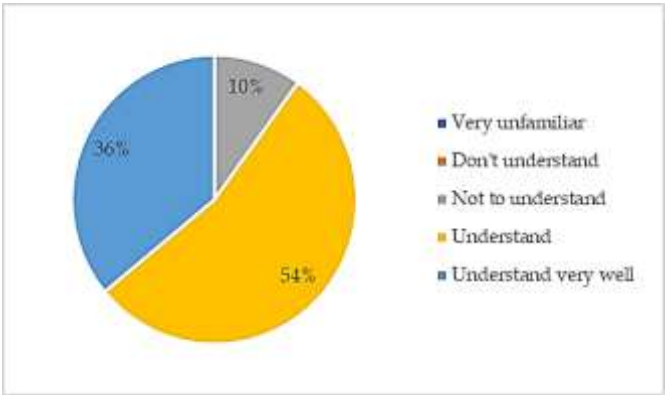


*Figure 4. Comprehension Level Percentage*

The length of community effort in learning technology related to the implementation of the digital village program was obtained as many as 100% of respondents chose > 1 hour because the community adapted to the use of technology and existing features.

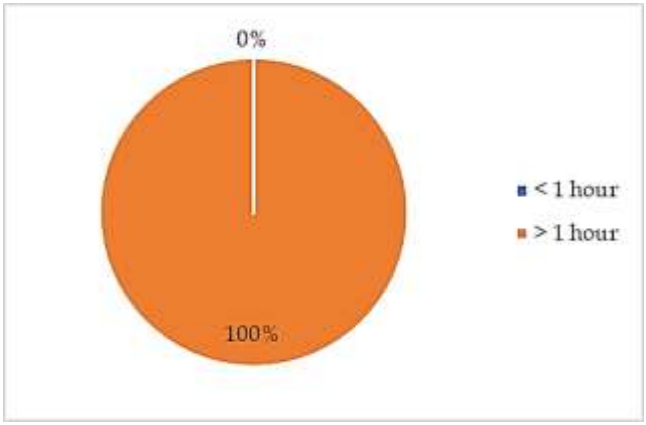


*Figure 5. Percentage of Business Duration*

2. Public knowledge of efforts

The level of public awareness of the implementation of the digital village program was obtained as many as 100% of respondents chose to be very aware because the community was helped by the existence of the digital village program and its efficient and easy use.

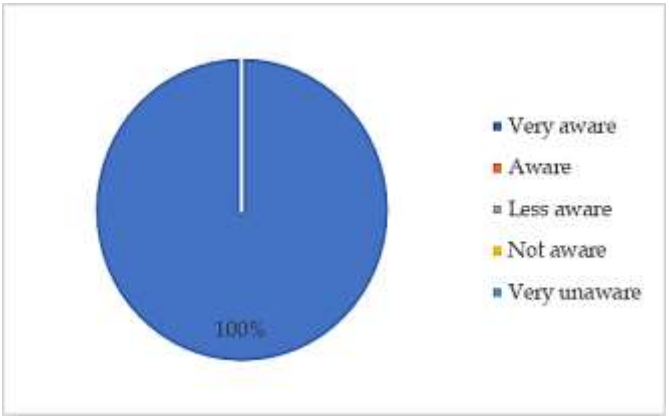


*Figure 6. Percentage of Awareness Level*

The level of community knowledge about the implementation of the digital village program was obtained as many as 100% of respondents chose to understand it very well because of educational factors and the availability of access to information that can affect the level of community knowledge in Waru Village (Susanto et al., 2021).

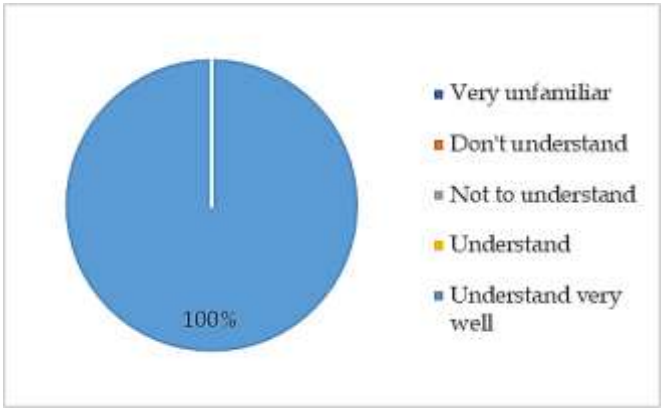


*Figure 7. Percentage of Knowledge Level*

3. Leadership

The role of leaders in the implementation of the digital village program was obtained as many as 100% of respondents chose very important because the village government can create collaboration and cooperation with the community in the implementation of the digital village program in Waru Village.

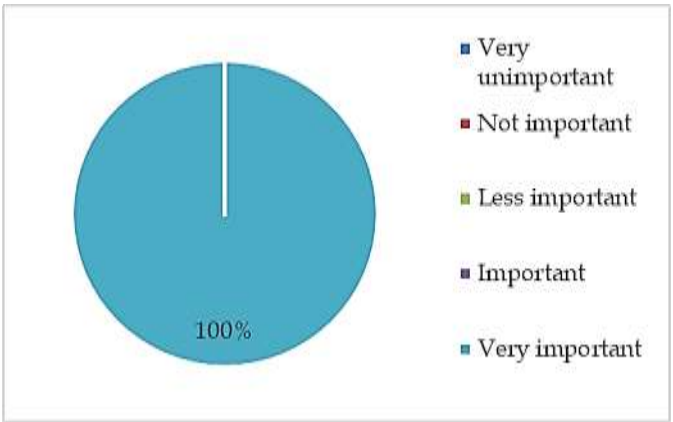


*Figure 8. Percentage of Leadership Roles*

The involvement of leaders in the implementation of the digital village program was obtained as many as 100% of respondents chose very important because leaders have access to mobilize and allocate the necessary resources for the success of the digital village program in Waru Village.

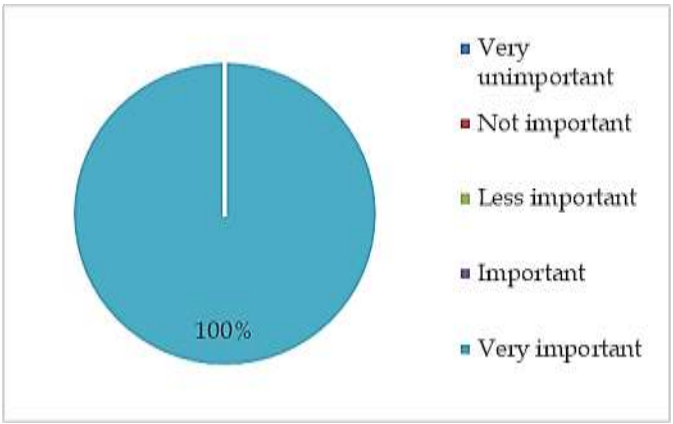


*Figure 9. Leader Engagement Percentage*

Leaders' support for the implementation of the digital village program was obtained by 100% of respondents who chose it is very important because leaders must be responsible in efforts to improve people's digital literacy and capacity.

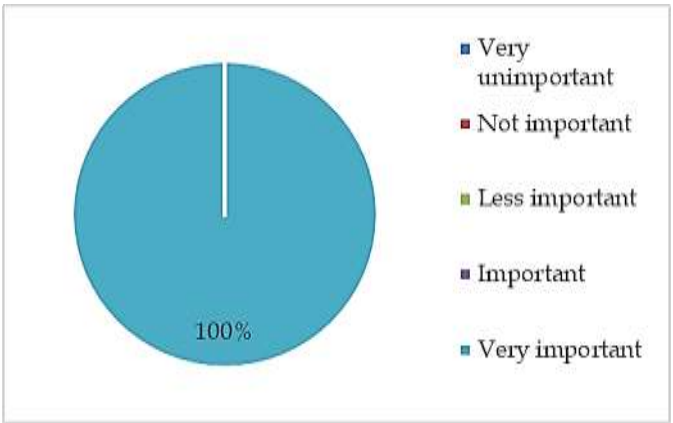


*Figure 10. Leader Support Percentage*

4. Community Climate

Community contributions related to the implementation of the digital village program were obtained as many as 100% of respondents chose to be very active because community participation is very influential in the planning and implementation of the digital village program in Waru Village.

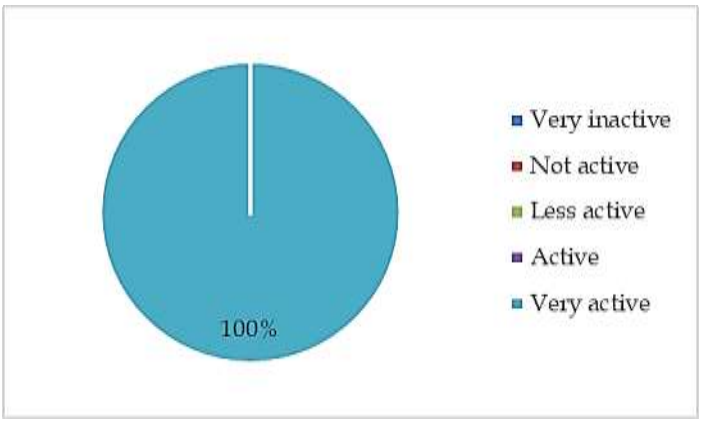


*Figure 11. Percentage of Contribution Related to Activities*

The community's attitude regarding the implementation of the digital village program was obtained by 100% of respondents who chose to care because decision-making in activities is needed in the implementation of the digital village program in Waru Village.

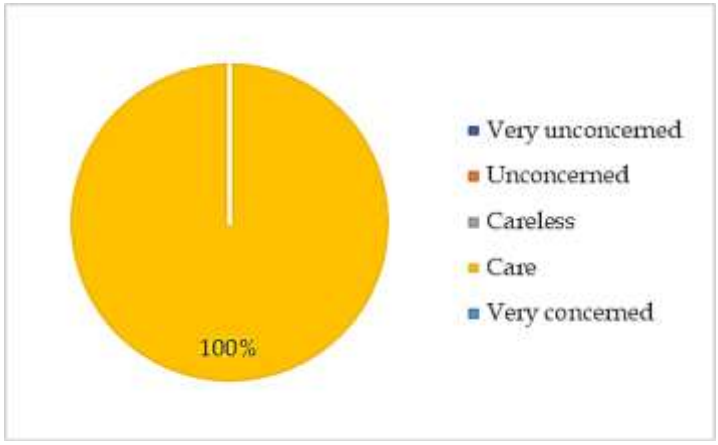


*Figure 12. Percentage of Community Attitudes Related to Activities*

Obstacles in the implementation of the digital village program were obtained by 100% of respondents who chose less because Waru Village already has a wireless network of 1 BTS in the Islamic Boarding School Hamlet, fiber optics and cable networks.

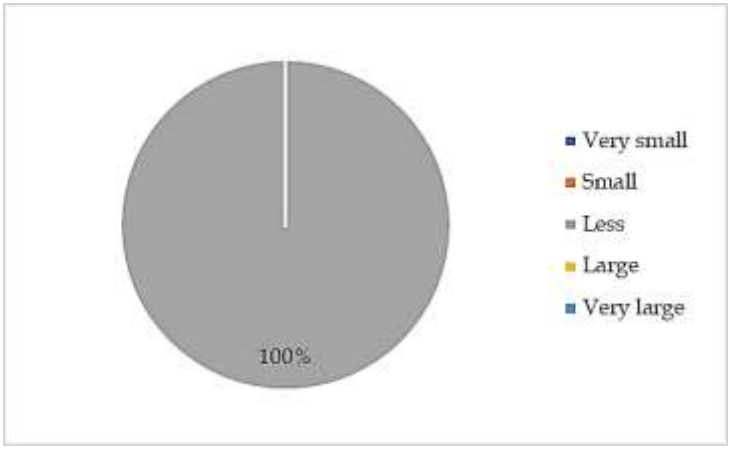


*Figure 13. Percentage of Hambantan in Activities*

5. Public knowledge of the issue

The availability of information related to the implementation of the digital village program was obtained as many as 66% of respondents chose complete because the information was obtained in electronic form, 34% of respondents chose incomplete because the information media was in the form of print.

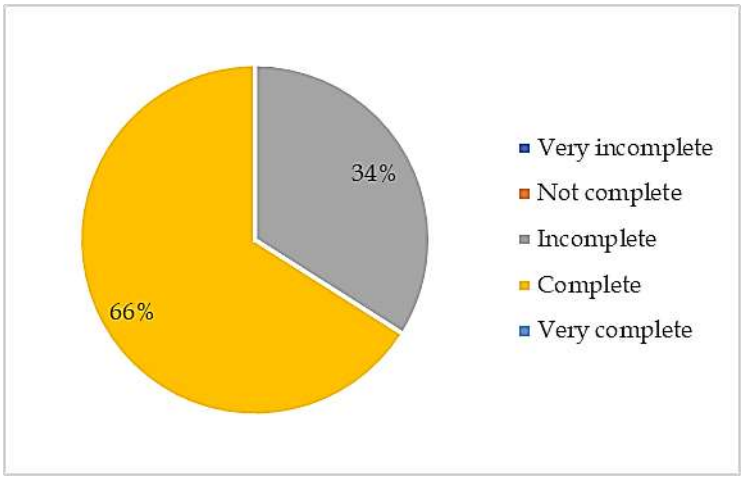


*Figure 14. Information Availability Percentage*

The availability of data in information on the implementation of the digital village program was obtained as many as 66% of respondents chose complete because the data can be accessed through Simpeldesa, 34% of respondents chose incomplete because there is no profile data for Waru Village.

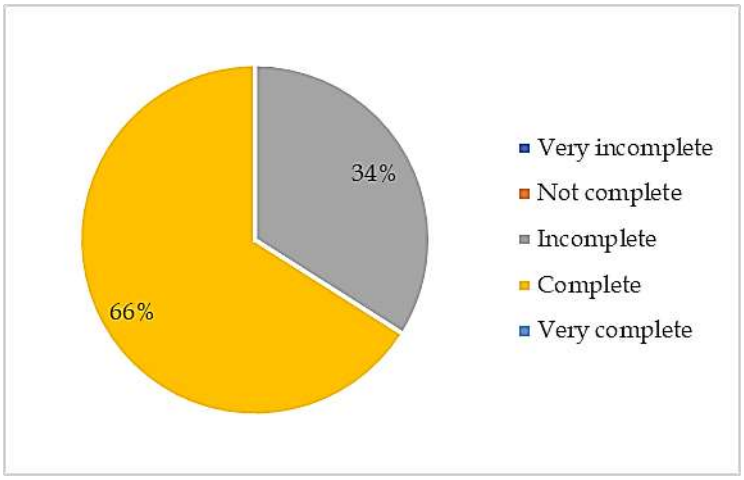


*Figure 15. Data Availability Percentage*

Community knowledge about the implementation of digital programs was obtained by 100% of respondents who chose to understand very well because educational factors and the availability of information access factors can affect the level of public knowledge (Susanto et al., 2021).

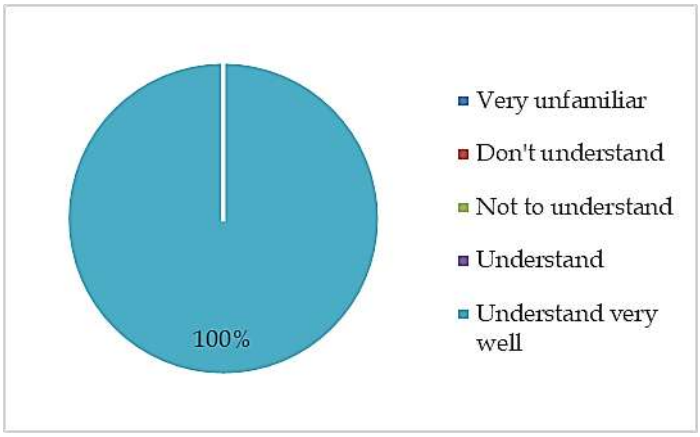


*Figure 16. Community Knowledge Percentage*

6. Resources related to the issue

The community's attitude regarding the issue was obtained as many as 100% of respondents chose very wisely because people's attitudes are influenced by the level of education and knowledge of digital technology (Ridho et al., 2022).

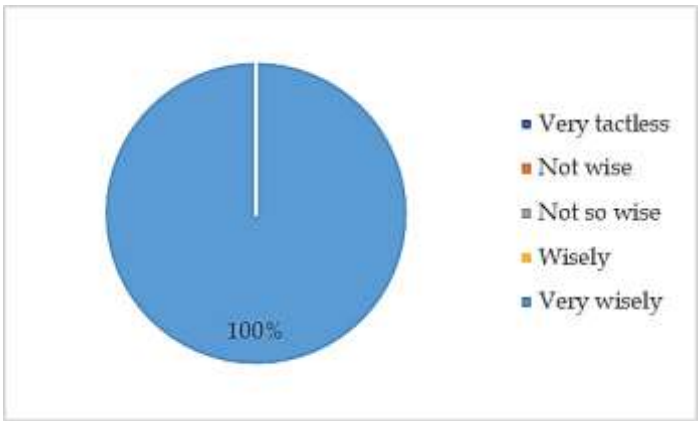


*Figure 17. Percentage of Community Attitudes Regarding Issues*

The support obtained by the community was obtained by as many as 100% of respondents chose support because of the form of support in the form of regulations, infrastructure development, training, and funding (Yesayabela et al., 2023).

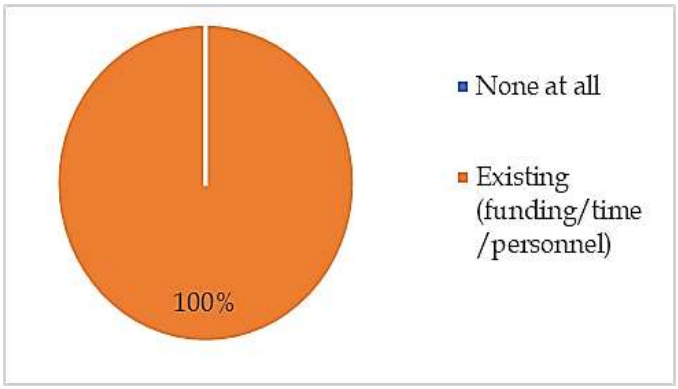


*Figure 18. Community Support Percentage*

Community satisfaction with the evaluation was obtained as many as 100% of respondents chose to be very satisfied because the quality of services that have been available is efficient, fast, and responsive to the needs of the community.

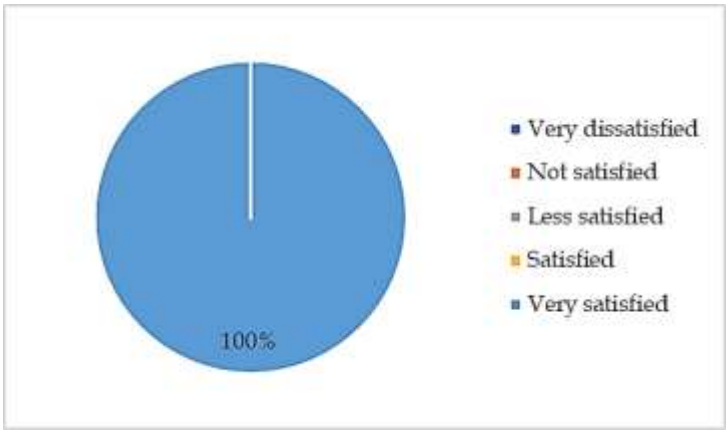


*Figure 19. Percentage of Community Satisfaction with Evaluation*

It can be seen that the total score and weighting is 7.397. The community readiness score (NKM) is obtained from the calculation of the total scoring score divided by the number of respondents used (Sundaro & Yuliani, 2021). It was found that the level of readiness of the people of Waru Village in the implementation of the digital village program obtained a score of 78 and was included in the 8th level, namely *Confirmation/Expansion* (Confirmation Grant) (Table 2), at this level most of the community is ready to implement the digital village program and is ready to actively participate by utilizing resources and leadership roles. This is supported by increasing public understanding of technology.

***Table 2. Community Readiness Level***

| No | Level | Shoes |
|---|---|---|
| 1 | *No Awareness* | 17-24 |
| 2 | *Denial* | 25-32 |
| 3 | *Vague Awareness* | 33-40 |
| 4 | *Preplanning* | 41-48 |
| 5 | *Preparation* | 49-56 |
| 6 | *Initiation* (Tahap) | 57-64 |
| 7 | *Stabilization* | 65-72 |
| 8 | *Confirmation/Expansion* | 73-80 |
| 9 | *Professionalization* | 81-88 |

Source: Analysis Results, 2024

***Factors Affecting Community Readiness in the Implementation of the Digital Village Program***

Factors that affect community readiness in the implementation of the digital village program are analyzed using factor analysis techniques with SPSS software.

Based on the results of the analysis in table 3, the value for KMO is 0.568 and GIS is 0.000, the conditions of this test are that the KMO value must be >0.50 and the GIS value must be <0.50 so that it can be said to be valid.

***Tabel 3. Uji Keiser-Meyer Olkin and Barlets Test of Sphericity***

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .568 |
| Barlett's Test of Sphericity | Approx. Chi-Square | 31.136 |
| | Df | 21 |
| | Mr. | .000 |

*Source: Analysis Results, 2024*

Based on the results of the analysis in table 4, it was obtained that the factor that most affected the readiness of the community regarding the implementation of the digital village in Waru Village was the physical factor with a value of 0.830, The physical factor in question was good physical and mental health. Conceptually, community empowerment and the availability of information technology are important components in the implementation of the digital village program (Ramadlan & Fardani, 2020).

***Table 4. Factor Interpretation***

| Variable | Component | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| Experience | -.364 | -.058 | .207 | .715 |
| Desire | .122 | -.604 | .431 | .249 |
| Skills | .798 | .058 | -.029 | .242 |
| Knowledge | -.266 | .571 | .129 | .470 |
| Physical | -.211 | .041 | .830 | -.400 |
| Education | .724 | .127 | .332 | .123 |
| Personality | .094 | .796 | .157 | -.112 |

*Source: Analysis Results, 2024*

## CONCLUSION

Based on the results of the research and discussion that has been described earlier, it can be concluded that the readiness of the community is at the *Confirmation/Expansion stage* which means that the people of Waru Village are ready to implement the digital village program and actively participate by maximizing resources and the role of leaders. The factor that affects the readiness of the community in the implementation of the digital village program is the physical factor with a score of 0.830. The physical factor in question is good physical and mental health as the basis for community empowerment in implementing the digital village program.

## RECOMMENDATIONS

Suggestions given based on the research results are:

1. The government needs to conduct socialization, training and human resource development in managing village digitalization involving BUMDes, Pokdarwis, Pokja to youth organizations
2. The people of Waru Village must be wise in utilizing information technology.

## FURTHER STUDY

Future researchers are advised to conduct further research on measuring readiness from the aspect of the availability of supporting infrastructure for digital villages.

## REFERENCES

Afrianto, I., Suryana, T., & Atin, S. (2022). Pendampingan Sistem Layanan Publik Desa Digital Desa Ciwaruga Dan Desa Cigugur Girang. Jurnal

Pengabdian Masyarakat TEKNO, 3(2), 84–90.
Edwards, R. W., Jumper-Thurman, P., Plested, B. A., Oetting, E. R., & Swanson, L. (2000). The Community Readiness Model: Research to Practice Ruth. Journal of Community Psychology, 28(3), 291–307. https://doi.org/10.1002/(SICI)1520-6629(200005)28
Delfiliana, F., & Dewi, D. I. K. (2016). Kajian Tingkat Kesiapan Masyarakat Kawasan Tambak ajian Tingkat Kesiapan Masyarakat Kawasan Tambak Lorok Terhadap Pengembangan Kampung Wisata Bahari Lorok Terhadap Pengembangan Kampung Wisata Bahari. Jurnal Ruang, 2(3), 216–224.
Hartono, N. C. P., & Widiyarta, A. (2023). Pengembangan Desa Digital di Desa Lawatan Kecamatan Dukuhturi Kabupaten Tegal. Jurnal Manajemen Dan Ilmu Administrasi Publik (JMIAP), 5(2), 209–214. https://doi.org/10.24036/jmiap.v5i2.578
Kurniati, E., Meidiana, C., & Wicaksono, A. D. (2014). Kajian Kesiapan Masyarakat Terkait Rencana Kegiatan Industri Pertambangan Marmer (Studi Kasus di Kelurahan Oi Fo'o, Kota Bima-NTB). The Indonesian Green Technology Journal, 3(3), 18–27.
Pangaribowo, G. G. (2023). Implementasi Kebijakan Desa Digital Dalam Pelayanan Publik (Studi di Desa Podomoro Kecamatan Pringsewu Kabupaten Pringsewu) [Lampung]. In Repository Universitas Lampung (Issue 8.5.2017). https://dataindonesia.id/sektor-riil/detail/angka-konsumsi-ikan-ri-naik-jadi-5648-kgkapita-pada-2022
Pangemanan, A. A. A., Karouw, S. D. S., & Rindengan, Y. D. Y. (2021). Perencanaan Pengembangan Desa Digital Di Kauditan I. Jurnal Teknik Informatika, 16(4), 393–400. https://ejournal.unsrat.ac.id/v3/index.php/informatika/article/view/33964/33727
Ramadlan, F., & Fardani, I. (2020). Kajian Kesiapan Penerapan Desa Digital Pada Desa Wisata Dengan Pendekatan Model STOPE di Desa Sukalaksana. Perencanaan Wilayah Dan Kota, 220–227. http://dx.doi.org/10.29313/pwk.v6i2.22726
Ridho, A., Wardhana, K. E., Yuliana, A. S., Qolby, I. N., & Zalwana, Z. (2022). Implementasi Pendidikan Multikutural Berbasis Teknologi Dalam Menghadapi Era Society 5.0. EDUCASIA: Jurnal Pendidikan, Pengajaran, Dan Pembelajaran, 7(3), 195–213. https://doi.org/10.21462/educasia.v7i3.131
Saidah, N., Khasanah, L., Asriyatuzzahra, & Ridloah, S. (2022). Analisis Strategi Kesuksesan Kampung Digital Krandegan dalam Mendukung Program Smart Village. Journal of Regional and Rural Development Planning, 6(2), 123–135. https://doi.org/10.29244/jp2wd.2022.6.2.123-135
Sundaro, H., & Yuliani, E. (2021). Kesiapan Masyarakat Dalam Pemenuhan Kebutuhan Kepariwisataan Sebagai Daya Tarik Wisata Di Kampung Jawi, Kecamatan Gunungpati, Kota Semarang. Indonesian Journal of Spatial Planning, 2(2), 11. https://doi.org/10.26623/ijsp.v2i2.4251
Susanto, A., Rachmawanto, E. H., Mulyono, I. U. W., & Sari, C. A. (2021). Implementasi Sistem Informasi Desa (SID) untuk Peningkatan Layanan

dan Keterbukaan Informasi di Desa Hulosobo, Kaligesing, Purworejo. Abdimasku : Jurnal Pengabdian Masyarakat, 4(2), 105. https://doi.org/10.33633/ja.v4i2.185

Wijaya, E., Anggraeni, R., & Bachri, D. R. (2013). Desa Digital: Peluang Untuk Mengoptimalkan Penyebarluasan Peraturan Perundang-Undangan Di Indonesia. Jurnal Dinamika Hukum, 13(1), 76–89. https://dinamikahukum.fh.unsoed.ac.id/index.php/JDH/article/view/158

Yesayabela, T. M., Satyas, F. R., Musleh, M., & Rianto, B. (2023). Kolaborasi Model Pentahelix dalam Pengembangan Desa Wisata Pandean Kecamatan Gondang Kabupaten Trenggalek. Kolaborasi : Jurnal Administrasi Publik, 9(3), 327–346. https://doi.org/10.26618/kjap.v9i3.11736