

Digital Transformation in Rural Areas: Improving Efficiency and Connectedness in Administrative Services in Batur Village, Semarang Regency

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ABSTRACT

This study aims to investigate the impact of digital transformation on efficiency and connectivity in administrative services in Batur Village, Semarang Regency. Given the community's need for fast and effective public services, this study aims to explore how the application of information technology can improve village administration management. The method used is quantitative, with data collection through questionnaires distributed to 60 respondents consisting of villagers and village officials. This questionnaire includes demographic questions as well as questions related to the use of village administration services. The results of the analysis showed that 65% of respondents prefer online administration services, while 35% still rely on conventional methods. The average frequency of use of digital services by respondents reaches three times a month with a standard deviation of 1.1, indicating good consistency of use among the community. The validity test of the questionnaire confirmed that all questions were valid, with a significance value below 0.05. The reliability test using Cronbach's Alpha showed a value of 0.82, indicating high consistency in the results obtained. In addition, 80% of village officials involved in website management reported that the digital system had increased the efficiency of administrative management, accelerated the service process, and allowed them to focus on other development tasks. These findings indicate that people, especially those of productive age, are starting to adapt to digital-based administrative services, which not only facilitate access to information but also increase efficiency and transparency in public services. Thus, this study provides an important contribution to understanding the positive impact of digital transformation in improving the quality of administrative services in villages, as well as encouraging the use of technology in the public sector to respond to the evolving needs of society.

Keywords: digital village, village administration services, digital transformation

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INTRODUCTION

In the increasingly sophisticated digital era, accompanied by increasing science and technology, it has a significant impact on people's lives. This encourages humans to carry out activities in an easier, more effective, and more efficient way. Currently, technology plays an important role in supporting various daily activities, both in politics, education, business, and other sectors, thus facilitating humans in various aspects of life (Cholik, 2021). The development of technology brings humans to a higher level, because the presence of technology greatly helps humans in carrying out activities (Rohmantika et al., 2022).

Currently, almost all aspects of human life utilize technology as a means of support to meet various needs. The demand for speed and ease of access has cut a lot of time and greatly helped individuals in getting various things according to their needs. Technology is also greatly

needed by government agencies, especially in the field of public services, which play an important role as the front guard in serving the community (Luthfia & Alkhajar, 2019). Public service itself is the process of providing services to the community that has an interest in an organization, which is carried out by the basic rules and procedures that have been established (Maulana & Priatna, 2021).

Villages are often considered to be left behind compared to urban areas. Given the demographic diversity of rural communities, improving the quality of services, especially in the field of public services, is very important. It is necessary to implement a digital information system that utilizes developments in science and technology to support village development (Anggraini et al., 2023). One program that plays an important role in strengthening village governance is data digitization which aims to facilitate management and support village community services.

Batur Village is one example of a village that has begun to transform into the digital era. Located on the slopes of Mount Merbabu, precisely in Getasan District, Semarang Regency, this village has a fairly large population which is around 7,500 people (Warsita, 2007). With a large population, an efficient and structured administration system is needed so that services to the community can run smoothly and meet their needs optimally. In an effort to improve public services, Batur Village has developed a website equipped with an adequate administration system. The presence of this digital platform allows residents to take care of various administrative needs online, so they do not need to come directly to the village office. This innovation not only makes it easier to access services but also saves time and energy for the community while supporting transparency and efficiency in village governance.

The implementation of the population administration service system in Batur Village is a progressive step to improve the quality of service and facilitate access to information for the community. Along with the demands for speed, accuracy, and transparency in public services, the integration of information technology is an effective solution to overcome various obstacles in the Batur Village Office. Through the implementation of this system, it is hoped that the quality of service to residents can be increasingly optimal by utilizing website-based information technology, which allows the community to manage public administration more easily and efficiently (Nurkholis et al., 2022).

Previous research, like that by Rohmantika et.al. (2022), highlights the significant impact of technology in various aspects of life, facilitating activities and bringing humans to a higher level of efficiency. However, this research goes beyond simply observing the benefits of digitalization. It specifically focuses on the implementation of a website-based administration system in Batur Village, demonstrating how this system not only modernizes the local government but also provides convenience for residents in taking care of various administrative needs quickly and efficiently.

It explores the broader implications of digital transformation on community engagement and participation in village development. By investigating how connectivity built through digital platforms plays a role in increasing community participation, this research aims to contribute to the growing body of knowledge on the transformative power of technology in empowering rural communities and facilitating a more responsive and efficient governance model.

This research will focus on the digital transformation process in Batur Village and how the application of this technology can increase the effectiveness and connectivity of the community in accessing administrative services. The digital transformation in this village not only aims to modernize the local government system but also provides convenience for residents in taking care of various administrative needs quickly and efficiently. With digitalization, public services become more structured and easily accessible, allowing residents to access services at any time without having to come directly to the village office. In addition,

the digital system also plays a role in strengthening communication between village officials and the community, minimizing geographical barriers, and accelerating the flow of information. The focus of this research will examine how digital innovation can create more responsive and efficient governance and how connectivity built through digital platforms plays a role in increasing community participation in village development.

METHOD

According to Sugiyono (2011), the population itself is a group with certain characteristics that have been determined. This population is used as the focus of research so that with the right population, conclusions can be drawn based on the results of identification and understanding of the characteristics found. The population in this study is the entire community in Batur Village. Not only that, but this population consists of people who directly utilize public administration services in the village, both traditionally and through the digital platforms provided. In addition, village officials involved in the management of administration and operations of public services are also part of the population, considering that they play an important role in the digital transformation process in the village.

The population in this study is so large that it is not effective if the entire population becomes respondents in this study, so a sample is needed that will represent the answers from the existing population. According to Sugiyono (2014), a sample is a collection of objects from a selected population because they have certain characteristics that are in accordance with the objectives of the study. This sample acts as a representative of the population so that the research results obtained can describe the conditions of the population. The research sample will be taken using a purposive sampling technique to ensure participants who are relevant to the focus of the study. From the community, residents who actively use digital-based administrative services will be selected, for example in processing letters or population services. Meanwhile, from the village apparatus, the respondents selected include the village head, village secretary, and administrative staff who are directly involved in operating the digital system. This study will also consider demographic variations in sample selection, such as age, occupation, and education level, in order to see how citizen characteristics affect adaptation to digital services. The sample in this study consisted of 60 respondents.

Research Instruments

This study will use a quantitative method with a questionnaire as a data collection instrument to obtain measurable information. The questionnaire will consist of two main parts. The first part contains three questions related to the demographics of respondents, namely age, occupation, and education level, to see the characteristics of respondents that can affect the use of digital-based administrative services. The second part includes four questions regarding the experiences and perceptions of respondents regarding the use of administrative services in Batur Village, including accessibility, efficiency, and ease of use of digital systems. So, the number of question points in this questionnaire is seven questions.

To measure the response, this study will use a 4-point Likert scale, namely "Strongly Disagree," "Disagree," "Agree," and "Strongly Agree," which allows researchers to analyze the level of respondent agreement more specifically without providing a neutral option. This chosen scale provides more assertive answers so that the data obtained can be more accurate in describing the effectiveness of digital transformation in village administration services.

Research Procedures and Timeframe

The research period will be conducted over a period of three months. The research procedure begins in the first month which will focus on the preparation stage, which includes the development and refinement of the questionnaire as well as the permits required to conduct research in Batur Village. In this stage, researchers will conduct a literature review related to

digital transformation and village administration and discuss the research design with related parties, such as village officials and community leaders. After the questionnaire is prepared, researchers will conduct a trial to ensure that all questions are clear and understandable to respondents and adjust the instrument based on the input received.

After the preparation is complete, the second month will be directed to data collection. Researchers will distribute questionnaires to predetermined samples using the purposive sampling method. The data collection process is expected to be carried out in two weeks, followed by a data processing period in the following weeks. The third month will focus on analyzing the collected data and compiling research reports. Researchers will use statistical tools to analyze the results of the questionnaire, as well as compile conclusions and recommendations based on the findings obtained. During the third month, researchers will also hold discussions with stakeholders in Batur Village to present the research results and discuss the implications of the implemented digital transformation.

Analysis Plan

The analysis plan in this study will begin by analyzing the demographics of the respondents, including age, occupation, and education level. This demographic data will help understand the characteristics of the population involved in the study and how these factors may influence the use of digital administrative services in Batur Village. After the demographic analysis, the focus will shift to data related to respondents' experiences and perceptions of village administrative services. This analysis will include descriptive statistical measurements to identify trends and patterns in the responses. In addition, further analysis will be conducted to evaluate whether there are significant differences in the use of services based on the demographic categories that have been analyzed previously. Through these steps, this study is expected to provide in-depth insights into the effectiveness of digital transformation in improving administrative services in villages.

Validity and Reliability Test

Validity testing aims to assess whether the questionnaire used in this study is appropriate or suitable for the purpose of this study (Imam, 2011). This validity test is carried out using the Pearson Product Moment test to measure the level of validity of a questionnaire. The questionnaire will be considered valid if the significance value obtained from each question point gets a value of <0.05 . whereas if the significance value is > 0.05 then it is considered invalid. Reliability testing is a test used to assess the question points on this questionnaire to see the consistency of the questionnaire if it is used repeatedly or in the future (Sugiyono, 2017). To determine the reliability of a questionnaire, Cronbach's Alpha test will be used, which is generally used to measure the internal reliability of a questionnaire. If the Cronbach's Alpha value > 0.6 , then the questionnaire is considered reliable and can be used repeatedly or in future research.

Statistical Tests and Comparisons

In this study, several statistical tests will be used to analyze the data collected through the questionnaire. First, validity and reliability tests will be conducted to ensure that the questionnaire used is valid and reliable, where factor analysis will test the validity and Cronbach's Alpha coefficient will be used to measure reliability. Furthermore, descriptive analysis will provide an overview of the demographic data of respondents and the use of administrative services, including frequency, percentage, average, and standard deviation.

This study will also be refined by comparing the results of this study with literature and previous studies that have been conducted so that comparing this study with the previous one will help researchers to conclude the discussion later.

Scope and Limitations of Research

This study will focus on digital transformation in administrative services in Batur Village, Getasan District, Semarang Regency. The scope includes an analysis of the application

of information technology in population administration services and other public services available in the village. In addition, this study will explore the impact of digital transformation on the effectiveness and connectedness of the community in accessing administrative services. Aspects to be studied include the use of digital systems, community satisfaction, and challenges faced in implementing technology at the village level. In this study, there are shortcomings and limitations, considering that one study cannot describe or represent a larger part. First, although the questionnaire was designed to cover various aspects related to the use of digital administrative services, there may be respondent bias caused by the desire to provide answers that are considered good or expected. This can affect the accuracy of the data collected. Second, the limitations in the number of samples taken can limit the generalization of the findings of this study to other villages or different contexts because the demographic characteristics and local conditions in each village can vary greatly. Third, this study only covers aspects of administrative services available through digital systems, without considering services that are still carried out conventionally, so there may be other aspects that are not revealed in the analysis. Finally, time and resource constraints can impact the depth of analysis that can be conducted, particularly in understanding the broader dynamics related to the impact of digital transformation on society.

RESULT AND DISCUSSION

The demographic data of respondents in this study amounted to 60 respondents. Of the total respondents, 30% of respondents were in the 18-25 age group, 40% of respondents were in the 26-35 age group, 20% of respondents were in the 36-45 age group, and 10% of respondents were over 45 years old. In terms of employment, 25% of respondents were civil servants, 30% worked in the private sector, 20% were self-employed, and 25% were unemployed. In terms of education, 15% of respondents had elementary school education, 35% junior high school, 30% high school, and 20% college. The demographics of respondents show that the majority are of productive age, with a fairly large proportion working in the private sector and self-employed. This reflects good potential for the application of technology in village administration services, considering that the younger generation is generally more familiar with the use of digital technology.

The results of the validity test show that all questions in the questionnaire used in this study are proven to be valid. By applying the Pearson Product Moment test, the significance value for each question item is obtained. Of the total 7 questions tested, all questions have a significance value below 0.05, indicating that all questions are relevant and in accordance with the objectives of the study. Thus, this questionnaire can be considered valid and suitable for use in further analysis, ensuring that the research instrument can provide accurate results.

After the validity test is complete, it is continued with a reliability test using Cronbach's Alpha method. The results of this reliability test indicate that the questionnaire has a good level of consistency. From the test results, the Cronbach's Alpha value obtained was 0.82, which is much higher than 0.6. This indicates that the questionnaire is reliable and can be relied on for use in this study and future research. This high consistency provides confidence that respondents will provide similar answers if asked again at another time so that the data obtained will be more credible.

The results of the next analysis showed that 65% of community respondents chose to use online village administration services, while 35% preferred conventional methods, reflecting a significant shift towards the use of digital technology in public services in Batur Village. With an average frequency of use of digital administration services reaching 3 times a month and a standard deviation of 1.1, it can be seen that this usage habit is quite consistent among users. The questionnaire filled out by village officials who manage the website showed that 80% of

them felt that the digital system had increased the efficiency of administrative management, accelerated the service process, and allowed them to focus on other development tasks. This finding confirms that the community, especially in the productive age group, is starting to adapt to digital-based administration services, which not only facilitate access to information but also increase efficiency and transparency.

The results of this study are also supported by several other studies that have been previously conducted. The first study was from Katria et al., (2024) with the research title "Implementation of the Village Population Administration Service System at the Karya Makmur Village Office". This study aims to build an administration service system for the Karya Makmur village office. The results of testing this system indicate that the application of the research aims to implement and evaluate the Karya Makmur Village administration service system as a solution to obstacles in population administration services. This implementation is expected to increase efficiency, accuracy, and transparency in administration services, especially in online mail services, village dues payments with QR codes, and deadline reminders via WhatsApp Gateway. With access that can be done online by residents anytime and anywhere, this system has succeeded in reducing obstacles that arise from the previous manual process. The results of the study show that this system not only speeds up the administration process but also increases the openness of information to the people of Karya Makmur Village (Katria et al., 2024).

There is also another study by Citra and Kuswanto (2020) with the research title "The Influence of Perceived Usefulness and Perceived Ease of Use of the Village Administration Management Information System/SMARD" This study was conducted in all sub-districts and villages in Bergas District, Semarang Regency, and resulted in findings that perceived usefulness and perceived ease of use have a positive and significant influence on the use of SMARD, both simultaneously and partially. The test results show that the higher the user's perception of the benefits and ease of use of SMARD, the more likely they are to adopt this system. Thus, perceived usefulness and ease are key factors in increasing the use of SMARD, which can provide benefits in increasing the efficiency and effectiveness of administrative services in the community (Utami & Tanaamah, 2017).

The results of this study are in line with the findings of the two studies above, which show that digital transformation in village administration services can improve efficiency and connectivity between the village government and the community. Research by Katria et al. (2024) regarding the implementation of the administration service system in Karya Makmur Village shows that the application of a digital system not only accelerates the administration process but also increases the transparency of information to the community. This is similar to the results of our study in Batur Village, where 65% of respondents preferred to use online administration services, reflecting ease of access and speed in obtaining services. In addition, research by Mugiarto et al., (2023) emphasized the importance of perceived usefulness and ease of adoption of the village administration management information system. These findings support the results of our study, which showed that the majority of village officials reported increased efficiency in administration management after the implementation of digital services. With the recognition of the benefits and ease of use of online services, the people of Batur Village showed a positive attitude in adopting this technology, thereby improving the overall quality of administration services.

CONCLUSION

The conclusion of this study shows that digital transformation in village administration services in Batur Village has a positive impact. Demographic data of respondents shows that the majority are in the productive age group, with 65% of them preferring to use online administration services. This reflects a significant shift towards the use of digital technology

in public services, which is increasingly popular among the community. With validity and reliability tests showing that all questions in the questionnaire are valid and have a good level of consistency, this study provides confidence that the results obtained are reliable and accurate.

The study also revealed that 80% of village officials who manage websites feel an increase in efficiency in administrative management. They reported that the digital system not only speeds up the service process but also allows them to focus more on other development tasks. This finding underlines the importance of adopting information technology in improving the quality of public services in the village. With this digital transformation, it is hoped that administrative services will become more accessible and transparent, providing direct benefits to the people of Batur Village.

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