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Evaluation of Advantages and Disadvantages of Village Information Systems in Supporting Sustainable Development Programs

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ABSTRACT

In the digital age, information technology has become essential in many areas of life, including public administration. As a public service provider, the government needs to utilize technology to increase efficiency, transparency, and accountability in providing services to its citizens. The concrete expression of the innovation is the development of the Village Information System (SID) which aims to enable the village government to manage population data, development, and village administration in an integrated manner. The Ogan-Ilir Regency Government has developed and implemented two web applications, SIDESI (Integrated Village Information System). This application aims to facilitate the management of municipal data and village administration. SIDESI allows villages to consolidate data relevant to various development needs. This study uses a quantitative approach using a survey method using a questionnaire to evaluate the advantages and disadvantages of the SIDESI web application. This approach aims to obtain data obtained from questionnaires filled out by users directly from the SIDESI web application. The results of the use of the SIDESI application web application are very effective in managing population data, with features that make it easier for village officials to input family and resident data in a systematic and structured manner. This speeds up the data management process at the village level, as well as reduces the risk of human error in data recording.

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1. Introduction

In the digital age, information technology has become essential in many areas of life, including public administration. As a public service provider, the government needs to utilize technology to increase efficiency, transparency, and accountability in providing services to its citizens. One concrete form of this innovation is the development of the Village Information System (SID) which enables village governments to manage population data, development, and administrative processes in an integrated manner [1].

Information systems are organized procedures designed to provide information that supports decision-making and organizational control. They consist of computer-based and manual components created to collect, store, and manage data and produce useful outputs for users [2].

The village government is a governmental institution responsible for managing village-level administrative areas. Its implementation is regulated through Government Regulation No. 72 of 2005 and supported by various legal frameworks, including Law No. 32 of 2004 and Law No. 19 of 1965 concerning village administration [3], [4]. This illustrates the significant attention given to villages as administrative units, requiring updates to governance systems to adapt to development dynamics [5].

A village is defined as a legal community unit with territorial boundaries, authorized to regulate and manage governmental affairs and local community interests based on customary rights and traditions recognized by the state [6]. Article 86 of the Village Law also emphasizes the importance of Village Information Systems as part of village development and rural area management, giving villages rights to access information through systems developed by regional governments.

The Integrated Village Information System (SIDESI) serves as a technology-based solution designed to support integrated data management. This system improves employee performance in delivering fast digital-based public services and allows information dissemination efficiently without requiring citizens to visit the village office physically. Effective implementation depends on human resource readiness and proper village administrative management [7]–[9].

SIDESI, developed by the Ogan Ilir Regency Government, is designed to support data input, administrative processes, and inter-village information integration. It helps manage village potential, budgeting, development reports, and community services more effectively. However, challenges still exist, including technological gaps, user skills, and infrastructure limitations. Therefore, evaluation is needed to assess SIDESI's effectiveness and its role in supporting sustainable village development [10], [11].

2. Research Methods

a. Research Approach

The type of research applied in this study is quantitative research, which is appropriate for examining variables systematically and producing empirical findings through statistical analysis. According to Sugiyono [12], quantitative research emphasizes hypothesis testing, objective measurement of variables, and analytical procedures that rely on numerical data. In this study, a quantitative survey method was employed using a structured questionnaire as the primary instrument. This approach was chosen to evaluate the strengths and weaknesses of the SIDESI (Integrated Village Information System) web application based on direct user experiences. By distributing questionnaires to village officials as active users of SIDESI, the research aims to obtain measurable data that reflect real interactions with the system in daily administrative tasks.

b. Data Collection

Data collection was conducted using the questionnaire method, an appropriate technique for gathering structured responses from system users. The questionnaire was designed to measure several dimensions of SIDESI usage, such as ease of use, effectiveness in improving administrative tasks, encountered technical challenges, and overall usefulness in village governance. As stated by Sugiyono [12], the questionnaire method allows researchers to gather standardized data efficiently from multiple respondents. To facilitate accessibility, the questionnaire was distributed using Google Forms, enabling village officials from Tanjung Baru Village to provide responses conveniently via digital devices. The collected data represent authentic assessments based on hands-on experience, ensuring that the evaluation reflects practical system performance rather than theoretical assumptions.

c. Population and Sample

The population in this study consists of village officials in Tanjung Baru Village who actively use the SIDESI web application in their administrative work. Because not all community members interact with SIDESI in the same capacity, a purposive sampling technique was applied. Purposive sampling selects respondents based on specific criteria—in this case, individuals who have direct and consistent experience using the system. This approach ensures that the data collected are relevant, accurate, and derived from knowledgeable users who understand the system's functionality. Respondents include administrative staff, village secretaries, and officers responsible for processing population data, financial reporting, and development planning using SIDESI.

d. Research Instruments

The primary research instrument is a structured questionnaire consisting of multiple sections designed to capture a comprehensive evaluation of the SIDESI application. The instrument includes several components:

Respondent Identity, to classify demographic and role-based characteristics.

Advantages of SIDESI, evaluating aspects such as system efficiency, accessibility, data accuracy, and transparency.

Weaknesses of SIDESI, addressing technical issues, usability problems, or infrastructure-related constraints.

Suggestions and Improvements, allowing respondents to propose enhancements to increase system reliability and functionality.

Each section of the questionnaire was constructed using clear and measurable indicators, ensuring valid and reliable responses. Likert-scale items were included to quantify user satisfaction, while open-ended questions provided space for qualitative insights that complement numerical findings. The combination of quantitative and descriptive feedback strengthens the robustness of the evaluation.

Extended Naration (Conceptual Strengthening)

The use of quantitative methods in evaluating digital public service applications such as SIDESI is essential because it enables researchers to measure user perceptions objectively. SIDESI, as part of the national digital transformation agenda, is expected to improve administrative efficiency, enhance transparency, and support village autonomy. When village officials interact with SIDESI, they engage with features such as population reporting, village financial management, government documentation, and development data management [7], [8]. Therefore, understanding how they perceive the system's usability and effectiveness becomes crucial for ensuring continuous system improvement.

The importance of conducting quantitative evaluation lies in the fact that digital systems often encounter challenges during real-world implementation. Prior studies have shown that the adoption of village information systems depends heavily on technological readiness, user competence, and supportive infrastructure [10], [11]. In some cases, village officials struggle due to limitations in digital literacy, slow internet connectivity, or insufficient training resources. This study captures such real conditions through structured measurement to provide evidence-based recommendations.

Moreover, the findings from this research are expected to contribute to broader efforts in strengthening e-government at the village level. As noted by Alfarizhi and Nuryanto [2], information systems play an instrumental role in supporting decision-making and organizational control. When SIDESI is used effectively, it does not only facilitate administrative tasks but also enhances public access to information, thereby promoting accountability. This aligns with the mandate of the Village Law, which emphasizes the importance of integrated information systems in village governance [6].

Additionally, the evaluation of SIDESI through quantitative methods provides insights that can influence policy formulation at the regional level. Local governments often rely on user feedback to allocate funding, improve digital infrastructure, and plan training programs. By identifying the specific areas where SIDESI excels or falls short—such as interface design, response speed, feature completeness, or data accuracy—the study supports continuous improvement of the application to better serve rural communities.

3. Results and Discussion

Based on the results of the evaluation of the village information system or SIDESI based on the results of supporting the decisions that have been made, it consists of several reports that SIDESI (Integrated Village Information System) SIDESI focuses on integrating data from various aspects of village governance. This system assists village officials in storing, processing, and analyzing data relevant to development and public service needs. With comprehensive features, SIDESI facilitates coordination between village and district governments.[13]

Figure 1. SIDESI *Login* View

A. Key Features of SIDESI

The app has several key features that complement each other, namely:

1. Community Data Input: Makes it easier for village officials to enter and update community data, such as population data, poverty data, and assistance program data.

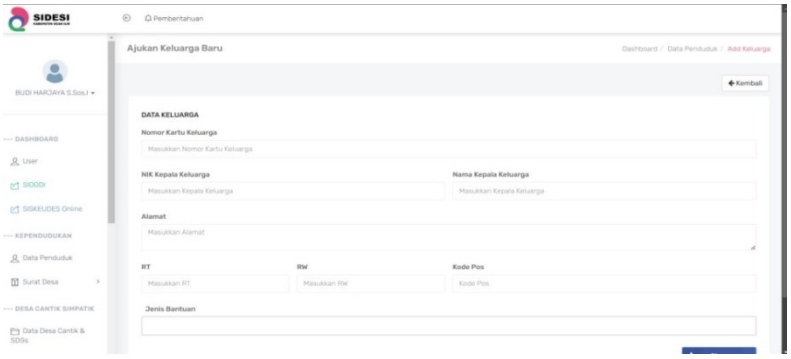

Figure 2 SIDESI main display

B. Respondent overview

Respondents are village officials and village administration staff who are responsible for population management and village administrative services. Respondents also have direct experience or involvement in the use of SIDESI.

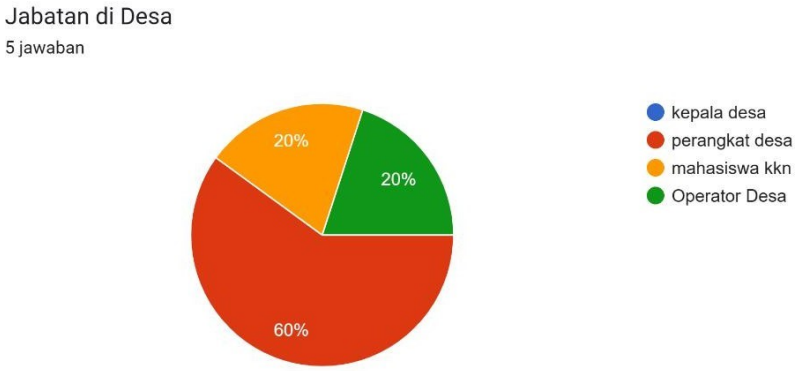

Figure 3. Respondent Job Chart

In addition, this study also noted differences in the level of experience in using the SIDESI application.

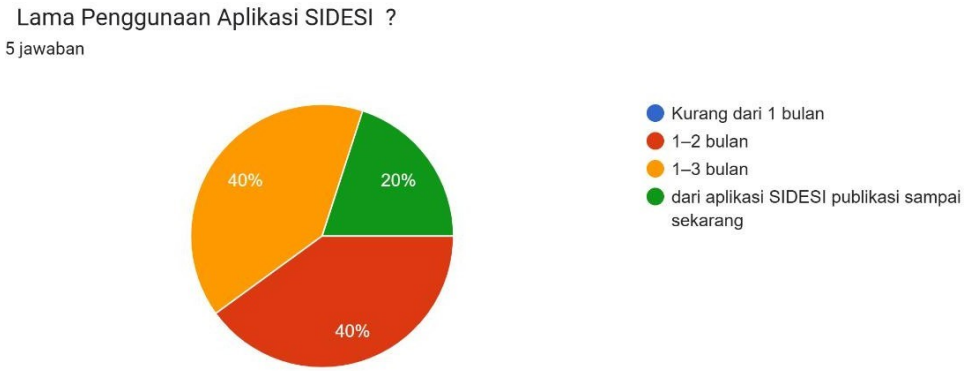

Figure 4. Diagram of application usage age

As well as including how often respondents use this application in a certain time.

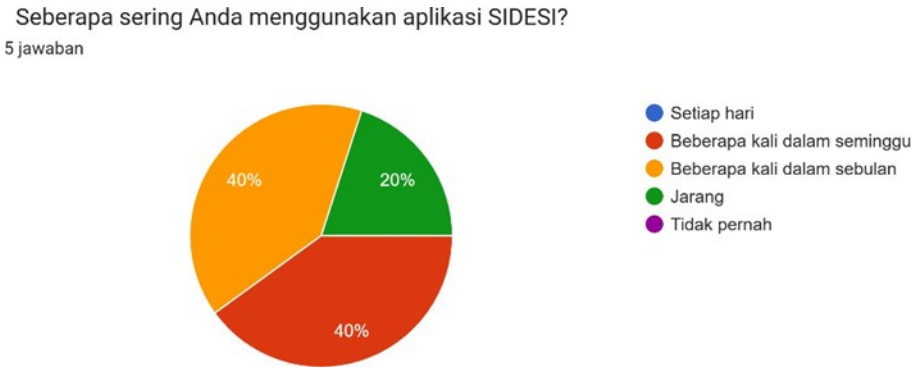

Figure 5. SIDESI usage diagram

C. Ease of Use of the App

Respondents stated that this application is quite easy to use, especially in the features of village population data management.

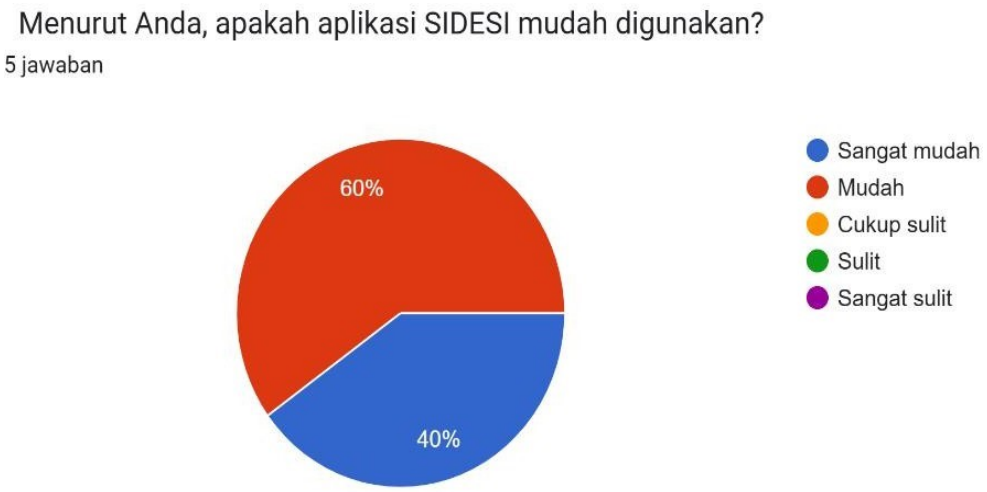

Figure 6 Ease of Application Diagram

This application is also helpful in carrying out village administration and also petrified in other handling because it can be accessed online.

Figure 7 Most used feature diagrams

D. Effectiveness of SIDESI Applications

This application is considered effective in improving the work efficiency of village apparatus. Respondents stated that this application helps speed up the village administration process such as recording population data, making certificates, and archiving documents, compared to manual systems, the time needed to complete administrative work is significantly reduced.[14].

Figure 8 Application effectiveness diagram

Figure 8 Advantages of the application according to respondents

E. Obstacles in the Use of Applications

The SIDESI application still has a number of technical obstacles, such as servers that are often *down, bugs* or *errors* when entering data, and limited internet infrastructure in rural areas that are difficult to reach, so the network is unstable.

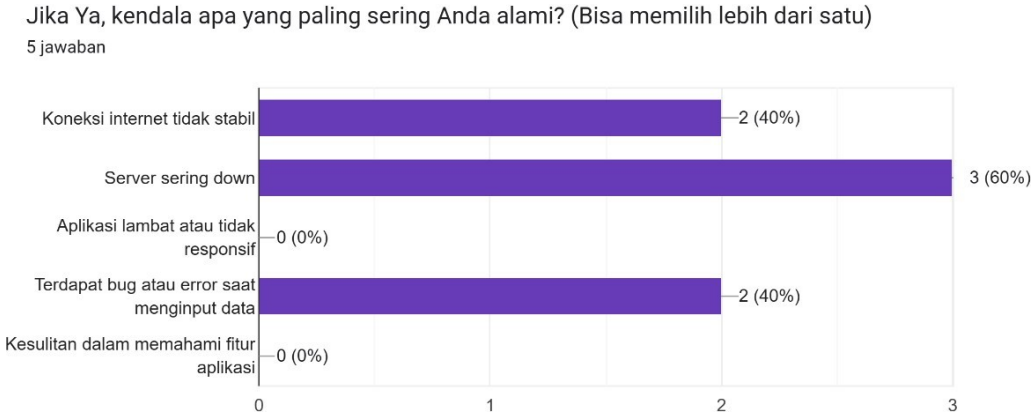

Figure 9 Diagram of the most common obstacles

In addition, the lack of training for village officials is also one of the factors that cause limitations in operating the SIDISI application, respondents also feel that additional training is needed to use the SIDISI application.

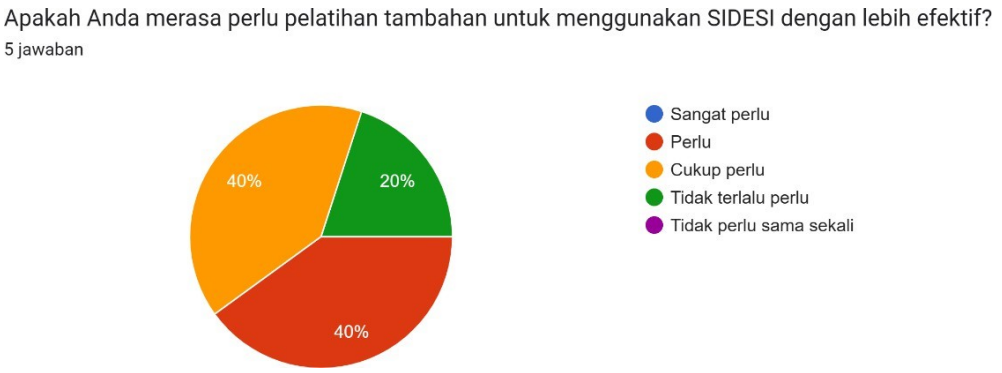

Figure 10 Diagram of the importance of training for respondents

F. Benefits of Applications for Village Administration

The SIDESI application brings many benefits to the village administration. Respondents consider this application to be very helpful in community services, therefore respondents expect that there will be developments in this application so that it can run more optimally[15].

Figure 11 Features expected by respondents

Figure 12 Respondents' Suggestions on the application

3. Conclusion

Based on the results of the research that has been conducted, it can be concluded that the SIDESI application has a very important role in supporting the management of population

administration in Tanjung Baru Village, Ogan Ilir Regency. The implementation of these two applications shows positive results in increasing efficiency, accuracy, and transparency in public data input. Some conclusions that can be drawn are:

Application Usage Effectiveness: The SIDESI application is effective in managing population data, with features that make it easier for village officials to input family and resident data in a systematic and structured manner. This speeds up the data management process at the village level, as well as reduces the risk of human error in data recording.

Increased Efficiency: The use of this web-based application has increased efficiency in managing population data in Tanjung Baru Village. The process that was previously manual can now be done faster and easier through the application, which supports the smooth administration of the village.

Obstacles Faced: Although the application provides many benefits, some obstacles are still faced in its implementation, such as infrastructure problems (limited internet and hardware connections), lack of technological skills among village officials, and some errors in data input.
Transparency and Accountability: The SIDESI app helps to increase transparency and accountability in the management of population data. Features such as login history and data recapitulation allow for better oversight of app usage and ensure that the data entered remains accurate and accountable.

5. Suggestions

Based on the existing findings, the authors propose the following suggestions: Infrastructure Improvement: It is recommended that the village government improve the technological infrastructure that supports the use of the SIDESI application, especially in terms of internet connection and hardware, to ensure that the application can be accessed smoothly without technical interference.

User Training: In order for the application to be used to the fullest, regular training to village officials on how to use the SIDESI application as best as possible is necessary. This will help reduce errors in data input and improve the understanding of village devices about the benefits and features of the application.

Implementation of Stricter Data Validation: It is necessary to implement a stricter data validation system in the application to reduce errors in data input. For example, by ensuring that the data entered conforms to the predefined format and reducing the potential for typos.

Socialization to the Community: The community also needs to be given socialization regarding the importance of providing complete and accurate data when filling out the population form. This will greatly help village officials in improving the quality of data in the system. App Maintenance and Updates: To keep the app working properly, it is recommended to perform regular maintenance and updates of the app. This update aims to fix existing bugs, add new features that can help with data management, and ensure that the app is always up to date with technological developments.

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