

# Digitalization of Population Data Collection to Realize Medan Krio Village as an Independent Village

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**Abstract:** An Independent Village is a village that has sufficient availability and access to basic services, adequate architecture, accessibility/transportation, good public services and good governance. Medan Krio Village as a public service institution is responsible for ensuring that government programs reach the community. Easy access for the community to civil registration services is one indicator of the government's success in managing civil registration services for its citizens. Law No. 25 of 2009 concerning public services explains that public services are activities or a series of activities aimed at fulfilling services regulated by law for all citizens and residents in the form of goods, services and administrative services provided by the government or certain organizations. As a form of effort in realizing Medan Krio as one of the Independent Villages, it is necessary to digitize population data collection to facilitate village officials in recording all of its people. This research aims to digitize android-based population data collection to make it easier for village officials to access and reach their citizens so that they can provide maximum service to the community.

**Keywords:** Digitalization; Population data collection; Independent village; Public service; Android Application

## INTRODUCTION

Medan Krio Village is known for its rich cultural diversity, consisting of various ethnic groups that coexist harmoniously. Located on Jl. Bengawan Dusun III, in the Sunggal District of Deli Serdang Regency, Medan Krio Village is home to 13 hamlets. Each hamlet varies significantly in population size, making it challenging for local government authorities to manage population data effectively. The current system for collecting and managing population data is still limited, which creates difficulties in reaching all community members efficiently. This limitation impacts the village government's ability to provide adequate public services, particularly in ensuring that every resident receives the necessary government assistance and administrative services.

According to Law Number 6 of 2014, an Independent Village is defined as a village that has sufficient availability and access to basic services, well-developed infrastructure, smooth accessibility and transportation, quality public services, and good governance. The concept of an Independent Village emphasizes the importance of self-sufficiency in various sectors, including administration, social welfare, and economic development. In line with this law, Medan Krio Village, as a public service institution, holds the responsibility of ensuring that government programs and services are effectively delivered to its residents. One crucial indicator of a well-managed village is efficient civil registration services, which enable citizens to access essential documents such as birth certificates, marriage certificates, and identity cards without unnecessary delays.

Public services play a significant role in governance, as stated in Law Number 25 of 2009 on Public Services. This law defines public services as activities aimed at fulfilling government-mandated services for all citizens. These services include the provision of goods, administrative assistance, and other essential public functions carried out by government institutions or designated organizations. Good public services are not only essential for citizen satisfaction but also play a significant role in strengthening public trust in government institutions. When citizens have confidence in government services, they are more likely to engage actively in community development initiatives, thereby contributing to the village's progress. Efficient public services also support the

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achievement of Sustainable Development Goals (SDGs) by ensuring inclusivity and equal access to essential resources for all residents.

In the modern era, digitalization has become an effective solution for improving administrative efficiency. In an effort to transform Medan Krio into an Independent Village, one of the key priorities is to enhance population data collection through digital means. The traditional, manual system of recording and managing population data is prone to errors, delays, and inefficiencies. To overcome these challenges, this research proposes the development of an Android-based digital population data collection system. This system will enable village officials to access and update population records in real time, ensuring accuracy and efficiency in service delivery.

The main objective of this research is to digitize the population data collection process, allowing village administrators to manage demographic information more effectively. By leveraging digital technology, the Medan Krio Village government can optimize public services, enhance data accuracy, and improve administrative efficiency. Ultimately, the implementation of a digital population data system will contribute to the realization of Medan Krio as a truly Independent Village, where residents can easily access government services and enjoy a higher quality of life.

## LITERATURE REVIEW

### Digitalization

According to (Hamim, 2022), digitization is a process where the media changes from print to electronic form. This statement is in line with the view of (Wijoyo et al., 2020), which states that digitization is the conversion of all forms of documents, including audio, video and others, into digital formats to reduce risk. This process involves making digital copies of documents that require hardware such as computers, scanners and additional software: computers, scanners and additional software.

There are three ways to look at the impact of digitization on governance in the digital era governance model, including:

1. Reintegration is a key element in optimizing the potential of digital-age technological change by simplifying the institutional structure of government, making it more transparent and purposeful for officials and citizens involved. Countries such as the UK and Australia see the potential for greater benefits by transforming some of the fragmented changes into a strong new public management system. These reintegration approaches do not mirror the pre-existing cycles of centralization and decentralization. Instead they apply a variety of methods, including privatization of government services, organizational, electronic, or virtual mergers with government, reduction of duplication to cut back office costs and recentralization of some services.
2. Needs-based holism goes beyond internal reforms that focus on integration, this approach seeks methods to simplify and transform the broader relationship between government agencies and customers. This transformation is based on utilizing advanced interactive information for individuals or companies. An additional goal is to build larger and more comprehensive administrative blocks that focus on client needs.
3. Digitization change is the pursuit of significant improvements in the productivity of current information technologies, primarily through the implementation of fully digital operations. One potential change is in the form of radical disintermediation similar to the transformation taking place in the commercial sector. This involves cutting out intermediaries including the reduction of government bureaucracy, thus allowing citizens to interact more directly with the policy system.

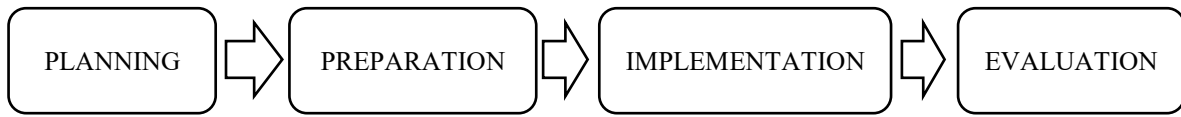
### Public Service

Public services are at the core of the relationship between government and society, and their quality has a major influence on citizen satisfaction. Good public services not only include administrative efficiency, but also pay attention to the needs and expectations of the community. Implementing the concept of good service involves providing services that are easily accessible, fast, and responsive to input and complaints from the public. Law Number 25 of 2009 concerning public services explains that public services are activities or a series of activities aimed at fulfilling services regulated by law for all citizens and residents in the form of goods, services and administrative services provided by the government or certain organizations. Good services not only create citizen satisfaction, but also strengthen trust in government and support the achievement of sustainable development goals.

## METHOD

The method used in this research is the diffusion of science and technology (IPTEK) through the development of SIMDES (Village Management Information System) using the Prototype method. Based on Law No. 11 of 2019, science and technology diffusion is an activity of disseminating information and/or promotion about a science and technology proactively and extensively by the inventor and/or not other parties with the aim of being

utilized to increase its usefulness (Government of the Republic of Indonesia, 2019). The stages of this research can be seen in Figure 1.



**Figure. 1** Research Stages

as for the stages in this research are as follows:

1. Planning stage

At this stage, data collection is carried out using the observation method and interviews with Medan krio Village officials to find out the functional needs and non-functional needs of the system to be built.

2. Preparation stage

At this stage the researcher analyzes the problems and analyzes the solutions offered. Problem analysis is carried out through observation of the current system through observation and interviews.

**Table 1.** Problem Analysis

| Aspect of the problem      | Problem  | Proposed Solution   |
|----------------------------|--|---|
| Quality of data management | Data that is still in the form of paper records  | Creating convenience, accuracy and speed in managing population data.                                 |
| Quality of reporting       | Difficulty in reporting data to the village head | Produce and present reports needed accurately and quickly   |
| Speed of data search       | Difficulty in finding the necessary data         | Build a digitization system that makes it easier for village officials to search for population data. |

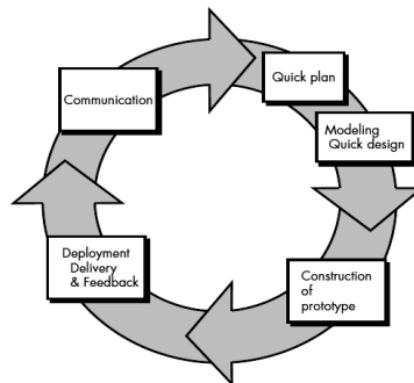
The application of digitization of population data is expected to be a solution to the problems that occur so that it can assist village officials in improving the accuracy of population data and the presentation of population reports. One system that can be utilized is SIMDES (Village Management Information System). Some of the solutions offered to overcome the above problems are presented in table 2.

**Table 2,** Solutions and Target Output

| Problem   | Solution   | Target  |
|---|--|---|
| Low utilization of technology resources to manage population data | Create/build village management information system | facilitate data entry, access, processing and presentation of population data needed. |
| Low capability of human resources in using SIMDES technology      | Training on the use of SIMDES                      | Improving the ability and skills of village officials in using SIMDES                 |

3. Implementation stage

Development of the Village Management Information System (SIMDES). The development of SIMDES is carried out by applying the prototype method described in Figure 2. where the activity process begins by collecting data using observation and interview methods then conceptualizing the needs of the system based on the results of observations and interviews, then the stage of modeling the design of the village management information system and building prototypes and coding of the system to be created and then the evaluation stage of the prototype that has been built.



**Figure. 2** Prototype Models SIMDES

4. Evaluation stage

The evaluation stage is carried out to determine the success of the research that has been carried out. This stage is carried out through the distribution of questionnaires that have been distributed.





**RESULT**


This research activity was carried out in accordance with the activity stages in figure 1. The implementation stage is divided into two activities, namely the design and construction of SIMDES and socialization and training/mentoring on the use of SIMDES to village officials. The last stage is the evaluation of activities through measuring the success of activities.

**Design and Development of SIMDES application**

The Village Management Information System (SIMDES) built will be managed by the admin appointed by the Medan Krio Village head. Then the results of information management in the form of population data can be monitored by the Village Head and Medan Krio Village Apparatus.

**Table 3.** System Design SIMDES

| Description                 | Desain  | Blackbox Testing  |
|-----------------------------|---|---|
| Login page                  |    | the system is able to display the Login page                  |
| Dashboard page              |    | the system is able to display the Dashboard page              |
| Population data search page |   | the system is able to display the Population data search page |
| Population data search page |  | the system is able to display the Population data search page |

| Description                       | Desain   | Blackbox Testing   |
|-----------------------------------|--|--|
| Population data input page        |   | the system is able to display the Population data input page             |
| Recapitulation of population data |  | the system is able to display the Recapitulation of population data page |

#### Socialization of the use of the SIMDES application

At this stage, socialization was conducted to Medan Krio users/village officials on the system that had been built. The purpose of this socialization is to improve the ability and understanding of village officials in terms of using the application that has been built. As an indicator of the success of the system built, researchers also distributed questionnaires to find out the extent of the benefits generated from the system built.

**Table 4.** SIMDES Assessment Quisitioner

| Question  | Yes | No |
|---|-----|----|
| Is the system user friendly?  | ✓   |    |
| Is the system able to input Population data?                          | ✓   |    |
| Is the system can help village officials in managing population data? | ✓   |    |
| Is the system able to display the population data report?             | ✓   |    |
| Is the system able to display the information needed?                 | ✓   |    |

#### DISCUSSIONS

The Village Management Information System (SIMDES) that was built has been able to help overcome the problems that often occur in Medan Krio Village which still uses paper records in population data collection. With the construction of SIMDES, it is able to facilitate village officials in inputting citizen data and presenting population data reports precisely and accurately. The successful utilization of SIMDES is inseparable from improving the skills and abilities of village officials in using and utilizing SIMDES. This is an indicator of the success of this research.

#### CONCLUSION

Based on the results of research conducted by the author on the digitization of population data collection in realizing medan krio village as an independent village, it can be concluded:

1. SIMDES that was built can be implemented in Medan Krio Village and facilitate the performance of village officials in carrying out government activities in recording the population.
2. Digitalization of population data in Medan Krio is very helpful in improving the abilities and skills of Human Resources of Medan Krio Village Apparatus.

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