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Development of Web-Based Village Government Information System to Improve Accountability of Village Fund Management in Indonesia

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Abstract:
The web-based village governance information system can improve accountability in managing village funds and encourage people to actively participate in village development. This study aims to find out: a conceptual design of web-based village government information system. The research location is the village administration in Sidoarjo district. Data collection methods are carried out using interviews, focused groups and discussions. Data analysis was carried out using qualitative analysis.
This study found: 1) public perception of the Web-based village government information system. There are several benefits in the use of information systems for village fund management, namely facilitating the use and supervision of village funds and helping and improving the method of allocating village funds so that the target of village funds is increasingly clear, 2) perceptions of ease of application system. With the implementation of a web-based village government information system, the existing reality conditions still have not been facilitated, 3) The availability of potential and competent human resources is not sufficient enough but will continue to be sufficient. The availability of system and infrastructure support will be sought by the village government, 4) conceptual design of web-based village government information systems.

Keywords: *Information systems, village governance, accountability, village fund management*

1. Introduction

Regional autonomy as the delegation of the authority of the central government to the regional government in managing its own territory with various characteristics and potentials that exist in every region of Indonesia (Manan, 1993). One of the autonomous regions of the regional government is the village regulated in Law Number 6 of 2014 concerning Villages. It was explained that the village village had its own authority in regulating its territory to support the implementation of village governance both in making policies on services to the community and increasing participation, initiatives and empowerment of rural communities to realize the welfare of rural communities. Thus the management of village funds needs to be done correctly and correctly based on the income received by the village. Limited resources and funding sources are certainly one of the obstacles to village governance in realizing the implementation of village autonomy. Therefore the idea of the government emerged to assist the village government by providing village fund assistance through the Village Fund (DD) (Thomas, 2013, p.1).

In the current era, the development of information technology provides many conveniences for village government to provide information more quickly, complete and quality, especially web-based information systems in an effort to improve information services for village governments, for example: a) transparency of village fund use accountability systems b) increase community participation in village development. c) strengthening the quality of village public services, with the existence of the Village Information System, data and correspondence documents for village public services will be more accurate and quickly obtained, so that the quality of village public services increases.

1.1. Problem Formulation

- How is the mapping of employee perceptions about the plan of a Web-based village government information system like a village government in Sidoarjo, East Java?

- How is the mapping of the driving and inhibiting factors for the development of a web-based village government information system for the village government in Sidoarjo, East Java?
- How is the web-based village government information system adoption strategy for the village government in Sidoarjo Regency, East Java?
- How is the mapping of information needs in a web-based village government information system for the village government in Sidoarjo, East Java?
- How is the web-based village information conceptual information system for village government in Sidoarjo Regency, East Java?

1.2. Research Objectives

- Mapping of web-based government organization information systems in villages in Sidoarjo Regency, East Java.
- Mapping of the driving and inhibiting factors for the development of a web-based village governance information system in Sidoarjo, East Java.
- Strategy for adopting a web-based village government information system for village government in Sidoarjo Regency, East Java.
- Mapping information needs in a web-based village government information system in Sidoarjo Regency, East Java.
- Eliminating the conceptual web-based village government information system for village government in Sidoarjo Regency, East Java.

2. Literature Review

2.1. Good Governance

Good Governance According to the World Bank (Haryanto, 2007: 9) are solid and responsible operational arrangements with the principles of democracy and an efficient market. Where the Principles of Good Governance are the involvement of the community, upholding the rule of law, the growth of freedom that builds on the basis of free information and information that needs to be accessed by parties who are interested and adequate, caring for stakeholders, Reversed to consensus, equality, effectiveness and efficiency, accountability, and the existence of a strategic vision.

According to Ganie (2000: 142) the notion of good governance is: existing resource and environmental management. While Sedarmayanti (2009: 277-298) explained that the administration of ways that are jointly responsible and interrelated between individuals, civil society, community institutions, and the private sector with two things needed in this relationship to know what is being done by other dialogue actors and allows the actors to understand each other the differences between them. Thus, it can be concluded that Good Governance is a governance that refers to the principles that exist to realize good governance. In addition to the principles as follows:

- Political accountability, consisting of: First, the accountability of a political lawsuit, that is, attempts, or none, there is no systematic mono-loyalty effort. Second, public accountability, namely the existence and clear responsibility.
- Transparency is seen in 3 aspects: (1) existence of open policy to supervision, (2) existence of access of information, society can give benefit, and (3) enactment principle of check and balance between executive and legislative institution.
- Participation in decision making or project formulation made by the government, also based on available information, including supervision and evaluation.
- Legal supremacy of the bureaucratic apparatus which means that there is clarity and predictability of the bureaucracy towards the private sector; and from the aspect of civil society that exists for the law that is needed to guarantee the rights of citizens in enforcing government accountability.

2.2. Public Accountability

The principle of accountability stipulates that every activity and end result of state administration must be accountable by the people as the holder of the highest sovereignty in the country. According to Carino (1991) the way quoted by Sedarmayanti (2009: 105), accountability is an activity carried out by someone who is still on the path of responsibility or away from responsibility and responsibility. Whereas Turner and Hulme (1997) convey that accountability is a unit of public responsibility to be clearer in horizontal (community) accountability not only vertical responsibility (higher authority).

Types of accountability is a form of accountability report conducted by the recipient mandate with various forms and processes that occur. According to Mardiasmo (2002: 21) Accountability consists of two kinds, namely: a) vertical accountability is that every official or public officer both individuals and groups are hierarchically obliged to account to their immediate supervisors concerning the development of performance or the results of the implementation of activities periodically or at any time, time when required and b) horizontal accountability is attached to each State institution as an organization to account for all mandates that have been received and implemented or progressed to be communicated to external parties and their environment.

2.3. Media Accountability

Media accountability which is an evaluation tool by those who give authority to assess the performance of government officials must be made in writing in the form of periodic reports. The form of the report is pursued in

accordance with the standards previously set. The uniformity of the forms and contents of the report must lead to the use of reports for the purposes of comparability between the performance of a government agency and other government agencies. Basically the accountability report is a reflection of the achievement of the target of a certain period which is part of achieving the goals of the organizational unit (Sedarmayanti, 2009: 107).

2.4. Prototype Method in Information

System Development However, the information system is a very complex system structure. Information systems are built based on a specific purpose to support the activities of an organization. Because of its specificity, each system development process requires a framework that is used as a guide in preparing and monitoring the progress of the system development process at each stage of system development (Issaia P. and Isaaias, 2015).

There are several methods that can be used in the development of information systems. For example, Waterfall model, Iterative Waterfall model, Prototype Model and Spiral Model. Each system developer will use a model that is considered appropriate and appropriate for the project to be developed. Nevertheless, according to Maheswari and Jain (2012) basically every method in system development has activity or basic stage that is: a) determination of system requirement, b) system design, c) development of code / program and e) system test.

A large system, can be broken down into several small sub-systems. Without ignoring the integration of a large system as a whole, the development of application sub systems to support certain functions can be done relatively faster without having to wait for the entire system to be completed. One relevant system development model for this purpose is the Prototype model as illustrated in the following figure.

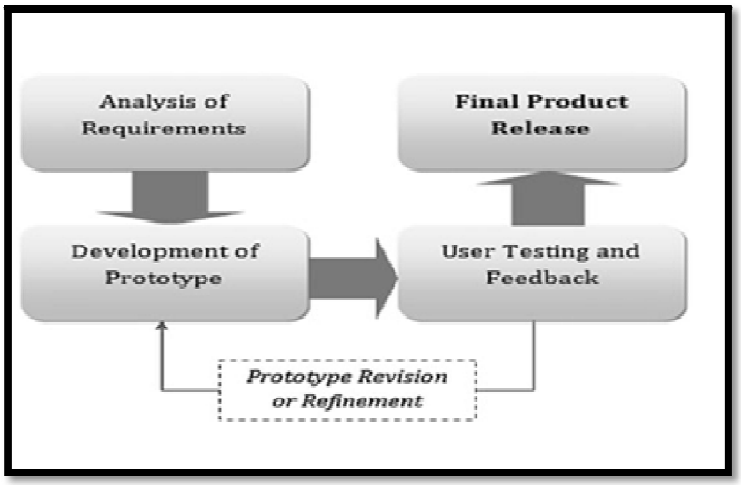

Figure 1: Prototype Model of Information System Development (Issaia and Issaaias, 2015)

The system development cycle using the Propyo type method according to Carr and Verner (1997) basically includes four stages of activity, namely:

- Identification and analysis of user needs.
- Develop a prototype
- User Tests and Feedback
- Release the Final System

When the prototype is implemented, the user can test and provide feedback directly. If deemed necessary to make improvements and changes to the prototype, then the prototype will be revised and improved so that will emerge a new prototype and will be tested again. The stages in the system development cycle will continue to run so that system applications are generally acceptable to users and are considered to be no substantial changes in which the system application is considered final and ready to be released.

The Prototype method is based on the idea of creating a system as a whole or part of the system as a pilot project. This method can be considered as a process that is part of a large system development cycle (System Development Life Cycle) or a central approach in the system development cycle. This method aims to develop several versions of prototypes and refine them until the final application program is produced (Carr and Verner, 1997). The Prototype method according to Sabale and Dani (2012) tends to emphasize the creation of application programs with rather low attention to documentation. This method is considered a user-centric approach, because user feedback is considered fundamental in developing prototypes and end products from application programs.

3. Research Methods

3.1. Research Variables

This research variable as follows:

- Employee perceptions of the Web-based village government information system. which has two indicators:

- Driving and Inhibiting Factors Adoption of Web Based Village Government Information System, both external factors and internal factors within the organization that can be a driver or impediment for the implementation of a web-based village government information system with four indicators: human resources availability, system support readiness, availability of infrastructure and external pressure.
- Information Needs consisting of two indicators: Information for internal users and information for external users.
- Information System Processing Procedure. This variable is related to the sequence of activities required to produce information on the village government system which has three indicators, namely input, process and output.

3.2. Location and Sampling Research Techniques

The location of this research is 2 sub districts, Sedati and Waru sub districts where 1 sub district is taken as sample.

The unit of analysis (sample) in the study were village heads and village apparatuses at village government in selected areas. The sample selection is directed at the informant (data source) which is considered to have important data related to the problem under study. The reason for selecting the sample is subjective because it is considered more capable of capturing the completeness and depth of data in understanding a non-singular reality. The selected research informant is expected to give maximum opportunity to the researcher's ability to arrange the theory formed in the field by taking into account local conditions such as the specificity of the situation and condition (idiographic). The retrieval of informants of this study is not intended to generalize in the population but to obtain the depth of study within a given context. The selected research informant does not represent the population but represents the information, so that when generalization is to be done the direction tends to be a generalization of the theory.

3.3. Research Data Collection Methods

Methods of data collection to be conducted in this study are as follows: To obtain the necessary data, this study used the method of in-depth interview and Focus Group Discussion (FGD).

In-depth interviews (In-depth Interview) conducted to get a complete and complete picture of the perceptions of employees in the entire village administration against the use of web-based village government information system.

Focus Group Discussion (Focus Group Discussion) is used with consideration because the intensity of the problem and prospective will only be found accurately if the informant is cognitively and emotionally involved in a forum or a targeted opportunity. This technique is used to obtain data about views, perceptions and attitudes about factors that encourage and inhibit the application of Web-based village governance information systems.

3.4. Data Analysis Methods

The data obtained will be processed so that it can be presented in a form that is easier to read and interpret. Data processing for this research use qualitative descriptive analysis technique.

This method can be used as a guideline for researchers to develop a web-based village government information system on village government in Sidoarjo, East Java. This system development method consists of 3 main stages, namely:

- Preparation phase
- Adoption Stage
- Post Adoption Stage

4. Research Results

4.1. Description of Sidoarjo Regency Government

Sidoarjo Regency as part of the Surabaya metropolitan area with a central urban settlement structure in Sidoarjo Regency, namely Sidoarjo, Taman, Porong, Jabon, Tanggulangin, and Ngoro with its center in Sidoarjo-Taman. In the macro context, Sidoarjo Regency, Surabaya City, and Mojokerto Regency are connected by Krian bypass, where the surrounding area has the potential for limited industrial development. Sidoarjo regency serves as a buffer area that is functioned for the agricultural industry.

4.1.1. Geographical Conditions

Regional Geographical Conditions Sidoarjo Regency is the only regency in East Java that is located between two major rivers namely the Porong river (47 Km) and the Surabaya river (32.5 Km), so it is famous as the Delta city. Geographically, the location of Sidoarjo Regency is between 112o5'-112o9 'East Longitude and 7o3'-7o5' South Latitude, with regional boundaries: 1). North: Surabaya City and Gresik Regency, 2). East: Madura Strait, 3). South: Pasuruan Regency, 4) West side: Mojokerto Regency.

Administratively, Sidoarjo Regency is divided into 18 sub-districts, 322 villages and 31 sub-districts. Meanwhile villages in Sidoarjo Regency are divided into rural villages (rural areas) and urban villages (urban areas). Like other areas around the equator, Sidoarjo Regency has a tropical climate and knows 2 seasons, the dry season and the rainy season. Air temperature ranges between 20 s.d 35 degrees celsius. The total area of Sidoarjo Regency is 71,424 Hectares.

4.1.2. Demographic Conditions

The population based on the December 2017 population development report has increased compared to the previous year which was 2,127,043 people, while in 2016 there were 2,090,619 people. The sub-district which has the most population is Waru Subdistrict, 230,913 people, while having the highest population density compared to other sub-districts. While Jabon District has the least population of 59,040 people and at the same time becomes the lowest density sub-district.

Demographically, Sidoarjo Regency has a population of 2,127,348 by the end of 2010 with a relatively balanced composition between men and women consisting of 1,036,467 or (49%) men and 1,090,881 or (51%) woman. From the 2010 Population Census Results, it still appears that the population distribution of Sidoarjo Regency is still based on Waru Subdistrict 231 298 (12%), then Taman Subdistrict at 212 857 (11%) percent, Sedati District 92 468 (5%) and other Subdistricts in Below 5 percent.

4.2. Research Results and Discussion

4.2.1. Public Perception of a Web-Based Village Government Information System

This variable illustrates the community's assessment of village governance on the application of a web-based village government information system. This variable has two indicators, namely the perception of the benefits and perceptions about the ease of application of the system.

4.2.1.1. Perception of Benefit

There are several benefits in using information systems for the management of village funds, namely:

- Facilitate the use and supervision of village funds both in the villages of Segoro Tambak and Tambak Oso Village. The information system can help and improve the method of allocating village funds so that the target of the use of village funds is clearer. Local governments recognize that it is time for the village government to have an accurate information system so that the village government will be able to determine the level of village development and the richness of the managed villages.
- Very helpful and facilitates the reporting of village fund accountability. The use of village funds in village development should be accounted for by reporting the use of village funds and other funds to village communities. Pioneering data and information on the management of funds already exist that is Village Information System (SID) but cannot be utilized optimally because the features that are not yet complete can only be used to upload it offline from the district government to the village government so that people cannot access it yet.
- Improve accessibility of information to the community. Even though the existing information system in both Segoro Tambak and Oso Ponds is still one-way because the community cannot access it. There are two things that make the village community unable to get information about village development i.e. the village community actually has a concern for village development, but the village government's tools do not provide clear information about the implementation of village development.

Perceptions about the ease of application of the system With the implementation of a web-based village government information system, the existing reality conditions in both the villages of Segoro Tambak and Tambak Oso still have not been facilitated by the financial management of village funds.

4.2.2. Driving Factors and Inhibitors of Adoption of Web Based Village Government Information System

The availability of potential and competent human resources is still insufficient but will continue to be sustained. The availability of system and infrastructure support will be pursued by the village government. As for external factors and internal factors in the organization that can be a driver or inhibitor of the implementation of the web-based village government information system, namely:

- Regional government unpreparedness in preparing information systems in villages (external challenges). The information system in the village must be prepared and facilitated by the local government. Local governments should have clear programs and budgets on the preparation of information systems in villages and collaborate with universities.
- Lack of data completeness village administration in establishing village information system (internal challenge), because the village government does not perform updates on the data contained in the village. As a result village administration data do not reflect the actual conditions in the village. Information systems based on technology must be balanced with the updating of administrative data in the village.
- Weak village human resources in managing and developing village information systems (internal challenges). Information systems today are more based on information technology. Sometimes the village government's tools are still not understood in the field of information technology. Sufficient training is needed for village apparatus so that they can apply the information system in the village. The scope of the training may include the operation and supervision of village information systems.
- Lack of rural community attention to village development information (internal challenges). Village government apparatus should provide clear information to villagers about village financial management.

4.2.3. The Adoption of Village-Based Village Government Information System

This variable has three indicators, namely input, process and output. Process in the implementation of village information system can be divided into three, that is:

- Process input or enter data input process is part of a system that is responsible for receiving input data that is used as a component of the driving / capture data / patient care where the system is operated or to be entered in the form of -document basis. The input components are like cash receipts from taxes paid and expenditures by local governments. The data will be processed in the village information system which will be generated reports.
- Data processing is the next process of input process. Components in the system that perform input processing to get the required results. Process components, such as the Regional Financial Management Information System application that will process the data that has been entered and produce output.
- Process output or process data into information. The output process is the last process of the village information system process. Components of operating results in a system, decision-making system. The output component is like a General Cashbook which explains all data that is inputted into one and classified as each data.

4.2.4. Information Needs

Villages naturally have traditional characteristics to communicate and provide information with their citizens through bulletin boards, exbanner and oral communication mechanisms. Segoro villages and Tambak Oso in providing information to rural communities through bulletin boards and exbanner contains the information required by the villagers. Weaknesses of traditional information systems, namely the exchange of information and renewal of information become slow. In addition, the data exchanged in traditional information systems are still conventional. The data are exchanged in the traditional information system is still the data in the form of hardcopy.

Technology-based information systems needed to improve the system of village data (store data, process the data, and process data) so that decision-making in the village can be faster (John et. Al., 2012). Technology-based information systems will further accelerate information exchange and data exchange. This is because technology-based information systems can be helped by the existence of an internet network. Renewal of the data of the village administration will allow the village government in the process of management of village funds through the following forms: (a) increase the participation of rural communities in the development, (b) the village government more easily analyze the problems and potential of the village, (c) the village government can make a priority village development, (d) the village government can more easily set up village budgets and expenditures, and (e) village governments can see progress in village development. A good database in the village is expected to improve the method of village budgeting and spending. Furthermore, it is hoped that the updating of village administrative data will be able to improve the allocation of village funds and resource allocation to develop information systems in the village. Village information systems are an integral part of the implementation of Law No. 6 Year 2014 on the Village. The third section of village legislation on village development information systems and rural development clearly explains that villages have the right to gain access to information through information systems developed by the local government where the village is located.

5. Conclusion and Suggestion

5.1. Conclusion

- Perceptions of benefits, There are several benefits in using Web-based information systems for village fund management, namely facilitating the use and supervision of village funds both in the villages of Segoro Tambak and Desa Tambak Oso and helping and improving the method of allocating village funds so that the target of village funds is increasingly clear.
- Perceptions about the ease of application of the system. With the implementation of web-based village government information system, the existing reality condition in Segoro Tambak village and Tambak Oso still have not got the convenience.
- The availability of potential and competent human resources is still not sufficient but will be sought to continue to be adequate. The availability of system and infrastructure support will be pursued by the village government.
- The adoption of village-based village government information system through three indicators, namely input, process and output.

5.2. Suggestion

Based on the results of an analysis of the Development of Web-Based Village Government Information Systems to Increase Community Participation and Accountability of Village Fund Management in Sidoarjo Regency, East Java, it is hoped that to achieve success:

- Local Government considers organizational readiness in terms of organizational culture, human resources and budget.
- It is necessary to make operational standards for village financial management procedures so that they are in accordance with the applicable mechanism
- Training is needed for financial operators because they are still having difficulties in operating the village financial management.
- It is necessary to add competent employees so that work can be carried out optimally

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