

Development of a Village Information System for Acceleration of Village Services in Desa Tegal Kecamatan Kemang Bogor

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Abstract

The Village Information System (SID) is an information system that changes raw data into ready-to-use information. In addition, SID will provide convenience to village officials in providing services to the community. The development of this SID is expected to be able to provide acceleration and improve the performance of village officials in terms of service quality to the community, productivity, responsiveness, responsibility and productivity. The development of a village information system in service activities in Tegal village is a transformation from manual to computerized, so systematic efforts are needed in the preparation involving subjects, objects and methods related to the transformation process. The development of the village information system uses the software development life cycle (SDLC). Efforts to control the quality of the Tegal Village Information System use four characteristics of ISO 9126, to know that the parts in the application system have correctly displayed error messages if an error occurs in inputting data. The result of this service activity is that every Village Apparatus can understand the material that has been submitted and can practice the results of the village administration work in a computerized manner based on the Village Information System.

Keywords – Village; Village Information System; Village Services; ISO9126, SDLC, Black Box.

I. INTRODUCTION

The village is a legal community unit that has territorial boundaries that are authorized to regulate and manage government affairs, the interests of the local community based on community initiatives, origin rights, and/or traditional rights that are recognized and respected in the government system of the Unitary State of the Republic of Indonesia [1]. Village Administration is the administration of government affairs and the interests of the local community in the government system of the Unitary State of the Republic of Indonesia. The main function of the village government is to serve the village community[2]. The village as the smallest administrative government in Indonesia which is tasked with carrying out services to the community is part of the implementation of e-government in Indonesia, it is required to be able to follow the development of information and communication technology in managing the village population administration data [3].

Tegal Village is a village located in Kemang District, Bogor Regency. The condition of Tegal village, Kemang sub-district, is currently in more dynamic village development. The Tegal village community has dynamic demands and always wants fast service to become a new problem faced by the Tegal village apparatus. Currently, the Tegal village apparatus still uses conventional services in direct contact with the community, especially in public services. Another problem faced by the Tegal village apparatus is communication skills using technology[4].

Communication is an intermediary for presenting information to the public [5]. Good communication is needed by the Tegal village apparatus so that any information can be conveyed to the Tegal village community. The need for communication media is one of the tools to make it easier for information to be conveyed properly to the public [6]. The communication media that will be built in Tegal village are the website media and the Village Information System (SID). Media websites and SID are media that can provide convenience for village officials in providing information on village performance to the community[7].

There are still many village population administration service systems that are conventional, resulting in village officials and villagers, wherein the power management process errors often occur caused by humans, wasting time and costs[8]. The Village Information System (SID) is an information system that changes raw data into ready-to-use information. In addition, SID will provide convenience to village officials in providing services to the community[9]. The development of this SID is expected to be able to provide acceleration for village government offices, especially Tegal village, Bogor district. so as to improve the performance of village officials in terms of service quality to the community, productivity, responsiveness, responsibility and productivity.

SID Tegal Village is built based on user needs. These needs are obtained by means of needs analysis. Analysis of application requirements used with systematic survey in accordance with the SDLC (System Development Cycle) method to all staff and community components in Tegal

Village. SDLC is a good method for a dynamic village information system[10], [11].

The development of the Tegal village SID was carried out in two stages of testing, namely testing using ISO 9126 and blackbox testing. Each test has a different function. Testing with ISO 9126 was conducted to determine Functionality, Reliability, Usability, and Efficiency. While testing black box serves to find out the results of input and output from the Tegal Village SID[12].

II. RESEARCH METHOD

The development of a village information system in service activities in Tegal village is a transformation from manual to computerized, so in the preparation, systematic efforts are needed regarding the subjects, objects and methods associated with the transformation process. The development of the village information system uses the software development life cycle (SDLC) method [13] with the stages of Analysis, Design, Coding, Testing and Implementation.

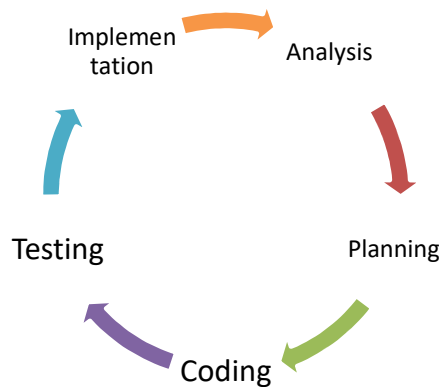


Figure 1 SDLC

Analysis

The analysis phase of the development of the Village Information System with the survey method resulted in two criteria, namely the benefit criteria and the problem criteria. The criteria for benefits are in accordance with the objectives in realizing the ideals of getting used to processing and reading documents in digital form to accelerate village services. There are several benefits offered by the system, including 1) Time efficiency, 2) Better Documentation Management, 3) Better work comfort, 4) Support for better decisions, 5) More controllable management, 6) Improved organizational image.

The problem analysis criteria resulted in several sources of problems in Tegal village, Kemang sub-district, Bogor district, namely 1) Village documents have not been systematically documented, 2) The community is still difficult to access services and information about the village, 3) There is no Village Information system, 4) Lack of skills village apparatus in managing systematic data based on village information systems.

Design

The design stage is carried out after generating a benefit analysis and problem analysis carried out in the previous stage. The design stage is described in detail as in Figure 2. Analysis of the problem after the survey is collected and the best solution is designed for each root cause with the aim of producing the desired benefits. The output of the system design to be built is an Integrated Village Information System and an increase in the quality of the village apparatus' ability to serve the community.

Coding

The coding stage is the implementation stage of the design as expected. This stage is often referred to as design development. The designs developed at this stage are database system design, data flow diagram design, user experience design and user interface design using HTML, PHP and MySQL program code.

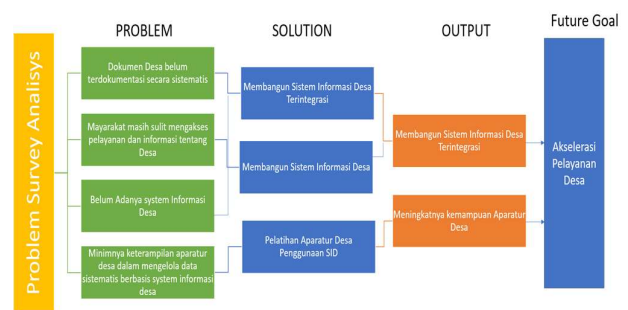


Figure 2 System Design Analysis

Testing

The testing phase is carried out using Quality Control of the Village Information System using four characteristics of ISO 9126, namely functionality, reliability, usability and efficiency. The results of data analysis obtained from the questionnaire, there are quality control results using QC ISO 9126. Software Testing styles that are carried out are Blackbox Testing and Community Service Satisfaction Surveys.

Implementation

Implementation of the last stage in the development of the village information system that is currently being built. This stage can be an early stage in further development and be the last stage if the system is not continued in the next development. Therefore, this stage is a very important stage to determine the efficiency generated after the system is run.

III. Results and Discussion

The results of this service activity are in accordance with the desired output, namely an integrated village information system and increasing the ability of the village apparatus.



Village Information System

The resulting village information system is a system built using HTML, PHP and MySql programming. Tegal Village Information System Display As shown in Figure 3

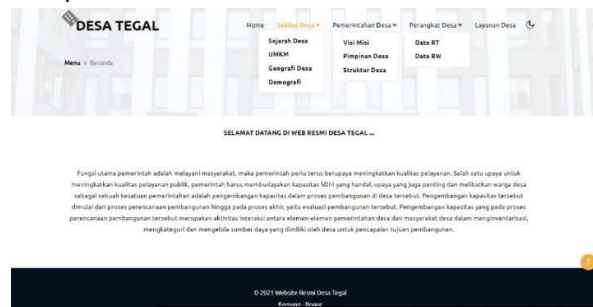


Figure 3 Tegal Village SID Display

Efforts to control the quality of the Tegal Village Information System use four characteristics of ISO 9126, namely functionality, reliability, usability and efficiency. The results of data analysis obtained from the questionnaire, there are quality control results using QC ISO 9162.

Tabel 1 Pengujian ISO 9126

Aspect	Real Score	Ideal Score	% Real Score	Criteria
Functionality	812	900	91,22%	Very Well
Reliability	416	500	85,2%	Very Well
Usability	735	800	93,87%	Very Well
Efficiency	238	300	77,33%	Good
Total	2201	2500	89,04%	Very Well

Based on table 1, it can be concluded that the quality of the Financial Transaction Information System for web-based SMEs is very good. the percentage is 89.04%. The highest quality aspect is based on the Usability aspect with a percentage of 93.87%, followed by the Functionality aspect at 91.22%. Reliability with a percentage of 85.2%, while the lowest quality aspect is the aspect of efficiency with a percentage of 77.33%. The conclusion from these results is that the system can run very well.

Efforts to control the quality of the Tegal village information system use the black box testing method with the aim of knowing that the parts in the application system have correctly displayed error messages if an error occurs in data input [14]. Black Box Testing is carried out to observe the results of execution through test data with the aim of checking the functionality of the software being built [15].

The tests used are 1) Equivalence Partitioning, which is entering data that does not match the data type or entering random data 2) Comparison Testing is seeing the system interface display on different web browsers, 3) Behavior Testing, is creating new data repeatedly to avoid the data stack and the system can accept data with a number of more than 50 4) Performance Testing is evaluating the program's ability to operate correctly in terms of memory consumption flow, data flow and execution speed. The memory usage test was carried out on a similar web browser. The results of the test are as in table 2.

Table 2 Blackbox System Results

Method	Input	Observation result	Output	Conclusion
Equivalence Partitioning	desategal.id	The inputted data has been successfully stored and can be displayed on the front end	Data appears on the front end	Succeed
Comparison Testing	desategal.id	Chrome = No Problem Edge = No Obstacle Mozilla = No Problem	SID Looks perfect on every web browser platform	Succeed
Behavior Test	desategal.id	The addition of user data and information data is successful.	Data appears on the front end	Succeed
Performance Test	desategal.id	The data that was input successfully performed very well	Data appears on the front end	Succeed

Capacity Building for Village Apparatus

The result of this service activity is that every Village Apparatus can understand the material that has been submitted and can practice the results of village administration work in a computerized manner based on the Village Information System.

IV. Conclusion

Tegal Village is a village located in Kemang District, Bogor Regency. The condition of Tegal village, Kemang sub-district, is currently in more dynamic village development. The Tegal village community has dynamic demands and always wants fast service to become a new problem faced by the Tegal village apparatus. Currently, the Tegal village apparatus still uses conventional services in direct contact with the community, especially in public services. Another problem faced by the Tegal village apparatus is communication skills using technology.

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The result of this service activity is that every Village Apparatus can understand the material that has been submitted and can practice the results of



computerized Village administration work based on the Village Information System.

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