

## IMPLEMENTING DOCUMENT MANAGEMENT SYSTEM (DMS) TECHNOLOGY IN BARANGAY PALIGUI, APALIT, PAMPANGA

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### ABSTRACT

Barangays are the smallest yet the most essential units of the government. The government cascades its services through its officials. However, due to the increasing population, quality of service, especially in handling records and documents declines. After a thorough site investigation and series of surveys an integrated “Document Management System” is proposed to alleviate these problems and Barangay Paligui in Apalit, Pampanga was chosen to be the model. Using Kanban Agile Methodology and extensive reviews of literature, the DMS, an open source system was conceptualized whose primary aim is to provide a centralized document management system that can be accessed by any barangay officials using their office desktop computers and mobile phones. It utilizes OwnCloud as the infrastructure for securing, storing, and sharing the files and a customized interface for users is written in HTML, CSS, JavaScript and PHP. The users evaluated the system and found to be useful and accepted for use.

**KEYWORDS** – Document Management system, Document, Open-source system, OwnCloud, Kanban agile methodology

### INTRODUCTION

Generally, automation plays an important role in the global economy and in daily experience. Storage of records has always been a fundamental objective of information systems. However, in the past decade managing sensitive information throughout its lifecycle, from creation to destruction (or archival), has become of significant importance. The project aims to implement Document Management System (DMS) in chosen barangay, the Barangay Paligui, which located at Apalit Pampanga to give their management safer storage, fast retrieval of files, maintains reliability and accuracy and keeping track of records in a modern approach where computers are primarily the medium that reduces the slowdown on work and consumption on paper. [1]

### Brief Background

Barangay Paligui is a local Barangay area located at Apalit, Pampanga. It was a small community with 2,929 number of population and presently conducted by the Barangay chairman Arnold Fabian. The Barangay office is accessible and it opens at Monday to Saturday 8:00 am to 5:00 pm. It is recognized for its dedication and participatory in governance serving its constituents and the community. Their mission is to provide a dynamic and supportive political and socio-economic environment through the highest standard of serving its people in public service.

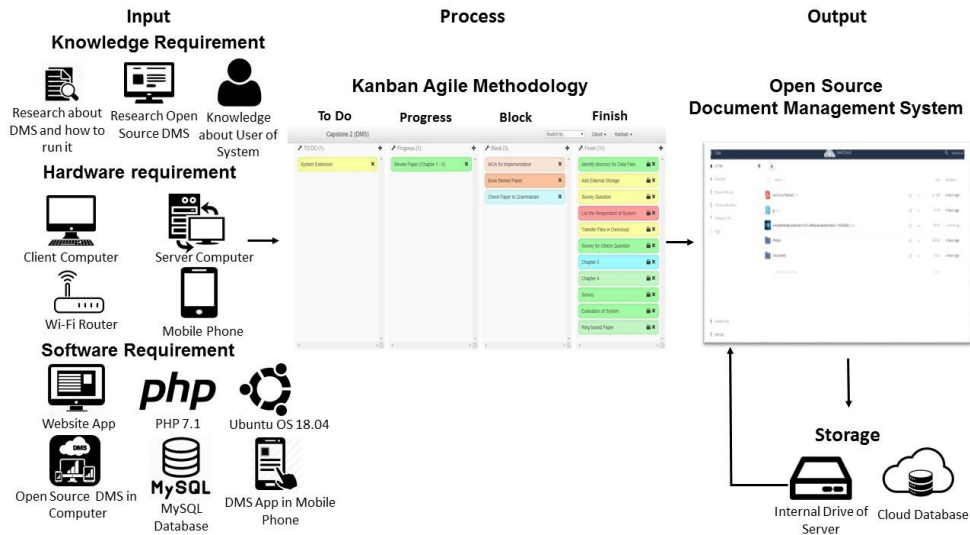
Barangay Paligui has long been provided at least a computer unit to upgrade the system of operation to a much enhanced way. But up to now, those computers had not been used to their fullest capabilities. Sometimes Barangay offices still rely on manual labor, and some are neglected. During regular days, every request made by the client would take minutes, but there is a possibility of longer waiting time for the client in order to process because of tedious search on records found in their computer and cabinets which slowdown the client service. These are placed on a computer but unorganized. All of the relevant information are encoded to a spreadsheet application or other Microsoft office application. [2]

**Objectives**

The following are the main objectives of the research:

- (1) To provide better management of documents. (Reduce space, user friendly, reduce misfiled document).
- (2) To provide security and confidentiality.
- (3) To implement Document Management System in Barangay Paligui.

**Conceptual Framework**



*Input:* It includes for Implementation of Document Management System (DMS) in Barangay Paligui Apalit, Pampanga first is the knowledge requirement that includes research about DMS and how it works in organization then the hardware and software requirements in implementation.

*Process:* This section is the Kanban Agile Methodology that use to track the progress of the project. It contains: “To do” for the list of task need to do, “In Progress” for current tasks, “Block” for pending tasks, and “Finish” for finish tasks.

*Output:* The Open Source Owncloud Implemented in Barangay Paligui Apalit, Pampanga and it has a Share Function, Upload Function, Organized Function, Download Function, and others. The storage of the Owncloud is the Internal Drive of Server Computer and Cloud Database which is the Dropbox that use to back up Important Files in Barangay.

**LITERATURE REVIEW**

**Barangay Resident Record Management and Certificate Issuance System of Barangay Ticol Sorsogon City, John Edmar L. Caubang (2016-2017)**

This research is about the study of Barangay Residents Record Management and Certificate Issuance System to develop to enhance the way of managing, issuing certificate and keeping all the residents confidential records. The research has an objective to create a module that will automate resident records and incident record of the residents. In the system it facilitates Barangay management by enabling the client Barangay to maintain their resident records as complete and up to date as possible and as easily accessible for verification, monitoring and reference purposes based on the available residents’ census data kept by the client Barangay. Data provided by this system in the form of comprehensive reports are invaluable for planning, program implementation and related purposes. [3].

**METHODOLOGY**

**Software Development Methodology**

The researchers decided to use the *Kanban Agile Methodology* to monitor the progress and finished work of our team. Kanban is a set of tools you can use to become more agile in progressing your projects. For teams just getting started with Agile like us, Kanban can make it much easier to achieve their goals of achieving a more Agile process flow.

Kanban is a framework that is popular and it is used to implement agile software development. It requires full transparency of work and real-time communication capacity of the team. And in using Kanban, teams are using Kanban boards and Kanban cards to represent their work and workflow. It can be done by physical whiteboard with the sticky notes, or using the Kanban software. The function of the board regardless whether it is physical or digital is to ensure the team’s work are visualized, their workflow is standardized, and all blockers and dependencies are immediately resolved and identified. And the Kanban Board has three-step workflow: To Do, In Progress, and Done. The workflow can be mapped to meet the unique process of any particular team, depending on a team’s size, structure. [4]

**RESULTS AND DISCUSSION**

The data were obtained from self-administered questionnaires. The respondents are only the Barangay officials in the local office because they are the main users of the information in the system. Especially the Barangay secretary and the Barangay clerk who often used the system.

**Table 1. Profile of Respondents**

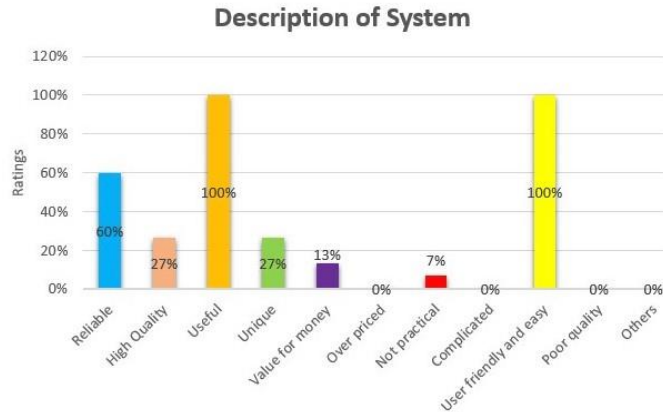
	No. of Respondents	Age Range	No. of Respondents Percentage
Sanguniang Kabataan (SK)	8	19-24 yrs. old	53%
Barangay Secretary	1	30-40 yrs. Old	7%
Barangay Clerk	1	30-40 yrs. Old	7%
Woman’s Desk Officer (WDO)	1	45-54 yrs. Old	7%
Other Barangay	4	30-54 yrs. Old	27%
Total	15		100%

The overall questionnaire response rate was 100 percent, (15/15), in which were all valid responses. The participants in this survey has an ability to access the system and are localize mainly in the office.

Use the MS Excel basic formula, also based on Satisfaction survey equation method whereas the no. of respondent’s answers divided by the total no. of respondents equals variance then convert the variants to percentage (percent style: Ctrl + Shift + %): (NRA – no. of respondent’s answers; TR- total of respondents)

$$\text{Variance} = \frac{\text{NRA}}{\text{TR}} \times 100$$

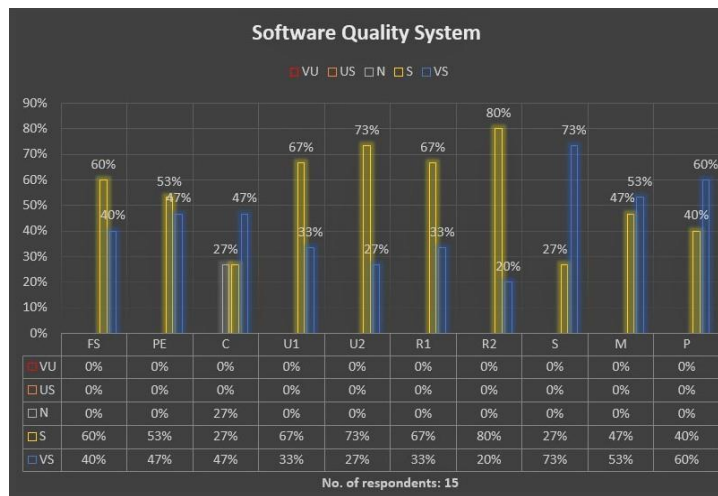
These data are presented in the following graph about the problems and objectives to the effectiveness of the system to Barangay Paligui.



**Figure 1.1: Shows the respondents rating percentage for each given Description for the system.**

More than half (63 percent) of the total (n=15) respondents have describe the system as reliable. (27 percent) of total (n=15) respondents describe it as high quality and unique. While (13 percent) of the total (n=15) respondents describe the system as value for money. (7 percent) of total (n=15) respondents describe the system as not practical. While (0 percent) of total (n=15) respondents do not describe the system as overpriced, complicated, poor quality, and others. And (100 percent) of the total (n=15) respondents describe the system as useful, unique and friendly. The figure clearly shows that the majority of the respondents describe the system as useful, reliable, user friendly and easy.

The system surveyed to evaluate and measure the overall software quality of OwnCloud using the ISO25010 – ISO/IEC 25000 standard.



**Figure 1.2: Shows the rating percentage of Software Quality System**

In **Functional Suitability**, majority (60 percent) of the total respondents are satisfied with the functional suitability of the proposed system. Whereas almost half (40 percent) of the total respondents are very satisfied.

In **Performance Efficiency**, more than half (53 percent) of the total respondents are satisfied with the performance efficiency of the proposed system. Whereas almost half (47 percent) of the total respondents are very satisfied when performing its functions, the system response at the same time as the user meet its requirements.

In **Compatibility**, more than half (53 percent) of the total respondents are satisfied with the compatibility use of the system with other devices in order to share and exchange needed information of user with other users. Whereas almost half (47 percent) of the total respondents are very satisfied with the comparability.

In the **Usability**, category 1, majority (67 percent) of the total respondents are satisfied with the usability of the system in which it is appropriate for their needs and achieve specific goals of learning to use the system. Whereas almost half (33 percent) of the total respondents are very satisfied with the usability. In category 2, majority (73 percent) of the total respondents are satisfied with the usability of the system in which it protects the users against making errors and has attributes that make it easy to operate and control. Whereas (22 percent) of the total respondents are very satisfied with the usability.

In **Reliability**, category 1, majority (67 percent) of the total respondents are satisfied with the reliability of the system in which it meets the needs for reliability under normal operation and accessible when required for use. Whereas almost half (33 percent) of the total respondents are very satisfied with the usability. In category 2, majority (80 percent) of the total respondents are satisfied with the reliability of the system, which in the event of an interruption, it can recover the data directly affected and re-establish the desired state of the system. Whereas (20 percent) of the total respondents are very satisfied with the reliability.

The **Security** rate is majority (73 percent) of the total respondents are satisfied with the security of the system which ensures that data are accessible only to those authorized to have access and prevents unauthorized access to, or modification of, computer programs or data. Whereas (27 percent) of the total respondents are very satisfied with the security of the system.

In **Maintainability**, more than half (53 percent) of the total respondents are satisfied with the maintainability of the system which is to maintain the effectiveness and efficiency of the software in which it can be improve, and without affecting each function. Whereas (47 percent) of the total respondents are very satisfied with the maintainability of the system.

The **Portability** rate is majority (60 percent) of the total respondents are satisfied with the portability of the system which is the software can be transferred to other hardware and successfully installed to in a specified environment, easily used by others. Whereas (40 percent) of the total respondents are very satisfied with the portability of the system.

## CONCLUSIONS AND RECOMMENDATIONS

### Conclusion

Based on the findings, the researchers come up with the following conclusions:

1. The proposed Document Management System using Owncloud software will be a big improvement from the old existing system of Barangay Paligui. In terms of their storage, it will be back up from the cloud, causing the storage in computer not to burst with many files. And easily accessed through internet.
2. The files are more secure because only the authorized user can access the data, unless they have permission. The user can create an account.
3. All files are centralize in one storage, and with the Owncloud software they can easily track files, and it is easily organized and categorized. The files are organized based on what they need.
4. It is Reliable because you can share the files with mobile phones and you can save it offline.
5. It is user friendly because Owncloud is easy to use.

According to Barangay Secretary of Paligui, the proposed system has a good impact to their management. First, it gives less storage in hardware, including in their office space. Then it provides secured files by each confidential level and easy to back up files through cloud instead to back up it on hard drive. It is also gives them an easy access and share files with their associates through user accounts and accessing it through Smart phones compared to their old workloads that has an elongated processing of documents.

The research also concludes that using Owncloud is effectively within the Barangay Paligui, Apalit Pampanga. It ensures that data and knowledge are safe, accurate, and accessible. With that comfort, Barangay officials feel more apt to reduce paper and rely on the DMS system. Chosen ownCloud software with low cost, user-friendly, easy to access files, reliability and a decent level of support, significantly logistically contributed to better workgroup organization, collaboration, and efficiency. And having a system like this allows the Barangay office to save time and increase productivity since their tasks can be done without the need to wait for other Barangay official such as when they are requesting a documents.

## Recommendation

Based on the results of the findings and conclusions gathered, the researchers would like to recommend the following:

1. Near in Paligui Barangay office is the Sanguniang Kabataan (SK) office which is the old health center. Since SK has also a files located in the server in the office, we recommend that the Barangay use a Wi-fi extender, to expand their internet connection. So that the SK doesn't need to go to the office, they can just connect to the server.
2. The researcher recommend also to upgrade the hard drive of their computer so that they can save more files.

## ACKNOWLEDGEMENT

We would like to express our gratitude first of all to our GOD Almighty for overflowing grace and mercy He has given to us. To the La Verdad Christian College founding chairman, Bro. Eliseo Soriano, and to LVCC President Dr. Daniel Razon for providing an opportunity to study free in La Verdad. To our school administrator, Dr. Luzviminda E. Cruz, for believing us to continue this project. To our capstone adviser, Dr. Ferddie Q. Canlas for patiently giving us knowledge and information on creating this project. To our BSIS adviser and also one of our capstone adviser, Mr. Romack Natividad, for guiding and teaching us for years. To our BSIS classmates for sharing ideas in creating this research.

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