Application of Agile Method in Web-Based Accounting Information System Innovation to Support Decision Making at Canisius Foundation Surakarta Branch

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Abstract— Canisius Foundation Surakarta Branch is a non-profit organization engaged in education and located in Solo, Central Java. The Foundation is facing serious challenges in terms of receiving financial reports from schools and accounting recording processes that have not been standardized. Currently, the foundation still relies on Excel files sent by schools every semester, which slows down the managerial decision-making process. Due to these conditions, this research proposes the development of an Accounting Information System at the Canisius Foundation Surakarta Branch using the Agile method, specifically Feature-Driven Development (FDD). In this research, the system is designed by providing a unified financial report format and standardized standards for the accounting and transaction recording process. The Agile FDD method is used to ensure the development of a system that is fast, adaptive, and in accordance with the needs of the Foundation. It is expected that the designed system will help the Canisius Foundation Surakarta Branch to improve the foundation's operational efficiency, accelerate managerial decision-making, and produce more accurate financial reports. This research integrates modern technology with the accounting needs of educational foundations in accordance with applicable regulations, namely ISAK 35, and can be a foundation for the development of similar systems in other institutions.

Keywords— accounting information system, agile method, education foundation, decision making, financial statements of non-profit entities

I. INTRODUCTION

Canisius Foundation Surakarta Branch is a non-profit organization engaged in the social environment, namely the education sector. Until now, the Canisius Foundation Surakarta Branch does not have an integrated financial reporting system for the schools it manages. The unavailability of integrated financial reports can make it difficult or even wrong for Foundation leaders to make decisions because decisions can be made not based on accurate data. At present, the financial reporting system at Canisius Foundation Surakarta Branch is still done manually and only in the form of budget planning, using Excel-based documents. The financial reporting system used is not the same between one institution and another, such as the existence of account codes that can be written manually by each school with the definition of account codes that can vary between schools.

Accounting information systems for non-profit organizations need to be developed with a non-commercial orientation, because various existing accounting information system literature emphasizes the discussion on commercial organizations [1]. Accounting Information System is a system that has components that produce financial information that can be used for internal and external interests [2, p. 49]. Accounting information systems are also systems that can identify and summarize accounting processes and other data to be able to produce information that is useful for financial decision making [3, p. 16]. While in terms of accounting, in Indonesia,

Foundation accounting is regulated in ISAK 35 which regulates the financial statements of non-profit organizations including the statement of financial position, statement of comprehensive income, statement of cash flows, statement of changes in net assets and notes to financial statements [4]. This accounting information system that is made can later be used by management to be able to make decisions sourced from data warehouses, so that decisions are more accurate [5, p. 28]. This decision making can be done by gathering information on the problem, designing options for solving the problem, then sorting decisions on these options, and finally executing the decision [6]. Information itself is the result of data management that gives a certain meaning and has an effect on the decision-making process [7].

Based on these problems, researchers will create an accounting information system using the PHP programming language, Laravel framework, and MySQL database. PHP programming language is a programming language that moves on the server side and requires a server with all the settings and resources to run [8]. The Laravel framework is a framework based on the PHP programming language which has a working concept, namely object-oriented programming and has the MVC (Model, View, Controller) method in it [9]. While MySQL is a fast and very powerful database system and offers various facilities needed by web applications, especially to provide data needs in the browser [10].

II. METHOD

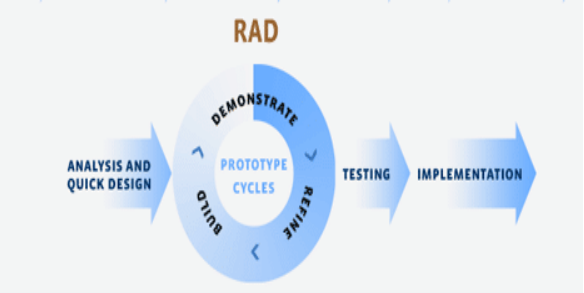

Figure 1 Rad Methodology

In this study, researchers used Agile methods, especially FDD, to develop information systems. This method is used because this method is suitable for designing small-medium scale systems, and developing organizational systems that have special and complex needs [11, p. 76]. Agile methods can be selected for use in system development that has limited budget in its manufacture, and when changes in needs occur, the system does not need to be massively overhauled or reworked from scratch [12]. According to existing research, the agile method has also been successfully applied to create a system for recording financial reports in UMKM to minimize human error in financial recording [13]. Agile methods can also increase the business value of a non-profit institution by contributing to the development of business information technology for an organization [14]. In making a system using this method, there are 6 stages that need to be passed starting from designing the overall model, making a list of features, planning based on features, designing a system based on features, making a system based on features, testing based on features[15].

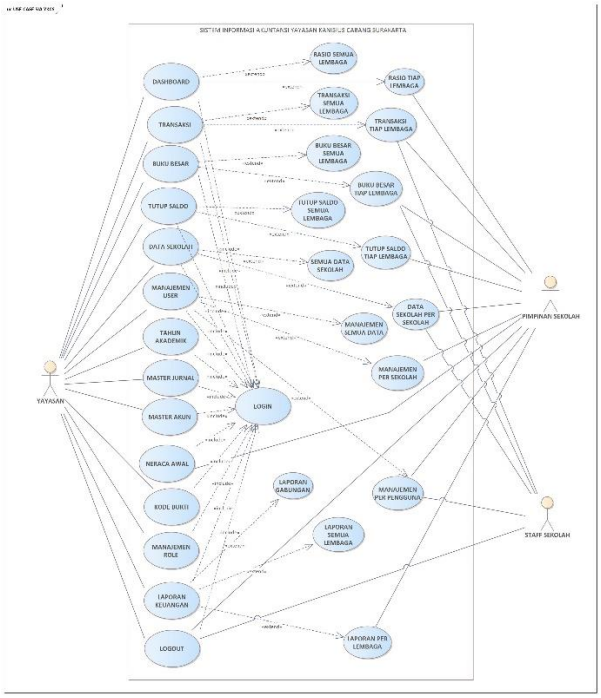

Figure 2 Use Case Diagram

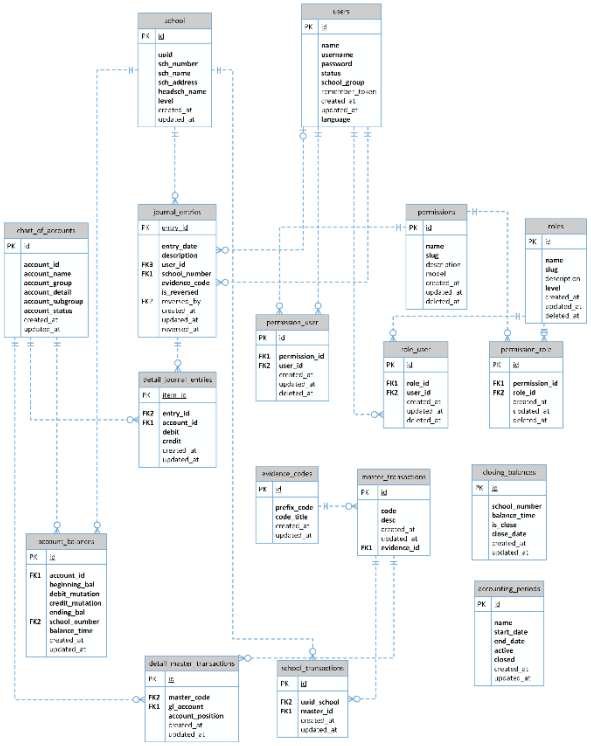

Figure 3 Entity Relationship Database Diagram

Figure 1 is a use case diagram that illustrates the description of system activities from the user's side. In this accounting information system for foundations, system authority and access will be divided into 3 levels, namely the Foundation, School Leaders, and School Employees. Each level will have different authority as seen in Figure 1. Figure 1 is the earliest stage in system development using the agile method.

Figure 2 is a database relationship diagram that displays the relationship between tables in the database. From this diagram, researchers and management can easily see the relationship between tables visually. The relationship between tables is important for the system creation process, whose function is to see whether the data in the system has been normalized or not. Normalization of this data means that the data in the database is not duplicated but is still interrelated and has a mutual reference.

III. RESULTS AND DISCUSSION

A. RESULT

After conducting interviews and designing system requirements, the researcher then found the problem that occurred was that this institution had a financial reporting system that was still carried out manually with too many institutions under the Foundation. This manual financial reporting process makes it difficult for the Foundation to get a picture of the school's condition and financial performance that occurs at the school. In addition, the Foundation also has difficulty monitoring and measuring the level of efficiency of school financial planning compared to school financial realization. Therefore, researchers then create and design a system based on the needs of the Foundation that can accommodate all the financial needs of schools under the foundation. The creation of this system begins with the creation of the client part (frontend) and the creation of the programming logic part including the

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creation of communication with the database.

The iterative process that occurs in making this system includes

a. Making the grand design of the user interface

This part is an iterative process in finding and designing the layout, responsiveness and design of the user interface applied in the system.

b. Making design of chart_of_accounts table

This part is an iterative process in making table designs that are suitable and can be applied to the system and can accommodate all the needs of financial transactions in the system.

c. Creating a basic framework and relationships between tables

This part is an iterative process to design relationships between tables, so that these tables can communicate with each other without malfunctions arising in the data processing process.

d. Creation of the import, add, change data section.

This part is an iterative process that is carried out by finding and designing effective data import, add, change mechanisms that support the speed of application page access, including prevention when system malfunctions occur.

e. Creation of the financial report section.

This part is an iterative process carried out by planning and designing financial reports and ending in the realization of financial reports on the system equipped with features to display reports on a monthly, annual and combined basis.

f. Creation of financial report design and printing features

This part is an iterative process carried out by designing the layout design in the user interface so that the report can be printed with headers and footers both in PDF and paper print.

g. Access management control creation

The iteration of this process is done to ensure that each access right can limit the use of the system from possible loopholes that can occur.

The following are the results of the development of an accounting information system for the Foundation.

a. Login Page

Figure 3 is the login page of the accounting information system of the Canisius Foundation Surakarta Branch. Users are required to log in first before they can use all features of this information system.

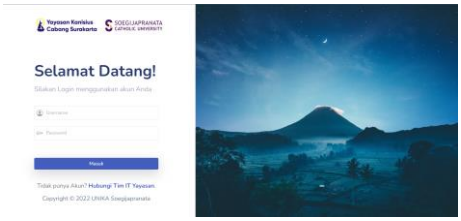

Figure 4 Login Page

b. Dashboard

Figure 4 is a dashboard page that displays ratios and graphs of financial transactions owned by each school.

Figure 5 Dashboard Page

c. Account Master

Figure 5 is the account master page that displays the add, import,

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account code data, and change account code features.

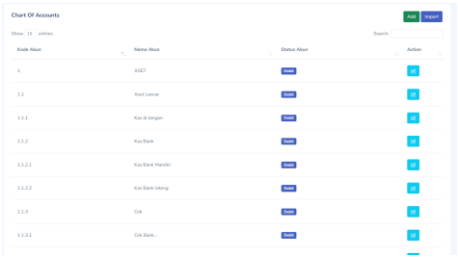

Figure 6 Account Master Page

d. Journal Master

Figure 6 is the master journal page that displays the add, detail, change and delete master journal features. Journal Master is a template available in the system, to assist users in recording their transactions.

Figure 7 Journal Master Page

e. Transactions

Figure 7 is the transaction page that displays the add and view transaction features and print transaction proof. Transactions that have been registered cannot be deleted immediately, but must go through the process of canceling transactions located in the view transaction section. All financial records can be done by users in this section.

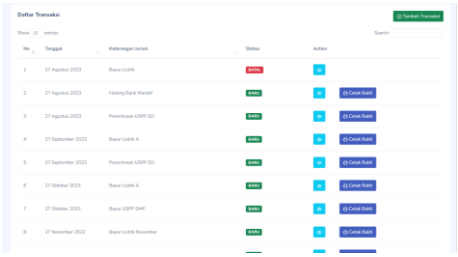

Figure 8 Transaction Page

f. Ledger

Figure 8 is a page that displays the ledger and prints the transaction ledger. Users can select the school, month, and year of the transaction for which the ledger will be viewed.

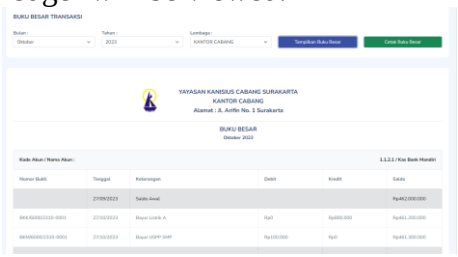

Figure 9 Ledger Page

g. Close Balance

Figure 9 is a page that displays closed balance data and a feature to view balance details for each month. Users who will close their balance, can first double-check the balance to be closed every month and year.

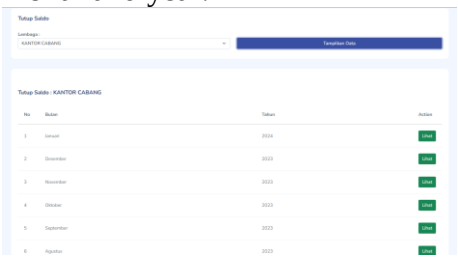

Figure 10 Close Balance Page

h. Academic Year

Figure 10 is a page that displays the features of add, change, view academic year data, activate and close academic year.

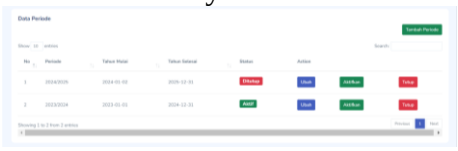

Figure 11 Academic Year Page

i. School Data

Figure 11 is a page that displays add, view school data, view details and delete school data.

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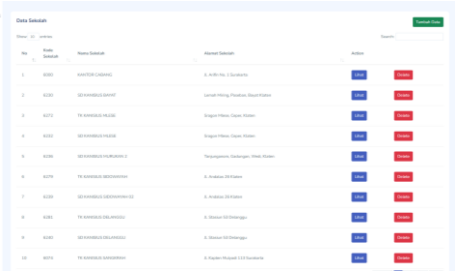

Figure 12 School Data Page

j. Evidence Code

Figure 12 is a page that displays add change and delete evidence code. The evidence code in this system is used as an archive system guide for transaction evidence.

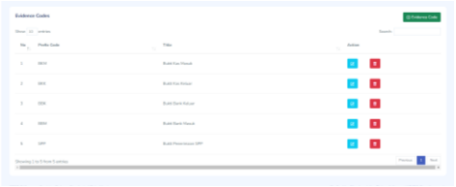

Figure 13 Evidence Code Page

k. Opening Balance

Figure 13 is a page that displays the opening balance import dialog. After the user logs into the system, and does not have an opening balance sheet transaction, this page will automatically appear.

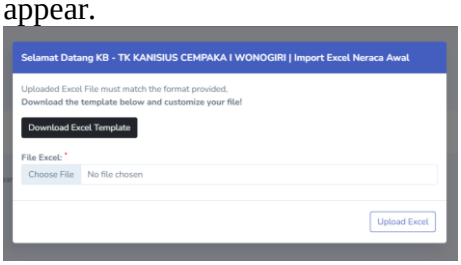

Figure 14 Opening Balance Page

l. User Management

Figure 14 is a page that displays add, view, and delete users. In this system, user data can be deleted permanently or non-permanently..

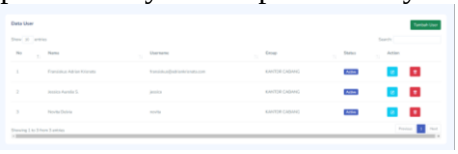

Figure 15 User Management Page

m. Role Management

Figure 15 is a page that displays add, view details, change and delete user roles. This page can only be fully opened by the Foundation. The roles in this system can be deleted permanently and non-permanently.

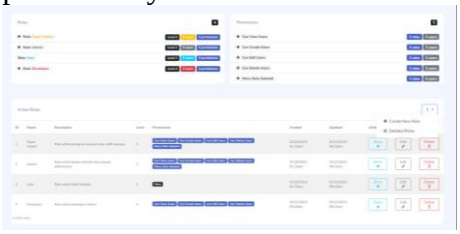

Figure 16 Role Management Page

n. Financial Report

Figure 14 is a page that displays financial reports and prints financial reports. Users can select the school, report type, month, and year. There are 3 types of reports on this page including income statement, statement of changes in net assets, and statement of financial position. Users can freely choose these reports according to their needs.

Figure 17 Financial Report Page

o. Logout

Figure 17 is a page that displays a notification that the user has successfully exited the system. Users who have left the system, need to re-login to be able to access the menus in the system.

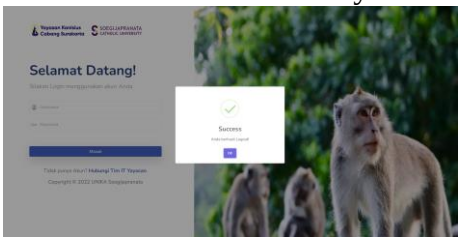

Figure 18 Logout Page

B. DISCUSSION

After the system is created and arranged based on the features needed by the

foundation, then the features of the system that have been created are then tested. This testing is carried out using various scenarios regarding the possibility of gaps in the system. The following is a summary of the black box testing of this accounting information system.

The login page works well and can define users who have the role of foundation, school leaders and school employees according to their restrictions.

The login page, which has various access authorities such as the foundation, school leaders, and school employees, works well.

The dashboard page, which has the feature of showing graphs and financial ratio data, can display visuals well.

The account master page that has the add, import, and change account code features runs well, including Excel file validation on the import menu.

The master journal page with add, view, change and delete journal features runs according to its function well.

The transaction page with the features of adding, printing proof, viewing transactions and canceling transactions runs well, users can record transactions according to user needs, and the system can limit transactions according to applicable recording rules.

Ledger page, can display the transaction ledger according to the selected filter and then can print it.

On the close balance page, users can check and close monthly transaction balances.

Academic year page, users can add, activate and close academic years based on the real conditions of the user's academic year changes.

School data page, users can add, change, and deactivate schools according to their authority and this page runs well.

The evidence code page, has the add, change, delete evidence code features, and all the features work well.

Opening balance page, the system will protect all menus functionally when the user does not have an initial balance sheet, the initial balance sheet data import function also runs well.

User management page and role management page, users can add, change, and delete users according to their authority and access properly. Access owned by each user can also run according to its limits.

The financial statements page consisting of the income statement, statement of changes in net assets and statement of financial position can run properly in accordance with the applicable rules, namely ISAK 35, and users can print the report.

Logout page, when the user logs out of the system, the system will delete the active session and force the user to have to log in again in order to use the system.

IV. CONCLUSION

Based on the results of system development, interviews and application testing that have been carried out by the researchers above, this study can be concluded that the design and implementation of an accounting information system at the Canisius Foundation Surakarta Branch is a modern step taken by the foundation's leadership to be able to digitize data and integrated monitoring of the foundation's financial system. With the implementation of this accounting information system, the Foundation can easily find out the financial condition and control the schools under the Foundation, and can be facilitated to make managerial decisions based on the information available on this accounting information system. This accounting

information system can also improve the effectiveness and efficiency of financial reporting of schools under the foundation and the foundation does not experience a waste of resources in publishing RKAS documents every semester. The application of this accounting information system can also integrate financial data owned by institutions under the foundation, and financial accounts owned do not experience multiple interpretations.

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