



Implementation of Agile Modeling in Web-Based Quality Management Audit Application (Case Study: ITCC ITPLN)

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<https://doi.org/10.37339/e-komtek.v9i2.2602>

Published by Piksi Ganesha Indonesia Polytechnic

Abstract

Article Info

Submitted:

24-07-2025

Revised:

03-01-2026

Accepted:

06-01-2026

Online first

06-01-2026

Information Technology Certification Center (ITCC) is an institution responsible for implementing certification at ITPLN, with a focus on certification in the field of technology. Currently, ITCC still uses a conventional system in managing its archives. To overcome this, a web-based quality management audit application has been designed using the Agile approach. The Agile approach was chosen because of its ability to increase development efficiency, provide flexibility in customizing applications according to needs, and accelerate project completion. The resulting application is also more adaptive to user feedback and supports a dynamic audit process. The development of this application involves the use of the PHP programming language, MySQL database, and testing using the Blackbox testing method.

Keywords: Information Technology Certification Center (ITCC), Audit, Web-Based Application, Agile Method, BlackBox Testing

Abstract

Information Technology Certification Center (ITCC) is responsible agency answer on implementation certification at ITPLN, with focus on certification in the field Technology . Currently, ITCC still uses a conventional system for managing its archives. To address this, a web-based quality management audit application was designed using an Agile approach. The Agile approach was chosen because of its ability to increase development efficiency, provide flexibility in customizing the application as needed, and accelerate project completion. The resulting application is also more adaptive to user feedback and supports a dynamic audit process. The development of this application involved the use of the PHP programming language, MySQL database, and testing using the Blackbox testing method.

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1. Introduction

Information Technology Certification Center (ITCC) is institution implementer certification at ITPLN for support activity certification in the field technology . In management archives Still use system conventional so that have a number of Weaknesses include : lack effectiveness system management archives , less efficient from aspect time , cost , energy and space storage archives , lack of security in management archives . storage documents and maintenance document need more costs and time Lots [1]. A Web-Based Quality Management Audit Application is an electronic system used to manage and conduct audits of an organization's quality management standards and procedures through an internet-based platform. The use of this application is expanding with the development of information technology and information technology. the need for efficiency as well as accuracy in process audit [2]. According to previous research, web-based applications offer many advantages, such as the ability to access from various locations and devices, ease of updating and distributing information, and superior data integration compared to traditional applications. manual system or use paper (Smith, 2020) [3]. For example, a study conducted by (Johnson, 2019) showed that audit effectiveness increased by 45% when the company switched from manual audit methods to web-based applications. This demonstrates significant potential for organizations to improve their audit performance through the use of this technology.

Implementation of Agile Modeling in Web- Based Quality Management Audit application has proven as effective method For increase flexibility and responsiveness in audit process management [4]. Modeling Agile , with approach iterative and incremental , allowing team audit For adapt with fast to change needs and requirements regulations . In the context of web-based applications, Agile implementation also facilitates better collaboration between developers and auditors, thereby accelerating the development cycle and refining application features. In line with the aforementioned efficiency improvements, Agile methods also support improved audit quality and accuracy through continuous integration and delivery processes, which enable detection and repair error in a way fast and effective [5]. According to a study by Rolande et al. (2020), organizations that adopted Agile in quality management audits experienced a 35% increase in stakeholder satisfaction due to greater transparency **and** involvement in the audit process . In addition , modeling this also allows users For respond to feedback promptly time real , giving flexibility extra in modification procedures that can

updated in accordance need specific organization . Therefore that , implementation Agile Modeling in Web- Based Quality Management Audit application does not only speed up and optimize the audit process but also ensure that quality management quality still awake through sustainable adaptation and innovation [6].

2. Method

2.1 Research Flow

The research flow in this study uses Agile modeling. The steps the covers :

1. Planning . On stage This , team developer And client plan need required For device software that will developed .
2. Implementation. Stage This emphasize on team programming For do software coding.
3. Software Testing. This stage aims to test and verify the software that has been developed so that any bugs found can be fixed immediately.
4. Documentation. After testing is complete, the documentation phase is performed to facilitate future maintenance.
5. Deployment. This stage ensures the quality of the software created by testing the system. If the system meets the requirements, the software is ready for further development.
6. Maintenance. Stage final is maintenance. Stage This done in a way periodically to ensure there are no bugs or glitches in the software. Following This is design system Which will built in this research

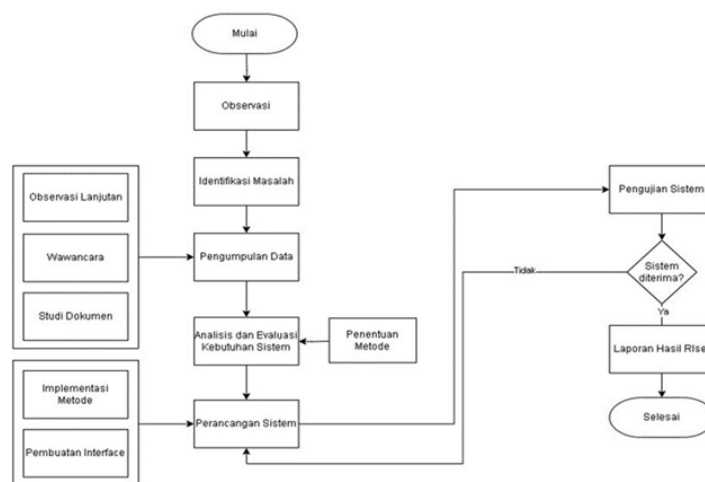


Figure 1. System Design

2.2 Data collection

To obtain the necessary data, the author conducted a data collection process, quoting from a book entitled "Menyusun Proposal Penelitian Kualitatif: Skripsi dan Tesis" written by Sugiarto in 2015. At this stage, the author collected data to support the analysis and evaluation process of the existing system. The following are the data collection methods that have been implemented by the author:

1. Observation

In this study, the author began by conducting direct observations at ITCC, specifically in the Administration and Finance department. Observations included work processes and conditions within ITCC. Observations of work processes were conducted to ensure that procedures were carried out in accordance with established standards and to check the condition of existing facilities, equipment, and the work environment to verify that they had been met according to specified requirements. During the observation of the work processes, the author encountered several obstacles, primarily due to the manual review of archive files. After the initial observations, the data obtained were used to identify existing problems. Subsequently, follow-up observations were conducted to more deeply examine the work processes and data processing before they became audit file archives. These follow-up observations also involved assistants at ITCC to provide the necessary data for the study.

2. Interview

Interviews are a data collection method that involves interaction direct between writer And team [7]. ITCC to obtain in-depth information regarding file archives at ITCC. Based on previous observations, the author found that the process of creating audit file archives at ITCC is still done manually. After discussions with ITCC assistants, it was discovered that audit file archives are often disorganized and there are several data input errors due to miscommunication between ITCC assistants. Therefore, the author suggests developing an application that can function as a data center for audit file archives, to facilitate the process of compiling archives. This stage aims to obtain supporting data from the Head of ITCC, Mr. Hendra Jatnika, S.Kom., M.Kom., and ITCC assistants, namely the ITCC Assistant Coordinator for the 2023/2024 Period. Interviews were conducted to understand the needs and validate the results of the analysis that the author has conducted during the observation. The results of this interview indicate that the application is very much needed to support activities at ITCC.

3. Document Study

Document study is a data collection method involving the analysis of documents related to audit file archives to support this research. Through this document study, the author can obtain historical data and written evidence to support the analysis. In this research, the author used a primary document study by examining documents at ITCC based on previous events. These primary documents include SOP (Standard Operating Procedure) data, ITCC Management, and documents related to Financial Audits.

2.3 Problem Analysis

This research uses Fishbone modeling. Fishbone diagrams help identify potential causes of problems by organizing them into categories such as people, machines, methods, materials, environment, and measurements. This diagram helps the team see connection between various reason And find root problem [8].

2.4 Design

This research uses UML modeling. UML is a powerful modeling language that helps in breaking down the complexity of software systems . emphasize that UML supports various perspective design , including perspective static And dynamic , so that allows developer For make comprehensive model of the system they [9]. In designing system With UML, there are various types of diagrams, including the following:

- a. Use Case Diagram
- b. Class Diagram
- c. Sequence Diagram
- d. Activity Diagram

2.5 Testing

This study uses blackbox testing. Blackbox testing is a software testing method that assesses functionality. application without check internal structure or code the source [10]. Black box testing involves testing an application's features against predetermined specifications and requirements. Testers provide input to the system and examine the resulting output without regard to how those results were achieved, ensuring that the software functions as expected by the user.

3. Results and Discussion

In the results and discussion section, the stages of the Agile model will be explained, which include designing application/prototype results, including hardware and software implementation, interface design, and application functions.

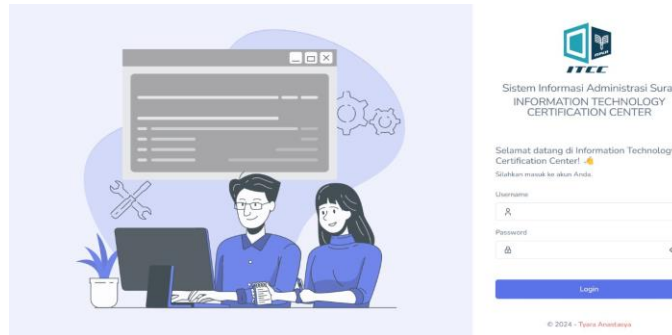


Figure 2. Login Page

The screen above shows the login page for this application. This page can be accessed by both Super Admins and regular users. Super Admins or users simply need to enter the username and password previously added by the admin.

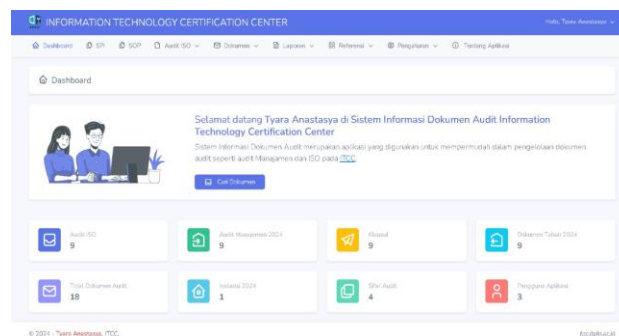


Figure 3. Document Dashboard

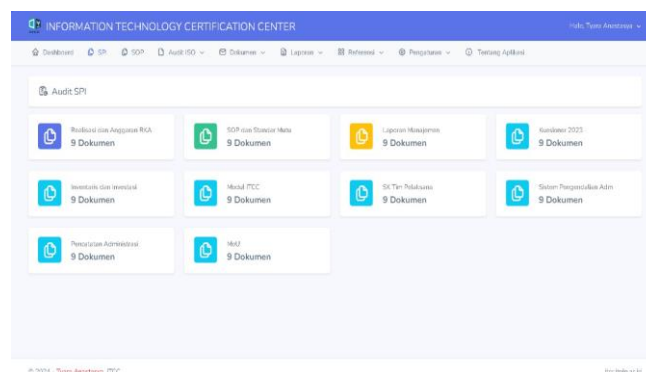


Figure 4. Document Dashboard

This dashboard displays the folders and files required for SPI audit data, meeting the required standards. Audit files can only be uploaded by SuperAdmins. Users will only see the files contained in this dashboard

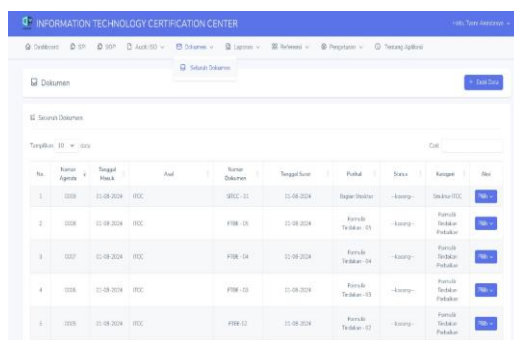


Figure 5. All Documents Dashboard

The report allows you to view all documents uploaded to the application. This dashboard also provides feedback regarding uploaded documents. The reference page is used to display the names of agencies related to audit data in ITCC. On this page this , can access change and delete.

4. Conclusion

Based on the results of the research and discussion, it can be concluded that the implementation process will facilitate the examination of audit files in conducting the audit file checking process. The Audit document filing process at ITCC ITPLN with the Agile model uses the PHP version 8 programming language and the MySQL database. The resulting application helps ITCC ITPLN in carrying out the audit process in a more structured and efficient manner. Based on the results of the tests carried out, the implementation of the Audit data application with Agile modeling was declared successful and ready to be applied at ITCC ITPLN.

Based on results research , some suggestions for study furthermore is need improvements to the interface users to be more Easy to use by users. Further application development can be carried out by integrating with other information systems at ITCC ITPLN to improve efficiency and integration of work processes. And the application of the Agile model in application development can be applied to other projects at ITCC ITPLN to increase efficiency and speed of development.

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