

## Methodology of Development of Account Information Systems

Ella Prastiwi<sup>1</sup>, Yusri Hazmi<sup>2</sup>, Siti Muthmainnah Putri<sup>3</sup>, M Iqbal Farabi<sup>4</sup>

<sup>1</sup> Jurusan Bisnis, Prodi Akuntansi Lembaga Keuangan Syariah, Politeknik Negeri Lhokseumawe, Indonesia

<sup>2</sup> Jurusan Bisnis, Prodi Akuntansi Lembaga Keuangan Syariah, Politeknik Negeri Lhokseumawe, Indonesia

<sup>3</sup> Jurusan Bisnis, Prodi Akuntansi Lembaga Keuangan Syariah, Politeknik Negeri Lhokseumawe, Indonesia

<sup>4</sup> Jurusan Bisnis, Prodi Akuntansi Lembaga Keuangan Syariah, Politeknik Negeri Lhokseumawe, Indonesia

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### ABSTRACT

System development methodology is the framework used to design, develop, and implement information systems. Accounting Information Systems (SIAs) play an important role in managing financial and operational data within an organization. Effective SIA development requires structured and systematic methodology. The method used is descriptive qualitative. This article discusses a variety of SIA development methodologies, including Waterfall, Agile, and DevOps. (Development and Operations). The aim of this article is to evaluate the advantages and disadvantages of each methodology and provide guidance for developers and project managers in choosing the methodology that best suits their organization's needs.

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### Corresponding Author:

Name: Yusri Hazmi

Institution: Jurusan Bisnis, Prodi Akuntansi Lembaga Keuangan Syariah, Politeknik Negeri Lhokseumawe, Indonesia

Email: [yusri.poltek@gmail.com](mailto:yusri.poltek@gmail.com)

## 1. INTRODUCTION

The accounting information system development method is an approach used to design, develop and implement an efficient and effective accounting information system. By using this methodology, companies can ensure that the accounting information system they build can effectively support their business needs. One of the important steps in the methodology for developing an accounting information system is analyzing user needs and designing a system that suits those needs. Through user needs analysis, companies can clearly understand what users want in the accounting information system that will be developed. Next, system design is carried out based on the results of the analysis, ensuring that the system built can meet user needs effectively. Using methods

based on structured case studies can reduce the risk of failure in building trust-based information systems and ensure that their investments generate the best financial returns. "The accounting information system development method can influence the quality of the accounting information system. Business strategy and system development methods simultaneously also influence the quality of the accounting information system. Extreme Programming (XP) is a development method that can produce a fast and reliable accounting information system. adapting to user needs" [1]-[3].

However, the success of information system development does not only depend on the technology used, but also on the methodology applied during the development process. Information system development methodology plays an

important role in providing a systematic and structured framework, which includes stages starting from requirements analysis, design, implementation, testing, to maintenance. A good methodological approach helps in identifying user needs, reducing the risk of failure, improving system quality, and ensuring that the system being built can adapt to changes in the business environment. In this context, various information systems development methodologies have been developed and applied, ranging from traditional methodologies such as Waterfall, to modern methodologies such as Agile and DevOps.

Organizations must use accounting information system development techniques to ensure correct and effective financial data processing. A structured method for designing, implementing, and maintaining accounting systems helps organizations meet regulations, improve internal controls, and improve decision making. This chapter will examine the essential elements of the development process for accounting information systems and discuss the advantages of taking a methodical approach to system design and implementation. We will also examine the various phases of the development process, including gathering requirements, designing, testing, and implementing the system. We will also discuss the importance of ongoing support and training for staff to ensure successful system integration. Organizations can achieve greater efficiency and accuracy in their reporting procedures by simplifying their financial operations and understanding and implementing complex processes for building accounting information systems.

The integration of technology with an organization's strategic goals is an important component in the creation of an accounting information system. This involves selecting compatible hardware and software that aligns with existing workflows and procedures. Organizations can optimize their accounting information systems and create value across the enterprise by adopting a holistic approach to system design and implementation. In the following sections, we will discuss best

practices for successful system integration and overcome potential obstacles for the business. face during the development process. For example, companies looking to improve their accounting information systems can choose cloud-based software solutions to automate tasks and analyze financial data in real time. To ensure smooth integration, organizations can work with an IT consulting firm to customize the software to meet their specific needs and train employees on how to use the new system effectively. This comprehensive strategy for system design and implementation can simplify financial processes, improve decision making, and drive business growth.

This article aims to provide an in-depth understanding of these methodologies, including the basic concepts, stages, and advantages and disadvantages of each.

## 2. STUDY OF LITERATURE

Along with the development of information technology, the evolution of information systems in accounting has become increasingly important for companies. An integrated information system can help companies manage data and information more efficiently, speed up the decision-making process, and increase transparency and accuracy in financial reporting. In this way, companies can be better prepared to face increasingly tight and dynamic business competition. With the evolution of information systems in accounting, companies can gain benefits such as increased productivity, operational cost savings, and increased customer satisfaction through faster and more accurate services. Research on information systems development methodologies in Indonesia in the last five years shows increasing attention to the adoption and adaptation of methodologies that are appropriate to the local context. Various studies have explored the application of Agile methodologies, DevOps, hybrid approaches, as well as the challenges and opportunities faced in the context of organizations in Indonesia.

### 3. SIA DEVELOPMENT METHODOLOGY

#### 3.1 Agile Methodology

Agile is one of the methodologies that is widely adopted by technology companies in Indonesia. The study by [4] revealed that Agile Scrum is widely used in technology startup companies in Jakarta. This research found that using Agile Scrum can increase flexibility and responsiveness to changing customer needs, despite facing challenges in terms of team discipline and consistent implementation of Agile practices. Meanwhile, research by Putra and [5], [6] in the education sector shows that applying Agile in the development of academic information systems can speed up the development process and increase end user satisfaction.

Agile Method Stages:

- a. planning, in this step the development and client make a plan for the needs of the software that will be created
- b. implementation, part of the process where the programmer performs software coding
- c. software test, here the software that has been created is tested by the quality control department so that any bugs found can be fixed immediately and the quality of the software is maintained
- d. Documentation, after the software test is carried out, the next step is the software documentation process to simplify the maintenance process in the future.
- e. Deployment, namely the process carried out by the quality guarantor to test the quality of the system. Once the system meets the requirements, the software is ready for deployment.
- f. Maintenance, the final step is maintenance. No software is 100% free from bugs, therefore it is important that the software is maintained regularly.

#### Advantages and Disadvantages of Egile

The application of the Egile method has many advantages, but there are also disadvantages to applying this method.

##### Excess:

- a. High flexibility to changing needs.
- b. Users or stakeholders can provide continuous feedback during the development process.
- c. Project risk can be minimized with shorter iterations.

##### Lack:

- a. Requires high commitment and collaboration from the entire team.
- b. Documentation may be lacking compared to other methodologies.
- c. It is difficult to predict precisely the time and cost due to its iterative nature.

#### 3.2 DevOps (Development and Operations)

DevOps is also starting to be implemented in several large organizations in Indonesia to increase efficiency and speed of software releases. According to research by [7], [8], the adoption of DevOps in telecommunications companies in Indonesia shows positive results in terms of increasing release frequency and system stability. This study also highlights the importance of changing organizational culture to support collaboration between development and operations teams. In addition, [9]–[11] found that the use of automation tools such as Jenkins and Docker in DevOps implementation can reduce development time and costs and improve software quality.

#### Advantages and Disadvantages of DevOps

Implementing the DevOps method has many advantages, but there are also disadvantages to implementing this method.

**Excess:**

- a. Shorter development cycles
- b. Improve quality and flexibility
- c. More efficient costs
- d. Better Risk Control and Recovery
- e. Can improve Security Practices

**Lack:**

- a. Applying the DevOps method must change habits or culture in project development
- b. Requires expert Software Engineering
- c. Requires strong collaboration

**3.3 Waterfall Methodology**

Waterfall methodology is a sequential approach that requires each phase of the project to be completed before the next phase begins. The stages in this methodology include requirements analysis, system design, implementation, testing, and maintenance. Waterfall methodology is a linear, sequential approach to software development that follows a series of distinct phases, each of which must be completed before moving on to the next. This methodology is often used in projects where requirements are well defined and unlikely to change. The main stages of the Waterfall methodology include requirements gathering, design, implementation, testing, and maintenance. Each phase builds on the previous one, with a clear and structured progression from start to finish. The waterfall methodology is classic software that is sequential in designing software. The Waterfall methodology is also a simple SDLC model and is suitable for software models with unchanging specifications [12]–[14].

**Advantages and Disadvantages of Waterfall****Excess:**

- a. The structure is clear and easy to understand.
- b. Complete documentation at every stage.
- c. Easy to manage projects because of clear stages.

**Lack:**

- a. Less flexible to change.
- b. Problem identification is often late because testing is done at a late stage.
- c. Not suitable for projects that require continuous iteration and feedback.

**4. RESEARCH METHODS**

This research uses literature study, namely data collection through relevant theoretical references, library data collection, and so on. The process during data collection uses an approach through sources such as books, journals and related references and is evaluated thoroughly to ensure the suitability of the ideas and hypotheses created.

**Case Study: Implementation of AIS with Agile Methodology**

A large manufacturing company decided to develop a new Accounting Information System using Agile methodology. The project began with a kickoff meeting to determine business and technology needs. The development team then divides the project into sprints, each lasting two weeks.

At the end of each sprint, a demo is held to show the developed features to stakeholders. Direct feedback from users allows the team to immediately make adjustments and improvements. This approach allows companies to see concrete results in a short time and ensure that the AIS being developed truly meets their needs.

**5. CONCLUSION**

The choice of AIS development methodology is highly dependent on the specific needs and work environment of the organization. Waterfall methodology offers a clear structure but is less flexible, whereas Agile offers greater flexibility and speed but requires greater commitment and resources. Organizations should consider the advantages and disadvantages of each methodology before deciding on the most

appropriate approach for their AIS development project.

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