MULTI-PLATFORM BASED FINANCIAL STATEMENT REPORT REPOSITORY SYSTEM AT UPT.PTPH NORTH SUMATRA

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Abstract: The role of information technology and information systems are two parts that cannot be separated. Both of them developed on the response of human urgency, which then has quite crucial influence and implications in this era. The development of both is fast and varied, following the aspect of increasing human need for information quickly and accurately. One example of its development in this millennial era is the development of data processing tools in the form of a repository system. The repository is a storage-based service that offers digital materials in various formats managed by certain parties to its users. UPT.PTPH North Sumatra Province is a government agency engaged in the plant and horticulture sector that does not yet have a computerized information system. To obtain related information, workers or staff must manually search for the desired data. The prototyping model used in the design proved to be adaptive in dealing with change. The results of the study reveal that a multi-platform-based financial statement repository system in the form of websites and Android applications can speed up the report processing process, provide valid financial data and a more transparent and structured data management process.

Keywords: data management; information system; information technology; prototyping model; repository.

Abstrak: Peran teknologi informasi dan sistem informasi merupakan dua bagian yang tidak dapat dipisahkan. Keduanya berkembang atas respon urgensi manusia, yang kemudian memiliki pengaruh dan implikasi yang cukup krusial pada zaman ini. Perkembangan keduanya yang cepat dan variatif, mengikuti dari aspek peningkatan kebutuhan manusia terhadap informasi secara cepat dan akurat. Salah satu contoh dari perkembangannya pada zaman millenial ini adalah berkembangnya alat bantu pengolahan data berupa sistem repository. Repository adalah sebuah fasilitas storage-based service yang menawarkan bahan digital dalam berbagai format yang dikelola oleh pihak tertentu kepada kalangan penggunanya. UPT.PTPH Provinsi Sumatera Utara adalah instansi pemerintah yang bergerak di sektor tanaman dan hortikultura yang belum memiliki sistem informasi terkomputerisasi. Untuk mendapatkan informasi terkait, para pekerja ataupun staff harus secara manual mencari data yang diinginkan. Prototyping model yang digunakan dalam perancangan terbukti adaptif dalam menangani perubahan. Hasil penelitian mengungkap bahwa sistem repository financial statement berbasis multi platform berupa website dan aplikasi andoid dapat mempercepat proses pengerjaan laporan, memberikan data keuangan yang valid serta proses pengelolaan data yang lebih transparan dan terstruktur.

Kata Kunci: model prototyping; pengelolaan data; repository; sistem informasi; teknologi informasi.

INTRODUCTION

The roles of information technology and information systems are two inseparable parts. Information technology is a tool or container, while information systems are methods that support various operational activities intending to provide the information needed [1]. Both of them developed in response to human urgency, which later had quite crucial influences and implications in this era. Where technology was originally only used for simple calculations, now almost all human activities and jobs are supported by technology and information systems. The development of both is fast and varied, following aspects of increasing human needs for information quickly and accurately [2].

One example of its development in this millennial era is the development of a data processing tool in the form of a repository system. The repository is a storage-based service facility that offers digital materials in various formats that are managed by certain parties to their users [3]. Repository itself is the concept of collecting and managing various kinds of applications, programs, or digital data that has been created in such a way that it can be accessed by its users [4]. In several other references, a repository is a data structure that focuses on the storage sector, which stores a specific set of files or directories [5]. The staff and admin concerned only need proper internet access to be able to access this system. Of course, the presence of this repository system will help various groups of workers, with more effective data management and safer data storage [6].

UPT. PTPH North Sumatra Province is a government agency engaged in the plant and horticulture sector which does not yet have a computerized infor-

mation system. So to get related information, workers or staff have to manually search for the desired data. The facts show that repository services provide several additional advantages, apart from being an added value for the agency concerned, as well as convenience of access and data security [7].

Before the existence of a financial data repository system, there were several obstacles. Such as the reporting time tends to be long, there is also a tendency for data redundancy and some aspects of errors in the validity of the data they have. The presence of a web-based financial data repository system (finance statement) can speed up the process of working on reports, providing valid and effective financial data [8].

Several studies have been used as references and support for the following research validation processes, such as the first study using Meta Data Dublin Core and the tagging feature resulting in the following repository system also being easily integrated into all OAI-PMH data harvester systems [9]. Subsequent research uses the Waterfall Model as a system development model, as well as the CodeIgniter framework to produce an application that can run well and can help users understand various kinds of courses and still provide relevant information [6]. Subsequent research is based on the problem of the inefficiency of the old system in managing Internship Reports. Using the Web Engineering method, system testing with 5 respondents produced a software feasibility quality score of 89.07% (very feasible) [3]. There are also other studies focusing on the design of fieldwork practice management applications which will later be used to handle and streamline the process of submitting internship activities. His research uses UML, PHPYii2 framework, and MySQL

as databases. web framework as a development framework and Model View Controller (MVC). The final result shows a 100% functionality score. The eligibility of the system is at 90% (very feasible) and is stated to be able to assist the process of submitting internship activities at Taruna Bhakti Vocational School [10]. Recent research has the goal of making a revolution in the development of existing systems, where there are several additional features, process optimization, and several small menus [11]. The following research uses the Prototyping Model method, and JavaScript to build an efficient web-based application. The final system test says that the system test was successful and the system can operate according to user requirements.

The research aims to increase the effectiveness and efficiency of the system, provide a more transparent data management process and minimize some of the existing fraud. This system will also provide convenience for accountants or staff and also provide additional plus points for this agency to produce a more professional performance. Based on the facts and designs presented above, we can conclude that the presence of a web-based financial statement repository system is indispensable in the world of professional work, especially in the financial sector. It has a good impact on data management that is more structured and easy to apply and provides added value in the future [12].

METHODS

Research & Development

The Research & Development method is one of several research methods that have a fairly good history in the process of system creation and development. The following methods are used to provide a systematic procedure, the end product of which has a high validation value and effectiveness [13].
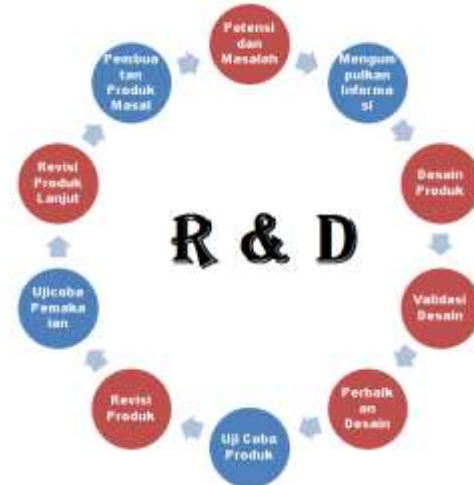

Image 1. Research & Development Method

Based on the Borg & Gall Model, the R & D method is divided into 10 stages in developing a whole system [14]:

Potential and Problems

The following stages are carried out by exploring the potentials and problems that occur in the research environment, related to the running system, performance, cause and effect, and weakness analysis.

Information Gathering

Collection of useful information that helps support existing problems from journals, books, theses, or related articles.

Preliminary Product Design

The initial design of the product is based on the analysis of weaknesses and the reference studies obtained, then the initial product design will be developed.

Design Validation

Doing rational thinking on the initial design developed. Is the following design capable of solving or at least minimizing the problems that occur?

Product Repair

Validation trials through related units, where the initial design will be adjusted and improved based on useful feedback from users.

Product Trial I

Small-scale experimentation of product design. Comparing the aspects of the effectiveness and efficiency of the new product with the old system using a questionnaire that has been distributed to several target respondents.

Product Revision I

If the score obtained by the system is proven to be good, the product will advance to the next stage. Meanwhile, if it's the other way around, then the system will return through the repair process.

Product Trial II

The following process is devoted to finding weaknesses or errors in new products, where testing as well as taking final feedback will be carried out on a larger scale.

Product Revision II

The process of checking and finalizing the product before it is launched and used by the target users.

Mass Production (System Usage)

The product is declared effective after going through various stages of trials and improvements. Able to meet the user's need for information and simplify the problem-solving process.

Prototyping Model

The method used in this study is the SDLC (Systems Development Life Cycle) Prototyping Model. SDLC is the stages and system modeling carried out by analysts and programmers in forming and developing information systems. One type that is quite flexible and used in modern system development is SDLC Prototyping.

The Prototyping Model is a model that allows the user to have an initial idea of the software. Prototyping is also a user-friendly model because users can carry out tests before the software is released [15]. This method also focuses on developing the software into its final form. This means that developers can focus on determining customer needs, faster error detection and feedback, and development time can be shortened. This model provides good communication between both the developer and the customer [16].

In general, the stages offered in the prototyping model are divided into 7 stages, namely needs analysis, prototyping, prototype evaluation, system coding, system testing, system evaluation, and system use [17].
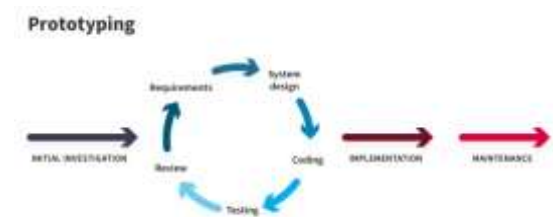

Image 2. SDLC Prototyping Model

Needs Analysis

At this stage, developers and users communicate to define the overall format of the software, future needs, and system outline [18].

Prototyping

Prototyping begins with making a temporary design according to user requests. At this stage, prototyping can be started by making a software design plan with Microsoft Visio, after which mini-research and some small-scale coding can be carried out.

Prototype Evaluation

Evaluation is an important step to find out whether the design is owned as per user requests. At this stage, the use of UML (Unified Modeling Language) will explain in detail the system and database model design [19], [20]. This stage is very important before advancing to system coding, developers will communicate with customers. If it is not appropriate, then the prototype will be revised by repeating the previous steps.

System Coding

The approved prototype will be converted into the desired programming language form. In this project, the programming languages used are PHP (website) and Java (android). Based on the UML that has been designed, the initial interface will be built using a combination of PHP, Java, and Javascript. Several additional features and transitions will be managed with Bootstrap version 4.5. Using Visual Studio Code, XAMPP, and Kodular with special extensions, the initial prototype will be refined.

System Testing

System testing will be carried out using the black box method, where the following methods focus on system output, black boxes also tend to save testing time and provide a faster error-fixing process [21]. If the results achieved are as expected, the system will progress to the next stage. At this stage, small-scale

checks were also carried out regarding menus, dashboard facilities, sub-menus, settings, and some additional minor features.

System Evaluation

After the developer has refined the repository system design, the customer will inspect the system. If the customer agrees with the system provided, then the system will be used. If it turns out that the customer does not agree, due to an error or some features to be added, the process will repeat to the previous stage.

System Use

The software has been tested, is ready to be used to meet the functional requirements of the agency, provides security to data, and provides relevant information.

RESULTS AND DISCUSSION

Dashboard Interface

Image 3. Interface Dashboard Website Repository

The initial dashboard is an interface that the researcher designed to organize information as concisely and as best as possible. The dashboard packs and visualizes the information you want to display into one accessible interface.

Image 3 is the main page interface. This page displays everything related to the website, starting from the login-logout page, the history of the last upload, a summary of agency profiles, and some additional notes regarding the website.

Image 4. Interface Dashboard Mobile Repository

Here the researchers also made the mobile repository interface as efficient as possible, so that it was easily packaged and understood by various groups of users. The information provided is also made attractive, to attract the interest of potential users in the future.
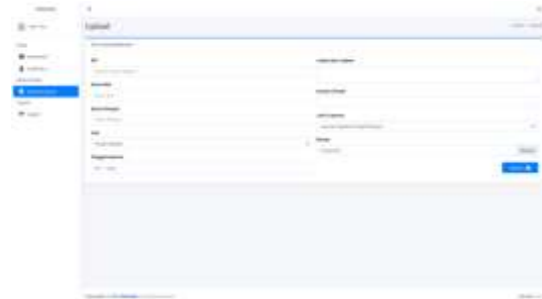
Upload Column Interface

Image 5. Upload Column Interface

The image above shows the process of uploading a financial report file. Users can start by filling in data according to the form provided, such as NIP, staff name, unit, reporting date, notes, and related contacts. In this process, the user can use the file format provided for the upload process. Based on the initial design, supported file formats are Docx, PDF, JPG, and ZIP.
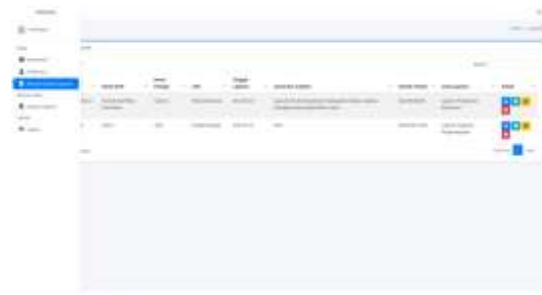
Statement Report Interface

Image 6. Statement Report Interface

The picture above shows that after the user has uploaded, the verifier will work within a certain time limit to complete the verification process. After the report file is verified, the file is free to be accessed by agency workers. In this case, the report is divided into 4 types, namely development activities, official travel, consumption, and receipt of incentives.

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Verification Interface

Image 7. Verification Interface

The image above shows the verification process. The verifier dashboard will show saved reports as well as reports waiting for verification. The verifier will be fully in charge of this process to ensure that the reports received are valid and fit for use. This section presents several performance verifier assisting functions, namely download, detail, edit and delete.

User Activation Interface

Image 8. User Activation Interface

Based on the image documentation above, the admin has full responsibility for the active status of its members. Admin has the power and role of managing or changing user account details if necessary. Admins can also perform activities to reset passwords and update user data.

Notification Interface

Notifications display messages by websites or applications outside the UI for actions taken by users in the system. Notifications are shown automatically to users in different formats to get the user to take action. For notifications that are used in this repository, see the explanation below.

Image 9. Notification Interface

Figure 9 shows the notification system used on the website. Notifications will appear after the user performs several activities such as uploading, editing settings, viewing report data, and carrying out the search process.

CONCLUSION

Further research and groundwork produce a financial statement report repository system within the UPT.PTPH Agency by applying the multi-platform concept. Repository design using the Prototyping Model is proven to be able to handle various changes adaptively, provide positive feedback, and present flexible development. The repository can work effectively, inputting, archiving, and providing data related to needs. System service testing stated a score of 92.9% (very feasible, with 14 respondents). This research is also expected to be a reference for system development by the UPT.PTPH Agency for North Sumatra Province.

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