WEB-BASED DASHBOARD AS A DATA REPOSITORY AT THE SCIENCE CENTER OF INSTITUTE FOR RESEARCH AND COMMUNITY SERVICE UNIVERSITAS TERBUKA

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Abstract

Law on the National System of Science and Technology Number 11 of 2019 mandates mandatory handover of research data to researchers, research institutions, and research funders. However, there are not many managers of research institutions in institutions that utilize repository infrastructure. Currently, the process of requesting data from faculties to scientific centers is still carried out conventionally, namely by requesting via email. And in the process, there are many obstacles, such as a fairly large amount of data, then there are also redundant requests, namely double requests from faculties and study programs. For this reason, the Institute for Research and Community Service (LPPM) Universitas Terbuka scientific center plans to create a web-based data repository in the form of a dashboard. The method used with a quantitative approach with a descriptive method. Data is collected from the repository manager of scientific center research institutions with research categories included in institutional and national research. The data is analyzed descriptively to see how the repository development supports research activities, the methods used are Forum Group Discussion (FGD) Analysis and planning, User Acceptance Test (UAT), evaluation and improvement of application products by involving experts and campuses in collaboration with LPPM Universitas Terbuka. The output of this research is the creation of a web-based dashboard as a repository of research data. With the research data repository application, it is expected to facilitate data requests from faculties to the LPPM Universitas Terbuka scientific center, because all data has been placed in the repository.

Keywords: Dashboard; Data repositories; Research data

1   INTRODUCTION

Indonesia as one of the developing countries has felt the positive impact of progress in the world of science and technology. To maintain this momentum, the Indonesian government has taken concrete steps by issuing Law on the National System of Science and Technology Number 11 of 2019. This signifies the government's commitment to mobilize and support a strong and sustainable research ecosystem in Indonesia. However, the problem is that data accessibility for the needs of study programs, faculties or universities still tends to be difficult to meet.

Universitas Terbuka (UT) has long been a pioneer in distance education in Indonesia. With 45 diverse study programs on offer, UT has provided access to higher education to thousands of students across the country. However, maintaining the quality of education is a challenge that is no less important than expanding access, and this is reflected in the preparation for accreditation of study programs.

Accreditation is a critical step in ensuring that UT's programs meet the high quality standards set by education authorities. In order to obtain recognized accreditation, UT needs to provide comprehensive and accurate data for each study program, including information on curriculum, facilities, lecturers, and student achievements.

In addition to important accreditation preparation, data also has a central role in meeting the needs of UT lecturers in an effort to improve careers and achieve higher functional positions. In the UT context, different courses may have different requirements and standards for the career development of lecturers. Therefore, accurate and relevant data collection, storage and analysis becomes very important.

Data on teaching, research, and community service become the basis for assessing lecturer performance. Scientific publications, research projects carried out, as well as the community service activities they participate in, all play an important role in assessing the performance of lecturers

In the face of this monumental task, LPPM UT needs to deliver an efficient and reliable data infrastructure. In many cases, this involves collecting, storing, and analyzing data from multiple sources pertaining to each course of study. With 45 courses to serve, the challenge is complex.

As digitalization continues to evolve from various aspects, digital data has become an invaluable treasure for various entities, from businesses to government organizations, to individuals. Every day, we generate and collect vast amounts of valuable information, and the main challenge is how to store, manage, and access that data efficiently. This is where webbased dashboards come as an innovative and important solution. Web-based dashboards are the new face of data storage and management. They not only provide universal accessibility to data, but also bring ease of use, powerful visualization, and a high level of security. This article delves deeper into the important role of web-based dashboards in providing a secure and efficient data repository in an increasingly complex digital age. We'll explore the benefits

and practical applications of this technology, as well as uncover how web-based dashboards have changed the way we view and utilize data.

2 METHODOLOGY

2.1 Research procedure

In this study, there are several stages of research procedures used, namely needs analysis, system design, implementation, integration and testing and maintenance. The description of the research procedure as shown in figure 1
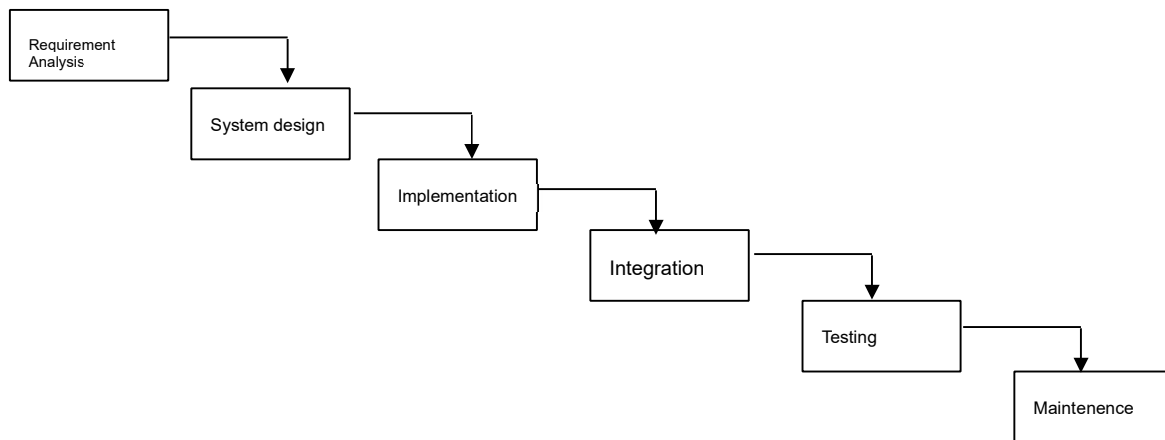
Figure 1 Research Procedure

2.2 Object of Research

In this study, the author took the object of research is each lecturer and study program. Through this research, the author found problems that arise in terms of conventional data demand and fulfillment.

2.3 Data Collection Methods

Data collection methods in this study, the author uses literature review are systematic steps used to collect, evaluate, and compile relevant literature in a particular field of research. This research uses a quantitative approach through descriptive research methods that describe phenomena along with their characteristics. Quantitative descriptive analysis is carried out on the data that has been collected to obtain an overview of repository policy conditions, infrastructure availability, and organizational cultural conditions related to research data management. Data collection by means of planned interviews with campus bachmarking in

collaboration with LPPM UT, in addition to analysis of planning, designing and making applications through FGD stage 1, implementation of UAT (user acceptance test) in FGD stage 2, evaluation and improvement of the application system in FGD stage 3.

As for the development of this application using the ADDIE model which stands for Analyze, Design, Development, Implementation, Evaluation. This model was chosen because the ADDIE model is often used because the stages of the ADDIE model describe a systematic approach to instructional development.

2.4 Dhasboard system

Dashboard system is a system that is easy to read and real time in the form of graphics of the latest status and historical trends, a key performance indicator of the organization that facilitates and informs so that decision making can be done quickly.

Panel system (dashboard) is a tool to present information at a glance, a solution for organizational information needs. Dashboard provides an interface with various forms such as diagrams, reports, visual indicators, alert mechanisms, combined with dynamic and relevant information. According to Rasmussen, Bansal, and Chen explained that there are several types of dashboards, namely:

a. Strategic Dashboard: Strategic dashboards are used to support strategic level management providing information in making business decisions, predicting opportunities, and providing direction for achieving strategic goals.

b. Tactical dashboard: This type of dashboard focuses on the analysis process to determine the cause of a particular condition or event.

c. Operational Dashboard: Operational dashboard that functions as a support for monitoring of specific business process activities. Focus on monitoring activities and events that do not change constantly.

3 FINDINGS AND DISCUSSION

The results showed that in the current academic environment, the process of requesting data from faculties to scientific centers is still carried out conventionally. In trying to access the data they need for research, teaching, and curriculum development, faculty and academic staff often face a number of significant obstacles. This data request process involves a number of manual steps, including filling out the data request form, submitting the form to the relevant

department, and then waiting for a response. In addition, this process tends to take a long time, especially when the requested data is specialized or complex.

The results also noted that another obstacle was the limitation of data accessibility. Faculty often have to come directly to the center or communicate by email and phone to request certain data. This can be inefficient and cumbersome, especially if the faculty is located in a remote location or has a busy schedule.

In addition, in an increasingly digitized environment, these conventional methods do not make optimal use of technology. There is great potential to speed up processes, improve accessibility, and reduce administrative burden by moving to more modern and automated solutions in data management.

This article highlights the importance of identifying changes that need to be made in the process of requesting data from faculty to scientific centers to improve efficiency and productivity. By understanding the barriers and challenges that exist, innovative steps can be taken to modernize these processes, improve data accessibility, and enable faculty to focus more on research and community service activities.

The conventional data collection process can be a major obstacle in achieving this goal. In this context, it is important to identify the data needs of lecturers and how the current conventional data request process is inefficient and may hinder career development as well as difficulties to meet the needs of accreditation data standards. Here are some relevant lecturer data needs such as Lecturers need access to their academic data, such as teaching history, research, and community service. This data is important in assessing the performance of lecturers. In addition, individual lecturers and faculties need data related to lecturer research, including scientific publications, ongoing or completed research projects, and research collaborations, exit surveys, tracer studies and graduate users.

Although this need is very important, the process of requesting data that is still done conventionally, can hinder efficiency. This can cause delays in obtaining the required data, take time, and increase the administrative burden on lecturers.

Therefore, UT needs to consider a more modern and efficient solution in managing lecturer data. The implementation of an automated and integrated data management system can help meet these data needs more quickly and efficiently, allowing lecturers to focus more on career

development and the achievement of higher functional positions. In addition, it will also support preparations for accreditation and ensure that the necessary data is available accurately and in a timely manner.

One of the main benefits of using data dashboards is quick and easy accessibility to the different types of data needed by lecturers. This includes academic data, research data, professional development data, and student data. Lecturers can easily access this information with just a few clicks, which saves them valuable time and allows for greater focus on teaching and research activities.

In addition to accessibility, data dashboards also present data in a visual format that is easy to understand. With informative graphs, graphs, and tables, lecturers can quickly spot trends and patterns in their performance. It helps in taking better decisions and planning the necessary corrective actions.

The importance of performance measurement is also emphasized in this article. The data dashboard gives lecturers clear performance indicators. They can see how well they have achieved their targets in various aspects of their work, including teaching, research, and community service. This data can be used to evaluate their career achievements and plan next steps.

In addition, the use of data dashboards also allows the integration of data from a variety of different sources. This is important in providing a holistic view of lecturer performance. In the context of UT, with 45 diverse study programs, this data integration becomes increasingly important to understand the impact of lecturer performance on various study programs.

In addition to the benefits related to the lecturer's career, the use of data dashboards also supports accreditation preparation. The data required to meet accreditation requirements can be easily accessed and monitored through the dashboard. This helps UT ensure that accreditation preparation runs smoothly and efficiently.

However, while the use of data dashboards offers a range of benefits, it is important to note that their implementation also requires a robust technology infrastructure and ongoing investment in staff and faculty training. In addition, the need for clear policies and procedures in data management must also be considered.

Overall, the use of data dashboards is a very positive step in facing challenges in managing lecturer data at UT. It helps lecturers to more efficiently manage their careers, achieve higher functional posts, and ensure successful preparation for accreditation of study programs. It also supports the achievement of higher quality education at UT, which is the core objective of this higher education institution

3.1 Proposed System Analysis

After the author conducts the analysis, the author gets the results of the analysis of what lecturers and study programs need in the Universitas Terbuka environment, namely an application that is able to provide information to lecturers and study programs to meet the needs in terms of career improvement of lecturers' functional positions and the need for completeness of study program accreditation documents.

The flowchart system designed is seen in figure 2:
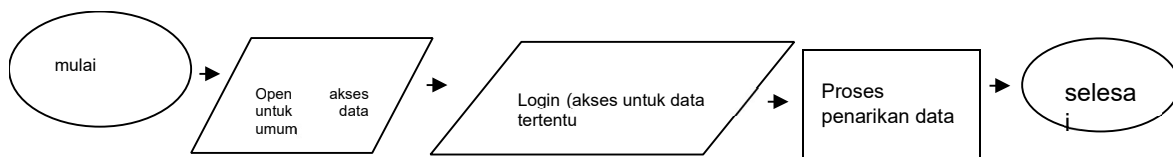
3.2 Database design

Database design or database is intended to provide a description of the database needed in the proposed information system and identify the contents needed. The realization of the needs of the user is as shown in figure 3
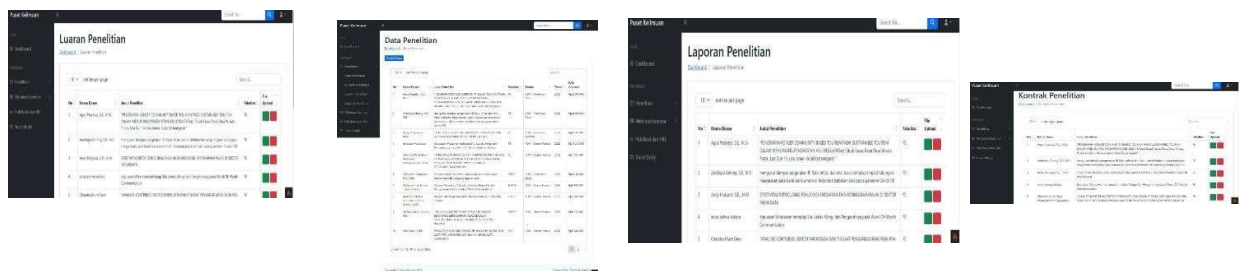

Figure 3 dashboard design of data on the needs of lecturers and study programs at the Universitas Terbuka

4   CONCLUSION

In the dynamic context of the Universitas Terbuka (UT), the use of data dashboards has opened up new opportunities to manage the data needs of lecturers and faculty, for career improvement, achieving higher functional positions, and preparing for study program accreditation. This article has reviewed the main benefits of using data dashboards. First, the data dashboard provides quick and easy accessibility to various types of data needed by lecturers, including academic data, research, community service, exit surveys, tracer studies and graduate users. This saves lecturers valuable time and allows for greater focus on their core tasks. Second, the data dashboard provides a visual presentation that makes it easier for lecturers to understand the data. Graphs, graphs, and informative tables help lecturers see trends and patterns in their performance, which in turn supports need-based decision making for each lecturer and study program.

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