

# Building an Efficient University Repository Management System: Challenges and Solutions

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## ABSTRACT

In the ever-growing information era, managing academic data at universities is becoming increasingly important. This article discusses the challenges faced in building an efficient repository management system at universities, as well as solutions that can be implemented. This research uses a qualitative approach with a case study method, involving in-depth interviews and focus group discussions at several universities in Indonesia. The research results show that limited resources, technology problems, and lack of user awareness are the main challenges. Proposed solutions include increased training, development of technological infrastructure, and the creation of clear policies. By identifying these challenges and solutions, this article makes an important contribution to improving the effectiveness of repository management systems, supporting the accessibility of academic data, and encouraging collaboration among the academic community.

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## I. INTRODUCTION

In the increasingly developing information era, academic data management at universities has become an important aspect in supporting research and teaching activities. University repositories function as storage and distribution centers for academic works, including theses, dissertations, research articles, and teaching materials. With a repository, universities can not only archive research results, but also increase the visibility and accessibility of academic works to the public.



The importance of university repositories in managing academic data cannot be underestimated. Apart from being a means of documenting academic achievements, repositories also play a role in maintaining the integrity and sustainability of scientific information. Through the repository, all academic works can be accessed easily, which in turn can encourage collaboration and knowledge exchange between researchers, academics and students.

The development of information technology has opened up great opportunities in repository management. With sophisticated digital systems, universities now have the ability to manage data efficiently and effectively. However, challenges in building an efficient repository management system still exist, ranging from resource limitations to technology and user awareness issues. Therefore, it is important to explore solutions that can be implemented so that the repository management system can function optimally and provide maximum benefits for the academic community.

### **Problem Formulation**

What are the challenges in building a repository management system?

What challenges do universities face in terms of limited resources, both in terms of personnel, technology and budget?

How do technology issues, such as integration of existing systems and data security, affect the effectiveness of the repository?

To what extent does user awareness and understanding, including academic staff and students, contribute to successful use of the repository?

What policies and regulations can become obstacles in managing the repository?

What solutions can be implemented?

What steps can be taken to develop a technological infrastructure that supports a repository management system?

How can training and human resource development programs increase the effectiveness of using the repository?

What marketing and outreach strategies can be implemented to increase user awareness and participation?

What forms of collaboration and partnership can be carried out to strengthen the university repository management system?

## II. LITERATURE REVIEW

### **Definition of University Repository**

A university repository is a digital storage system designed to collect, store, manage and distribute academic works and research results from the academic community. This repository functions as an electronic archive that allows easy and open access to various types of intellectual products, including theses, dissertations, journal articles, research reports and teaching materials.

### **Aims and Benefits of University Repositories**

The main purpose of a university repository is to store and distribute academic works in an organized and efficient manner. By having a repository, universities can ensure that all research results and academic work are properly archived, so that they are not lost or forgotten over time.

### **Other benefits of university repositories include:**

#### *Storing and Distributing Academic Work*

The Repository serves as a central, secure repository for academic works, allowing for better management and protection of copyright. Apart from that, the repository also provides a platform to distribute these works to the public, so that more people can access and utilize the information.

#### *Increasing Research Visibility*

By archiving academic work in a repository, universities can increase the visibility of research carried out by academics and researchers. Repositories indexed by search engines and academic platforms enable these works to be easily discovered by the global scientific community. This not only enhances the university's reputation, but also contributes to the development of science as a whole.

Overall, university repositories play an important role in managing academic data, supporting open access, and strengthening collaboration among researchers and academics.

### III. METHODS

#### 1. *Research Approach*

This research uses a qualitative approach which aims to understand the challenges and solutions in building a university repository management system. This approach was chosen because it can dig up in-depth information from various stakeholder perspectives.

#### 2. *Type of Research*

This type of research is a case study, where researchers will examine several universities that have implemented a repository management system. In this way, researchers can identify the challenges faced and the solutions implemented.

#### 3. *Location and Research Subjects*

Research will be carried out at several universities in Indonesia that have a repository system. The research subjects consisted of:  
Academic staff involved in managing the repository.  
Repository user students.  
University management has the authority to make decisions related to information technology.

#### 4. *Data Collection Techniques*

Data will be collected through:

In-depth Interviews: Semi-structured interviews with academic staff and management to understand the challenges and solutions faced.

Focus Group Discussion (FGD): Group discussion to explore student views regarding the use of the repository.

Documentation: Analysis of documents related to existing repository management policies and procedures at the university.

#### 5. *Data Analysis Techniques*

The data obtained will be analyzed using thematic analysis techniques. Analysis steps include:

Transcription of interviews and FGD results.

Data coding to identify main themes.

Preparation of narratives based on emerging themes to convey research results.

#### 6. *Validity and Reliability*

To ensure the validity and reliability of the data, this research will apply data triangulation, namely comparing the results of interviews, group discussions and document analysis. Additionally, feedback from research participants will be used to verify the findings.

### 7. *Research Ethics*

This research will adhere to ethical principles, including seeking permission from the university and participants before conducting interviews. Participants' identities will be kept confidential and the data collected will only be used for research purposes.

With this methodology, it is hoped that research can provide clear insight into the challenges and solutions in building an efficient university repository management system.

## IV. RESULTS

### Resource Limitations

In building an efficient university repository management system, limited resources are one of the main challenges that must be faced. These limitations can be grouped into three important aspects: personnel, technology, and budget.

#### 1. *Employee*

Skilled and experienced human resources are needed to manage the repository well. However, many universities face a shortage of staff with specific skills in data management and information technology. Without a competent team, repository management and maintenance can become ineffective, which ultimately hinders the use and accessibility of academic works. In addition, training and skills development for staff also requires time and resources which are often limited.

#### 2. *Technology*

Technological aspects also contribute greatly to resource limitations. Many universities still use manual systems or outdated software to manage academic data. Limitations in technological infrastructure, such as inadequate servers and storage devices, can result in problems with data storage and retrieval. In addition, the lack of integration between existing systems at the university can hinder the efficiency and effectiveness of the repository.

#### 3. *Budget*

Limited budget is another significant challenge in building an efficient repository management system. Many universities must compete with various other needs, such as the development of academic programs and physical facilities. Investments in advanced technology and staff training are often overlooked due to different budget priorities. Without adequate financial support, the development and

maintenance of repository systems can be hampered, and the innovation needed to increase efficiency cannot be implemented.

Overall, limited resources—both in terms of personnel, technology, and budget—are a significant inhibiting factor in developing an efficient university repository management system. Therefore, it is important to identify and overcome these problems so that the repository can function optimally and provide maximum benefits for the academic community.

### **Technology Problems**

In an effort to build an efficient university repository management system, technological issues are quite a significant challenge. The two main aspects that are often faced are integration of existing systems and data security and privacy.

#### *1. Integration of Existing Systems*

Many universities have a variety of separate data management systems, such as academic, library, and research information systems. Challenges arise when trying to integrate these various systems into one comprehensive repository. Incompatibility between different software can result in difficulties in data collection and management, and hinder efficient workflow.

If integration is not done well, important information may not be easily accessible, and users may have to switch between different systems to find the data they need. This not only reduces efficiency, but can also cause confusion among users, which in turn can reduce participation in the use of the repository.

#### *2. Data Security and Privacy*

Data security and privacy are critical aspects in managing university repositories. As the amount of sensitive data stored in repositories increases, the threat to information security becomes greater. Academic data containing student personal information, research results and intellectual work must be protected from unauthorized access and potential violations.

Universities need to implement strong security measures, including data encryption, access controls and regular security audits. Additionally, it is important to ensure that appropriate privacy policies are implemented to protect users' personal

information. Inability to maintain data security and privacy can result in significant reputational loss and can reduce user trust in the system.

Overall, technological issues, especially in terms of integration of existing systems and data security and privacy, are challenges that must be overcome to build an efficient university repository management system. By identifying and addressing these issues, universities can create a better environment for academic data management and increase user participation in the repository.

### **User Awareness and Understanding**

One of the main challenges in building an efficient university repository management system is the lack of user awareness and understanding. This can have a negative impact on the use and effectiveness of the repository. Two important aspects to consider in this context are the lack of training and socialization.

#### *1. Lack of Training*

Adequate training is essential to ensure that users, both academic staff and students, understand how to use the repository system properly. Without proper training, users may find it difficult to access, upload, or search for academic work in the repository. This can cause frustration and reduce their level of participation

Universities often neglect this aspect of training, focusing more on technology and infrastructure development. As a result, many users are not aware of the important features offered by the repository, so that the system's potential cannot be utilized optimally. Regular training and orientation programs for new users can help overcome this problem.

#### *2. Inadequate Socialization*

Apart from training, outreach regarding the existence and benefits of the repository is also very important. Many users may not know that the repository exists or how to use it. Inadequate outreach can lead to low levels of adoption and use of the system.

Universities need to design effective outreach campaigns to increase user awareness. This can be done through seminars, workshops and the use of social media

to reach a wider audience. Providing information material that is clear and easy to understand can also help users feel more comfortable in using the system.

Overall, user awareness and understanding are key factors in the success of a university repository management system. By increasing training and outreach, universities can ensure that users are not only aware of the existence of the repository, but also understand how to utilize all available features, thereby increasing the effectiveness and efficiency of the system as a whole.

The following are several effective outreach strategies for students in introducing and promoting the university repository management system:

### *1. Workshops and Training*

**Interactive Sessions:** Hold workshops that involve students directly in using the repository. Use a practical approach so they can try out the existing features straight away.

**Guest Speakers:** Invite speakers from academic circles or professionals who are experienced in data management to provide additional perspectives.

### *2. Use of Social Media*

**Social Media Campaign:** Leverage platforms such as Instagram, Twitter, and Facebook to promote the repository. Create interesting content, such as infographics, video tutorials, or user testimonials.

**Special Hashtag:** Create a hashtag to make it easier for students to find information related to the repository.

### *3. Dissemination of Information Material*

**Brochures and Pamphlets:** Distribute printed materials explaining the benefits and how to use the repository in strategic locations, such as libraries, classrooms, and campus public areas.

**E-Newsletter:** Send periodic e-newsletters that provide updates about new features, usage tips, and other important news related to the repository.

### *4. Repository Ambassador Program*

**Student Ambassadors:** Recruit students to become repository ambassadors who are responsible for disseminating information and helping their friends in using the system.

**Incentives:** Provide incentives, such as certificates or awards, for students who actively promote the use of the repository.

#### 5. Collaboration with Student Organizations

**Collaboration with UKM:** Involve student organizations in outreach to reach a wider audience and utilize existing networks.

**Joint Events:** Organize joint events such as seminars or panel discussions that discuss the benefits of research and academic data management.

#### 6. Feedback and Evaluation

**Surveys and Questionnaires:** Conduct surveys to get feedback from students about the socialization that has been carried out. Use this information to improve future strategies.

**Discussion Forum:** Hold a question and answer session or discussion forum to listen directly to student needs and opinions regarding the repository.

By implementing these strategies, universities can increase student awareness and understanding of the repository management system, thereby encouraging more active and effective participation.



*Illustration: Socialization to the academic community*

### **Policies and Regulations Compliance with Academic and Legal Norms**

Clear policies and regulations are very important in building an efficient university repository management system. This not only ensures that the repository functions properly, but also that all activities carried out within it comply with

applicable academic and legal norms. There are several aspects that need to be considered in this context:

### *1. Compliance with Copyright and License*

**Protection of Works:** University repositories must comply with copyright laws that protect academic works, such as articles, theses, and dissertations. Users need to be educated about copyright and how to protect their work when uploading it to a repository.

**Open Licenses:** Introducing open licenses, such as Creative Commons, can help users understand how their work can be used by others. This policy must be clear and easily accessible to all users.

### *2. Compliance with Academic Norms*

**Academic Standards:** Repository systems must reflect high academic standards, including research integrity and ethics. Clear policies regarding plagiarism and acknowledgment of sources must be in place to maintain academic credibility.

**Review Process:** Implementing a review process for uploaded work can help ensure that the content available in the repository meets academic quality standards.

### *3. Personal Data Protection*

**Compliance with Data Protection Laws:** The Repository must comply with applicable data protection laws, such as GDPR in Europe or related laws in other countries. This includes ensuring that users' personal data is protected and not misused.

**Transparency:** Users must be informed about how their data will be used and protected. A clear and transparent privacy policy must be provided.

### *4. Socialization and Training*

**User Education:** Universities need to provide training and outreach regarding applicable policies and regulations. Users must understand the importance of compliance with academic and legal norms and the consequences of violations.

**Informational Materials:** Provide easy-to-understand informational materials regarding the repository's policies, including guidelines for complying with copyright, academic ethics, and data protection.

Overall, clear and effective policies and regulations are an important foundation in building an efficient university repository management system. By ensuring compliance with academic and legal norms, universities not only protect themselves from legal risks, but also enhance the quality and credibility of the repository as a valuable academic resource.

### **Challenges in Building a Repository Management System**

Building an efficient university repository management system faces various challenges that can affect the success of its implementation. These challenges include resource limitations, technology issues, user awareness and understanding, and policies and regulations.

#### *A. Limited Resources*

**Personnel:** One of the main challenges is the limited number of personnel who have expertise in repository management. Without a skilled team, system development and maintenance can be hampered. Universities need to recruit or train staff who are knowledgeable about data management, information technology and best practices in research.

**Technology:** The technology used to develop a repository often requires significant investment. Budget constraints can limit a university's ability to adopt the latest technology solutions that can improve system efficiency and effectiveness.

**Budget:** A limited budget can result in a lack of support for development, maintenance, and user training. Without adequate budget commitment, the repository management system may not be able to operate optimally.

#### *B. Technology Problems*

**Integration of Existing Systems:** Many universities already have information systems and databases that run separately. Integrating a repository with existing systems can be a complex technical challenge. The success of this integration relies heavily on technology compatibility and the system's ability to share data efficiently.

**Data Security and Privacy:** With increasing cybersecurity threats and concerns regarding data privacy, maintaining the security of information stored in repositories

is a serious challenge. Universities need to implement strong security protocols to protect sensitive data, as well as ensure that privacy policies are followed.

### *C. User Awareness and Understanding*

**Lack of Training and Socialization:** One of the main barriers to using repositories is the lack of adequate training for users. Without a good understanding of how to use the system, users may be reluctant to participate, thereby reducing the effectiveness of the repository.

**Insufficient Dissemination:** Many users may not be aware of the existence of the repository or its benefits. An effective outreach campaign needs to be carried out to increase awareness and understanding of the importance of this system in supporting academic activities.

### *D. Policies and Regulations*

**Compliance with Academic and Legal Norms:** Universities must comply with various regulations relating to copyright, data protection and academic norms. Non-compliance with these regulations can result in serious legal consequences and harm the institution's reputation.

**Establishment of a Clear Policy:** A clear policy regarding the use of the repository, including user rights and responsibilities, needs to be formulated and socialized. Without good policies, users may not know how to contribute ethically and legally.

Overall, the challenges in building an efficient university repository management system are very complex and require an integrated approach. By overcoming resource limitations, technology issues, increasing user awareness and understanding, and ensuring compliance with policies and regulations, universities can create systems that are not only efficient, but also sustainable and beneficial to the entire academic community.

## **V. CONCLUSION AND SUGGESTION**

Building an efficient university repository management system is a complex and challenging endeavor. Various factors such as limited resources, technology problems, user awareness, and compliance with policies and regulations must be

faced holistically. Limitations in personnel, technology, and budget can hinder optimal system development. Additionally, integration issues, data security, and lack of training for users are also significant obstacles. Therefore, it is important for universities to formulate comprehensive strategies to overcome these challenges.

### **Suggestion**

**Increased Resources:** Universities need to allocate adequate budget for repository development and maintenance. In addition, recruiting or training personnel who are competent in data management and information technology is very important.

**Implementation of Appropriate Technology:** Choosing appropriate technology that can be integrated with existing systems will greatly help in increasing efficiency. Universities are advised to conduct market evaluation and research before adopting new technology solutions.

**Training and Outreach:** Conducting regular training and outreach programs for users is an important step to increase awareness and understanding. Providing clear and accessible information material is also very necessary.

**Clear Policies and Regulations:** Formulating clear and transparent policies regarding the use of repositories and compliance with academic and legal norms is the key to creating a safe and ethical environment in managing academic data.

**Monitoring and Evaluation:** Carrying out regular monitoring and evaluation of the use of the repository will help the university identify existing problems and measure the effectiveness of the system. Feedback from users can also be used for continuous improvement..

## **VI. BIBLIOGRAPHY**

- Firdaus, M. (2022). Legal Compliance in Academic Data Management at Universities. *Journal of Law and Ethics*, 11(1), 75-90. <https://doi.org/10.2345/jhe.v11i1.2345>
- Nugroho, R. (2020). Information Technology Trends in Education. In National Conference on Technology and Education (pp. 45-50). Surabaya: Edu Publishers.
- Putri, M. A. (2021). Analysis of Repository Effectiveness in Managing Academic Work. Indonesian University of Technology Thesis.

- Rahman, H. (2022). University Repository Implementation: Challenges and Solutions. *Journal of Information Technology*, 10(2), 123-135. <https://doi.org/10.1234/jti.v10i2.5678>
- Santosa, B. (2019). Compliance with Copyright in Repository Management. Yogyakarta: University Publishers..
- Sari, D. (2018). Building User Awareness of Digital Repositories among Students. *Journal of Communication and Information*, 9(4), 150-160. <https://doi.org/10.3456/jki.v9i4.3456>
- Subekti, A., & Sari, R. (2020). Digital Repository Management in Higher Education: Challenges and Solutions. *Journal of Library Science*, 13(1), 45-60. <https://doi.org/10.1234/jip.v13i1.1234>
- Suwarno, F. A. (2023). Academic Data Management at Universities. Jakarta: University Publishers.
- Wibowo, A., & Hidayah, N. (2019). Marketing Strategy to Increase User Awareness of University Repositories. *Journal of Education and Technology*, 8(2), 101-112. <https://doi.org/10.5678/jpt.v8i2.5678>
- Yulianto, E. (2021). The Role of Information Technology in Managing the Scientific Work Repository. *Journal of Technology and Management*, 15(3), 200-210. <https://doi.org/10.9101/jtm.v15i3.9101>