A FRAMEWORK FOR IMPROVING DOCUMENT SUBMISSION IN DIGITAL INSTITUTIONAL REPOSITORIES: A CASE STUDY OF UGANDA CHRISTIAN UNIVERSITY

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S22M10/202

A DISSERTATION SUBMITTED TO THE FACULTY OF ENGINEERING, DESIGN AND TECHNOLOGY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE MASTER OF SCIENCE OF INFORMATION TECHNOLOGY OF UGANDA CHRISTIAN UNIVERSITY

May, 2025

UGANDA CHRISTIAN UNIVERSITY

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DECLARATION

I, Tamale Drake, hereby declare that this work in this report has never been submitted to any learning institution by any student whatsoever for any academic award.

Signature: 

Date: 25/May/2025

APPROVAL

This is to certify that this dissertation titled **"A Framework for Improving Document Submission in Digital Institutional Repositories"** has been written under my guidance and supervision. The work presented is original, worthy, and ready for submission in partial fulfillment of the requirements for the award of Master of Information Technology of Uganda Christian University.

Signature Date

25/ 05/2025

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Academic Supervisor

Dr Francis Otto

DEDICATION

I dedicate this research report to first of all to the Almighty God for giving me the health necessary to accomplish all before me, secondly, to my mentor Mr. David Bukenya for tirelessly encouraging me to embark on this journey and providing me with all the necessary support and guidance through this journey, My family especially my wife for the emotional and peace of mind to accomplish this task, my research supervisors for believing in me and being at my disposal throughout this period to completion and last but not least, my current workplace supervisor, Dr Sarah Nakaziba for allowing me the time off to accomplish this academic requirement and for always providing me with the necessary professional support.

ACKNOWLEDGMENT

My sincere appreciation goes to my supervisor Dr Francis Otto, for his invaluable guidance towards the completion of this dissertation. Your expertise and mentorship shaped my research and academic growth.

ABSTRACT

Digital institutional repositories (DIRs) serve as critical platforms for the preservation and dissemination of academic and research outputs. However, the document submission process in these repositories is often fraught with challenges such as manual data entry, system inefficiencies, and limited user training. This study aims to develop a comprehensive framework to enhance the document submission process in DIRs, addressing these challenges and improving overall user experience and system effectiveness.

The primary objective of this study is to develop a framework for improving the document submission process in digital institutional repositories. Specific objectives include assessing the current state of document submission processes, determining the factors for improvement, and developing a framework based on these requirements. The study employed quantitative data collection techniques. A total of 158 questionnaires were distributed to participants, with a response rate of 94.9%.

The demographic analysis revealed a diverse participant pool, with a majority holding bachelor's degrees (49%) and having some level of experience with DIRs. The assessment of the current submission process highlighted significant time spent on submissions, guided primarily by institutional policy (62%). System quality and information quality were identified as critical areas for improvement, with participants indicating the need for enhanced metadata workflows and effective error handling mechanisms. User satisfaction and individual impact metrics underscored the importance of training and system updates to improve performance and save time.

The findings suggest that improving system quality, information quality, and user satisfaction can significantly enhance the document submission process in DIRs. The designed framework incorporates components such as metadata management, security and privacy measures, automated data entry, and error handling. These

improvements are expected to streamline the submission process, reduce errors, and increase user efficiency and satisfaction.

This study provides a comprehensive framework for improving document submission in digital institutional repositories. By addressing system inefficiencies and enhancing user experience, the proposed framework aims to facilitate more effective and efficient document management.

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LIST OF ABBREVIATIONS

ETD	Electronic Thesis and Dissertations
ETDMS	Electronic Thesis and Dissertation Management Systems
UCU	Uganda Christian University
ETDs	Electronic Thesis and Dissertations Submission
DIR	Digital Institutional Repositories

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CHAPTER ONE

1.0 Introduction

The emergence of Information Communication & Technology (ICT) has caused a transformation in the methods used for creating, sharing, storing, and accessing information (Okon & Ogri, 2023). Conventional library practices have adapted to include ICT to enhance and increase the effectiveness of their services. Digital institutional repositories have expanded to encompass Library & Information Centers, reflecting changes in their role. As libraries evolve, users have also progressed to more sophisticated means of obtaining information and advanced to digital institutional repositories. These include making all possible efforts to facilitate access to the most sought-after information resources that include among many electronic books, journals, audio recordings, theses and dissertations (Sengupta, 2014) . Digital institutional repositories serve as dynamic repositories that house a vast array of documents, ranging from scholarly articles and reports to multimedia content (Khan, 2021). However, the process of submitting documents to these libraries often involves cumbersome manual tasks, including the entry of metadata and other pertinent information (Manual, 2008). This manual effort not only hinders the contributors but also introduces the possibility of errors, impacting the overall quality and accessibility of the digital institutional repository's content (Panda & Chakravarty, 2021).

As these repositories continue to grow in size and importance, the efficiency of document submission processes becomes increasingly critical (Barrett et al., 2019). The current state of document submission often involves manual data entry, posing challenges for contributors and administrators alike. To address these inefficiencies and elevate the user experience within digital institutional repositories, this study introduces a comprehensive framework designed to optimize the document submission workflow.

Students in higher learning usually right from Diploma level bachelors, Masters to Doctorate of Philosophy PhD in Institutions of Higher Learning (IHL) are expected to write and publish a dissertation or thesis depending on the level of study. In Uganda

for instance all Bachelor's and Master's level students are required to submit a dissertation and at Postgraduate level of Doctorate of Philosophy (PhD) a thesis as a requirement for the award of their respective degrees. This is usually done at the tail end of their studies, usually as part of their final study semester or year. The trend increasingly is to submit these in electronic version (E-version) which means digitally and online through a specially designed system to support that. Digital institutional repositories hold digital versions of theses and dissertations submitted to higher learning institutions. Digital institutional repositories can be made available to the public through open access repositories, which can help to promote the dissemination of knowledge and research.

1.1 Background to the Study

The integration of Information and Communication Technology (ICT) into higher education has significantly transformed the way knowledge is created, preserved, and disseminated. Historically, libraries served as the primary custodians of academic knowledge through physical storage and lending. However, over the past three decades, the digitization of content and the emergence of online platforms have led to the development of digital institutional repositories (DIRs) structured online databases used to collect, preserve, and disseminate the intellectual output of an institution, such as theses, dissertations, journal articles, and conference papers (Lynch, 2003).

The evolution of DIRs can be traced back to the early 1990s, beginning with efforts like the Open Archives Initiative (OAI), which aimed to improve the interoperability of repository systems. As a result, institutions worldwide began adopting these platforms to enhance visibility and accessibility of their scholarly content. However, the adoption and optimization of DIRs have been uneven, particularly in developing regions such as Sub-Saharan Africa, where infrastructural, policy, and technical challenges persist.

From a theoretical perspective, this study draws upon the Technology Acceptance Model (TAM) (Davis, 1989), which explains how users come to accept and use a technology. According to TAM, perceived usefulness and perceived ease of use are key determinants in the acceptance of any technology-based system. In the context of digital repositories, if the submission systems are perceived as cumbersome or inefficient, users are less likely to engage actively with them. In addition, the Diffusion of Innovations Theory by Rogers (2003) explains how, why, and at what rate new technologies spread, which is critical in assessing institutional uptake of digital repository practices.

Conceptually, the study hinges on the optimization of document submission a process that involves uploading documents and entering descriptive metadata such as author names, titles, keywords, and abstracts into the repository system. Metadata, being essential for resource discovery and retrieval, becomes a cornerstone of repository effectiveness. Errors in metadata input or inconsistency in submission practices reduce the visibility and retrievability of scholarly content (Zavalina & Burke, 2021). Thus, improving submission workflows directly contributes to the broader goals of academic accessibility and institutional knowledge management.

Electronic thesis and dissertation submission systems have become increasingly important in institutions of higher learning around the world. These systems allow students to submit their theses and dissertations electronically, while universities manage the submission and archiving processes.

However, the adoption of such systems varies across institutions and countries, thus the need for more research on the benefits and challenges of these systems, especially in developing countries such as Uganda.

Contextually, this study is anchored in the Ugandan higher education landscape, with a focus on Uganda Christian University (UCU). Founded in 1997, UCU has emerged as a leading private university, offering a wide range of undergraduate and postgraduate

programs. Like many institutions in Uganda, UCU is transitioning from manual thesis submission systems to digital platforms. However, this transition has been challenged by infrastructural limitations, lack of standardized metadata practices, and limited automation in the document submission process.

In digital institutional repositories, errors in data entry constitute a persistent challenge that directly affects the accessibility and reliability of stored information (Omeluzor et al., 2022). Data entry errors encompass a range of inaccuracies and inconsistencies introduced during the submission process (Manual, 2008). These errors, whether in metadata descriptions or document categorizations, significantly impede users' ability to discover and access the most relevant and accurate content (Misra & Thoma, 2013). For instance, inaccurately tagged documents or improperly formatted metadata can lead to misclassifications and hinder the effectiveness of search algorithms (Choudhury et al., 2021). Consequently, users may encounter difficulties in locating the materials best suited to their informational needs, thereby undermining the utility and credibility of the digital institutional repository as a comprehensive knowledge repository.

In the context of improving document submission in digital institutional repositories, a hypothesis that could be tested is whether implementing specific indexing policies in institutional repositories leads to an increase in the quantity and quality of submissions. This hypothesis could be informed by the findings of Kodua-Ntim (2023), who highlighted the positive impact of indexing policies on improving the quality of indexing and information retrieval in repositories. Additionally, the study by Onyebinama et al. (2021) could provide insights into the determinants of content submission in institutional repositories, which could further support the hypothesis by identifying factors that influence submission behavior.

Moreover, exploring the role of technological advancements in facilitating document submission could be another aspect to consider. Konstantelos et al. (2022) discussed the increasing trend of electronic submission of theses in institutional repositories, indicating a shift towards digital formats. Understanding how these technological

changes influence submission rates and practices could be a valuable area of investigation.

Furthermore, investigating the digital preservation practices within institutional repositories, as studied by Anyaoku et al. (2019), could also be relevant. This research could help in understanding how preservation strategies impact submission behaviors and whether robust preservation mechanisms encourage more submissions.

This study is situated at the intersection of technological innovation, user behavior, institutional policy, and digital scholarship dissemination. It seeks to contribute to the growing discourse on enhancing academic knowledge sharing in developing contexts through the effective deployment of digital institutional repositories. Hypothesis: The implementation of user-friendly interfaces and streamlined submission processes (IV) positively influences the frequency and quality of document submissions (DV) in digital institutional repositories.

This hypothesis is supported by the findings of Singeh et al. (2020), who emphasized the importance of making digital libraries more usable and sustainable for users. Additionally, the study by Wu (2015) highlighted the causes of low faculty contribution to institutional repository content growth, suggesting that improving the submission process could potentially increase contributions. Furthermore, the research by Oberhiri-Orumah and Baro (2022) identified challenges such as inadequate facilities and a lack of skilled ICT personnel, which could be addressed through user-friendly interfaces and simplified submission processes to encourage more submissions.

By testing this hypothesis, the study was able to explore how enhancing the user experience and simplifying submission procedures impact the submission rates and content quality in digital institutional repositories.

1.2 Statement of the Problem

Digital institutional repositories, pivotal as they are in the preservation and dissemination of knowledge, face a persistent challenge in the efficiency of document submission processes (Sharma & Chauhan, 2019b). The current state of document

submission within these repositories is marked by manual data entry requirements, posing significant challenges to contributors and administrators alike. The challenging nature of these tasks discourages potential contributors and creates chances for errors, which restricts the growth and dynamism of research.

Contributors to digital institutional repositories are often required to manually input metadata, including titles, authors, and dates, during the document submission process. This manual entry is not only time-consuming but also prone to inaccuracies, potentially leading to incomplete or erroneous information within the digital repository (Sue, 2013). As the volume of digital content continues to expand, the need to streamline the document submission workflow becomes increasingly apparent (Grassini, 2023). Furthermore, the current state of document submission processes fails to leverage advancements in technology that could significantly enhance efficiency. Optical Character Recognition (OCR) and advanced metadata extraction techniques, capable of automating data entry tasks, remain underutilized in many digital institutional repositories (Lu et al., 2009). The absence of a systematic framework for incorporating these technologies contributes to a persistent gap in optimizing the submission process.

Identifying the effect of data entry errors on access to the best results is paramount in understanding the critical challenges facing digital institutional repositories today. Errors in data entry, ranging from typographical mistakes to incomplete metadata descriptions, directly impede users' ability to efficiently retrieve relevant information (Zavalina & Burke, 2021). Inaccuracies in metadata or document descriptions lead to suboptimal search outcomes, thereby hindering users' information discovery process (Aldoseri et al., 2023). For instance, a document incorrectly tagged as belonging to one category may remain undiscovered by users seeking information in a different context. Furthermore, inconsistencies in metadata fields can result in misleading search results, diminishing the overall usability and effectiveness of the digital institutional repository (Lee, 2007). Addressing these data entry errors is imperative for enhancing user satisfaction, optimizing search functionalities, and preserving the integrity of the digital institutional repository's content.

This research aimed at addressing these challenges by proposing and implementing a framework that leverages advanced technologies to automate document submission tasks. By doing so, the study sought to reduce manual efforts, minimize errors, and create a more accessible and user-friendly environment within digital institutional repositories.

1.3 Objectives

1.3.1 General Objective

To develop a framework for improving document submission in digital institutional repositories

1.3.2 Specific objectives

i. To assess the Current State of Document submission processes and challenges faced.
ii. To determine factors for improving document submission on the digital institutional repository.
iii. Investigate the role of institutional policies and mandates in shaping submission practices.
iv. Analyze the motivations and incentives for researchers to submit their work to repositories.

1.4 Research Questions

i. What are the key steps involved in the current document submission process in the digital institutional repository, and what challenges do contributors and administrators commonly encounter during this process?
ii. What factors are for improving the document submission process?
iii. What role do institutional policies and mandates play in shaping submission practices?
iv. What motivates a researcher to submit their research output into a digital repository?

1.5 Scope of the Study

1.5.1 Content scope

Uganda Christian University (UCU) is a private university in Uganda that was founded in 1997. It is one of the largest universities in Uganda, with over 10,000 students. UCU offers a variety of undergraduate and graduate programs in the arts, sciences, business, education and other fields (Maractho et al., 2022).

The institution promotes research through enabling students to publish their study thesis to the university library. Theses and dissertations are currently submitted in paper form. This can be a time-consuming and inefficient process. It can also be difficult to share theses and dissertations with the public, as they are not available online.

This study aimed at developing a comprehensive framework for enhancing the document submission process within digital institutional repositories. The scope encompassed a thorough investigation into the existing document submission workflows, the identification of challenges faced by contributors and administrators, and the development of a technological framework to address these challenges.

1.5.2 Time scope

The time scope of this study was from November 2023 to July 2024.

1.5.3 Geographical scope

The study was conducted at Uganda Christian University Mukono.

1.6 Significance of the study

Digital institutional repositories serve as crucial repositories of knowledge, facilitating the global dissemination of information across diverse domains. The significance of this study lies in its potential to address and overcome the inherent challenges associated with the document submission process within digital institutional repositories, leading to far-reaching benefits for contributors, administrators, and the broader academic and research community.

1. Efficiency Enhancement

By automating tedious data entry tasks through technologies like Optical Character Recognition (OCR) and metadata extraction, contributors like students, librarians can experience a streamlined and less time-consuming submission process (Bakker & Castro, 2023).

2. Error Reduction

Manual data entry is prone to errors, potentially leading to inaccuracies in metadata and content within digital institutional repositories. This study's framework aims to minimize errors by leveraging advanced technologies, contributing to the overall accuracy and reliability of the information stored in digital repositories.

3. User Satisfaction

A more user-friendly and efficient document submission process is likely to enhance user satisfaction. Contributors experience reduced friction in sharing their work, encouraging wider participation and increasing the overall volume and diversity of content within digital institutional repositories.

4. Technological Advancement

The incorporation of technologies like OCR and metadata extraction into the document submission workflow represents a step forward in embracing technological advancements for information management. This study contributes to the ongoing evolution of digital institutional repository practices, aligning them with contemporary technological capabilities (Al Sadi, 2021).

5. Enhanced Accessibility

A streamlined submission process ensures that valuable content is promptly and accurately made available to the intended audience. This increased accessibility fosters the dissemination of knowledge, supporting academic, research, and educational endeavors on a global scale.

6. Knowledge contribution for Future Research

This study establishes a benchmark for future research in the field of digital institutional repository management. The proposed framework provides a foundation for continued exploration, adaptation, and refinement, encouraging ongoing innovation in the optimization of document submission processes.

CHAPTER TWO

LITERATURE REVIEW

2.1 Review of Related Literature

2.1.1 Electronic Theses and Dissertations: The Global Perspective

A significant number of American universities currently mandate that their doctoral candidates submit their dissertations to ProQuest/UMI via the conventional publishing route, a growing number of universities now require the original paper copy (previously kept in the library) to be accessible in full-text, open access format in a university repository. Various institutions grant students the option to delay publication or limit access to university personnel, allowing time for publishing articles or books based on their Digital institutional repositories. Nevertheless, several universities also impose a requirement for all documents to be ultimately available in open access to enhance the dissemination of research conducted at the institutions (McCutcheon, 2010).

In India, Digital institutional repositories are the trend in most academic institutions mainly through following the global movement towards open access which aims to make significant research and academic literature freely available online. In India, several vital research institutions offer a substantial number of documents that contribute to the advancement of knowledge and the expansion of technological innovation. The primary objectives of establishing institutional repositories in India are to enhance the discoverability of research outputs, provide free access to information, and ensure the preservation of research materials. The creation of such repositories can help to increase the visibility of research outputs and facilitate the free dissemination of knowledge to a wider audience (Lihitkar & Lihitkar, 2014).

2.1.2 Digital institutional repositories in Africa

In South Africa, the creation of theses and dissertations is not solely an academic pursuit but rather an integral component of the nation's development strategy. The government has set a target of expanding the number of master's and doctoral students by over 72% by the year 2030. This national initiative is aimed at promoting advanced education and fostering research and development activities in various sectors of the economy. Through the production of theses and dissertations, South Africa can cultivate a new generation of scholars, researchers, and professionals, and advance its national development goals (South Africa, 2012).

To minimize the gap between the conversion rate of Digital institutional repositories to research outputs, it was suggested that the North-West University (NWU) should upgrade the hybrid model suggestion, which was proposed in 2012, to a comprehensive policy for both master's and Ph.D. students. This action would ensure that all theses and dissertations have equal opportunities to be transformed into academic research outputs. By implementing this policy, the NWU can encourage and support the production of high-quality research, foster academic excellence, and promote the dissemination of knowledge. This policy can also help to increase the visibility and impact of the NWU's research outputs, and enhance its reputation as a leading institution of higher education (Bangani, 2018).

A Nigerian study revealed that out of the eight universities surveyed, only three have initiated Digital institutional repositories projects in their digital institutional repositories. Although other universities expressed an interest in adopting Digital institutional repositories, they had taken minimal steps towards implementation. The study highlighted the significant advantages that university libraries in Nigeria can gain from Digital institutional repositories projects. Benefits identified included improving scholarly communication within Nigeria, increasing the global exposure of Nigerian universities, and promoting research dissemination. The study also uncovered several challenges associated with Digital institutional repositories implementation in Nigeria and identified potential strategies to mitigate these obstacles. By addressing these challenges and implementing effective solutions, Nigerian universities can

leverage the benefits of Digital institutional repositories and contribute to the advancement of scholarly research in the country (Ezema & Ugwu, 2012).

There is an expressed concern that the management, preservation, and dissemination of theses and dissertations in Africa are not up to par. Postgraduate theses and dissertations provide a glimpse into high-level research conducted in universities and represent the significant academic achievements of students. Given that these works are closely supervised by professors, they often contain valuable and trustworthy information. However, despite their potential usefulness for research, these works frequently remain obscure and underutilized in university libraries and archives. This is because they lack visibility and accessibility, making it challenging for users to access them. Efforts must be made to address these issues and promote the wider dissemination of these works to facilitate academic research and advance scholarship in Africa (Baro & Otiode, 2014).

2.1.3 Uganda's perspective

A study concluded that one of the main obstacles in the digitization of theses and dissertations is the lack of proficiency in digital technology (Damawan & Azizah, 2020). In order to create a successful plan for the digitization of these materials, it is important to develop strategies for copyright protection, preservation policies, and public awareness. The study recommended implementing a plan to provide digital technology skills training, establish appropriate facilities, formulate policies, and increase awareness of the digitization process. By addressing these factors, Makerere University can successfully navigate the digitization process (Magara & Mayega, 2006).

Our findings reveal a low level of publication productivity among post-graduate students at Makerere University. Furthermore, we observed that older students were less likely to publish their research, while cohort studies were more likely to be published. Analysis of first citations showed that approximately one in five dissertations were cited primarily in peer-reviewed journal articles. Additionally, at least one in 20 dissertations were cited in policy-related documents, indicating that these works were being utilized in policy-making, particularly by international actors.

These results highlight the need for increased support and training for post-graduate students in terms of publishing their research and increasing its visibility, as well as for greater engagement between researchers and policy-makers to promote the use of research evidence in policy-making processes (Obuku et al., 2017).

It is becoming increasingly common for universities in Africa to adopt the concept of establishing and managing a repository of electronic theses and dissertations (Digital institutional repositories). This is done by either receiving digital copies of the works from graduates or by digitizing physical copies of the theses and dissertations held in the university library (Baro & Otiode, 2014).

2.2 Software Used for Electronic thesis and dissertations

Electronic thesis and dissertations (Digital institutional repositories) are digital versions of theses and dissertations that are submitted electronically to universities. They can be made available online to the public, which can help to promote research and scholarship.

Digital institutional repositories submission systems have been in use since the 1990s, and have become increasingly popular in the last decade due to advances in digital technology and the internet. These systems offer many benefits over traditional paper-based submission systems, such as faster and more efficient processing, reduced costs, improved accessibility and visibility, and enhanced preservation and dissemination of scholarly works. However, the adoption of Digital institutional repositories submission systems is not without challenges, such as technical issues, copyright and intellectual property concerns, cultural and institutional barriers, and resistance from stakeholders.

Several studies have investigated the adoption and implementation of Digital institutional repositories submission systems in different countries and contexts. For example, a study examined the implementation of a Digital institutional repositories submission system at the University of Jordan, and found that the system improved

the efficiency and quality of the submission process, but also faced challenges related to copyright and intellectual property issues (Tbaishat, 2018). Another study by Liu et al. (2018) analyzed the adoption of Digital institutional repositories submission systems in Chinese universities and found that the systems had a positive impact on the dissemination of scholarly works, but also required more resources and technical support.

There are numerous types of software used for Digital institutional repositories as enumerated below;

1. **ETD-db**

ETD-db was developed by Virginia Tech, while DSpace was created through a collaboration between Hewlett-Packard (HP) and the Massachusetts Institute of Technology (MIT). ETD-db is intended for electronic theses and dissertations and includes a feature for supervised document authoring and a unique set of metadata specifically for theses. ETD-db has not had a major release since 2004. While the software is still in use by Virginia Tech and others, it is dated. ETD-db in short "is a series of webpages and Perl scripts that interact with a MySQL database (ETD-db: Home 2012)." This means that customization of the software can be difficult. Perl is a language that UNBC has little institutional expertise in. The application also relies on some older and deprecated code libraries. ETD-db was a seminal work in the ETD field but the underlying architecture requires a greater degree of technical expertise to maintain and customize than is desirable (Jones, 2004).

2. **Valet**

VALET is a Web submission solution for managing electronic theses and dissertations. VALET is a fitting product offering from a company that boasts a tradition of leadership in the industry.

3. **OpenETD**

OpenETD is a free, open-source software application that manages the submission, approval, and distribution of Digital institutional repositories. It was developed by Rutgers University Libraries and can be used either as a standalone ETD submission system or as a component of an institutional repository. It includes a customizable user interface for submission, review, and approval of Digital institutional repositories, as well as features for managing embargo periods, assigning digital object identifiers (DOIs), and exporting metadata in a variety of formats. The software also includes built-in tools for generating reports and tracking ETD submissions and approvals. With its METS/XML export functionality, OpenETD can export Digital institutional repositories to local institutional repositories for preservation and presentation purposes (Rutgers, 2010).

4. Vireo

Vireo is a popular and actively developed Java-based DSpace plugin, available under a modified BSD license, developed by Texas Digital institutional repositories. It was released in 2011 and has gained an active user community that extends beyond Texas. Vireo offers similar features to OpenETD, such as email notifications and templates, but it handles more of the process, including handling corrections after defense. However, Vireo does not handle pre-defense procedures, such as scheduling or initial committee approval (Texas Digital, 2015).

5. Dspace

DSpace is an open-source software widely used for content management in institutional repositories (IRs) (Gul et al., 2019). It has been compared with other data repository platforms in terms of architecture, metadata support, API completeness, search mechanisms, and community acceptance, highlighting its significance in research data management (Amorim et al., 2015). Furthermore, DSpace has been utilized for archiving purposes and as a core component for cross-searching various data distributed across institutions, demonstrating its importance in metadata database systems (Yamamoto et al., 2016). Additionally, DSpace has been

employed in academic environments for accessing and storing text-related files, emphasizing its role in facilitating access to scholarly content (Hazarika et al., 2021).

Moreover, DSpace has been instrumental in the creation of prototype institutional repositories, showcasing its relevance in the development of digital repositories within tight budgets (Holt et al., 2009). In a comparative analysis of open-source digital library software, DSpace has been identified as one of the most suitable platforms due to its well-built support and provision of desired functionalities to end-users (Verma & Kumar, 2018). Furthermore, DSpace has been successful in encouraging the creation of national user groups, underscoring its impact in fostering open-source software communities (Becker et al., 2020).

DSpace has also been recognized for its user management mechanisms, with efforts to develop advanced rule-based access mechanisms for collections, resulting in easier management by users and lower operating costs for consortium members (Joki, 2007). As an early implementer of DSpace, IUPUI has provided an overview of issues related to choosing a repository platform, staffing and technology needs, metadata, controlled vocabulary concerns, and promotion, highlighting the significance of DSpace in institutional digital repository implementation (Dill & Palmer, 2005). Additionally, the choice of DSpace for scientific and educational information systems has been justified, further emphasizing its relevance in data warehouse implementation (Fedotova et al., 2019).

2.3 Document Submission Challenges

Addressing these challenges is pivotal for the successful development of a framework that seeks to improve the document submission process in digital institutional repositories. By understanding and mitigating these issues, the proposed framework aims to enhance the efficiency, accuracy, and user experience of document submission, fostering the continued growth and sustainability of digital repositories.

2.3.1 Manual Data Entry Bottlenecks

Studies highlight the pervasive challenge of manual data entry during document submission. Contributors are often required to input metadata such as titles, authors, and abstracts manually (Orwat et al., 2008). This manual process not only consumes

valuable time but is also susceptible to errors, leading to incomplete or inaccurately recorded information within digital institutional repositories (Misra & Thoma, 2013).

2.3.2 Inconsistencies in Metadata Standards

The lack of standardized metadata practices across digital institutional repositories contributes to inconsistencies in document descriptions (Sulehri & Warraich, 2020). This challenge hinders the interoperability of digital institutional repositories and may lead to difficulties in retrieving and comprehending submitted content (Renteria-Agualimpia et al., 2016).

2.3.3 Complex Submission Workflows

Researchers find the submission workflows in digital institutional repositories to be complex and non-intuitive (Hunter et al., 2023). The multi-step processes and varying requirements across different platforms can be a barrier, especially for new contributors who may not be familiar with the intricacies of each digital institutional repository's submission system (Kumara et al., 2022).

2.3.4 Limited Support for Various Document Formats

Digital institutional repositories often lack robust support for a wide range of document formats. Researchers may face challenges when attempting to submit documents in non-standard or less common formats, leading to potential limitations in the types of content that can be effectively included in the repositories (Nevenglosky et al., 2018).

2.3.5 Lack of Automation in Data Extraction

The absence of automated data extraction technologies, such as Optical Character Recognition (OCR) and metadata extraction tools, is a notable challenge (Choudhury et al., 2021). This limitation results in a heavy reliance on contributors for data entry tasks, contributing to inefficiencies and a higher likelihood of errors (Tsafnat et al., 2014).

2.3.6 Contributor Disincentives

Because of the current submission processes' perceived complexity and length, contributors might be discouraged from submitting content. This challenge not only

affects the growth of digital institutional repositories but also limits the diversity of content available within these repositories (Mupa & Chinooneka, 2015).

2.3.7 Quality Assurance and Review Processes

Ensuring the quality and relevance of submitted documents often poses a challenge for administrators (Nompumelelo, 2016). The lack of streamlined review processes may result in delays and inconsistencies in the assessment of submitted content, affecting the overall reliability of the digital institutional repository (Brewer et al., 2017).

2.4 Benefits of Advanced Technology Solutions in Document Submission

The integration of advanced technology solutions, such as Optical Character Recognition (OCR) and metadata extraction tools, into the document submission process within digital institutional repositories offers a range of benefits (Blanke et al., 2012). A review of existing literature reveals compelling evidence of the positive impact that these technologies can have on efficiency, accuracy, and overall user experience.

2.4.1 Efficiency Gains through Automation

Incorporating OCR technology enables the automated extraction of text content from documents, reducing the need for contributors to manually input information (Mukherjee et al., 2023). A study demonstrates that automation significantly accelerates the document submission process, allowing researchers to focus more on content creation than on tedious data entry tasks (Baviskar et al., 2021).

2.4.2 Enhanced Accuracy in Metadata Extraction

Metadata extraction tools play a crucial role in improving the accuracy of information associated with submitted documents (Choudhury et al., 2013). The effectiveness of automated metadata extraction in minimizing errors, ensuring that the metadata associated with documents is consistent, complete, and reliable (Skluzaceka, 2022).

2.4.3 Streamlined Submission Workflows

The adoption of advanced technology solutions contributes to the simplification of submission workflows (Bondy, 2021). Studies highlight how the integration of OCR and

metadata extraction technologies streamlines the overall submission process, making it more intuitive and user-friendly for contributors (Sufian et al., 2023).

2.4.4 Support for Diverse Document Formats

Advanced technology solutions provide increased flexibility in supporting various document formats (Attaran et al., 2020). OCR technologies can effectively process diverse formats, enabling contributors to submit content in non-standard or less common file types (Mukherjee et al., 2023). This ensures a more inclusive approach to document submission.

2.4.5 Reduced Contributor Burden

By automating data entry tasks, contributors experience a reduced burden during the submission process (Cheng et al., 2023). Automated solutions contribute to a more seamless contributor experience, potentially attracting more contributors and diversifying the content available within digital institutional repositories (Plekhanov et al., 2023).

2.4.6 Improved Accessibility of Content

Automation in document submission contributes to quicker processing times, ensuring that submitted content becomes accessible to users more rapidly. The positive impact on user satisfaction, as contributors witness their content becoming available to the broader audience in a timelier manner (Al-Emadi et al., 2020).

2.4.7 Integration with Existing Infrastructure

Advanced technology solutions are designed to seamlessly integrate with existing digital institutional repository infrastructures (Sharma & Chauhan, 2019a). studies highlight the importance of compatibility, ensuring that the adoption of OCR and metadata extraction technologies does not disrupt the overall functioning of the digital institutional repository but enhances its capabilities (Tönnies & Balke, 2010).

2.4.8 Scalability for Growing Digital Repositories

Studies discuss the scalability of advanced technology solutions, making them well-suited for digital institutional repositories experiencing growth (Balnaves et al., 2023). The automated nature of these solutions allows for efficient handling of an increasing

volume of submissions without a proportional increase in manual effort (Kraus et al., 2021).

2.5 Performance model

The performance model is a crucial tool for analyzing and designing computer systems to achieve optimal performance at low cost (Harchol-Balter, 2013). It involves a mix of motivation, intuition, illustrations, examples, and exercises to develop the skills necessary for modeling, analyzing, and designing large-scale systems (Harchol-Balter, 2013). The model is based on the development of key features to illustrate modeling techniques, emphasizing the importance of empirical modeling and compositional analysis for application performance modeling (Bauer et al., 2012; Hoefler et al., 2011). It is essential for the model to reflect both software product line factors and dynamic behavior of computer and communication systems (Petriu et al., 2012; Tawhid & Petriu, 2011).

Furthermore, the model should be transparent to the user and capable of capturing and analyzing the dynamic behavior of computer and communication systems (Smith & Lladó, 2011). The discrepancies in model performance may be due to differences in the range of content, emphasizing the need for accurate representation of underlying platforms and environments in the performance model (Ancin-Murguzur et al., 2019). Additionally, the model should be extendable to support analytic performance modeling and improve the understanding of real application performance artifacts (Hoefler, 2011). Several attempts have been made to create performance models for web servers, highlighting the diverse applications of performance modeling (Mbogo & Acosta, 2009). Moreover, performance modeling has been successfully deployed in numerical areas such as sparse matrix vector multiplications and generic performance models for bandwidth-limited loop kernels.

Performance Modeling, Benchmarking, and Simulation". The model should also be tailored to be used with architecture-level performance models, emphasizing the importance of specificity in modeling database lock-contention in architecture-level

performance simulation (Merkle & Stier, 2014). This comprehensive understanding of the performance model and its contents is essential for developing efficient and effective computer systems.

2.6 Existing Document management frameworks

Exploring existing document management frameworks is an important first step in understanding the current situation and established practices in information and document management. This subsection provides a comprehensive review of frameworks, with a focus on Yatin et al. (2015) "Framework for Electronic Document Management System." The goal is to gain insights, identify key components, and evaluate the suitability of established frameworks for improving document submission processes in digital institutional repositories.

2.6.1 The Framework for Electronic Document Management System

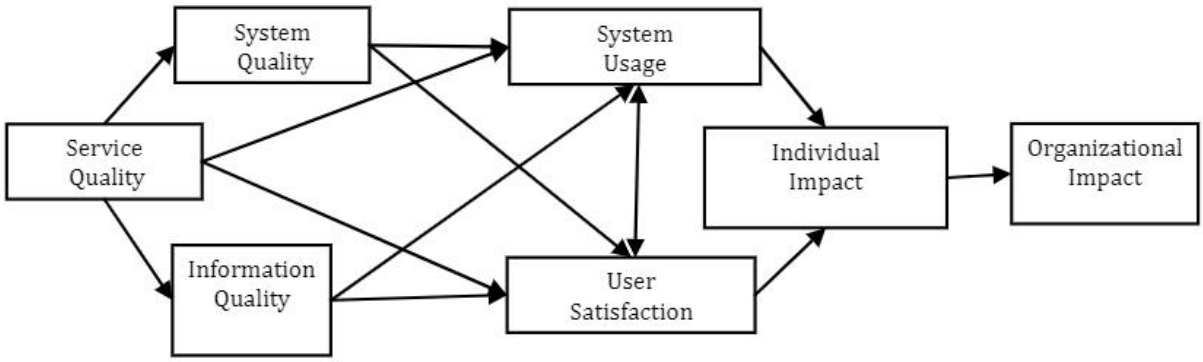


Figure 0.1 Framework for Electronic Document Management System source

This framework was developed for electronic document management system to solve the many paper-related problems (Yatin et al., 2015). This study considered the following components as key to effective electronic document management.

Service Quality

Service quality has been considered one of the primary antecedents of customer satisfaction. When customers are satisfied with the service received, they are more likely to tell others of their favorable experience and thus engage in positive word-of-mouth advertising. In an organizational information management context, the

customers are the different types of end-users in an organization which use information to support them in their work from senior management through employees across all departments and partners who access the company's information resources from outside the company.

Information Quality

Information quality focus on the output produced by a system and the value, usefulness or relative importance attributed to it by the user. Most of the measures, therefore, are perceptual in nature. The most current from Petter et al. (2008) that defines information quality as the desirable characteristics of the system outputs; that are, management reports and Web pages. For example: relevance, understandability, accuracy, conciseness, completeness, understandability, currency, timeliness and usability.

System Quality

System quality typically focus on performance characteristics of the system under study and have been operationalized in a number of ways. Among the latest measures of system quality is based on the desirable characteristics of an information system such as ease of use, system flexibility, system reliability and ease of learning, as well as system features of intuitiveness, sophistication, flexibility and response times.

User Satisfaction

User satisfaction measures the net benefits perceived by the information system’s stakeholders (individuals, groups of individuals, management of organizations, and society).

Individual Impact

Individual impact of IS referring to the effect of information on the behavior of the recipient of that information and is best measured via improvements in the individual recipient's performance or decision-making productivity.

Organizational Impact

It is suggested using CEOs' views about IT (as published in letters to shareholders) as a possible surrogate measure for IT impact on an organization or industry. The authors reason that if events are noticed by the CEO and discussed and related to strategy in shareholders' letters, strategic IT may have had some positive impact on organizational performance.

2.7 Conceptual framework

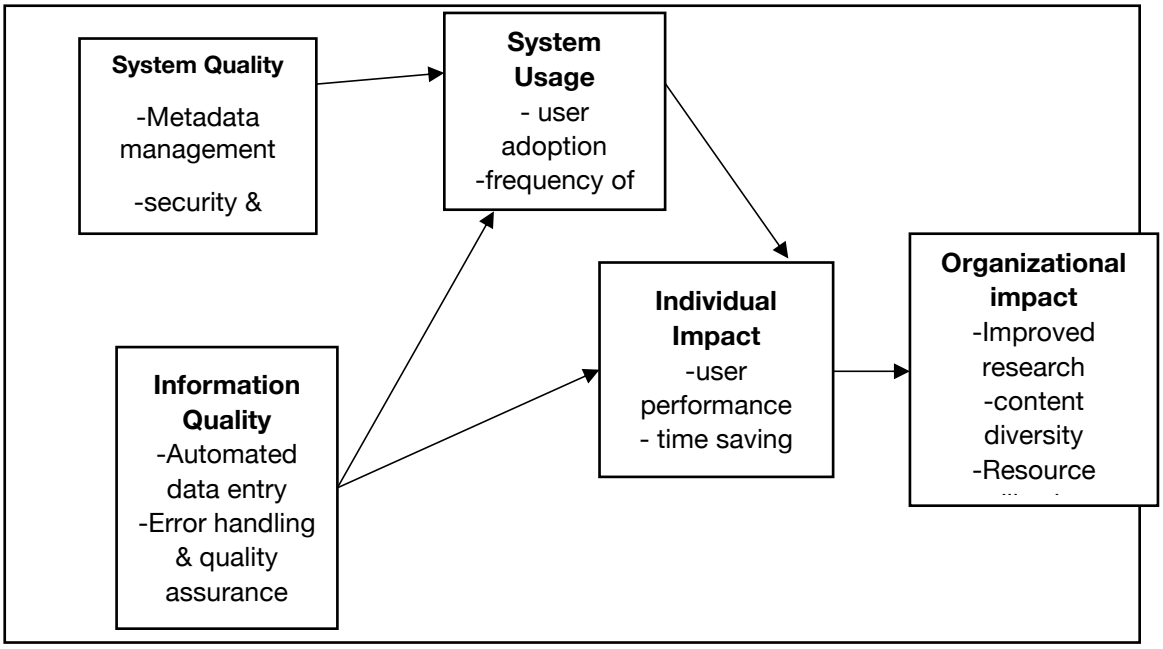


Figure 0.2 Conceptual framework for Improving Document Submission in Digital Institutional Repositories

Description of the conceptual framework

System Quality

System quality addresses the performance and reliability of the document submission system.

Sub-Components include;

1. Metadata Management: The efficient handling and management of metadata associated with submitted documents.
2. Security & Privacy: Measures and features to ensure the security and privacy of sensitive information within the system.

Information Quality

Information quality focuses on the accuracy and completeness of data associated with submitted documents.

Sub-Components include;

1. Automated Data Entry: The use of automated tools, such as OCR, for accurate and efficient data entry.
2. Error Handling & Quality Assurance: Mechanisms to identify and rectify errors, ensuring the overall quality of the information stored.

System Usage

System usage examines how users adopt and interact with the document submission system.

Sub-Components include;

1. User Adoption: The extent to which users embrace and utilize the system for document submission.
2. Frequency of Use: How often contributors and administrators engage with the submission system.

3. Accessibility: The ease with which users can access and navigate the system.

Individual Impact

Individual impact assesses the effect of the document submission system on the performance and efficiency of individual users.

Sub-Components include;

1. User Performance: Evaluating improvements in individual contributors' performance during the submission process.
2. Time Saving: Quantifying the time saved by contributors due to system efficiencies.

Organizational Impact

Organizational impact examines the broader implications of the document submission system on the organization.

Sub-Components include;

1. Improved Research: The impact on the quality and efficiency of research activities facilitated by the submitted content.
2. Content Diversity: Assessing the impact on the diversity and richness of content within the digital institutional repository.
3. Resource Utilization: Examining how the system affects the efficient use of organizational resources in the context of document submission.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

Research methodology refers to the systematic and organized approach used to investigate a specific problem or topic (Goundar, 2012). It involves the process of designing, carrying out, analyzing, and interpreting research data in order to answer research questions or test hypotheses. Research methodology involves a range of techniques and tools that researchers use to gather data, including surveys, experiments, case studies, observations, and interviews. It also involves selecting a research design, defining the research population, and determining the sample size (Punch, 2016).

To investigate the feasibility of implementing an improvement in the submission system for Digital institutional repositories at Uganda Christian University, I used a quantitative research approach. The research was designed to collect structured numerical data through the use of a standardized questionnaire. This approach

enabled objective measurement of stakeholder perceptions, usage patterns, and challenges regarding the digital submission system.

The literature review was conducted to identify the key issues that need to be considered when implementing a framework for improving the submission system in digital institutional repositories at a university. The literature review also identified the best practices for improving the submission systems.

The recommendation for UCU on how to improve contributions to the Digital institutional repository system is based on the findings from the literature review and the data collected from key stakeholders. The recommendation considered the best practices for improving the submission systems.

3.1 Research Design

This study utilized a quantitative research design, relying solely on questionnaires to collect data. The decision to use a quantitative approach was driven by the need to objectively measure and analyze the factors influencing document submission in digital institutional repositories.

In this research, questionnaires were distributed to participants involved in document submission processes within digital institutional repositories. This method enabled the collection of numerical data, which was subsequently analyzed using descriptive statistics to identify patterns, trends, and relationships within the data.

3.2 Research Approach

Research approach can be classified as either abductive, deductive, or inductive.

Deductive reasoning extracts a hypothesis's required implications. The Abductive process entails formulating an explanatory hypothesis that presents any novel notion, whereas the Inductive process assesses how well the conclusions drawn from a hypothesis match the data (Okoli, 2022).

3.2.1 Proposed Approach for the study

The proposed approach for this study was the abductive approach. This is because the study is exploratory in character, integrates qualitative and quantitative data, requires iterative problem-solving, and emphasizes user-centered viewpoints. With this method, scholars can gain a sophisticated grasp of the problems and possible fixes in the context of digital institutional repositories. This was valuable for integrating existing theories and empirical evidence to review findings, consider alternative explanations, and arrive at the best possible explanations for observed study that aided in the improvement of document submission in digital institutional repositories.

3.3 Research methods

A research method is any methodical approach, technique, or strategy that scientists employ to rigorously and systematically to collect, evaluate, and interpret data in order to address research issues and test hypotheses (Goundar, 2012). This involves different research methods these include Case study research methods, Participatory Action Research and Design Science research methods explained below.

3.3.1 Case study Research Method

A case study is an empirical investigation that looks closely at a modern phenomenon in the setting of real life, particularly when it's difficult to distinguish the borders between the phenomenon and the context (Robert, 2003). It seeks to gather a thorough and comprehensive account of a social event or phenomena within a social unit. Data for a case study can be gathered from a variety of sources utilizing any qualitative technique, such as observation and interviews (Devi, 2020).

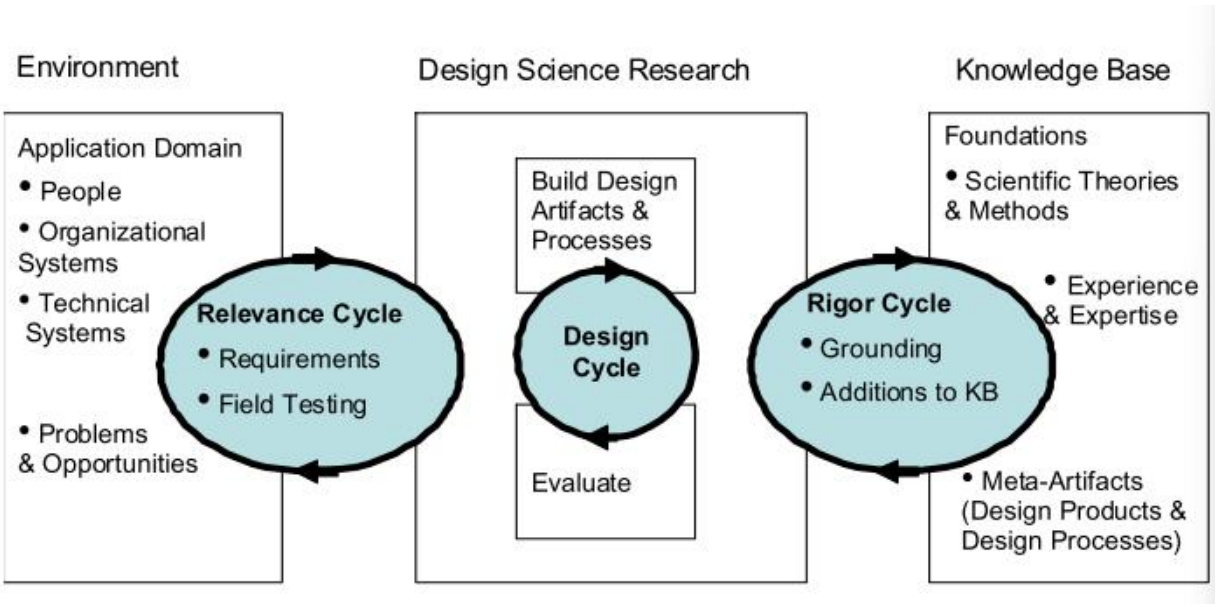
3.3.2 Design Science Research Method

Design Science Research (DSR) is a paradigm for problem-solving that aims to improve human knowledge by producing innovative products that solve problems and revitalize the environments in which they are implemented. It also aims to improve science and technology knowledge bases (Brocke, 2020). This comprises of three cycles used in

the creation of artefacts these include the relevance cycle, the rigor cycle and the design cycle.

DSR is appropriate for research that aims to solve practical problems through the creation of useful artefacts while contributing to theoretical knowledge. In alignment with the abductive approach, which promotes iterative reasoning between observed data and existing theory, the DSR method allowed for continuous refinement of the improvement framework based on stakeholder input, data analysis, and theoretical grounding. The study employed the three cycles Relevance Cycle, Design Cycle, and Rigor Cycle .

Figure 1: Design Science Research Cycles



3.3.2.1 Relevance Cycle

Design science research is started by the relevance cycle with an application context that specifies acceptability in addition to providing the research's input needs standards by which the research findings will ultimately be judged (A. Hevner, 2007). The Relevance Cycle connects the research to its practical environment and ensures that the problem being addressed is grounded in real-world needs. In this study, the relevance cycle was initiated by identifying practical challenges in the current document submission process at UCU's digital institutional repository. This ensured that the framework was responsive to actual institutional needs, thereby enhancing its relevance and potential for adoption.

3.3.2.2 Rigor Cycle

The rigor cycle provides past knowledge to the research project to ensure its Innovation. It connects the research to the existing knowledge base and ensures that the Framework is informed by established theories and validated practices (A. R. Hevner, 2007). This assisted in providing a basis for the applicability and relevance of the framework. Through enhancing credibility, transferability, and academic integrity by connecting the artefact to the existing knowledge base. This was embedded into each phase of the research by drawing from theoretical models, prior empirical studies, and best practice frameworks. Each research objective was operationalized using validated constructs and evaluated against established literature to ensure both the quality of data collected and the utility of the resulting framework.

3.3.2.3 Design Research

The Design Cycle is the core of the DSR process and involves the iterative design, testing, and refinement of the artefact (A. Hevner, 2014). It focuses on the actual development, testing, and iterative refinement of the framework. Design research was applied through constructing a framework that was iteratively refined through

stakeholder feedback and comparison with literature-derived best practices. Each stage involved evaluating the framework's relevance, usability, and completeness, resulting in a well-structured and contextually grounded solution to UCU's document submission challenges.

3.3.3 Participatory Action Research Method

PAR, or participatory action research, is a qualitative research methodological choice that needs more thought and analysis. With the primary goal of bringing about social change, the participant actively participates in the study process by making well-informed decisions at every stage (Macdonald, 2012).

3.3.4 Proposed Method for the study

The study adopted case study research method for designing the framework for improving submission in digital institutional repositories. The utilization of case studies facilitates a comprehensive investigation of the intricacies associated with digital institutional repository submissions, providing insightful analysis that could potentially guide the creation of your enhancement framework. This method was able to identify the current limitations and gaps in the existing system which determined the validity and effectiveness of the proposed framework for improving the submission in digital institutional repositories.

3.4 Target population

The term "target population" describes a particular subset or section of the general population that is the main subject of an investigation, an intervention, or a marketing plan. It is a more restricted set of people who fit certain requirements or have particular qualities (Willie, 2023). This study's target population was Librarians, IT support, Faculty Administrators and Academic Staff at UCU Mukono.

Table 0:1 Showing study target population distribution

Population category	Population size
Librarians	19

IT support	20
Faculty Administrators	11
Academic Staff	152
Total	**202**

3.5 Sample Size

The number of observations or subjects in a subset of the population selected for a research study is referred to as the sample size (Kaur, 2021). The sample should contain people with characteristics common to the overall population due to likelihood and chance these comprised of Librarians, IT support, Faculty Administrators and Academic Staff at UCU Mukono.

The necessary sample size is determined by the desired confidence interval of (+/-) 5%, with a confidence level of 95%, and the population size. Thus, the sample size is calculated using the formula SS=(Z^2*(X)*(1-X))/C^2 and S=SS/((1+(SS-1))/P) (Bartlett, Kotrlik & Higgins, 2001; Cochran, 1977; utilizing Krejcie and Morgan, 1970). In this equation, SS represents the Required Sample Size, Z denotes the Z Value (e.g., 1.96 for a 95% confidence interval), X signifies the percentage of selecting a choice, expressed as a decimal (0.5 utilized for determining sample size), and C indicates the confidence interval, expressed as a decimal (0.05 for a (+/-) 5% confidence interval).

SS=(Z^2*(X)*(1-X))/C^21……Equation 1)

SS= ((〖1.96〗 ^2) *0.5*(1-0.5))/ 〖0.05〗 ^2

SS= 384

Cochran's (1977) correction formula was used to calculate the final (new) sample size S according to equation 2 as follows:

S=SS/((1+(SS-1))/P) …….. (Equation 2)

For each category of the population the population size is substituted in equation 2 to get the sample size for each as shown below.

Table 0:2 Showing sample size distribution for the study

Population category	Population size	Sample size
Librarians	34	32
IT support	5	5
Faculty Administrators	11	11
Academic Staff	152	110
TOTAL SAMPLE SIZE		**158**

3.5.1 Sampling technique

Sampling techniques refer to the process and methods used to select a subset of units from a population (Haute, 2021). This study adopted a Purposive sampling technique. This helped in the purposeful selection of instances according to their applicability to the goals of the research. In order to capture a wide variety of experiences, selecting respondents based on content categories and submission methods was necessary.

3.6 Data Collection Methods

Questionnaires

The quantitative data was collected through a survey questionnaire that was administered to students, faculty members, and staff members at Uganda Christian University. For this purpose, depending on circumstances, a print and electronic version questionnaire was designed and sent out all purposively to identified respondents.

3.7 Data Analysis

The quantitative data was analyzed using descriptive statistics such as frequencies, percentages, means, and standard deviations. There after the quantitative data was methodically fed into the SPSS, this enabled the research to quickly analyze it for meaning in preparation of the next step that was presentation of results. Using the

SPSS to analyze the quantitative data, we adopted the descriptive statistics tool which provided a summary of the main aspects of the data, helping the researcher to understand its central tendency and variability.

3.8 Ethical Considerations

The research involves primary data collection from individuals and therefore an application for ethics approval was made to the Research Ethics Committee (REC) at Uganda Christian University. Research activity did not start before this approval is obtained. A preliminary risk assessment has been undertaken involving experienced researchers and teaching professionals, and reasonable efforts have been made in the design of the research to avoid foreseeable risks of harm to participants or others involved in the research. The research was conducted in accordance with the Research ICT Africa code research ethics and all other guiding codes of research ethics at the institutional and national level (Research ICT Africa, 2023).

Participation in the research was entirely voluntary. All participants were informed, both verbally and in writing, that they are under no obligation to take part in the research and that they have the right to withdraw from involvement in the project at any time. They were supplied in advance with information about the purpose of the research and who is conducting it. They were also be given guarantees of anonymity and assured that any information they provide was treated in the strictest confidence (subject to the provision that the researcher has an overriding legal obligation in relation to the disclosure of certain kinds of information). No inducements were offered to encourage participation.

A written consent form explaining the nature of the research and their involvement in it was given to all the participants: only those who sign this form was included in the research.

Data from the research was kept secure and precautions taken to prevent the leaking of confidential information. Data files held on computer were encrypted and protected by password access. Documents and other materials were kept under lock and key.

The research was conducted under the auspices of Uganda Christian University. The research is not funded by a sponsor, and there is no conflict of interest in relation to the objective and impartial treatment of the data.

3.9 Conclusion

In conclusion, the selected research methodology is a sound and appropriate means of delving into the complexities surrounding the enhancement of submission processes within digital institutional repositories at UCU. By carefully choosing a variety of cases and utilizing a variety of data collection techniques, such as questionnaires, focus groups, and interviews, this methodology is well-positioned to offer a thorough and nuanced understanding of the nuances involved.

CHAPTER FOUR
PRESENTATION AND INTERPRETATION OF STUDY FINDINGS

4.1 Chapter Overview

This chapter presents the findings derived from the data collected through questionnaires administered to participants involved in document submission processes at Uganda Christian University. The chapter outlines the response rate, analyzes the demographic profile of respondents, and presents key results aligned with the study objectives. The interpretation of the findings is supported by relevant literature and is intended to inform the design of a framework to improve digital repository submission practices.

4.2 Response Rate

In the course of this study, a total of 158 questionnaires were distributed to participants involved in document submission processes within digital institutional repositories. Out of these, 150 questionnaires were returned, resulting in a response rate of 94.9%. The remaining 8 questionnaires were not returned. Upon screening, all the returned questionnaires were found to be complete and usable for the analysis.

A response rate of 94.9% is considered highly acceptable and indicative of robust participant engagement and interest in the study. According to Fincham (2008), response rates above 60% are generally deemed satisfactory in survey research, as they reduce the risk of response bias and enhance the reliability of the findings. Therefore, the high response rate in this study strengthens the validity and credibility of the results, ensuring that the insights drawn are reflective of the participants' experiences and perceptions.

Table 0:3 Showing response rate

Status	Frequency	Percentage
Returned	150	95%
Not returned	8	5%
Total		100%

4.3 Demographic Information results

This section presents the demographic characteristics of the participants involved in the study. Understanding these demographics is crucial for interpreting the data and identifying trends and patterns in document submission practices within digital institutional repository at Uganda Christian University.

4.3.1 Gender

The demographic data on gender distribution among the participants revealed that 57% were male and 43% were female. This relatively balanced representation indicates that both genders are fairly equally engaged in activities related to document submission in digital institutional repositories. The results are shown in the figure 4.1 below.

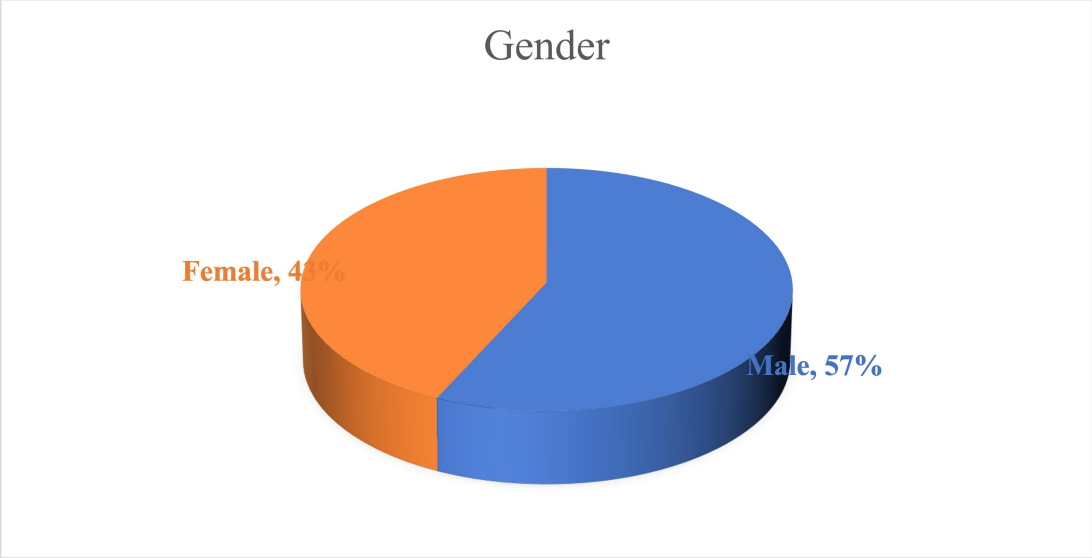


Figure 0.1 Gender distribution of the study participants

4.3.2 Age Bracket

Participants were asked to indicate their age bracket. The results showed that 24% were aged 18-25, 28% were aged 26-30, 32% were aged 31-40, 13% were aged 41-50, and 3% were aged 51 and above. The majority of participants fell within the 26-40 age range (60%), indicating a relatively young to middle-aged demographic. This could imply a dynamic and potentially tech-savvy group, which might be more adaptable to new systems and technologies for document submission. The results are illustrated in figure 4.2 below.

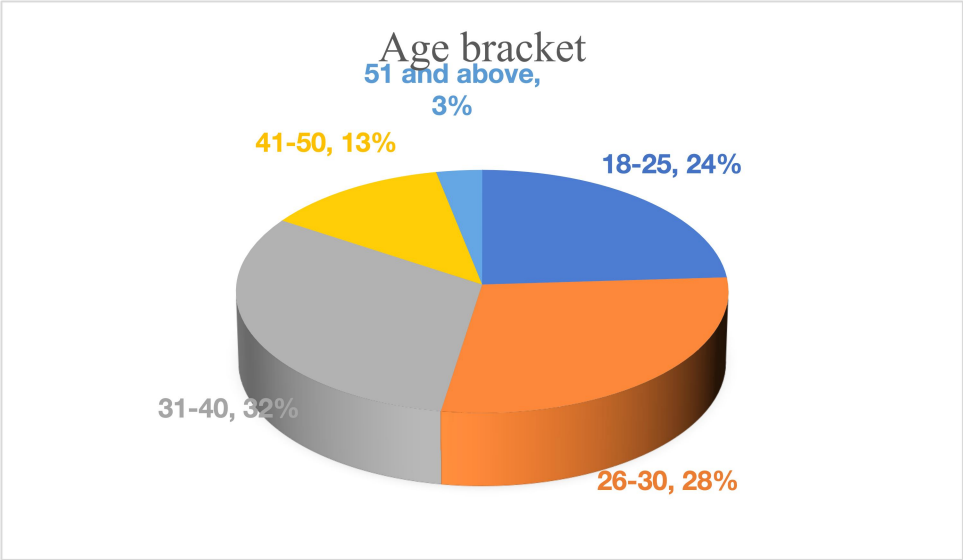


Figure 0.2 Representation of the participant's age bracket

4.3.3 Level of Education

The level of education among the participants varied, with 11% holding a certificate, 13% a diploma, 49% a bachelor's degree, 25% a master's degree, and 2% a PhD. The high percentage of participants with a bachelor's degree (49%) and master's degree (25%) indicates that a significant portion of the respondents are well-educated, which could positively influence their ability to efficiently use and understand digital repository systems. This is illustrated below in figure 4.3.

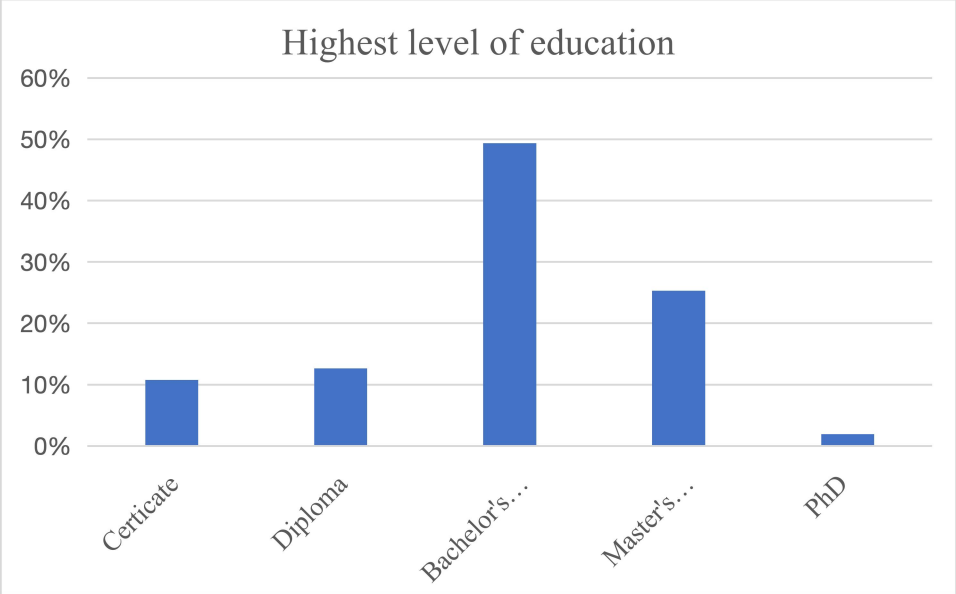


Figure 0.3 Showing the highest attained level of education

4.3.4 Primary Role of participants

Regarding their primary roles, 20% of participants identified as librarians, 3% as IT support, 7% as faculty administrators, 37% as academic staff, and 33% as others, which included 1% pastors and 32% students. The significant representation of academic staff (37%) and students (32%) highlights the critical involvement of these groups in document submission activities. The presence of librarians (20%) underscores their essential role in managing digital repositories. The results are illustrated below in figure 4.4.

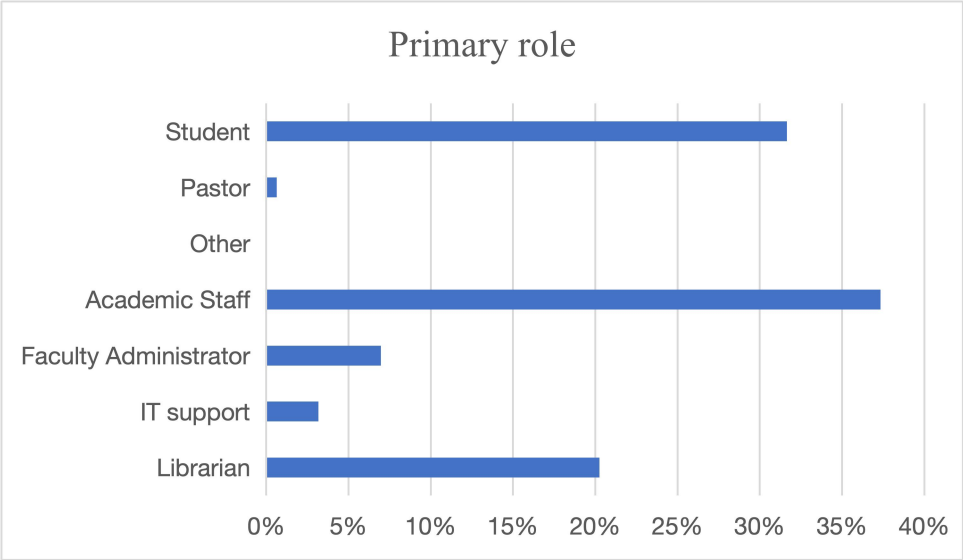


Figure 0.4 Showing primary roles of the study participants

4.3.5 Duration Involved in Digital Institutional Repository Activities

Participants' duration of involvement in Digital Institutional Repository (DIR) activities varied, with 42% having less than 1 year of experience, 15% with 1-2 years, 26% with 3-5 years, 16% with 6-10 years, and 1% with above 10 years. The high percentage of participants with less than one year of experience (42%) indicates a relatively new user base, which may require additional training and support to become proficient in document submission. The results are illustrated below in figure 4.5.

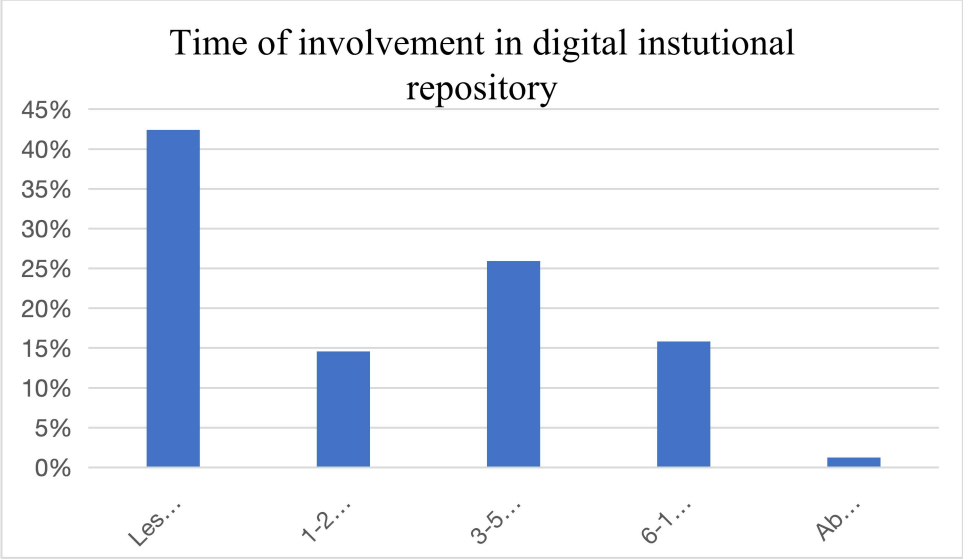


Figure 0.5 Duration of involvement in Digital Institution repository tasks

4.3.6 Level of Experience in using digital institution repository

When asked about their level of experience, 30% of participants identified as beginners, 42% as intermediate, 19% as advanced, and 9% as having no experience at all. The majority being intermediate (42%) and beginner (30%) users suggests that there is a substantial portion of participants who might benefit from further training and development. The 9% with no experience at all highlights the need for introductory programs to bring all participants to a basic level of competency in document submission. These findings are illustrated below in figure 4.6.

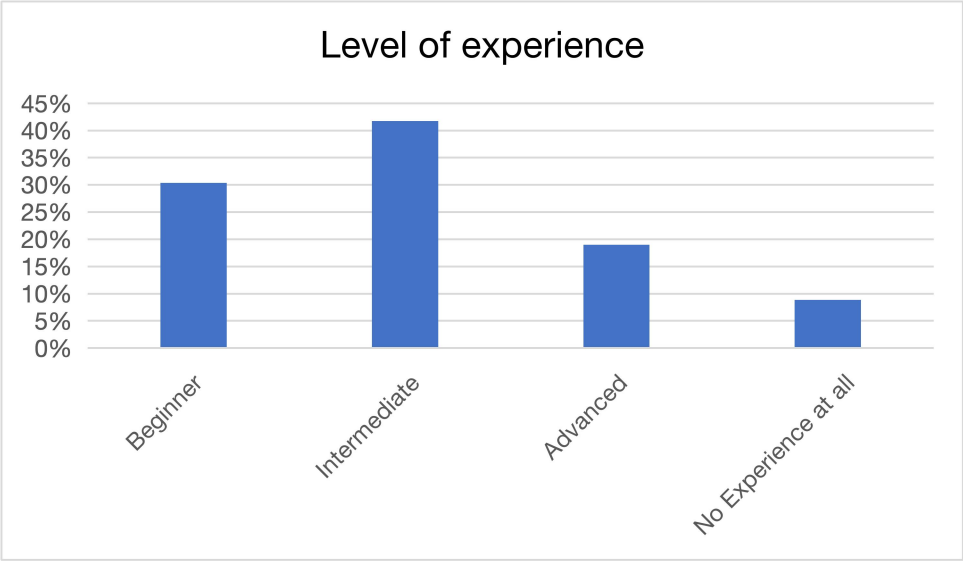


Figure 0.6 Levelo of experience in using Digital Institution Repositories

4.3.7 Formal Training Received

Regarding formal training related to submissions of documents to digital institutional repositories, 75% of participants indicated they had received training, while 25% had not. The high percentage of trained individuals (75%) is encouraging, suggesting a well-prepared participant base. However, the 25% who have not received formal training points to a significant gap that needs to be addressed to ensure all users are equally capable of efficiently using the system. Providing comprehensive training programs can help bridge this gap and improve the overall quality of document submissions. The results are illustrated below n figure 4.7.

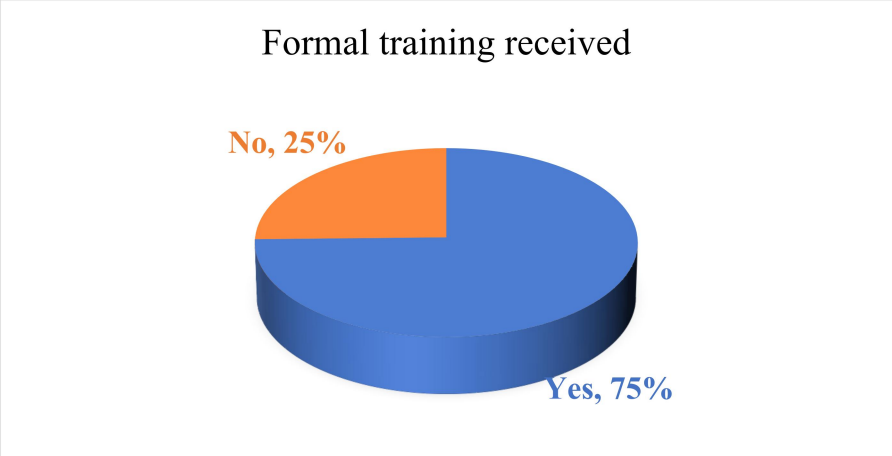


Figure 0.7 Showing the level of formal training among participants

4.4 Current Methods for Submitting Documents to the Digital Institutional Repository

This section explores the existing methods and processes used for submitting documents to the Digital Institutional Repository (DIR). By examining the time spent on submissions, the guidelines and motivations influencing document selection, the software tools employed, the challenges encountered, and potential improvements suggested by users, this analysis provides a comprehensive understanding of the current state of DIR submissions. These insights are critical for identifying areas that need enhancement and for developing strategies to improve the overall efficiency and user experience of the document submission process.

4.4.1 Average Time Spent on Document Submission

The participants were asked to indicate the average time they spend on submitting a single document through the current system. The results revealed a diverse range of experiences. A significant portion, 41%, reported spending between 1 to 5 minutes on the submission process, indicating that a considerable number of users find the system relatively quick and efficient. Another 18% mentioned that it takes them 6 to 10 minutes, and 13% reported spending 10 to 30 minutes per submission. Interestingly, 16% of the participants stated that they spend more than 30 minutes on submitting a document, highlighting potential inefficiencies or difficulties encountered by this group. Conversely, 13% of users were able to complete the process in less than 1

minute, which suggests that for some users, the system is extremely streamlined and easy to use.

The variation in the time required for document submission suggests that while the system is efficient for a majority, there are notable inefficiencies affecting a significant minority of users. This is illustrated below in figure 4.8.

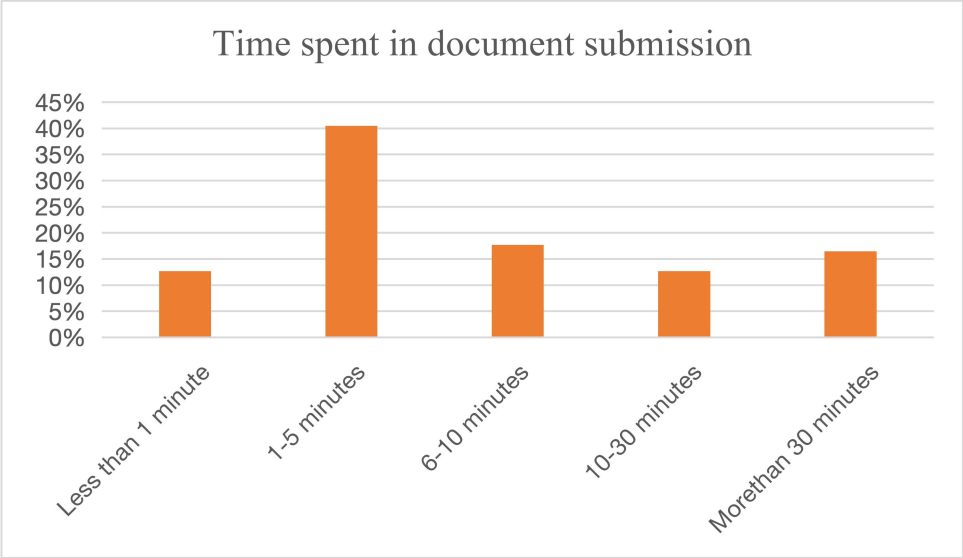


Figure 0.8 Showing average time spent on document submission

4.4.2 Guidelines for Choosing Document Types for Submission

Participants were asked to identify what guides their choice of document(s) to submit to the repository. The results indicated that 62% of respondents are guided by institutional policy, reflecting the significant influence of organisational rules and regulations on submission practices. Additionally, 14% of participants mentioned that work-related guidelines dictate their choices, suggesting that departmental or project-specific directives also play a role. A notable 17% of respondents rely on their own experience when deciding what documents to submit. This indicates a level of autonomy and personal judgment in the submission process, which might be based on individual familiarity with the system or past submission practices. Only 6% of participants indicated that they have no guidelines to follow, highlighting a potential

area where more structured guidance could be beneficial. Finally, 1% of the participants selected "Other," as illustrated below in figure 4.9.

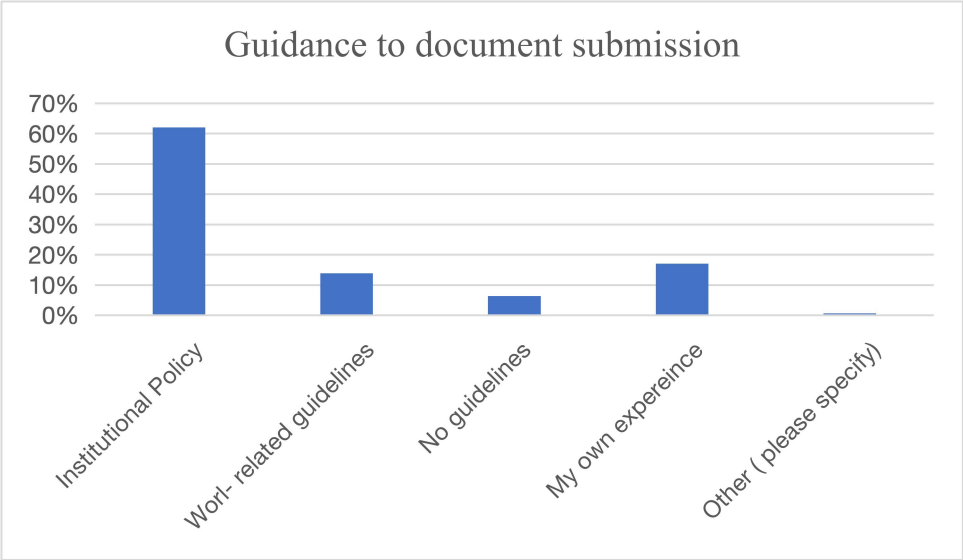


Figure 0.9 Showing godliness for choosing document submission type

4.4.3 Support Software Used for Submitting Records to the DIR

Participants were asked to indicate the support software they use to complement the process of submitting records to the Digital Institutional Repository (DIR). The results showed a clear preference for certain tools, with 46% of respondents using Microsoft Word. This suggests that Microsoft Word is the most commonly used software for preparing and formatting documents before submission, likely due to its widespread availability and robust features.

Dspace, a specialized repository management software, is used by 27% of participants, reflecting its importance and functionality in the actual submission and management process. Google Documents is utilized by 13% of the respondents, which may indicate its appeal due to its collaborative features and accessibility from various devices.

Interestingly, none of the participants reported using Notepad, highlighting that simpler text editors may not meet the needs of users in this context. Additionally, 15% of participants mentioned using other software, specifying PDF as a commonly used format. This indicates that many users prefer to convert their documents to PDF format for submission, likely due to its stability and compatibility across different platforms. The results are illustrated below.

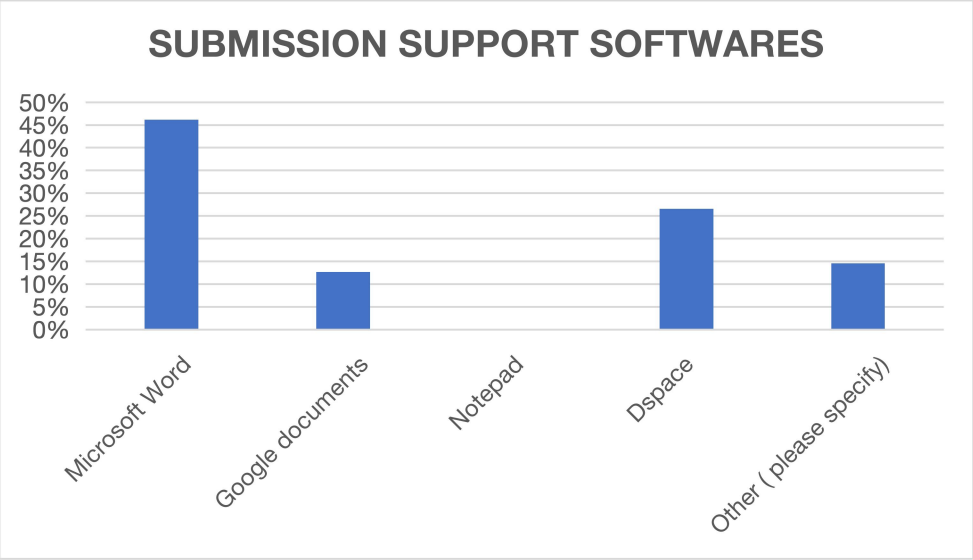


Figure 0.10 showing Support Software Used for Submitting Records to the DIR

4.4.4. Challenges Encountered in Submitting Documents to the DIR

Participants were asked to identify the main challenges they encounter when submitting documents to the Digital Institutional Repository (DIR). The results highlighted several key issues faced by users.

- Technical Issues: The most frequently reported challenge was technical issues, such as internet connectivity and power outages, affecting 42% of participants. This underscores the significant impact that infrastructure reliability has on the document submission process.

- System Downtime: Another major challenge, reported by 28% of respondents, was system downtime. This indicates that interruptions in the availability of the DIR system are a substantial barrier to efficient document submission.
- Time Constraints: 15% of participants indicated that time constraints are a significant challenge. This suggests that users often find themselves pressed for time, which can hinder their ability to complete the submission process promptly.
- Limited Access to Documents: Limited access to necessary documents was reported by 9% of respondents. This may be due to restrictions in document availability or accessibility issues within the institutional framework.
- Lack of Training: Finally, 8% of participants cited a lack of training on document submission practices as a challenge. This highlights a need for better training programs to equip users with the knowledge and skills required to navigate the submission process effectively.

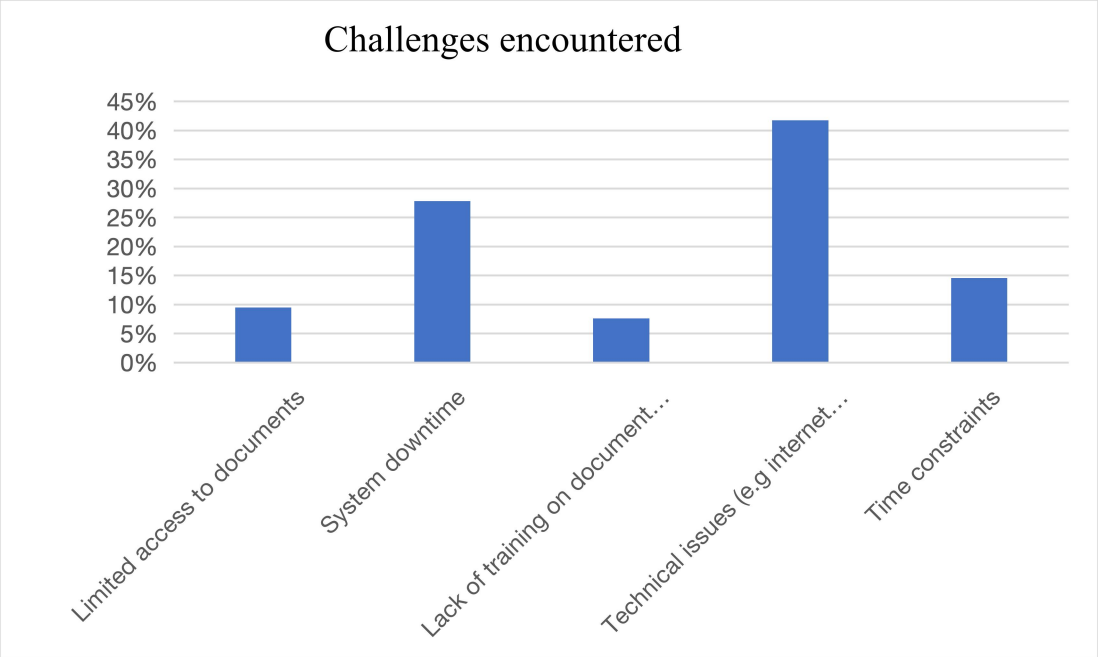


Figure 0.11 Challenges encountered in submitting documents online

4.4.5 Motivations for Submitting Work to the Digital Institutional Repository

Participants were asked to identify their motivations for choosing to submit their work to the Digital Institutional Repository (DIR). The results highlighted a range of factors influencing their decisions:

Academic Requirements: The primary motivation, reported by 44% of respondents, is to meet academic requirements. This underscores the role of institutional mandates and guidelines in driving researchers to submit their work to the DIR.

Increasing Visibility: A significant 33% of participants are motivated by the need to increase the visibility of their research. This indicates that researchers recognize the importance of having their work accessible and discoverable within the academic community and beyond.

Coping with Trends: Staying up-to-date with the latest trends was a motivating factor for 17% of respondents. This suggests that researchers are aware of and wish to align with current best practices and technological advancements in their field.

Fame: Only 6% of participants cited fame as a motivating factor. This relatively low percentage indicates that personal recognition is a less significant driver compared to academic and professional considerations.

Monetary Incentives: Notably, 0% of participants indicated that money is a motivating factor. This highlights that financial rewards are not a primary concern for researchers when deciding to submit their work to the DIR.

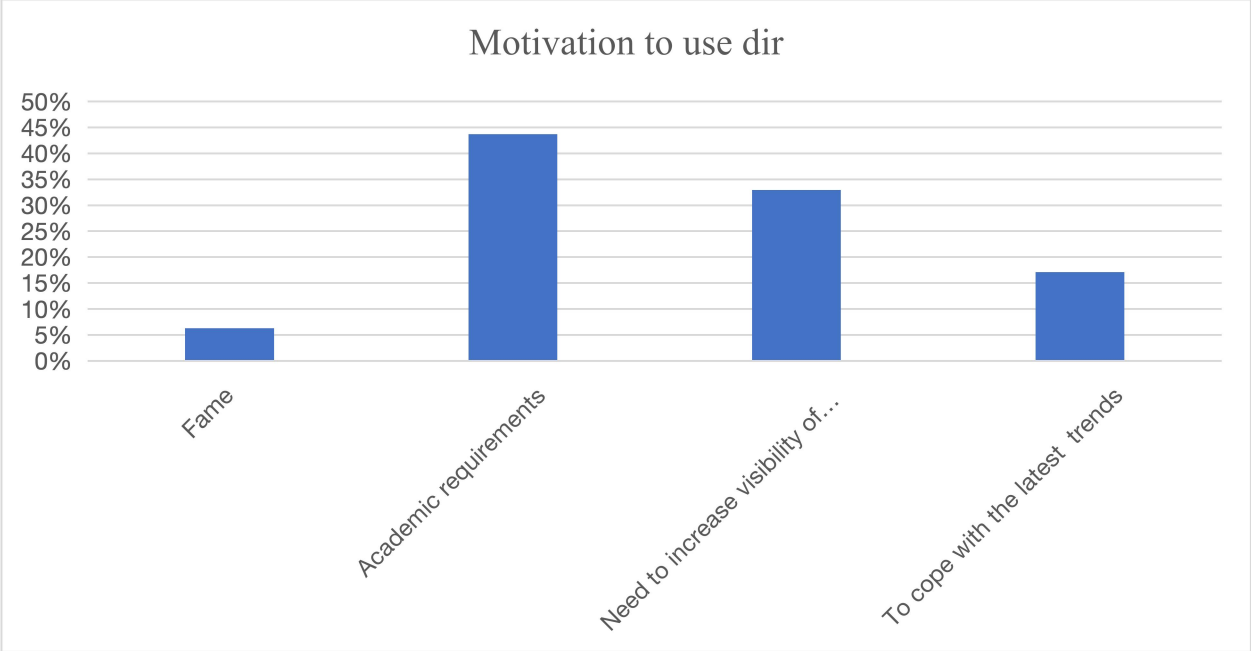


Figure 0.12 Showing the motivation to use DIR

4.4.6 Suggestions for Improving the Current System

Participants were asked to indicate how they think the current system for submitting documents to the Digital Institutional Repository (DIR) could be improved. The results provided valuable insights into the areas that users believe need enhancement:

i. More Training of Uploaders: The most frequently suggested improvement, chosen by 38% of respondents, is providing more training to uploaders to reduce errors. This highlights the need for comprehensive and ongoing training programs to ensure that users are well-equipped to navigate the submission process efficiently and accurately.
ii. Regular Updates: Regular updates to the system were suggested by 32% of participants. This indicates a desire for the system to be continually improved and maintained to keep up with technological advancements and user needs, ensuring a smoother and more reliable experience.

iii. Cloud Hosting for 24/7 Availability: Hosting the system in the cloud for 24/7 availability was chosen by 12% of respondents. This suggests that some users are facing challenges with system accessibility and believe that cloud hosting could provide better reliability and uptime.
iv. Marketing the Benefits: 10% of participants indicated that marketing the benefits of the DIR could interest other researchers in submitting their work. This implies that increasing awareness and promoting the advantages of using the DIR could potentially boost submission rates and overall engagement.
v. Other Suggestions: 8% of respondents provided other suggestions, with the primary recommendation being to expand the server network to host more users. This reflects a need for improved infrastructure to support a growing number of users and submissions.

4.5 Variables of the study framework

This section presents the analysis of responses related to the key variables of the study framework: System Quality, Information Quality, Individual Impact, Organizational Impact, and System Usage. These variables are crucial for understanding how effectively the current document submission system operates within digital institutional repositories and identifying areas for potential improvements. By examining participants' feedback on these variables, we gained insights into the strengths and weaknesses of the system, which informed the development of a comprehensive framework for improving document submission processes.

4.5.1 System Quality of the Digital Institutional Repositories

As illustrated below in figure 4.13, a significant majority of participants (59%) agreed or strongly agreed that the current metadata workflows make it easy to find and organize documents in the system. This indicates that the metadata management aspect of the system is generally effective for most users. However, a combined 15% of respondents disagreed or strongly disagreed, suggesting room for improvement. The 26% of neutral responses highlight a potential need for further enhancements to make the system more intuitive and user-friendly.

In addition, a majority of participants (59%) also agreed or strongly agreed that effective measures are in place to ensure the security and privacy of documents. This suggests that the system's security protocols are generally perceived as adequate by most users. However, the 17% of respondents who disagreed or strongly disagreed indicate that there may be some concerns or gaps in the current security measures that need to be addressed. The 25% of neutral responses may reflect uncertainty or a lack of awareness about the specific security measures in place.

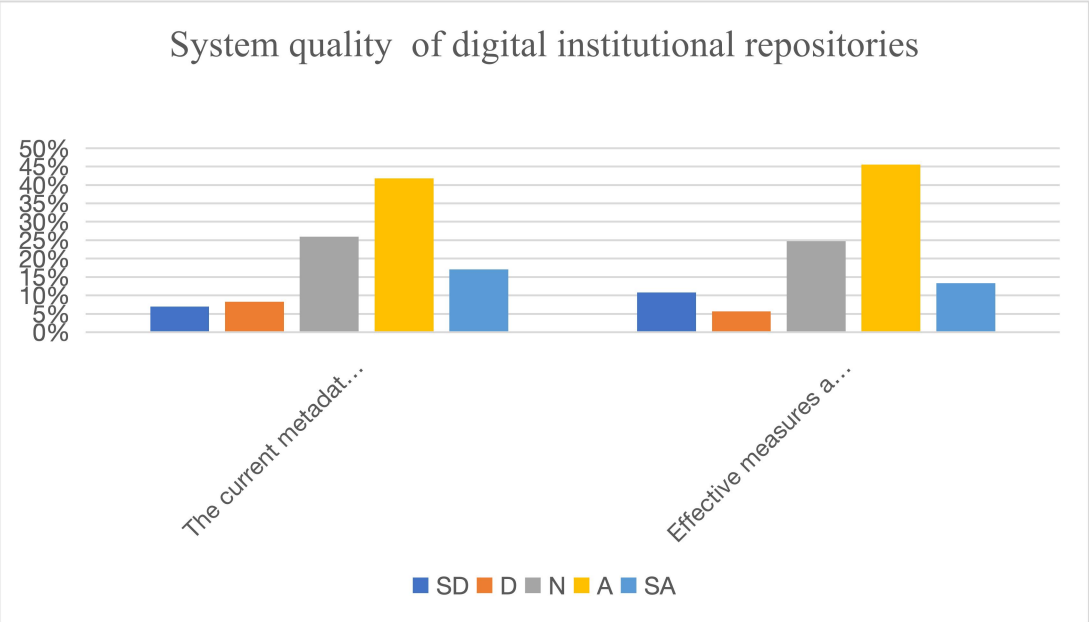


Figure 0.13 Showing measure of system quality

4.5.2 Information Quality of the Digital Institutional Repositories

A significant majority of participants (66%) agreed that the automated data entry features save time and effort, indicating that this aspect of the system is highly effective for most users. However, 17% of respondents disagreed or strongly disagreed, suggesting that there are still users who do not find the automated features as beneficial. The 18% of neutral responses indicate that there is some room for further improvement to ensure that all users can fully benefit from these automated features.

Furthermore, they were more varied regarding the system's effectiveness in handling errors and ensuring quality. While 46% of participants agreed or strongly agreed that the system handles errors effectively, a significant 32% disagreed or strongly disagreed. This indicates that error handling and quality assurance are areas needing considerable improvement. The 23% neutral responses suggest uncertainty or variability in user experiences with the system's error management processes.

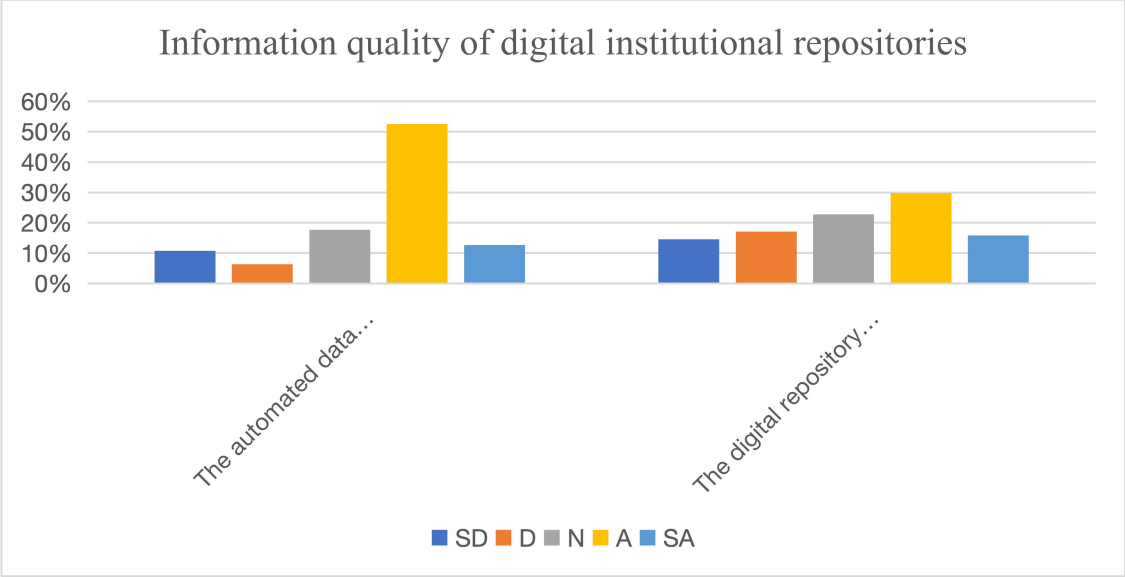


Figure 0.14 Showing the measure of digital institutional repositories

4.5.3 Individual impact of the Digital Institutional Repositories

A significant majority of participants (69%) agreed or strongly agreed that the document submission system improves their performance in submitting documents. This suggests that the system is generally effective in enhancing individual productivity. However, the 8% of participants who disagreed or strongly disagreed

indicate a small but noteworthy group that may not find the system beneficial. The 23% of neutral responses suggest that there might be variability in how different users perceive the system's impact on their performance, potentially pointing to areas where further improvements could be made to ensure a uniformly positive impact.

A substantial majority of participants (76%) agreed or strongly agreed that the digital document submission system saves them time compared to manual submission methods. This highlights the efficiency benefits of the digital system over traditional manual processes. However, 14% of participants disagreed or strongly disagreed, suggesting that some users may still encounter inefficiencies or have preferences for manual methods. The 11% of neutral responses could indicate that while many users see time-saving benefits, there is still room for optimizing the system to ensure it is universally perceived as more efficient.

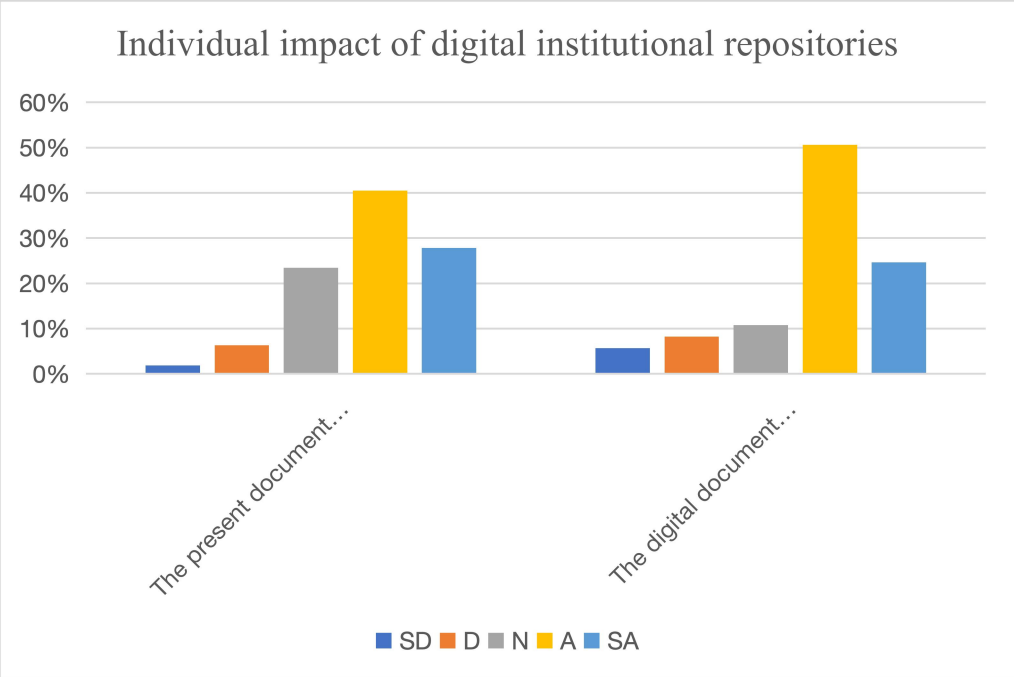


Figure 0.15 Showing Individual impact of digital institutional repositories

4.5.4 Organization impact of the Digital Institutional Repositories

A substantial majority of participants (72%) agreed or strongly agreed that the document submission system contributes positively to improved research outcomes. This indicates that the system is perceived to have a beneficial impact on the

institution's research capabilities. However, 14% of respondents disagreed or strongly disagreed, suggesting some users may not see the same level of benefit. The 13% neutral responses highlight a need for further exploration into why a portion of users remain indifferent to the system's impact on research outcomes.

A significant majority of participants (76%) agreed or strongly agreed that the document submission system promotes content diversity within the institutional repository. This suggests that the system effectively supports a wide range of content submissions, enhancing the repository's diversity. The small percentages of disagreement (10%) and the 14% of neutral responses indicate that while the majority sees the benefit, some users may not fully recognize or experience the diversity-promoting aspects of the system. This presents an opportunity to further emphasize and enhance the system's role in promoting content diversity.

While a majority of participants (58%) agreed or strongly agreed that the document submission system utilizes institutional resources effectively, a notable 27% disagreed or strongly disagreed. This suggests that there are concerns about the efficiency and effectiveness of resource utilization within the system. The 15% neutral responses indicate that some users are unsure about how well the system uses resources. Addressing these concerns and improving resource allocation and utilization could enhance the system's overall effectiveness and user satisfaction.

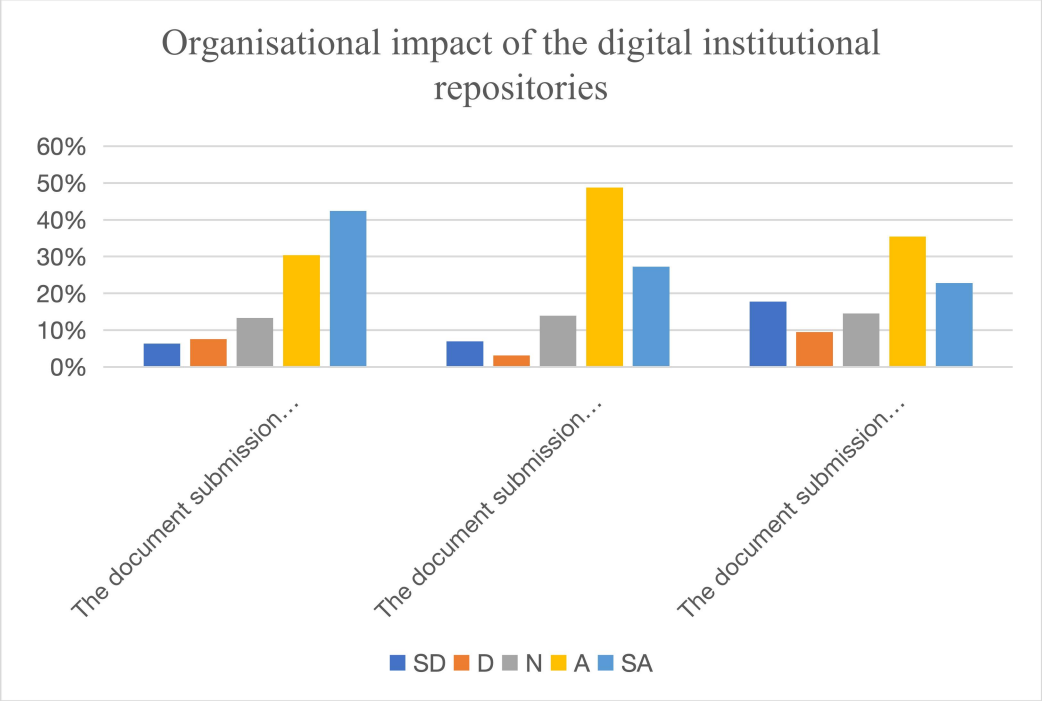


Figure 0.16 Showing Organizational impact of the digital institutional repositories

4.5.5 System usage of the Digital Institutional Repositories

The responses indicate that 49% of participants agreed or strongly agreed that the document submission system is user-friendly and easy to upload documents. However, 27% disagreed or strongly disagreed, and 24% were neutral. This mixed feedback suggests that while a significant portion of users finds the system user-friendly, there is a substantial minority that experiences difficulties. The neutral responses further highlight variability in user experiences, indicating a need for improving the system's user interface and usability features to ensure consistency in user-friendliness across all users.

A majority of participants (53%) agreed or strongly agreed that they frequently utilize the document submission system. However, a notable 37% disagreed or strongly disagreed, indicating that a significant portion of users do not use the system frequently. The 10% neutral responses suggest some level of ambivalence or irregular usage patterns. This highlights the need for strategies to increase user engagement and regular usage, potentially through better training, improved system features, or addressing barriers that discourage frequent use.

A majority of participants (57%) agreed or strongly agreed that the document submission system is easy to access and navigate. However, 28% of participants disagreed or strongly disagreed, indicating accessibility and navigation issues for a significant portion of users. The 15% neutral responses suggest some uncertainty or inconsistency in user experiences. Improving the system's accessibility and navigation could help ensure that all users find it easy to use, thereby enhancing overall satisfaction and encouraging more consistent use.

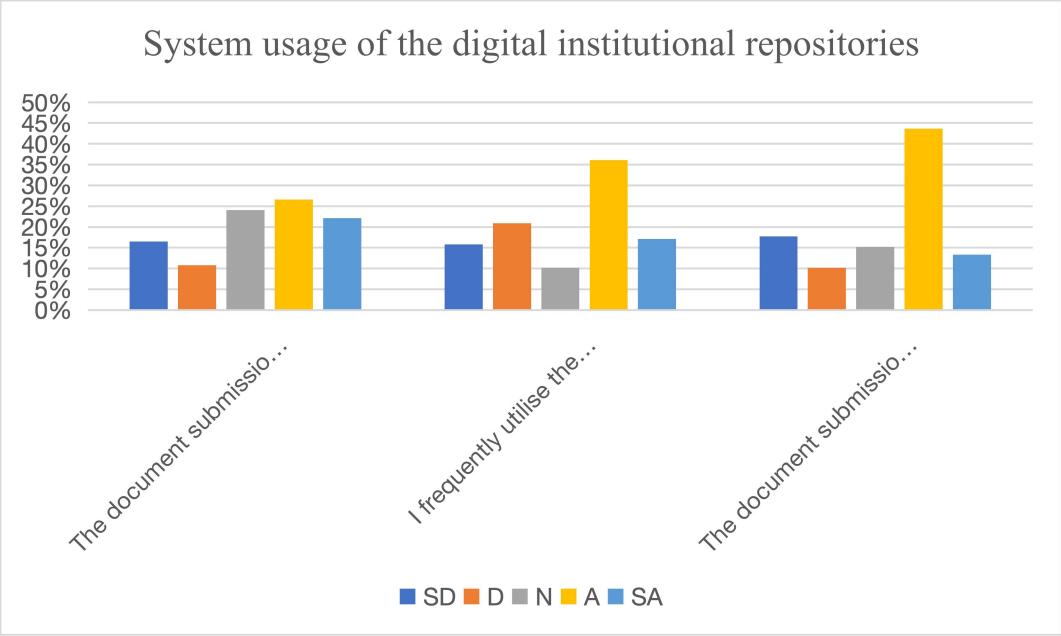


Figure 0.17 Showing System usage of the digital institutional repositories

CHAPTER FIVE
DISCUSSION, RECOMMENDATION, LIMITATIONS, STUDY CONTRIBUTION, FUTURE WORK AND CONCLUSION

5.1 Chapter overview

This chapter provides a comprehensive discussion of the findings presented in the previous chapters, linking them to the study's objectives and existing literature. It

offers practical recommendations based on the analysis to improve document submission processes in digital institutional repositories. The limitations of the study are acknowledged, outlining the constraints and challenges faced during the research. The chapter also highlights the contributions of the study to the field of digital library management, suggests areas for future research, and concludes with a summary of the key insights and implications of the study.

5.2 Discussion of the study Findings

This section discusses the findings of the study in light of the research objectives. By aligning each objective with the relevant findings, the study demonstrates how the data collected and analyzed addressed the intended goals of the research.

Objective 1: To assess the current state of document submission processes and challenges faced

The study findings revealed a mixed perception of the current state of document submission processes. While a majority (59%) of participants agreed that metadata workflows make it easy to find and organize documents, a notable percentage were either neutral or disagreed, indicating inconsistencies and possible inefficiencies in the workflow. Additionally, the feedback on system usage highlighted that only 49% of participants found the system user-friendly, and just 53% reported frequent use. These findings suggest usability concerns that limit system engagement.

Challenges such as manual metadata input, usability limitations, and uneven system adoption reflect broader barriers to efficient submission. These observations are consistent with Sharma & Chauhan (2019), who highlight the burden of manual data entry in digital institutional repositories. The results demonstrate a clear need for system redesign, simplification of workflows, and enhanced user support.

Objective 2: To determine factors for improving document submission in digital institutional repositories

The study identified automation, metadata quality, and user-friendly interfaces as key factors for improving submission. 66% of participants agreed that automated data entry features save time and effort, supporting the adoption of automation as a strategy to improve process efficiency. Moreover, while security and document privacy were recognized as strong aspects of the current system by 59% of respondents, areas such as error handling and quality assurance mechanisms showed mixed results—only 46% felt these were well-managed.

These findings suggest that integrating advanced metadata extraction technologies, improving quality control protocols, and adopting automation tools such as OCR can significantly enhance submission efficiency. This supports the proposition by Kalankesh et al. (2020), who emphasize that accuracy, completeness, and metadata consistency are vital for effective digital repository performance.

Objective 3: To investigate the role of institutional policies and mandates in shaping submission practices

The findings indicate that institutional structure and policy direction influence user engagement and system usage. While the study did not isolate policy awareness as a standalone metric, responses concerning organizational impact showed that 72% of participants agreed the system improves research outcomes, and 76% agreed it promotes content diversity. These outcomes imply that structured mandates and clear institutional objectives are contributing positively to repository effectiveness.

However, the mixed feedback on system usage and training suggests that institutional policies may not be fully operationalized or communicated effectively. This aligns with findings by Onyebinama et al. (2021), who note that policy implementation is crucial to repository participation. Institutional policy clarity, enforcement, and integration with academic processes may help improve submission behaviors and consistency.

Objective 4: To analyze the motivations and incentives for researchers to submit their work to repositories

Individual impact results highlighted time-saving (76%) and performance improvement (69%) as strong motivators for users. Participants generally recognized that the system is beneficial compared to traditional manual processes. However, moderate usage levels and usability concerns suggest that motivational factors alone may not be sufficient if the system is not perceived as convenient or efficient.

The findings imply that while intrinsic motivators like time-saving and improved productivity exist, external motivators such as institutional recognition, mandates, and visibility of work may be necessary to boost participation. This is consistent with the literature by Wu (2015) and Oberhiri-Orumah and Baro (2022), which stress the need for both technical enablers and institutional incentives to drive repository submissions.

In summary, the discussion demonstrates how the research findings directly addressed the study objectives. It reveals a nuanced understanding of the technical, organizational, and behavioral factors shaping document submission practices and provides evidence for a framework that integrates automation, policy support, usability enhancements, and user motivation strategies.

5.2.1 Challenges and Motivations

The study identified several challenges in the document submission process, including technical issues (42%), system downtime (28%), and time constraints (15%). Addressing these challenges is crucial for improving the overall efficiency and reliability of the DIR. Davis (1989) suggests that overcoming technical barriers and improving system reliability can significantly enhance user satisfaction and system adoption. Motivations for submitting work to the DIR were primarily academic requirements (44%) and the need to increase research visibility (33%). These findings align with Rowlands et al. (2008), who found that researchers are motivated by factors such as academic recognition and the desire to disseminate their work widely.

5.2.2 Improvement Suggestions

Participants provided valuable suggestions for system improvement, with more training for uploaders (38%) and regular updates (32%) being the top recommendations. Hosting the system in the cloud for better availability (12%) and marketing its benefits (10%) were also suggested. Implementing these recommendations can significantly enhance the functionality and user experience of the document submission system. According to Lee et al. (2015), regular updates and user training are crucial for maintaining high system performance and user satisfaction in digital repositories.

5.3 Contributions of the study

5.3.1 Contributions to the Body of Knowledge

i. The study provides valuable theoretical insights into the factors affecting the effectiveness of document submission systems in digital institutional repositories (DIRs).
ii. The findings contribute to a new framework for improving document submission processes, integrating aspects such as system quality, information quality, and user satisfaction.
iii. By addressing gaps in existing research, this study enhances the body of literature on electronic document management systems and digital repositories.

5.3.2 Contributions to Policy Makers

i. The findings provide evidence-based recommendations for policy makers to develop effective policies for managing digital repositories.
ii. The study offers guidelines for improving system quality, information quality, and overall user experience, which can inform institutional policies.
iii. Insights into the necessity for training can help policy makers design and implement effective training programs for users involved in document submissions.
iv. The study's findings can guide policy makers in allocating resources efficiently to enhance the functionality and accessibility of digital repositories.

5.3.3 Contributions to Users

i. By identifying key challenges and providing solutions, the study aims to improve the overall user experience of submitting documents to DIRs.
ii. The study's recommendations for more training and system updates empower users by providing them with the necessary skills and tools to navigate the document submission process more effectively.

iii. Users benefit from an improved system that saves time and enhances performance, making the document submission process more efficient and less cumbersome.
iv. The focus on user satisfaction and individual impact ensures that the improvements align with user needs and expectations, leading to higher satisfaction levels.

5.4 Designed framework for Improving Document Submission in Digital Institutional Repositories

This section presents the proposed framework derived from the findings of the study, designed to address the challenges and gaps identified in the document submission process within digital institutional repositories (DIRs). The framework integrates technological, organizational, and user-centric factors to streamline submission workflows and enhance repository effectiveness.

1. **Framework Overview**

The framework consists of six key components that influence and collectively lead to an improved document submission process:

2. **Institutional Policies & Mandates**
   Clear institutional guidelines, submission mandates, and enforcement mechanisms shape submission practices. These policies set expectations for compliance and standardization, ensuring consistent repository usage.

3. **System Quality**
   This dimension reflects the usability, reliability, interface design, and security of the submission platform. A system that is intuitive and secure improves user satisfaction and adoption.

4. **Information Quality**
   Accurate, complete, and consistently formatted metadata are crucial for discoverability and repository integrity. Automation and validation tools help maintain high metadata standards.

5. **User Motivation & Incentives**

   Researchers are driven by various factors such as academic requirements, the desire to increase research visibility, institutional recognition, and ease of use. Addressing these motivations promotes active participation in repository submission.

6. **Technological Enhancements**

   Advanced technologies like Optical Character Recognition (OCR), automated metadata extraction, and cloud-based hosting improve efficiency, minimize manual effort, and ensure system availability.

7. **Training & Support**

   Capacity-building initiatives, including user training and ongoing technical support, empower users to navigate and utilize the repository confidently and effectively.

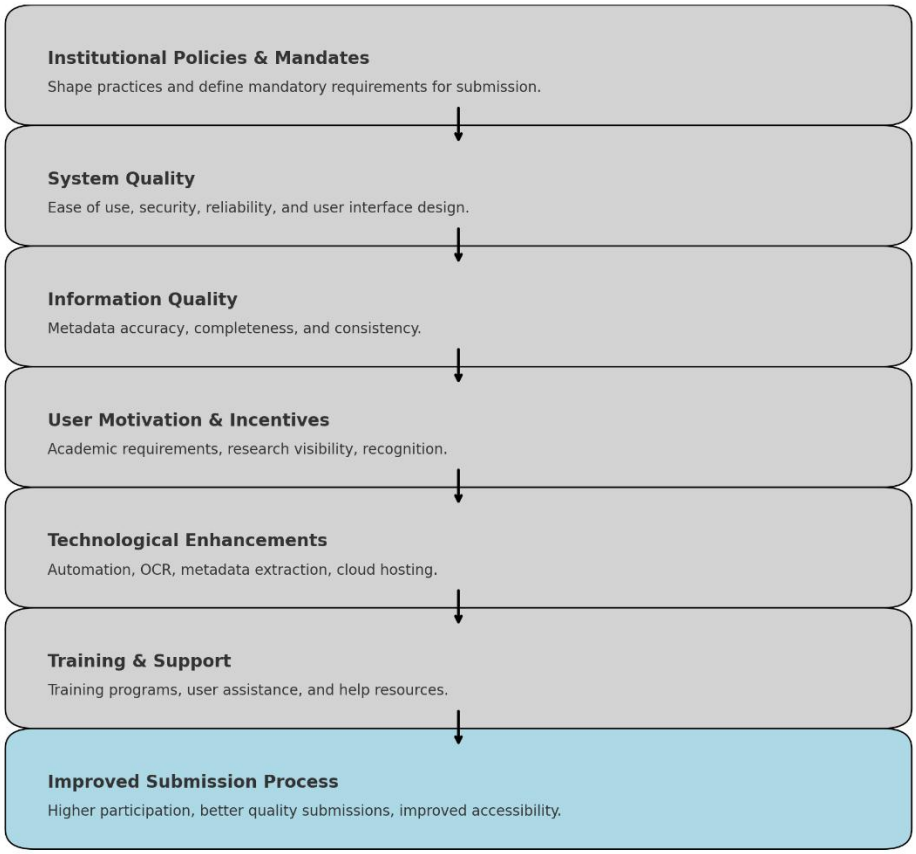


Figure 0.18 A framework for Improving Document Submission in Digital Institutional Repositories

5.5 Future work

i. Longitudinal Studies: Future research could conduct longitudinal studies to track the effectiveness of implemented improvements over time and assess their long-term impact on document submission processes.

ii. Comparative Analysis: Comparative studies between different institutions or digital repositories can provide insights into best practices and variations in document submission processes.

iii. User Experience Studies: Further exploration into user experience aspects, such as interface design and usability testing, can lead to more tailored solutions for enhancing user satisfaction.

iv. Technological Advancements: With ongoing technological advancements, future studies can investigate the integration of emerging technologies, such

as artificial intelligence and blockchain, to further streamline document submission processes.

5.5 Limitations of the Study

i. Sample Size and Representation: The study's sample size may limit the generalizability of findings to a broader population. Future research could aim for a more diverse and representative sample to enhance the validity of results.
ii. Contextual Factors: The study may not fully account for contextual factors unique to specific institutions or regions, which could influence document submission processes differently. Future studies could explore these contextual nuances for a more comprehensive understanding.

5.6 Conclusion

This study set out to develop a framework for improving document submission in digital institutional repositories, using Uganda Christian University as a case study. The investigation was guided by four specific objectives: assessing the current document submission processes and their challenges, identifying factors that could enhance submission efficiency, exploring the role of institutional policies and mandates, and analyzing motivations and incentives for submission among researchers.

The findings revealed a number of technical, procedural, and institutional challenges that affect the effectiveness and usability of digital submission systems. While participants acknowledged some strengths of the current system such as automation features and security significant concerns emerged regarding metadata management, user-friendliness, training gaps, and inconsistent policy enforcement. These issues contribute to lower adoption rates and reduced efficiency in document submission workflows.

The study also highlighted the importance of motivations such as academic requirements and visibility, as well as enabling factors like user training and institutional support. In response to these findings, the research proposed a

comprehensive framework that integrates institutional mandates, system and information quality, user motivation, technological enhancements, and training. This framework provides a strategic pathway for institutions seeking to streamline submission processes, reduce metadata-related errors, and improve both user satisfaction and repository participation.

In conclusion, improving document submission in digital institutional repositories requires a multi-dimensional approach that combines technology, policy, and user-centered strategies. The proposed framework offers practical guidance for institutional leaders, system developers, and policy makers to enhance repository effectiveness and contribute to the broader goal of knowledge accessibility and academic integrity. Future research could test this framework across multiple institutions to evaluate its scalability and adaptability in diverse academic environments.

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Appendices

Appendix 1: Questionnaire

A QUESTIONNAIRE SURVEY ON THE DEVELOPMENT OF A FRAMEWORK FOR IMPROVING DOCUMENT SUBMISSION IN DIGITAL INSTITUTIONAL REPOSITORIES

INFORMED CONSENT FORM FOR RESEARCH PARTICIPATION

You are invited to participate in a research study conducted by Drake Tamale, an MIT second-year student at Uganda Christian University.

Please read this information carefully before deciding whether to participate.

Dear Participant,

Thank you for taking the time to participate in this questionnaire focused on improving document submission in digital institutional repositories. Your valuable insights and feedback are crucial in guiding efforts to enhance the efficiency, effectiveness, and user experience of document submission processes at Uganda Christian University (UCU).

The purpose of this questionnaire is to gather information about your experiences, perceptions, and preferences regarding document submission in the digital institutional repository. By sharing your thoughts and opinions, you will help us identify strengths, challenges, and opportunities for improvement in the UCU digital document submission system. The questionnaire will take approximately 10 minutes to answer or less.

Your responses will be treated confidentially and used solely for research purposes. There are no right or wrong answers, so please feel free to provide your honest opinions and feedback. Your input is highly valued and will contribute to the ongoing enhancement of document submission practices within UCU.

If you have any questions about this study, please contact Drake Tamale at tamdra01@gmail.com or 0774834767/0704273756.

Thank you once again for your participation. Your contribution is greatly appreciated.

Please indicate your consent to participate by signing this form.

Name:……. Signature:……..

SECTION A: DEMOGRAPHIC INFORMATION

In this section you will tick (checkmark) on the appropriate choice(s)

1. What is your gender?
    - Male
    - Female
2. What is your age bracket?
    - 18-25
    - 26-30
    - 31-40
    - 31-50
    - 50 and above
3. What is your highest level of education?
    - Diploma
    - Bachelor's degree
    - Master's degree
    - PhD
    - Others…….
4. What is your primary role in the organization?
    - Librarian
    - Assistant Librarian

- Data Assistant
- Metadata Submitter
- IT Support
- Postgraduate Student
- Staff (Non-Librarian)
- Other:……

5. How long have you been involved in Digital Institutional Repository activities?
   - Less than 1 year
   - 1-2 years
   - 3-5 years
   - 6-10 Years
   - Above 10 years
6. How would you describe your level of experience in digital repository services?
   - Beginner
   - Intermediate
   - Advanced
   - No Experience at all
7. Have you received any formal training related to submissions of documents to digital institutional repositories?

- Yes
- No

SECTION B: THE CURRENT PROCESS OF SUBMITTING DOCUMENTS TO THE DIGITAL INSTITUTIONAL REPOSITORY

1. On average, how much time do you spend on the submission of a single document through the current system?
    - Less than 1 a minute
    - 1 – 5 Minutes
    - 6-10 Minutes
    - 10 – 30 Minutes
    - More than 30 Minutes
2. While choosing the type of document(s) to submit to the repository, what guides the choice of what is submitted? Choose one.
    - Institution policy
    - Work-related guidelines
    - No guidelines
    - My own experience
    - Other (please specify): ……
3. When submitting records to the DIR, what support software do you use to complement the process? (Tick any that qualifies).
    - Microsoft Word
    - Google Documents
    - Notepad
    - Dspace
    - Other (please specify): ……
4. What are the main challenges you encounter when submitting documents to the DIR? (Select all that apply)
    - Limited access documents
    - System downtime
    - Lack of training on document submission practices

- Technical issues (e.g., internet connectivity, power outages)
- Time constraints

5. What motivates you as a researcher to choose to submit your work to the digital institutional repository? (Select all that apply)
   - Money
   - Fame
   - Academic requirements
   - Need to increase the visibility of my research.
   - To cope with the latest trends
   - Other: ……..
6. How do you think the current system could be improved upon? (Select all that apply)
   - Regular Updates
   - More training for uploaders to reduce errors
   - Host the system in the cloud for 24/7 availability
   - Market its benefits for interest from other researchers
   - Other (please specify): ……

Section C: Designing a Framework for Improving Document Submission in Digital Institutional Repositories. The section is based on a 5 Likert scale with SD (strongly disagree) =1, D (Disagree) =2, N (neutral)=3, A (Agree)=4 and SA (Strongly Agree)=5.

1. System Quality

The system quality item aims to assess participants' perception of the effectiveness and reliability of the document submission system in digital institutional repositories. Your feedback on system quality will help identify areas for improvement and ensure a seamless document submission experience.

Item No	Measure of System Quality	SD	D	N	A	SA
1.	**The current metadata workflows in the system make it easy to effectively find and organize documents in the system.**					
2.	**Effective measures are taken to ensure the security and privacy of documents held within this system.**					

2. Information Quality

The information quality section focuses on evaluating the accuracy and reliability of data entered into the document submission system. Your feedback on automated data entry, error handling, and quality assurance mechanisms will assist in enhancing the overall quality of information within the digital repository.

Item No	Measure of information quality	SD	D	N	A	SA
1.	The automated data entry features in the document submission system save time and effort.					
2.	The digital repository system handles errors effectively and					

	ensures the quality of document submissions.					

3. Individual Impact

This section explores the impact of the document submission system on individual users. Your responses regarding user performance and time-saving benefits will help gauge the system's effectiveness in improving document submission practices and workflow efficiency.

Item No	Measure of individual impact	SD	D	N	A	SA
1.	The present document submission system improves my performance in submitting documents.					
2.	The digital document submission system saves me time compared to manual submission methods.					

4. Organizational Impact

The organizational impact section assesses the broader implications of the document submission system on institutional research, content diversity, and resource utilization. Your insights into these areas will inform strategic decision-making and contribute to the overall enhancement of the institutional repository.

Item No	Measure of organizational impact	SD	D	N	A	SA
1.	The document submission system contributes positively to improved research outcomes within the institution?					
2.	The document submission system plays a big role in promoting content diversity within the institutional repository.					

3.	The document submission system utilizes institutional resources effectively					

5. System Usage

In this section, I seek to understand how you interact with the document submission system in digital institutional repositories. Your responses regarding system usage, adoption, frequency of use, and accessibility will provide valuable insights into user behaviour and preferences. Indicate your level of agreement with the statements below:

Item No	**Measure of organizational impact**	**SD**	**D**	**N**	**A**	**SA**
1.	The document submission system is user-friendly and easy to adopt					
2.	I frequently utilize the document submission system for uploading documents					
3.	The document submission system is easy to access and navigate					

Appendix 2: DISSERTATION CORRECTION COMPLIANCE FORM (POST VIVA FORM)

UGANDA CHRISTIAN UNIVERSITY
A Centre of Excellence in the Heart of Africa

SCHOOL OF POSTGRADUATE STUDIES
DISSERTATION CORRECTION COMPLIANCE FORM (POST VIVA FORM)

Date: 25/05/2025
Name of Candidate: Drake Tamale Reg.No: S22M10/202

Title of Dissertation: **A Framework for Improving Document Submission in Digital Institutional Repositories: A case study of Uganda Christian University**

S/N	COMMENTS BY EXTERNAL EXAMINER	ACTION TAKEN	INDICATOR
1	The background is rather shallow. The candidate does not bring out the historical, theoretical, contextual, and conceptual contexts. In other words, the background as it is does not flow into the problem statement as it should. What does the study really hinge on? What theories support this study? What is the context in which this study is embedded?	The background has been reworked to bring out the theories on which it hinges, the context and so on. **The evolution of DIRs can be traced back to the early 1990s, beginning with efforts like the Open Archives Initiative (OAI), which aimed to improve the interoperability of repository systems. As a result, institutions worldwide began adopting these platforms to enhance visibility and accessibility of their scholarly content. However, the adoption and optimization of DIRs have been uneven, particularly in developing regions such as Sub-Saharan Africa, where infrastructural, policy, and technical challenges persist.** **From a theoretical perspective, this study draws upon the Technology Acceptance Model (TAM) (Davis, 1989), which explains how users come to accept and use a technology. According to TAM, perceived usefulness and perceived ease of use are key**	Page 2 on Background 1.1

2	The methodology section was very poorly done. In the introduction, the candidate states "I used a mixed-methods approach that combines a survey of students and faculty members with key stakeholders, and a case study of similar institutions." Later on, the candidate contradicts this position as follows: "This study utilized a quantitative research design, relying solely on questionnaires to collect data." This section must be rewritten and all sections reconciled.	This has been reconciled under the methodology introduction in paragraph 2 To investigate the feasibility of implementing an improvement in the submission system for Digital institutional repositories at Uganda Christian University, I used a quantitative research approach. The research was designed to collect structured numerical data through the use of a standardized questionnaire. This approach enabled objective measurement of stakeholder perceptions, usage patterns, and challenges regarding the digital submission system	Page 26 & 27, reconciled the methodology and research approach
3	The abductive approach lies very well with the Design Research Method. The challenge is that apart from mentioning Design Science Research, no effort was made to explain how it was used in the research. It should be noted that Design Science Research is must be embedded in the research by explaining how the three Design Science Cycles (Hevner, 2007) are utilized. That is, relevance Cycle; Design Cycle; and, Rigor Cycle. This should be redone.	More information has been provided, and this has been further expanded under **3.3.2 and the appropriate figure provided :** DSR is appropriate for research that aims to solve practical problems through the creation of useful artefacts while contributing to theoretical knowledge. In alignment with the abductive approach, which promotes iterative reasoning between observed data and existing theory, the DSR method allowed for continuous refinement of the improvement framework based on stakeholder input, data analysis, and theoretical grounding. The study employed the three cycles Relevance Cycle, Design Cycle, and Rigor Cycle	Check page 28 & 29
4	Comments: I would have loved the candidate to discuss the findings in light of the Objectives. Apparently, the candidate only discusses the study findings without discussing how the objectives of the study were achieved. This is a weakness. The candidate had the following objectives: 1. To assess the Current State of Document submission processes and	This has been reworked and the presentation is thus flowing according to objectives of the study in a chronological order.	Check pages 55-57

	challenges faced. 2. To determine factors for improving document submission on the digital institutional repository. 3. Investigate the role of 2 institutional policies and mandates in shaping submission practices. 4. Analyze the motivations and incentives for researchers to submit their work to repositories.		
5	How were these objectives achieved? How do the results obtained rhyme with existing literature? The purpose of the study was to develop (improve) a Framework. Apart from a description of the variables of Framework in 5.2 and 5.3, no Framework is presented. We need to see this Framework.	A graphical representation of the framework has been provided in this report.	Page 59-60
6	The conclusion as documented in Chapter 5, does not exist! It could be that the candidate inadvertently deleted it, but it is not there.	The conclusion is now fully available and part of this report in 5.6	Pages: 61-62

S/N	COMMENTS BY INTERNAL EXAMINER	ACTION TAKEN	INDICATOR
1	Correct citations so that they properly follow the APA 7th edition standard	The citations have been corrected to fall in line with the APA 7th ed. Standard	For comparison check literature review section, page 10-25
2	Ensure all Main headings have page breaks and start on top of the page no matter the reader	All chapters now have page breaks and begin at the top of a page	Page 1, etc corrected
3	Name subheadings and number them instead of using bullets	These have been corrected and the table of contents has been updated sample is 2.4.1 – 2.4.8	Pages 18 & 19

S/N	COMMENTS BY VIVA VOCE PANNEL	ACTION TAKEN	INDICATOR
1	Why conclude only for 3 objectives yet you had 4	This has been corrected with chapter five capturing all the 4 objectives	Pages 54-62
2	Where is the framework that	This has been availed in the conclusion.	Page 59-60

	the research purports to come up with?		

Candidate's Name: Drake Tamale Signature: 

Supervisor's Name/ Signature:

NB: Post Viva compliance form is designed to capture all the corrections recommended by internal examiner (supervisor), external examiner and viva panel.

Appendix 3: Research Assistance Letter

UGANDA CHRISTIAN UNIVERSITY
A Centre of Excellence in the Heart of Africa

FACULTY OF ENGINEERING, DESIGN AND TECHNOLOGY
DEPARTMENT OF COMPUTING AND TECHNOLOGY

21st April 2024.

Dear Sir/Madam,

RE: RESEARCH ASSISTANCE TO Mr. TAMALE DRAKE, S22M10/202.

Greetings from Uganda Christian University.

This is to introduce to you Mr. Tamale Drake, a Master of Information Technology student at the Department of Computing and Technology, Uganda Christian University. As a partial requirement for his Master's programme, he is pursuing research on the topic; "A FRAMEWORK FOR IMPROVING DOCUMENT SUBMISSION IN DIGITAL INSTITUTIONAL REPOSITORIES: A CASE STUDY OF UGANDA CHRISTIAN UNIVERSITY".

I kindly, request you to render our student such assistance as may be necessary for the research. Thanking you in anticipation.
Blessings in Christ.

Yours sincerely,

UGANDA CHRISTIAN UNIVERSITY
22 APR 2024
HEAD OF DEPARTMENT
DEPARTMENT OF COMPUTING AND TECHNOLOGY

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A Complete Education for A Complete Person