ASSESSMENT ON THE NEED AND CAPACITY FOR THE IMPLEMENTATION OF AN INSTITUTIONAL REPOSITORY: A CASE OF TUMAINI UNIVERSITY MAKUMIRA IN TANZANIA

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A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF REQUIREMENTS FOR THE DEGREE OF MASTER OF LIBRARY INFORMATION MANAGEMENT (MLIM) DEPARTMENT OF MEDIA AND LIBRARY STUDIES OF THE OPEN UNIVERSITY OF TANZANIA

2023

CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by the Open University of Tanzania a dissertation entitled; "Assessment on the Need and Capacity for the Implementation of Institutional Repositor: A Case of Tumaini University Makumira in Tanzania" in partial fulfillment of the requirements for the award of the Degree of Master in Library and Information Management (MLIM).

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(Supervisor)

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Date

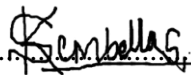## COPYRIGHT

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DECLARATION

I, **Kipi F. Sembera,** hereby declare that this dissertation is my own original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award.

.....................~Sembera S................

Signature

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Date

DEDICATION

This dissertation is dedicated to my wife Marry M. Mathew and my child Kaylin K. Sembera. All of them sacrificed not only their good time, love, and aspiration in daily life but also their endless prayers and encouragement, which gave me the strength to accomplish this most wonderful and special piece of work resulting from the collective efforts and dedication of one loving family. May the Almighty God bless my family forever. Amen.

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ABSTRACT

This study assessed the need and capacity for the implementation of an Institutional Repository (IR) at Tumaini University Makumira in Arusha. Specifically, the study was guided by the following specific objectives, the study examined the need for establishing an institutional repository at TUMa; found out existing available capacity for the implementation of institutional repository at TUMa; identified the challenges faced for implementation institutional repository and proposed solutions to mitigate the challenges faced. Purposive and simple randomly sampling was used to select population for the study. Data for the study was collected using a combination of methods including interviews and questionnaires. The population covered 67 respondents where by 54 aacademic staff; 9 library staff; 1 Deputy Vice Chancelor Academic Affairs; 1 Director of Research; and 2 ICT staff. Statistical Product and Services Solutions (SPSS) version 23 was used to analyze (quantitatively and qualitatively) and discussed in tables and text. Key findings of this study revealed that: majority 58 (85.3%) of the respondents expressed the need for establishing an IR at TUMa. Findings further revealed that TUMa has the capacity to implement an institutional repository. Similarly, findings revealed that lack of strategy to make repository functional, lack of IR policy and regulations, and lack of qualified professional experts to operate and manage IRs, are some of the challenges facing the establishment of an IR at TUMa. The study recommends to the university management to develop and strengthen infrastructure to support the implementation of IR, put in place an institutional repository and policy to guide the proper management of IR, build capacity of staff, training, budget, fund and IR policy to guide proper management of IR.

Keywords: Institutional repository, Tumaini University Makumira, Tanzania, process of implementing IR in Tanzania.

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ABBREVIATIONS AND ACRONYMS

ICT   Information and Communication Technology

IR   Institutional   Repository

KCMUCo   Kilimanjaro Christian Medical University College

OA   Open Access

SPSS   Statistical Product and Package for Social Sciences

SMMUCo   Stephano Moshi   Memorial University College

TCU   Tanzania Commission for Universities

TUDARCo   Tumaini University Dar es Salaam University College

TUMa   Tumaini University Makumira

CHAPTER ONE

INTRODUCTION TO THE STUDY

1.1 Introduction to the Study

A university is an institution which is engaged in transmitting and expanding the frontiers of knowledge. According to Alegbeleye (2017), the quality of a particular university is measured by quality and quantity of research outputs produced by its community members. As a result, the mission of the university worldwide is engaged in generating new knowledge for preparing the young minds to work in different sectors of the economic, technological, political in applied research which, in turn helps to improve the quality of human life (Lungu, 2015). In support of this view, Ezema and Okafor (2015) noted that "research can only be valuable if its outputs are made accessible in order to inform, educate, and have practical use in society". Thus, universities all over the world have employed various methods for managing, disseminating, and preserving their research outputs and resources in a more effective and open way. The institutional repository has become a viable method used to make research and scientific outputs easily available and accessible to the public without any restrictions (Jain & Bentley, 2008).

In support of this view, Ezema and Okafor (2015) noted that "the wealth of the nation depends much on research and the use of the research findings in solving personal, socio-economic, political, scientific, and industrial problems of the nation". In fact, the emergence of institutional repositories currently of digitization has opened up vast opportunities for the dissemination of scholarly communication (Pauline, 2019). This is because an institutional repository is broadly intended to

house the documentation of intellectual work for both research and teaching, records of intellectual and cultural life, and supporting evidence for present and future scholarship. Lynch (2003) argues that "institutional repositories emerged as a new strategy that allows universities to apply serious, systematic leverage to accelerate changes occurring in scholarship and scholarly communication".

In Addition, institutional repositories (IRs) are now essential components of the contemporary approach to information gathering, processing, archiving, and free global distribution. Before introduction of institutional repositories (IRs), there was a public outcry that there were inadequate national data collection systems, which are key to management and making informed decisions. In terms of gathering, preserving, and disseminating information internationally, the data collecting and management methods in use had some limitations. Therefore, the advent of institutional repositories (IR) has fundamentally changed the way information is collected, preserved, and disseminated. African universities, including Tumaini University Makumira, are think tanks for the nation. They produce a great deal of data (published and unpublished, pre-print and post-print).

For the generated information to have practical value in society, it needs to be accessible to would-be users and policymakers so that they can become key to Tanzanian transformation. Researchers tend to hold their research findings on shelves where they end up gathering dust, and as such, they do not have practical use in solving societal problems. This actually defeats the whole purpose of doing research if research findings that are public goods are inaccessible. To address the

challenges of preservation, poor visibility, accessibility, and sharing of the research outputs emanating from universities worldwide and Tanzania in particular, efforts were made to establish institutional repositories (IRs).

In the case of Tumaini University, based on the mandates bestowed upon it, among them conducting research to generate valuable information for social and economic development, the major problem facing it is the absence of an institutional repository (IR). Tumaini University Makumira should think about setting up an institutional repository (IR) in order to contribute to the field of knowledge, given the lack of IRs at the university in this ICT era and the growth of open research and open data. Its fundamental tenet, open science and open data, is to foster more scientific cooperation and knowledge exchange for the good of science and society (UNESCO, 2021). This is most likely the result of a poorly written document that serves as a roadmap for the creation of institutional repositories throughout Tanzania.

It is through this understanding that even in Tanzania, universities have taken a leading role in the implementation of institutional repositories (IRs), where records obtained from Open DOAR (2022) indicate that there are forty (40) repositories out of 145 universities in East Africa that have implemented IR. In fact, universities in Tanzania have embraced institutional repositories (IR) in order to make their research outputs emanating from scholarly works accessible to a wider audience. In addition, it is geared toward overcoming the barriers associated with the subscription model, which hinder the accessibility and usage of information. There

is also a challenge associated with the escalating costs related to the subscription of learning and teaching resources. However, there has been relatively little systematic examination on the process of establishing institutional repositories in Tanzania. It is against this background that the study was carried out.

1.2 Context of the Study

Tumaini University Makumira (TUMa) is a private, independent, non-profit university, accredited by the Tanzania Commission for Universities (TCU) under the Universities Act, 2005, and Chartered on 2nd August, 2012. The University's vision is a Christ-centred Higher Education Institution for excellence and hope, focusing all its programmes through the guidance and obedience to the Word of God. It also conducts higher education, learning and research through scientific fact-finding and enquiries to all students without discrimination (Saris Makumira, 2023).

The university, as the main campus, has the following constituent colleges: Kilimanjaro Christian Medical University College (KCMUCo), Tumaini University Dar es Salaam University College (TUDARCo), and Stephano Moshi Memorial University College (SMMUCo). The University Library is one of the oldest libraries in East and Central Africa and ultramodern facility that provides information resources necessary to support teaching, learning and research, making it the intellectual hub of the University (Tuma Prospectus, 2021/2024). The library accommodates over 200,000 volumes of books and presents a vision for the 21st

century through the integration of books and information technology as well as inviting space that encourage collaboration learning (Saris Makumira, 2023).

1.3 Statement of the Problem

Academic and research institutions as centres for intellectual and scholarly research, must be interested in the creation, dissemination, use and preservation of knowledge from their university community (Uzuegbu, 2012). According to the Association of American Universities (AAU) et al. (2009) , faculty research and student scholarship represent an invaluable intellectual capital of a university but the value of that capital lies in its effective dissemination and usage by its possible present and future audiences. Christian (2008) on the other hand asserts that, institutional repositories are fast becoming one of the best tools utilized by institutions in making their research knowledge or local content widely available and accessible to their user community. The extent of institutional repositories growth in Tanzania has been elucidated by the works of Dulle, (2010), Lwoga and Questier (2014), Muneja (2000), Samzugi (2017) Malekani &Kavishe (2018).

However, there has been relatively little systematic assessment on the need and capacity for implementing institutional repositories in universities in Tanzania. It is against this background that this research was carried out.

1.4 Objectives of the Study

The general objective of this study was to assess the need and capacity for the implementation of an institutional repository: at Tumaini University Makumira, Tanzania.

1.4.1 Specific Objectives of the Study

Specifically, the study sought to

i) Examine the need for implementation an institutional repository at Tumaini University Makumira.

ii) Find out the available capacity for the implementation of institutional repository at Tumaini University Makumira.

iii) Identify the challenges faced in the implementation of institutional repository and propose solutions to mitigate the challenges faced in the implementation of institutional repository at the Tumaini University Makumira.

1.4.2 Research Questions

Consistent with the above objectives the following research questions guided this study.

(i) Is there a need for implementing an institutional repository at Tumaini University Makumira?

(ii) What are the capacities required to implement an institutional repository (IR) at Tumaini University Makumira?

(iii) What are the challenges faced in the implementation of institutional repository (IR) at Tumaini University Makumira and what are the proposed solutions to the challenges faced in the implementation of IR at the Tumaini University Makumira?

5 Significance of the Study

The significance of a study: Firstly, it provides guidelines or steps needed in implementing an institutional repository. Secondly, the study can serve as a platform for sharing best practices in IR implementation. By disseminating the findings, institutions can learn from successful approaches, leading to the adoption of best practices in the establishment and management of repositories. Thirdly, the study contributes to strategic decision – making within academic institutions. By assessing the need and capacity for IR implementation, administrators and decision-makers can formulate informed strategies and plans for the integration of repositories into the institution's infrastructure.

1.6. Scope of the study

According to TCU (2023) there are (31) universities in Tanzania. However, this study was confined to the assessment of the need and capacity for implementing an institutional repository (IR) at Tumaini University Makumira Arusha. The reason for choosing Tumaini University Makumira is that, it is not yet established institutional repository. Therefore, the findings may be applied by other institutions planning to establish institutional repositories (IRs).

1.7 Limitations of the Study

In this study time constraint was a limitation because only three months were allocated to fieldwork. In addition, as an employee, I had to contend with the challenge of meeting my employer's demands which is necessitated me to work while studying. Budget constraints were also another limitation. For example, I had

to pay for my studies from my own sources because it was difficult to acquire scholarship funds to meet tuition fees and at the same time meet family chores. This limitation was eased by the assistance obtained from my family and loan from a bank facility.

Another limitation of this study did not include all universities in the country due to limited financial resources and time. However, it is expected that the findings of this study will serve as a road map to other institutions with similar environment to use the findings of this study to establish institutional repositories.

1.8 Definitions of Key Terms

This section provides the definitions of some key terms as used in the study. Where there is more than one acceptable definition, an operational definition for the purpose of this study has been provided.

1.8.1 Institutional Repository (IR)

According (Crow,2002 & Lynch, 2005) an institutional repository (IR) is a digital archive that is designed to capture, preserve, and provide open access to the intellectual output of an institution These repositories typically focus on collecting and disseminating scholarly and research materials produced by the members of an academic or research institution.

1.8.2 Information and Communication Technology (ICT)

Information and Communication Technology (ICT) refers to a broad range of technologies, devices, systems, and applications that are used for the creation, storage, processing, transmission, and exchange of information. (Chirwa & Mnzava 2017).

1.8.3 Metadata

Metadata is structured information that describes, explains, locates, or otherwise makes it easier to retrieve, use, or manage an information resource. Metadata is often called data about data or information about information. The term metadata is used differently in different communities. Some use it to refer to machine understandable information, while others use it only for records that describe electronic resources. (Nunda & Elia 2019).

1.8.4 Open Access

Open access refers to the practice of providing unrestricted and free online access to scholarly and research content, such as articles, papers and publications. The primary goal of open access is to remove barriers to accessing information and to promote and to promote the widespread dissemination of knowledge (Chilimo, 2016).

Scholarly Communication

Scholarly communication refers to the process by which scholars and researchers share and disseminate their scholarly work with each other the broader academic

community. It involves the creation, exchange, and evaluation of knowledge within the academic and research community. Scholarly communication encompasses various forms and channels such as institutional repositories through which scholars contribute to advancement of knowledge (Abdelrahman, 2017).

1.9 Structure of the Dissertation

The setting and framework for this investigation were described in chapter one. It contains the problem statement, the study's goals, and the research questions that served as the foundation for the creation of the questionnaire. Additionally, the study's relevance, its limits, and the definition of essential words were covered. The study's literature review is presented in the following chapter.

CHAPTER TWO

LITERATURE   REVIEW

2.1 Introduction

This chapter reviews previous studies and the underlying theories relevant to this study. The chapter is organized into topics and subtopics. The chapter also reviews previous studies in the country and worldwide to establish their weakness, strengths and contributions to the present study regarding the need and capacity for the implementation of institutional repository.

 Reviewing of literature facilitates the researcher to establish how different scholars have studied the identical problem. Bourner (1996) argues that it is worthwhile to put some time and effort into conducting a review literature.

The benefits of literature review include avoiding duplicating previous work, identifying seminal works in your field, spotting competing viewpoints, and building on previous work.

In addition, literature review provides a theoretical foundation for the study and aids in establishment of links between what researchers propose to investigate and what has already been studied. It also allows a researcher to demonstrate how research findings have co

ntributed to the existing body of knowledge.

2.2 Overview of Institutional Repository

Historically, the development of institutional repositories in academic institutions worldwide has greatly increased, with the growth of open-source initiatives in scholarly communication and software development (Swanepoel, 2005). The origin of open access movement triggered the creation and adoption of IR in academic libraries in the world. This was intended to provide appropriate standards for electronic formats (and thus published) in at least one online repository using suitable technical standards(such as the Open Archive definitions) that is supported and maintained by an academic institution, scholarly society, government agency, or other well-established organizations which seek to promote open access, unrestricted distribution, interoperability, and long-term archiving (BOAI, 2003). During the 1980s, college and university archives began institutional repository collections and special-subject collections. Dealing primarily with print materials and papers, university archives have attempted to acquire, retain and preserve faculty papers to document scholarly activity on campus. In addition, the role of libraries as repositories and disseminator has also been discussed in terms of an institutional repository associated with a college or university archive (Wolff, 2009; Jones, 2000). Not only were these special collections seen as a growth area for archives, but the purpose of special collections was seen as a way to project the image of the individual university as an institution of higher learning Gakobo (2004). The philosophy behind open access is to provide free of charge and unhindered access to research and its publications without copyright restrictions. By 'open access' to [scholarly] literature, it means free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or

link to the full, texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. (BOAI, 2002). Self-archiving, also referred to as "Green Road" to open access, is making authors' articles freely available in digital form on the Internet. (Budapest Open Access Initiative, 2002).

2.2.1 Need for Institutional Repository (IR's)

With the explosion of information and the need to afford accessibility of information to the wider public it has become impossible for the traditional methods to handle it. According to Feather (2013) in each minute information is generated. Besides that, in the spirit of open access, universities worldwide have taken initiatives to make their research outputs emanating from their institution to be easily accessible.

The role of universities worldwide revolves around teaching, research, consultancy and community services. Through those mandated core functions academicians and researchers, they generate valuable information needed in the social economic development in any the society. Nevertheless, the value of generated information can only attain impact in the society if it is easily located and accessible for the public use. As pointed out by Kathewera (2016) the creation and use of new knowledge through research and scholarship lies at the very heart of a university 's mission, and yet, without effective dissemination and transfer of the generated research findings, the effort of researchers and scholars is seemingly laboured in

vain. It is through this fact that universities have identified and deployed effective ways and strategies for capturing and managing these intellectual assets alongside other types of information that they interact with. In fact, this has become possible through the revolutionary changes brought by ICT in the way scholarly information is generated, used and managed in universities. Such important revolutionary demands universities to take on a much more active role in ensuring dissemination of their local content both now and in the future (Association of Research Libraries et al., 2009). In order to overcome the challenges of dissemination and preservation of information most universities have therefore grasped the opportunities offered by ICT by establishing institutional repositories (IRs) as a platform for access to intellectual materials born' within their institution Wong (2009).This development is in line with observation made by Christian (2008) who argues that the establishment of institutional repositories in academic and research institutions in Africa is a serious developmental issue that requires urgent attention even by top university management.

There are number of reasons for introducing an institutional repository. Among them is that researchers and institutions benefit from institutional repositories in the same way. According to (Crow, 2002), the most prominent reason is the increase in visibility and impact of research output as well as building up and maintaining reputation in the scientific community. It assists to measure research impact, bibliometric methods like citation analysis e.g. in the field of academic journals are used. Studies carried out (Lawrence 2001, Harnad and Brody 2004, Antelman 2004, cf. bibliography from the OpCit 2007),) emphasize the importance of freely

online accessible publications: It is evident they are cited more often than literature with restricted access. The second reason is due to change in the scholarly publication paradigm. Self-publishing scientific content and providing free access to these materials are key activities in the Open Access movement. While the third reason for putting in place an institutional repository is necessitated on the need to step up of internal communication. By providing a centralized digital asset store other organizational units within a larger organization might benefit from the published materials on the one hand. But on the other hand, material not published which are referred as grey literature for instance theses and dissertations, internal technical reports, unpublished conference proceedings are also part of an organization's knowledge and thus, they should be made accessible by everyone within the organization to allow re-use and to make cross-references which would be impossible when those digital assets are stored just locally e.g. only by a single working group. Notwithstanding, another justification documented is that IR can be used to monitor the productivity of the academic community members in relation to their scientific publications (Yi-Ping&Tsu-Jui, 2018).

Based on the provided discussion and following the consultation of various literatures, suffices to say that the need to have an IR in universities in this ICT era is not an option but a necessity. Therefore, it is in the interest of Makumira University as a center for intellectual and scholarly research to put in place IR to promote wider use of information emanated from research is well documented, stored, and widely intellectual and scholarly research to put in place IR to promote wider use of information emanated from research is well documented, stored, and

widely disseminated which is among the responsibility of any university disseminated which is among the responsibility of any university.

In summary, the potential needs for implementing an IR are: scholarly communication; management and storage of learning materials, electronic publications and research collections and preservation of digital research work. Others are, building university profile by showcasing academic research work; providing an institutional leadership role for the library; research assessment; encouraging open access; and housing digitized collections (Barton and Waters, 2004). Based on the reviewed literature, the study is also intended to solicit views from Tumaini University Makumira (TUMa) community in order to establish whether they need Institutional Repository (IR) or not. Therefore, a detailed exposition on the need and capacity for the implementation of an Institutional Repository remains a task of this study.

2.2.2 Capacity for the Implementation of Institutional Repository

In the context of this study on the "Need and Capacity for the Implementation of Institutional Repositories (IRs)," the term "capacity" encompasses the institution's readiness, capability, and resources necessary for the successful implementation, management, and sustainability of an Institutional Repository (OpenAI, 2023).The key components in the implementation of IR includes technical capacity with entails the institution's technological readiness, including the availability of suitable hardware, software, and technical expertise needed to implement and maintain the IR (Wolff,2009).Other equally important factors involves skilled human resources

such as librarians and ICT professionals, with the expertise to oversee the operation of the IR such as digital repository management, metadata creation, and user support.(Gakobo,2004).Besides that issues related to policies to guide the future direction and management of the IR needs no emphasis. Actually, policy and governance capacity is key in guiding the use, access, and preservation of content within the IR. As such it involves considerations for copyright compliance, data management, and ethical standards. (wong,2009).

Financial capacity involves the availability of financial resources required to establish and maintain the IR. This includes funding for infrastructure, software licenses, personnel training, and ongoing operational costs. (OpenAI, 2023). Moreover, it can be inferred that collaboration and communication capacity is key in promoting the benefits of the IR and encouraging participation. (Christian, 2008). Sufficing to say that understanding and evaluating these dimensions of capacity is crucial for institutions as they embark on the implementation of Institutional Repositories. In fact, assessing their technical capabilities, human resources, policies, financial resources, and collaborative strategies, institutions can address potential challenges and ensure a successful and sustainable integration of IRs into their academic infrastructure. (Swanepoel,2005)

Human Resources Capacity in Institutional Repository Implementation

Staffing is a paramount issue in the success of implementation of institutional repositories.Cassela,(2012) did a survey at Kansas State University and observed that institutional repository is a concept that has been embraced fully but staffing was

wanting. He pointed out that, despite successful implementation of the institutional repositories, it was managed by one person, which could hinder the growth of many institutional repositories. According Marrow and Mower (2009) institutional repository deserves to be equipped with personnel who understand fully the process of scholarly communication, form data collection, authoring, publication and digital archiving of information resources, Aziz (2011) points out that staffing is a critical issue in the success of institutional repositories, however if management of institutions fail to acquire competent staff to manage institutional repositories they will be destined to fail. Chang, (2014) in his study proposes that, all staff charged with the responsibility of managing the institutional repositories should be given formal or in-house training on the scholarly communication cycle to help them perform their duties effectively and efficiently. Simon and Richard (2012) in his study gives another opinion on staffing, he points outs that institutional repositories management should be left to trained librarians who understand the process of collection development. He continues to point out that since librarians are knowledgeable about selection criteria and what forms quality information materials that can be recruited to the institutional repository. Librarians should appreciate the direction technology is shifting, that is moving from traditional print to electronic preservation and access, they should consider working together with information technology personnel for them to carry out their mandate successfully (Richardson, 2012).

Technical Capacity in Institutional Repository Implementation

Research strongly suggests that IR development should include a complete needs assessment of the infrastructures and technical specification needed. There are many factors to be considered in the process of implementing operating of an institutional repository. Such factors include the availability of ICT infrastructure which plays a vital role in setting up of IR. According to Simmonds (2022) infrastructure is described as a foundation or framework that supports a system or organization, information technology infrastructure is composed of equipment and software necessary to implement and operate systems and networks for communications services as well as support applications and digital content. ICT infrastructure includes hardware mainly physical servers, switches, base station equipment. Others are software, network connectivity, data centers, facilities, and related equipment, which is used to develop, test, operate, monitor, manage, and support ICT services Simmonds, (2022).

Hardware and software are interconnected with each other and it is essential to set up any kind of system. Muneja & Ndenje-Sichwale (2016) asserts that the required hardware depends on the specifications and the version of the repository software. Apart from hardware, the setting up of IR also requires software. The main functions of software are to guarantee that content management is effective. According to Mwalubanda (2021), software can be open source, built-in or proprietary in nature but they serve the same purpose of managing the content of IRs. The main functions of software is to assist in management of content, searching and processing applications Mwalubanda, (2021). World wide experience

indicates that the commonly used software used to set up and operating IR falls under two categories namely open source software and commercial or proprietary (OpenAI, 2023). The open source software refers to computer software whose source code is made available to public, allowing anyone to view, use, modify and distribute the software (OpenAI, 2023). Smith (2015) alludes that there are different content management software, it is however suggests that, each institution intending to implement and manage IRs is supposed to conduct intensive research and consultations with stake holders to determine type of software to be used for their repositories(Smith, 2015). In actual fact, the process is supposed to include taking care of the needs of the user, functionality of the software, technical specifications, repository and system administration, content management, dissemination, archiving and system maintenance (Smith, 2015). Sufficing to say that, this process is import.

ant in order to acquire software that could be reliable for developing IR.

Having reviewed the related literature on the need and capacity for the implementation of institutional repository it has been revealed the needed prerequisite infrastructural and technical specification required to establish and operation of IR. However, it is unclear whether Makumira University has put in place such infrastructures to support the implementation of IR. remains a subject of investigation.

2.2.3 The challenges of the Implementation of Institutional Repository

It is obvious that institutional repository (IR) provides enormous benefits to the institutions, the country and the world in general. However, there are challenges which militating its implementation.

According to (Lagzian, Abrizah and Wee 2015) cited (Cullen and Chawner 2012) emphasized that, for any institution planning to implement the setting up of a repository it requires the commitment of resources to ensure success in both the establishment and maintenance of the repository. Gideon (2009) on one hand outlined issues related skilled human resources needed to carry out trouble shot and fix them as a challenge. While on the other (Kakai, 2009, Okhakhu, 2015) mentioned inadequate information communication technology infrastructure, high cost of interment bandwidth in the region, infrastructure, a lack of awareness of open access institutional repositories, insufficient funding, the high cost of internet bandwidth in the region, and a low level of awareness on IR. Sankar and Kavitha (2017) in their survey on the challenges of contributing to institutional repository system reported issues of funding, plagiarism, maintenance, copyright, lack of incentive, lack of will to deposit, lack of understanding of institutional repository goals, lack of administrative attention/support and lack of will to deposit". Bamigbola (2014) informed that there is lack of awareness to institutional repositories, epileptic power supply, fear of not being able to publish work submitted in an institutional repository, fear of plagiarism and ignorance of publisher policy. Likewise, Omeluzor's (2014) study of institutional repositories (IRs) awareness and willingness of faculty Okhakhu (2015) also identified some of

the issues that negatively impact the development of institutional repositories in Africa, including insufficient information and communication technology Chan, Kwok, and Yip (2005) listed other challenges such as low levels of awareness of IRs, low levels of awareness of self-archiving rights among faculty members, insufficient institutional support and authors' inability to retain the correct version of their papers as required by publishers. Additionally, copyright has become a difficult issue to resolve (Wu, 2015). Another challenge is a lack of collection policies, that is, policies that specify what resources should be included in an IR and in what format and who should do it. Meanwhile, Fasae et al. (2017) attributed the challenges to insufficient funds, an unstable power supply and software problems.

Equally, Kumah and Filson (2021) highlighted major challenges of libraries in operating IRs in Ghana includes, inadequate ICT connectivity and infrastructure, unreliable power supply, copyrights and intellectual rights, financial constrain, inadequate advocacy and training on the importance of IRs to faculty and users were the major challenges of academic libraries in operating IRs in Ghana. While Tapfuma & Hoskins (2021) alluded that there is fears and academics' misconceptions regarding OA and IRs, difficulties convincing university managers about OA exacerbated by an absence of enabling conditions to promote IR development. However, whether such challenges exist at Makumira remains a subject worth this investigation.

2.2.4 Solutions to Mitigate the Challenge Faced Implementation Institutional Repository

As a solution the identified challenges the reviewed literature has provided the solution. Tapfuma& Hoskins (2021) opined that universities' policies should recognize publication in OA and enforce deposit mandates.

The study done by (Saliu, Ngozi, Lawal, 2022) indicated solutions to challenges facing IRs in universities is to have alternative power supply and management should strive to increase Internet bandwidth to enhance the effective utilization of IR. and an IRs policy to encourage the acquisition of content, availability of plagiarism software, specifying copyright and intellectual property right in respect of IRs content.Also, helping users in searching and retrieving information, motivate staff/researchers to create and contribute local content to the IRs, creating more awareness of the importance and content of the IRs, more training for staff and students in creation access and use to the IRs and there should be sensitization of academics by the university management. However, whether such solutions exist at Makumira remains a subject worth this investigation.

2.3 Research Gap

Literature review suggests that several studies have been conducted on the need and capacity for the implementation of institutional repository. A few of these studies were conducted by Samzugi (2017); Mgonzo and Zaipuna (2014); Mhongole; Loserian (2014) and Muneja (2007). Despite the efforts made by the scholars to report various issues pertaining to institutional repositories, evidence from the

reviewed literature confirms that there is no study conducted so far that has assessed the Need and Capacity for the Implementation of an Institutional Repository at the Tumaini University Makumira in Tanzania. The current study aims at bridging the existing knowledge gap by proving information which will assist in the implementation of institutional repositories. A study of this nature is worthy for university authorities and other stakeholders in the establishment of institutional repositories, with the view to enhance the efficiency and effectiveness of library services.

2.4 Theoretical Framework

Theoretical review investigates theories that elaborate on the subject being studied and which, in turn aid in better understanding of the study in question while simultaneously putting forth a justification for the current study (Creswell, 2014). However, theories are typically used to assist in the development of research questions, to guide the selection of relevant data, and to propose explanations for the underlaying causes or influences of observed phenomena, without theory, a research project may fail into the "black hole" of science research, resulting in a conclusion with no nexus or, worse, inverting cause and consequence.

Technology theories are framework that seek to understand, explain or predict the interaction between technology and various aspects of society. These therioes help scholars, policymakers, and practionaners comprehend the role and impact of technology on human behavior, culture and organizational structures. Innovation diffusion theory this theory has been used in the technological innovation and restoration of various objects such as institutional repository.

The diffusion of innovation (DOI) Theory developed by E.M, Rogers in 1962 is one of the oldest social science theories. According to Rogers, diffusion innovation theory entails entry of new products or services, innovation through technology and evaluation of reaction of affected parties by the new development. Institutional repository is a concept that is treated as new development since it has changed how research work is being disseminated in various universities. Second, the same study will adopt the contemporary theory written by contemporary management as a new development; it means a new approach in management of organizations through the use of open systems that freely interact with the environment. This theory puts emphasis on institutions to gather resources from its operating environment such as research output from the community of users and use it for the purpose of functioning and growth. Institutional repositories are a new development in developing countries that is being embraced currently by institutions of higher learning for the purpose of intellectual ideas, preservation and sustainability of their prestige.

2.5 Conceptual Framework

Conceptual framework is the argument about why the topic one wishes to study matters, and why the means proposed to study it is appropriate and rigorous (Sharon, 2012). The study used conceptual framework to identify and indicate the various aspects that influence the implementation of institutional repositories.

The dependent variables of Software, ICT Infrastructure and Copy write of institutional repository, is influenced by the implementation of institutional

repository impacts on effective dissemination of scholarly information and communication.

Independent Variable

Collection
Preservation
Infrastructure
Dissemination
Open access
Global visibility

Dependent Variable

Funding
Technical
Human resources
Policies

Intervening Variables
Management Support
Technical Skills
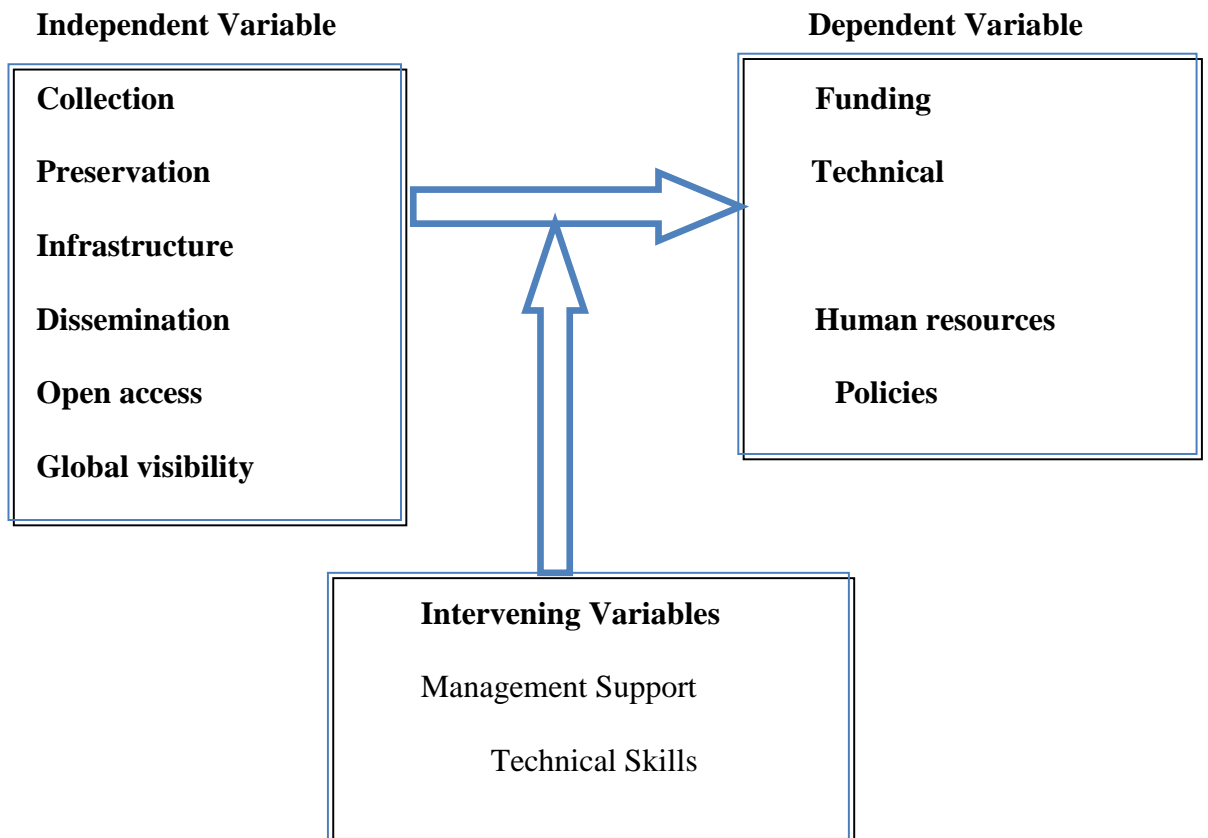
Figure 2.I: Conceptual framework on the Need and Capacity for the Implementation of Institutional Repositories in Universities

Source: Developed by Researcher based on literature review (2023)

2.6 Summary

This chapter has reviewed various works of scholars on the need and capacity for the Implementation of Institutional Repositories in Universities, with special reference to the Tumaini University Makumira in Tanzania. The chapter has

covered the following themes: first it has provided an overview of Institutional Repositories; second, it has covered the need for maintaining an Institutional Repository: a global review of empirical study; ; third, it has discussed institutional repositories implementation in Africa: capacity required in the whole process of implementing an IR and ICT infrastructure needed for IR implementation in Tanzania Universities; and fourth, it has looked at the challenges facing IR Implementation in universities in Tanzania and proposed solutions to mitigate the challenges. The chapter has also established the research gap the study set out to fill and finally it has presented the theoretical framework as well as the conceptual framework that guided the study. The next chapter presents the research design and methods used to collect process and analyse the data.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methods used in the execution of the study. Research methods are general strategies and approaches in research. It identifies the methods used and matches them with the outlined research approaches (Alharahsheh & Pius, 2020). According to Igwenagu (2016), research methodology concerns the research design and not the instruments or methods. Specifically, this chapter presents the research paradigm, approach, area of the study, sample size, study population, sampling procedures, data collection, quality control

3.2 Research Design

According to Kothari (2015), a research design is logical plan created to guide a research investigation. A research design is a blueprint outlining all the steps involved in conducting a study, from selecting a topic to selecting specific methods for gathering and analyzing data (Creswell, 2009). It offers a path to take from the start of the study all the way through to its conclusion. Actually, in essence is for ensuring that the study effectively tackles the issue in accordance with the study's objectives (Saunders et al., 2007; Kothari, 2004; and Creswell, 2003). In accordance with a certain strategy and framework, the design of the research allows a researcher to connect the material acquired with the questions they have established (Punch, 2009). This study used mixed method qualitative and quantitative data to collect qualitative and quantitative data through the use of

questionnaire and interviews regarding the need and capacity for the implementation of institutional repository at Tumaini University Makumira.

In addition, the design also assisted the researcher to obtain information on the present state of institutional repository implementation and in describing the other variables in the study.

3.2.1 Research approach

This study employed the qualitative and quantitive approaches in triangulation manner to supplement each other. The use of qualitative and quantative is based on fact that, qualitative data emanated from opinions views suggestion from respondents on the need and capacity for the implementation of institutional repository. While quantitive data was derived from statistical and numerical data collected from respondents.

3.3 Study Area

The study was conducted at the Tumaini University Makumira in Arusha Region. Tumaini University Makumira was purposively selected as study area because so far, it represents other universities in the country which has not put in place Institutional Repositories (IRs). The University was also selected because of convenient of the researcher to collect data.

3.4 Population of the Study

Population is the total collection of elements about which we wish to make inferences. The study populations for this study was 80 participants comprised of sixty four (64) Academic Staff, one (1) Director of research, nine (9) library staff, one (1) Deputy Vice Chancellor Academic Affairs (DVCAA) and five (5) ICT Staff of the Tumaini University Makumira (TUMa Prospectus, 2023-2025). The study was conducted from a sample rather than from the entire institution due to the logistical aspects of such a large institution, therefore the researcher picked a representative sample which gave more information about the whole population.

3.5 Sample Size and Sampling Techniques

3.5.1 Sample Size

According to Omari (2017) a sample size is a small portion of the population selected for observation and analysis. Omari (2017) put forward three factors that are to be considered when selecting a sample size: the availability of the population, methods of sampling to be used and financial resources, also time available for the research. In conclusion the researcher concurred with Kothari (2004),who asserted that sample size should be optimum: that is, it should neither be too large nor too small. The sample size for this study was 67 respondents. These were purposively and randomly selected from a target population of 80 . The researcher considered this number to be manageable. Yamane (1967) formula was employed to derive the sample size as shown below:

The sample size of the respondents for details refer to Table I.

Table 3.I:Respondents' Sample Size n=67

Category	Total
Deputy Vice Chancellor Academic Affairs (DVCAA)	1
Director of Research	1
Academic Staff	54
Library Staff	9
ICT Staff	2
Total	67

 Source: Researcher, 2023

It is necessary to justify the criteria for selecting the sample size. Thus, the sample provided reasonably adequate data for this study. Therefore, the researcher considered this number to be appropriate and manageable in obtaining the required data. The Sample size for this study   was calculated using a formula derived from Yamane (1967) as shown below.

$$n = \left(\frac{N}{1 + N\left(e^2\right)} \right) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \text{(Equation)}$$

Where;

n is the sample size

N is the population size = 80

e is the level of precision (Sampling error) = 5% or 0.05

$$n = \frac{80}{(1+80(0.05^2)}$$

$$n= \frac{80}{(1+80(0.0025)}$$

$$n= \frac{80}{(1+0.2)}$$

$$n= \frac{80}{1.2}$$

n= 67

Hence in this context the sample size for this study was 67 respondents.

3.5.2 Sampling Techniques

According to Kothari (2004), sampling technique is the collection of different components that make up the population or residents. This study used stratified random sampling and purposive sampling techniques to select the sample. In stratified sampling, the population is divided into subpopulations (strata) on the basis of supplementary information, then samples are drawn randomly within each strata (Kothari, 2013). Stratified random sampling technique was used to divide respondent's population into two mutually exclusive homogenous groups of academic staff and library staff. This technique gives every unit in the population a chance of being selected in the sample.

Purposive sampling is a non- probability sampling technique that conforms to certain criteria. Purposive sampling is applied in qualitative research and is also known as judgment sampling (Patton 2002). In addition, Lynn (2010) states that,

purposive sampling is a selection of samples based entirely on one's knowledge of the population and the objectives of the research. Furthermore, Neuman (2007) states that, purposive sampling is used to select unique cases that are specifically informative. The Tumaini University Makumira (TUMa) Director of research , DVCAA and ICT staff, were purposely selected for this study, since they were perceived to be information richcase and knowledgeable about institutional repository.

3.6 Data Collection Methods

Data collection methods refers to a set of methods a researcher utilizes in obtaining information from study participants for the sake of completion of research question (Cohen et al., 2011). This study used primary and secondary data. Primary data were collected through the questionnaire and interview methods. For secondary data was obtained through both published and un published documentary sources available in libraries and online databases.

The method of data collection involved different methods from different instruments such as questionnaires, interviews, and documentary review. A questionnaire is a list of questions that are written on the paper so that they could be answered by the respondents. This tool gives respondents enough time to read and understand the questions before they start answering. However, interviews involve presentation of oral verbal stimuli and reply in terms of oral -verbal responses. In this study, a questionnaire, interview guide, primary and secondary data for this study were gathered through document reviews.

3.6.1 Secondary Data

Secondary data are the categories or subcategories of data that have already been gathered and processed statistically by another party (Kothari, 2004). In order to gather secondary data for this study, published and unpublished sources including books, journals, research articles, statistics, reports, government and non-government reports, theses and dissertations, as well as internet sources (such as e-books, e-journals, and papers) were examined and their key points were summarized.

3.6.2 Primary Data

Primary data is defined as original sources where a researcher collects directly research data which had not been previously collected (Krishnaswami, 2003). In this study, primary data was obtained through questionnaires which were administered to academic staff and librarians to compliment interviews conducted to Deputy Vice Chancellor for Academic Affairs (DVCAA), director of research and ICT staff.

3.7 Data Collection Instruments

According to Cohen, et al. (2018), data collection refers to the process of obtaining verification in an organized way to find out answers to the research problem. Similarly, data collection instruments may also be referred to as the systematic approach to gathering and measuring information from a variety of sources in order to get a complete and accurate picture of an area of interest. A research tool on the other hand, refers to a specific mechanism or strategy a researcher uses to collect,

manipulate or interpret data. The process of selecting the instruments for data collection is not a matter of preference or automatic decision making but rather a deliberative process in which the key is the application of the notion of fitness for the purpose. The use of several data collection tools enabled the researcher to combine strength and correct some of the weaknesses in the process of working with data. The following tools were used to collect data for this study.

3.7.1 Questionnaires Guide

A questionnaire is a guide of gathering data that uses written items that each respondent must independently answer in writing, according to Enon (1998). Open-ended inquiries make up much of it. It is a widely used and useful instrument for collecting survey information, providing structured, often numerical data being able to be administered without the presence of the researcher, and often being comparatively straightforward for analyses (Cohen et al, 2011). Questionnaires with close and open-ended questions were administered to academic staff and librarians at the Tumaini University Makumira. (TUMa).

3.7.2 Interview Guide

According to Kothari (2004), the interview guide involves presentation of oral-verbal stimuli and reply in terms of oral-verbal responses. The Interview was used to collect opinions and learn about experiences of respondents. Interview, as a data collection technique, is used in order to obtain in- depth information from the key informants. It also helps to capture detailed data, clarify issues and cross check the reliability of data from interview. The researcher conducted one-to-one interviews

with the DVCAA, Director of Research and ICT Staff at Tumaini University Makumira. (TUMa)

3.7.3 Document Review

Document review is a method of gathering data. The documents which were consulted include reports, thesis and dissertations, journal articles performance meeting minutes, newsletters, and marketing. In this study, the following documents were reviewed namely, Institutional repository policies prepared by different institutions with IR already put in place, in order to find out what they have done. Institutional establishment reports, were also used as secondary sources of data which the researcher used to confirm some information given by respondents.

3.8 Data Quality Control

Krishnaswami (2003) defines data quality control as all initiatives made by a researcher to ensure that data collected is valid and reliable. The purpose of data quality control is to guarantee that the information collected from the respondents is accurate. In this investigation, the following techniques were used for data quality control.

3.8.1 Triangulation

According to Ridenour and Newman (2008), triangulation is a term for several data collection techniques. Using different data gathering techniques to research the same phenomenon in order to ensure that measurements are mutually confirmed

and that findings are validated. For the goal of triangulation, data were gathered in this study using questionnaires and in-depth interviews.

3.8.2 Pre-Testing

Pretesting is the implementation of research instruments by using them to collect data from a study population at a smaller scale. In the same vein, Kothari (2004), refers to a pre-test as a scaled-down version of the study that is meant to give a heads-up when the research protocol might not be followed. This process is done in order to test if the instruments are suited for the collection of data, by testing the respondents' responses to questions to see if they are clear to respondents. This stage is important because it provides the researcher with an opportunity to make important changes to data collection instruments before deploying them at a larger scale. All the instruments used in this study were tested before data collection. Pre-testing of instruments was conducted at Tumaini University Makumira, Tanzania.

A total of 10 questionnaires were pretested to ten respondents who represented academic staff and library staff. For the interview guide, the questions were distributed, to the DVCAA ICT Staff and Director of Research with the aim of soliciting their views and clarity of the questions.

3.9 Data Collection Procedure

Respondents at the Tumaini University Makumira in Arusha, Tanzania, were given the questionnaire. Beginning on May 3rd and lasting through June 3rd of 2023,

Tumaini University Makumira conducted fieldwork. The researcher spent thirty (30) days on the site distributing surveys and conducting key informant interviews. In person, the researcher went to TUMA and gave out the instruments to participants and key informants. A specified period for collection was agreed upon, and academic staff and librarians were asked to complete the surveys. Between May 14 and May 30, 2023, completed questionnaires were gathered at TUMA.Interviews were also arranged with Key Informants and were conducted at TUMA from 01st June to 3rd 2023.

TUMA distributed 63 questionnaires, 54 of which were delivered to academic staff and 9 to library staff. The 63 questionnaires that were distributed to respondents were all completely filled out, finished, and returned, yielding a response and return rate of 100% for the academic and library staff, respectively.

A conclusion was reached regarding the end of data collecting by June 3, 2023, after discussion with my supervisor.

3.10 Data Processing and Analysis

Data analysis is the process of evaluating data using analytical and logical reasoning to examine each component of the data provided. Rwegoshora (2006), and Descombe (2007) , refer to data analysis as the ordering of data into constituent parts in order to obtain answers to research questions,with the aim of arriving at some general principles that can be applied to other situations. While Data processing is a collection of facts and figures relating to a particular activity under study.

Data analysis is the whole process which starts immediately after data collection and ends at the point of interpretation and processing of result. For data to be useful, it has to provide answers to the research problems. Data analysis and processing involve coding, editing and tabulation as well as grouping into thematic areas and content analysis. The data collected from the field was analyzed and processed into meaningful and relevant information. Statistical Package for Social Sciences (SPSS) (Version 23) was used to analyze quantitative data collected. Content analysis was used to analyze qualitative data for the study. Data was prepared into percentages, and tables for better interpretation.

3.11 Validity and Reliability

The issue of validity and reliability are considered in accordance to Patton's (2001) suggestion that reliability and validity are the two most important quality control objects in research design. Thus, it is imperative that research findings be credible and valid. Similarly, Kvale (1996) proposed that validity and reliability are two factors, which any quality researcher should consider while designing a study, analyzing results and judging the quality of study. The elucidation of the two is as follows.

3.11.1 Validity

Validity is a measure of accuracy and whether the instruments of measurement are actually measuring what they are intended to measure. Therefore, to ensure validity, triangulations based on questionnaires and interviews were used.

Validity also means the extent to which a test measures what it claims to measure. It is vital for a test to be valid in order for the results to be accurately applied and interpreted.

3.11.2 Reliability

Before commencing the data collection process the questionnaire and interview guides were pre-tested in order to have accuracy of data. Those questionnaire and interview guide were shared to other professional to solicit their view on issues investigated. Thus, the comment provided helped to improve the instruments. Besides that, trangulation was used based on facts that there is no research method which is accurate to collect valid data.

Reliability is the extent to which results are consistent over time; if the same results can be reproduced under a similar methodology, the research instruments are considered to be reliable, according to Joppe (2000). The reliability issue was addressed in this study by using a variety of tools and procedures, such as questionnaires, interviewing guides, and the review of secondary data, during the data gathering phase. Purposive sampling of the subgroup of the Director of Research, Deputy Vice Chancellor Academic Affairs (DVCAA), and ICT Staff was also used to assure reliability. Academic employees and library staff were gathered using a straightforward random sample.

3.12 Ethical Consideration

The moral guidelines that direct someone's actions are known as their ethics. The practice of what is morally and legally correct in research is referred to as research ethics. In reality, they are standards of behavior that set boundaries between what is morally right and wrong as well as what is acceptable and unacceptable (Crossman, 2019). The researcher requested research clearance from the Directorate of Research and Innovations at Tumaini University Makumira in order to follow research ethics. The anonymity of the respondents ensured that the data they provided would only be utilized for research reasons, and the researcher also requested agreement from the respondents before recording their responses.

3.13 Summary of the chapters

The research design, study area, population, sample size, sampling procedure, data collection methods, data processing and analysis, quality control, and ethical considerations were all covered in this chapter. Data were gathered using a questionnaire and interview guidelines in order to meet the study's objectives. 67 respondents from TUMAi, including academic staff, librarians, the DVCAA, the director of research, and ICT staff, participated in the survey.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter presents discussions of the major findings of the study obtained from the field through questionnaires and interviews. The main purpose of the study was to assess the need and capacity for the implementation of an institutional repository at Tumaini University Makumira, Arusha. The specific objectives of the study were to: examine the need for establishing an institutional repository; find out the existing available capacity for the implementation of institutional repository at Tumaini University Makumira; identify the challenges faced in the implementation of institutional repository and propose solutions to mitigate the challenges faced in the implementation of Institutional Repository at the Tumaini University Makumira. The study was guided by the following research questions; What is the need of implementing an Institutional Repository (IR) at Tumaini University Makumira; What is the capacity required in implementing Institutional Repository at Tumaini University Makumira; What are the challenges faced in the implementation of Institutional Repository at Tumaini University Makumira; What are the proposed solutions to the challenges faced in the implementation of Institutional Repository at the Tumaini University Makumira.

In this respect a mixed method qualitative and quantitative research design with standardized self-administered questionnaires and interview guide was administered to a sample of 67 respondents who represent the characteristic of academic/teaching staff , library staff, Research and ICT staff at the Tumaini University Makumira. Data is presented around clustered questions in sections. Section one presents results on the demographic composition of respondent;

section two deals with need for establishing the institutional repository: Section three is on capacities required for implementation the institutional repository: While section four is on challenges faced the implementation of institutional repository: Lastly, section five dwells on proposed solutions faced the implementation of the institutional repository and section six summary focuses on implementation strategies for institutional repository.

4.2 Response Rate

The return rate of the instruments is the number of the people who responded to the instruments and returned them successfully (Peter, 2008). A total of 63 questionnaires were distributed to respondents (Academic staff ,54 and Library staff ,9). All the 63 questionnaires were dully filled and returned. The return rate of the instruments helped the researcher to avoid biases in estimates in this study, the researcher collected data from different groups of respondents and used different instruments.

Table 4.1: Return Rate (n = 63)

Category	Expected	Actual	%
Academic Staff	54	54	100
Library Staff	9	9	100
Total	63	63	100

Source: Field Data, (2023)

From the summation of the findings in Table 4.1, the response/return rate recorded from the Tumaini University Makumira was as shown, indicating that the researcher succeeded to collect all 63 questionnaires sent to academic staff 54(85.71%) and library staff 9 (14.28%) dully filled out, and returned. Moreover, the researcher managed to interview 1 Director of Research, 1 Deputy Vice Chancellor Academic Affairs (DVCAA) and 2 ICT Staff. Generally, this was a very high 100% response and return rate. This representation was a result of the data collection success at the TUMA which was attributed partly by the positive response and cooperation shown by respondents at the research site, and partly due to multiple follow up by the researcher on the respondents, hence the higher response/return rate.

4.3 Demographic Characteristics of the Respondents

The researcher collected information and data about the demographic characteristics of respondents. Also, it helped to know the study gathered information and the data which researcher aimed to obtain. This section gives

information on the demographic characteristics of respondents as presented in Table 4.2

4.3.1 Respondents by Gender

Determining gender of respondents was important in order to avoid having results which are representatives of all sexes in order to have a holistic picture on issues discussed and avoid results with gender biases. Respondents were asked to indicate their gender status. Responses are summarized in Table 4.2.

Table 4.2: Respondents Distribution by Gender n=67

Category of Respondents	Respondents' Gender					
	Male		**Female**		**Total**	
	Frequency	%	Frequency	%		%
Library Staff	3	4.4	6	8.8	9	13.2
ICT Staff	1	1.5	1	1.5	2	3.0
Academic Staff	30	45.6	24	35.3	54	80.9
Director of Research	1	1.5	-		1	1.5
DVCAA	1	1.5	-		1	1.5
Total	36	54.4	31	45.6	67	100

Source: Field Data (2023)

Out of the 67 respondents, 36(54.4%) were male and 31 (45.6%) were females). The library staff constituted 13.2 percent (4.4% males and 8.8% females) whereas academic staff accounted for 80.9 percent (45.6% male and 35.3% females); ICT Staff counted for 2.9 percent (1.5% male and 1.5% females). From these findings it is clear that a slight majority of the respondents in this study were males. The study ended up with more males than females respondents because there were far more

males than females at TUMA. Probable cause would be variation of gender recruitment at work place where the majority are males. This due to the small number of female students and staff available on campus. This is not surprising as noted by Mwaimu, (2013), who observes that historically universities in Africa have always been male dominated. There are also social, economic, and cultural factors that denied women access to education, although recently most African universities have made concerted efforts to narrow the gender gap in student enrolment as well as in staff recruitment. The situation is changing due to the affirmative action taken by the government to improve gender balance in student's enrollment and staff recruitment at the working place.

The majority of the respondents were from academic staff category simply because they represent the majority from the sample; more importantly they are the main contributors of IR contents because of the nature of their works which revolve around teaching research and consultancy where they generate worth of information which needs to be uploaded to the IR for wider visibility and accessibility to the would be users of generated information within and globally. Library staff are few in number due to the fact that only one academic institution was selected for the study and the library had only nine (9) staff. It can be deduced that the number of academic staff was fair enough to provide the necessary information on IR. The library staff were involved in the study because they are directly involved in establishing, managing and ensuring smooth running of the IR.

4.3.2 Respondents' Level of Education

Respondents were asked to indicate their level of educational attained. Information on the education and qualification of respondents plays an important role in their understanding of the role played by institutional repository. This is because, Masters and PhD qualifications are based on research and therefore they are likely to know the Institutional Repository in their research endeavour. Besides, Masters and PhD holders are expected to populate the repository by submitting their research papers. The results obtained are summarized in Table 4.3.

Table 4.3: Respondents' distribution by Level of Education n=67

Variable	Variable Category	Frequency	Percentage
Educational Level	Post-Doctorate	4	5.9
	PhD	17	25
	Masters	39	58.2
	Bachelor	3	4.4
	Diploma	3	4.4
	Certificate	1	1.5
Total		**67**	**100**

Source: Field Data (2023)

Results in Table 3, show that participants in this study were highly educated, indicating that respondents held various academic qualifications, ranging from post doctorate to certificate levels. For example, 39(58.2%) of the respondents had masters' degrees, 17 (25%) had PhD, 4 (5.9%) had Post doctorate, and 3 (4.4%) were bachelor degree holders. In addition, the results show that 3(4.4%) of the respondents had diploma and only 1 (1.5%) was a certificate holder.

Findings show that the majority of respondents have attained higher degrees and thus are likely to be more aware of the importance of implementing institutional repository at Tumaini University Makumira. In general, perception, knowledge and better understanding of Institutional Repository starts with the level of education one has, especially at the postgraduate level. At this level, it is expected that staff with masters or PhD have acquired experience and exposure on Institutional Repository access and utilization.

4.3.3 Respondents Working Experience

Respondents were asked to indicate their working experience. Information on the working experience is important in the implementation of institutional repository, especially in this ICT era. In order to set up institutional repository, one needs to have basic ICT skills. Responses are summarised in Table 4. 4

Table 4.4 Respondents Working Experience

Years of Working experience	Frequency	Percentage
0-5 Years	10	14.7
6-10 Years	17	25.3
11-15 Years	35	51.5
16 Years	5	7.4
Total	67	100

Source: Field Data (2023)

Results in Table 4.4, revealed that 35(51.5%) of the respondents worked for 11 to 15 years, followed by 17(25.3%) who worked for 6 to 10 years. Similarly, 10(14.7%) of the respondents worked for above 0-5 years, while 5(7.4%)

respondents had worked for sixty years (16). Generally, these findings have revealed that respondents from the selected university had acquired enough knowledge to understand the important of institutional repository.

4.4 Need for Institutional Repository (IR)

The first specific research objective of this study sought to find out the need for establishing an institutional repository at Tumaini University Makumira. In this context respondents were asked to indicate whether they are aware of the need to have Institutional Repository at Tumaini University Makumira; and if not aware what are their general views about the need for establishing an Institutional Repository at Tumaini University Makumira the campus. Respondents were required to indicate 'Aware' or 'Not aware' based on their experience regarding the Institutional Repository. These questions were clustered because the information sought is inter related. Responses are summarized in Table 5 and Table 6.

4.4.1 Awareness about the Existence of Institutional Repository at Tumaini University Makumira

Responses are summed up in Table 4.5

Table 4.5: Awareness on the Existence of Institutional Repository n=63

Category	Responses	Frequency	Percent
Aware the existence of (IR)	Aware	8	13%
	Not aware	55	87%
Total		63	100

Source: Field Data (2023)

Results in Table 5, show   that the majority 55 (87%) of the respondents indicated that they were not aware about the existence of Institutional Repository, while only 8 (13%) respondents said they were aware about the existence of Institutional repository. Furthermore, the results imply that the majority of the respondents at Tumaini University Makumira are not aware on the existence of IR. Probably, this is because the University is   yet to put in place a functional   Institutional Repository. While on other hand, such situation might have been caused by lack of information literacy training where issues related to IR are expected to be discussed under the augis of open access.

4.4.2 The Need to have Institutional Repository at Tumaini University Makumira

Respondents were also asked to indicate whether there is need to have IR in place a functional   institutional repository at Tumaini University Makumira. To achieve this objective, the responses to this question were analyzed and appropriate interpretations were made from the results. The results are provided in Table 4.6

Table 4.6: The need of Institutional Repository n=63

	Responses	Frequency	Percent
Need for IR	Yes	53	84
	No	10	16
Total		63	100

Source: Field Data (2023)

The findings in the Table 4.6 show that 53 (84%) of the respondents said ''Yes'' there is a need of having an institutional repository because it was seen as a good

avenue for disseminating scholarly information to the research community; facilitates dissemination of the research done at the institution to learners and the general public. Another reason as noted by respondents was that Institutional Repository was seen as an avenue for preservation of scholarly information. Finally, respondents viewed Institutional Repository as a means of sharing/exchanging knowledge among scholars. For those who said No,10(16%) , was probably because IR is a new concept in the corridors of academia and research institution in Tanzania and this calls for a need to raise awareness because the world of academia is moving towards openness and IR is part of openness**.**

4.5 Capacity for the Implementation of Institutional Repository

Specific objective number two sought to find out the available capacity for the implementation of institutional repository at Makumira. This was intended to bring to light the existing capacity in terms of human resources, expertise and required infrastructure, needed for the establishment of institutional repository. Respondents were required to respond by ticking the crucial resources used in the establishment of institutional repository at TUMA such as: hardware and software in place especially in the process of establishment of institutional repository; Infrastructure to support institutional repository operations (IR), internet accessibility, financial strengths and management support for institutional repository implementation at TUMA.

Table 4.7: Capacity for the implementation of Institutional Repository n=63

S/no	Responses	Frequency	Percentage
1	Infrastructure to Support IR	21	33.3
2	Management support	10	15.8
3	Internet accessibility	16	25.39
4	Hardware and software	3	4.7
5	Fund	13	20.6
	Total	63	100

Source: Field Data (2023)

Findings in Table 4.7 show that 21 (33.3%) of the respondents said their university had the basic infrastructure in place to support the establishment of institutional repository, followed by 16 (25.39%) who said their university had internet accessibility that facilitate accessibility of the institutional repository, and 15 (22.1%) said their university has shown willingness to provide financial support to establish the institutional repository. Others 10(14.7%) of respondents said management were ready to support this project, and three (4.4%) of the respondents said hardware and software, is one of the crucial facilities to support the establishment of institutional repository. The findings of this study contradict that of (Kakai, 2009, Okhakhu, 2015, Sankar and Kavitha 2017) who mentioned inadequate information communication technology infrastructure, high cost of interment bandwidth in the region, infrastructure, insufficient funding, the high cost of internet bandwidth in the region. lack of administrative attention/support.

Probably, this is due to requirements set by the Tanzania Commission for Universities which is a regulator of higher learning institutions in the country requiring all the institutions under its jurisdiction to put in place ICT infrastructures to support teaching, learning, research as well as institutional repository.

However, if the capacities such as fund, infrastructures, management support, internet accessibility, hardware and software are there, one wonders how come the university is yet to establish the institutional repository.

"Through interview with the director of research it was revealed that Tumaini conducted need assessment on the capacity of establishing IR and found that thereis a capacity in term of hardware and software, financial management support, infrastructures to support (IR) operations and internet accessibility"
(Respondent A, TUMA 2023).

The findings from the interview are in line with those by Schmtiz (2008) who asserted that the development of institutional repository requires technical specification as well as deployment of adequate information and communication technology infrastructure that includes the type of technology chosen for the repository and services provided. Others are hardware and software. Muneja and Ndenje-Sichwale (2015), posit that the required hardware depends on the specifications and the version of the repository software. Apart from hardware, the setting up of institutional repositories (IRs) also requires appropriate software.

Besides that, ICT infrastructure capacity required for the implementation of institutional repository at Tumaini University Makumira. This was done to shade more light on the availability of ICT infrastructure to support the implementation of institutional repository. In an Interview, staff 1 reported that:

"The available ICT infrastructure required for the Tumaini University Makumira include a software, Power back-up systems, ICT hard ware and Internet connectivity as primary infrastructure for establishing Institutional Repository"
(Staff 1, 2023)

Another Staff 1 had this to say:

> *" IR operation requires an air conditioned*
> *and good electrified block apartment. Other*
> *facilities and equipment include host*
> *server with relevant operating systems*
> *(MySQL, SGML, XML, PHP, JAVA, PERL,*
> *Unix, Linux, SQL Server, etc.),one or two*
> *computer units, network connectivity (intranet*
> *or internet), robotic scanners."*
> *(Staff 1, 2023)*

4. 6 Challenges faced   in the Implementation of Institutional Repository at Tumaini University Makumira

Objective third of this study sought to identify the challenges faced in the implementation of institutional repository (IR) and solutions to overcome them. Alongside   the importance attached to Institutional Repository in the collection, preservation and affording access to information, yet, it is faced with challenges. Respondents were asked to identify the challenges faced in the implementation of an Institutional repository at TUMa. Responses are summarized in Table 4.8

Table 4.8 Challenges faced in the implementation of an Institutional Repository at TUMa n=63

Responses	Frequency	Percent
Inadequate funding	11	17.46
Lack of IR policy guide set up IR	16	25.3
Inadequate specialist Staff to set up IR	26	41.26
Lack of supporting infrastructure	10	15.87
Total	63	100

Source: Field Data (2023)

The results show that among the challenges faced in the process of implementation of institutional repository is inadequate specialist staff to set up IR, mentioned by 26 (41.26%), lack of institutional repository policy to guide the setting up of IR, mentioned by 16(25.3%) of the respondents;   inadequate funding,11 (17.46%) and lack of supporting infrastructure mentioned by 10 (15.87%) of the respondents.

The findings of this study corroborate with those of (Kakai, 2009, Okhakhu, 2015, Sankar and Kavitha 2017) who mentioned inadequate information communication technology infrastructure, high cost of interment bandwidth in the region, infrastructure, insufficient funding, the high cost of internet bandwidth in the region. lack of administrative attention/support. Muneja and Ndenje-Sichwale (2015), posit that the version of the repository software apart from hardware are needed in the setting up of institutional repositories (IRs).

4.6.1 Proposed Solutions on Challenges facing the Implementation of Institutional Repository

Respondents were interviewed to suggest solutions to the challenges they have identified and their responses are as follows:

> *"the repository needs constant attention to run;*
> *similarly, the talents and commitment of time*
> *and energy from Librarians, faculty and IT staff*
> *is essential to the success of the establishing of the*
> *repository; repository cannot be sustained*
> *without long-term infusion of funds.; and everyone*
> *associated with the IR should understand that*
> *IR is part of their lives and will require attention*
> *and funding in perpetuity."*

The general justification made for this suggestion was that management support especially in the form of financial resources , is crucial in the setting up of the IR and in sustaining the IRs functions and services to the academic community. In view of this, one respondent commented as follows:

> *"The institutional repository implementation requires*
> *the blessing of university's management because*
> *we cannot do anything without their authorization.*
> *Such a blessing is also expected to come with*
> *financial support to enable us handle costs related*
> *to such activities. This is why if our management*
> *starts to support us more, we will be able to*
> *achieve more." (Staff 1, 2023)*

In the same vein, the director of research who participated in this study admitted that if the support received from the top management is guaranteed, the institutional repository initiatives would be effectively implemented. The Director of Research commented as follows:

> *Recently we have been initiating the procedure of*
> *implementing the institutional repository in a very tight*
> *budget due to a drop in the budget for the university*
> *services. As a result, we are not able to implement*
> *the project on the right time. The management needs to*
> *consider increasing the budget given to us so that we*
> *can engage with other experts in establishing the*
> *institutional repository.*
> *(TUMa D, 2023)*

Another solutions made, it all about the improvement of ICT infrastructure at Tumaini University library, as pointed out by respondents. ICTs infrastructure are a vital and critical link /component in setting up the institutional repository processes; hence they should be given top priority. Overall, the respondents pointed out the need to increase ICT equipment, internet access points, and expertise.

4.7 Summary

This chapter has presented and discussed the study's results. The results have been presented in form of sections and subsections formulated from the specific objectives of the study. Under each section or subsection, the results have been presented in form of tables and narrated in form of text. The chapter covers characteristics of respondents and findings on the need and capacity for the implementation of institutional repository involved in the study. The next chapter presents the summary of key research findings, conclusions and recommendations of the study.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

The main purpose of this study was to assess the need and capacity for the implementation of Institutional Repository: A case of Tumaini University Makumira. This chapter is organized in the following sections. Section 5.2 provides summary of the study including a restatement of the research problem, main and specific objectives and summary of the research methodology used in the study. Section 5.3 presents the summary of key research findings in line with the objectives of the study. Section 5.8 is on conclusions in line with research results, while section 5.9 provides recommendations and section 5.10 is suggestions for further areas for research.

The literature review section shows that developed countries have overwhelmingly the establishment of Institutional Repository in academic libraries, while developing countries like Tanzania have also stepped-up efforts in implementing Institutional Repository, and the results are visible. It was noted that academic libraries in developed countries are far ahead in implementing Institutional Repository and making them full operational than developing countries, due to the fact that they are well funded, and based on the availability of advanced technology that supports the implementation of Institutional Repository. However, on the other hand, developing countries like Tanzania are still battling with departmental budget cuts, underfunded and technologically still far behind the developed countries.

Although Tanzania academic libraries have shown interest in implementing IR, there are still many challenges that slow down the implementation of Institutional Repository in academic libraries in Tanzania. There is a great deal of enthusiasm among academic libraries on the issues of Institutional Repository establishment, which augurs well with studies by Muneja and Sichalwe (2016), Mgonzo and Zaipuna (2014), Mhongole and Loserian (2014), and Samzugi (2017).

Institutional Repository has become a reliable academic infrastructure which provides viable option in archiving, disseminating and accessing, not only grey literature, but also other research output. There are many benefits which the Institutional Repositories hold for academic institutions and their libraries. Establishing more Institutional Repositories in Tanzania would certainly improve the dissemination of research findings emanating from the country. It will provide institutions with the opportunity to collect, store and disseminate institutional output, while enhancing visibility of an academic institution, as well as each individual faculty.

However, there are still many challenges affecting those creating and operating the Institutional Repositories. Advocacy and collaboration efforts are central to creating a successful relationship between the library/IR staff and the academic community, without which, Institutional Repository initiatives will not expand. Collaboration is an important key that would unlock both the success of meeting the Institutional Repositories' goals of creating Open Access to knowledge, as well as combating some of the challenges staff members are facing in operating an Institutional Repository and making the Institutional Repository sustainable.

The study was confined to Tumaini University Makumira in Tanzania and was guided by five research questions namely: What are the purposes of implementing institutional repository at TUMA; What is the capacity required to implement institutional repository at TUMA; What is the ICT infrastructure required to implement the institutional repository at TUMA; What are the challenges hindering the implementation of institutional repository at TUMA; What are the proposed solutions to the challenges faced in the implementation of Institutional Repository at the Tumaini University Makumira.

The study used both primary and secondary source of data. Primary data was collected through the use of self-administered questionnaires and interview guide. To analyse the data, the Statistical Product and Services Solutions (SPSS) version 23 was used.

5.2 Summary of the Study

The summary of the research findings is discussed in line with the objectives that were formulated to guide the study.

5.2.1 Objectives of the Sstudy

The need for IR is now a necessity in universities and research institution in order to archive as well as promote the visibility of their research output globally. The study was motivated by the fact that the literature review has indicated that there was no guideline or documented process to be followed when establishing the IR. The main objective of this study was to assess the need and capacity for the

implementation of Institutional Repository at Tumaini University Makumira .The study was guided by the following specific research objectives: First, to examine the need for establishing an institutional repository at Tumaini University Makumira; Second, find out the existing available capacity for the implementation of institutional repository at Tumaini University Makumira ; third identify the available ICT infrastructure required for the implementation of institutional repository at Tumaini University Makumira; and fouth, identify the challenges faced in the implementation of institutional repository and propose solutions to mitigate the challenges faced in the implementation of Institutional Repository at the Tumaini University Makumira

5.3 Research Methodology

The study was conducted at TUMA based in Arusha Tanzania. This study involved 67 respondents who comprised of academic staff, ICT staff, library staff , Director of research and a DVCAA. Data collection involved interviews with the Director of Research and ICT Staff . A total of 63 questionnaires were distributed to 54 Academic staff and 9 librarians respectively .Out of 63 questionnaires distributed to respondents, all the questionnaires were dully filled and returned, making a 100% response and return rate. This was no doubt a very high response and return rate. Qualitative data from Interview with Director of Research , ICT staff and the DVCAA were analyzed thematically according to their emerged themes, and for quantitative data SPSSS version 23 was used.

5.4 Summary of Key Findings

Key findings of this study were summarized in relation to specific objectives of the study as discussed below.

5.4.1 The Need for Institutional Repository

One of the objectives of this study was to examine the need of having Institutional Repository at Tumaini University Makumira. In order to achieve this objective, respondents were asked questions intended to measure their understanding on the phenomenon. The result as summarized in Table 6 revealed that majority of respondents 58 (85.3%) said there is a need to have an institutional repository at Tumaini University Makumira.

5.4.2 Capacity for the Implementation of an Institutional Repository

The second research objective sought to find out the existing available capacity for the implementation of institutional repository at Tumaini University Makumira. For an institution to be able to implement an institutional repository, it has to have a capacity in terms of ICT infrastructures to support IR, staff with relevant ICT-related skills, financial capability, internet accessibility, management support and hardware and software. The results show that 34.4% of the respondents indicated the presence of ICT infrastructures to support IR, 26.5% indicated internet accessibility, 22.1% indicated financial capability. In addition the findings revealed that Tumaini University Makumira has the capacity to implement an institutional repository. It is anticipated that the project to set up an institutional repository (IR) requires the capacity. These include: infrastructure to support (IR), hardware and

software, management support and internet accessibility. Also, ICT infrastructure capacity required for the implementation of institutional repository at Tumaini University Makumira. The findings obtained from the interview with staff 1 indicated that ICT infrastructures are required for the implementation of institutional repository including Software, power back-up system, internet connectivity, ICT hardware, host server with relevant operating systems (MySQL, SGML, XML, PHP, JAVA, PERL,Unix, Linux, SQL Server, etc.),one or two computers and robotic scanners.

5.4.3 Challenges faced in Establishing IR at TUMA

The study also sought to identify   the challenges faced by TUMA in the process of establishing institutional repository. The findings revealed that inadequate funds, lack of policy and regulations for guiding the setting up of institutional repository are such type of challenges faced. Similarly ICT staff   lack of expertise on the establishment and managing institutional   repository, and shortage of specialists staff in setting up institutional repository. Also issues of lack of awareness and importance of institutional repository were mentioned as challenge on the part of establishing institutional repository at Tumaini University Makumira.

5.4.3.1 Challenges faced by Librarians to Implement an Institutional Repository (Director of Research TUMA)

The Institutional Repository implementation challenges encountered by the librarian at Tumaini University Makumira include: a lack of policies and regulations for guiding the setting up and management of online repositories.

5.4.3.2 Contributions of the Study

The institutional repository has transformed them into crucial resources for offering services at universities. The institutional repository's strength as a tool for providing services rests on its capacity to advance scholarship, provide access to information, and strengthen research. The study's findings have so contributed to research, understanding, practice, and policy, among other things.

The current demand for university status cannot be supported in the absence of an institutional repository for universities. The study's findings, which showed that the majority of respondents stated a need for the establishment of an institutional repository at Tumaini University Makumira, support this (findings of research, 2023). The value of this study is that those who offer users with information sources must stay current on information needs, as well as plan for the quick changes that are continually affecting the ICT facilities that are employed as information carriers. In the same way, information providers in institutions of higher learning must recognise that institutional repositories are today a crucial requirement for successful research dissemination in academic libraries.

It is noted that online institutional repository is not yet established at Tumaini University Makumira. The contribution of this finding is that if online institutional repository is well established,would enhance staff and researchers knowledge The findings also revealed that the effectiveness of ICT infrastructures and its operations at the Tumaini University Makumira is less optimal, although this may be attributed to certain factors such as late start implementation of the institutional

repository. The contribution of this finding is that it is imperative that concerted steps to be taken to improve on ICT infrastructures for easy facilitation of the online institutional repository. Otherwise, most users at the TUMA library would be denied the benefits derived from this veritable service.

5.4.3.3 Proposed Solutions to Challenges Faced in Implementing the Institutional Repository

The respondents proposed that the institutional repository implementation requires the blessing of university's management since relevant sections/departments of the university cannot proceed with new projects without the management authorization. Such a blessing is also expected to come with financial support to enable the appropriate departments handle costs related to the acquisition of ICT facilities, staff training and reliable internet connectivity, as well as the recruitment of trained personnel to operate and manage the institutional repository. This is why if the TUMA management offers to effectively support the departments, these departments are likely to achieve more towards attaining the institutional goal of establishing a functional IR at TUMA. The proposed solutions on respondents are in line with different findings such as. (Saliu, S. A., Ngozi, O. V., & Lawal, A. M. 2022) also indicated solutions to challenges facing IRs in universities. Such as alternative power supply should be provided, and management should endeavour to increase Internet bandwidth to enhance the effective utilization o, having an IRs policy will encourage the acquisition of content, availability of plagiarism software, specifying copyright and intellectual property right in respect of IRs content, helping users in searching and retrieving information, motivate staff/researchers to

create and contribute local content to the IRs, creating more awareness of the importance and content of the IRs, more training for staff and students in creation access and use to the IRs and there should be sensitization of academics by the university management. However, whether such solutions exist at Makumira remains a subject worth this investigation.

5.5 Conclusion of the Study

The survival of Tumaini University Makumira Library is enchored on the proper implementation of the institutional repository. This is because, the online institutional repository service is indispensable to current research dissemination. The findings from the study revealed that online institutional repository is needed for the prestige of Tumaini University. It was further noted that online institutional repository and its operation at Tumaini University Makumira, is not yet implemented. This may have been attributed from the fact that online institutional repository is relatively new at Tumaini University Makumira.

5.6 Recommendations

Based on the above conclusion the following recommendations are made to university management, director of research, ICT, the Library other stakeholders.

5.6.1 TUMA University Management

i. University Management should consider to put in place IR at TUMA for archiving the research output and make them visible globally.

ii. The implementation of IR should also go hand in hand with policy formulation for guiding proper management   of contents, preservation and intellectual property rights, which will ensure that any contentious issues that may arise will not result to the death of the IR.

iii. University Management should capacitate staff, particularly librarians, in terms of skills needed for operating the IR. Since they are important players in making IR operational, librarians are required to have training on how to set up and manage an institutional repository.

iv. Academic staff and other stakeholders   should also be trained on how to access IR resources, through information literacy programs, organized by the TUMA Library.

v. Adequate Funds be allocated   for infrastructural development and bandwidth.

5.6.2   ICT Department - TUMA

i) ICT infrastructures such as servers should be improved to accommodate a large number of documents and users.

5.6.3   TUMA Library Department

i. Given the interdependence of the two professions, a framework should be in place to promote collaboration between ICT and library staff when establishing an institutional repository. The TUMA Library be resourced to establish and support the Institutional Repository at TUMA, in order to offer a central location for the collection, preservation, and dissemination of

scholarly, research, and creative production, alongside historical materials from the Tumaini University Makumira.   The historical materials often provide context for research and researchers, enhancing insight into the history , nature and culture of the Tumaini University Makumira.

ii.   After the establishment of the Institutional Repository, the Database needs to be registered at OpenDOAR, COAR, and ROAR. The Registration is intended to   assure the provision of a comparable service to chosen peer institutions, leverage best practices, and offer high-quality collection-level metadata.   Repository registration in directories is equally crucial. Additionally, institutions can benefit from increased visibility of the repository and its contents to search services, by registering their repository with the   OpenDOAR directory. This directory also offers analytical services for repository managers, allowing for the benchmarking of repository services. In summation, in view of the study findings, the recommendations and conclusions drawn, it may safely be deduced that the objectives of this study were successfully achieved.

5.7 Areas for Future Research

This remains room for more research in this area since this study was only carried out at one university in Tanzania. The best way to meet and assist the establishment of an institutional repository using new technology and resources will require extensive research as well. The report suggests the following areas for more research in light of this:

i)   The study did not examine other Tanzanian Universities; rather, it assessed the need and capacity for the implementation of institutional repository (IR) at Tumaini University Makumira. Therefore, it is necessary to undertake research to determine whether institutional repositories (IR) are necessary at Tanzanian universities.

ii)   Through information sharing in Tanzanian institutions, a study should be done to ascertain the relationship between institutional repositories and national research policy.

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APPENDICES

APPENDIX I: INTERVIEW GUIDE QUESTIONS FOR DVCAA AND DIRECTOR OF RESEARCH

1. Do you think there is need for implementation of Institutional repository at your institution?

2. In your opinion, what is the necessary capacity in implementation of Institutional Repository?

3 .What Challenges will be faced in the process of implementing the Institutional Repository?

4. What Measures should be taken to ensure successful implementation of Institutional Repository?

APPENDIX II: INTERVIEW GUIDE QUESTIONS FOR ICT STAFF

1.In your opinion, what are the available ICT infrastructure for the implementation of Institutional Repository

2. What are the challenges facing   the process of implementing the Institutional Repository?

3. What Measures have   been put in place to ensure successful implementation of Institutional Repository.

APPENDIX I: QUESTIONNAIRE FOR STAFF

PART A: Background Information of the Respondents.

1. Highest educational level

……………………………………………………...

3. Your Gender

a) Female

b) Male

2. Working experience:

a) 0-2 years

 b) 3-5 years

 c) 6 years and above

PART B: Need of Having Institutional Repository.

Do you think there is need of having the Institutional Repository at Tumaini
University Makumira? In either case explain briefly.

…………………………………………………………………………..

In your opinion, what are the benefits of developing the institutional repository to
the

university………………………………………………………………………

…..

PART E: Challenges affecting implementation of Institutional Repository

Are there any challenges that affect the effective implementation of Institutional Repository (IR)?

    a. Yes

    b. No

    c. I don't know

Which of the following challenges affect Tumaini University Makumira from effective implementation of Institutional Repository? Tick all that applies

    a. Inadequate funding

    b. Copyright issues

    c. Content Submission

    d. Inadequate competent staff

    e. Lack of awareness

    f. Worries about plagiarism

7. Suggest possible solutions to the identified challenges associated with implementation of

institutional repository.

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND

TECHNOLOGY

THE OPEN UNIVERSITY OF TANZANIA

Ref. No OUT/ **PG202085784**

2nd May 2023

Vice Chancellor,

Tumaini University Makumira, P.O Box 55,

ARUSHA.

RE: RESEARCH CLEARANCE FOR MR.KIPI F. SEMBERA, REG NO: PG202085784

2.   The Open University of Tanzania was established by an Act of Parliament No. 17 of 1992, which became operational on the 1stMarch 1993 by public notice No.55 in the official Gazette. The Act was however replaced by the Open University of Tanzania Charter of 2005, which became operational on 1stJanuary 2007.In line with the Charter, the Open University of Tanzania mission is to generate and apply knowledge through research.

3.   To facilitate and to simplify research process therefore, the act empowers the Vice Chancellor of the Open University of Tanzania to issue research clearance, on behalf of the Government of Tanzania and Tanzania Commission for Science and Technology, to both its staff and students who are doing research in Tanzania. With this brief background, the purpose of this letter is to introduce to you **Mr. Kipi F. Sembera, Reg. No: PG202085784**) pursuing **Master of Library and Information Management (MLIM).** We here by grant this clearance to conduct a research titled

"Assessment on the Need and Capacity for the Implementation of an Institutional Repository: A Case of Tumaini University Makumira in Tanzania". He will collect his data at your University from 3rd May to 3rd June 2023.

4.   In case you need any further information, kindly do not hesitate to contact the Deputy Vice Chancellor (Academic) of the Open University of Tanzania, P.O.Box 23409, Dar es Salaam. Tel: 022-2-2668820.We lastly thank you in advance for your assumed cooperation and facilitation of this research academic activity.

Yours sincerely,

THE OPEN UNIVERSITY OF TANZANIA

Prof. Magreth S.Bushesha

For:VICE CHANCELLOR

TUMAINI UNIVERSITY MAKUMIRA

DIRECTORATE OF POSTGRADUATE STUDIES

P.O. Box 55, USA-RIVER,

Tanzania, East Africa

REF: TUM/PGS/MISC/11   **21st June, 2023**

Vice Chancellor

The Open University of Tanzania

P.O. Box 23409 DAR ES

SALAAM

RE: MR. KIPI F. SEMBERA RESEARCH DATA COLLECTION PERMIT

AT TUMAINI UNIVERSITY MAKUMIRA

This is in response to your letter (Ref No. OUT/PG202085784) dated 2nd May, 2023 requesting Tumaini University Makumira to allow your Master's *degree* student named Kipi F. Sembera (Reg. No. PG202085784) to collect data at the university on " Assessment on the Need and Capacity for the Implementation of an Institutional Repository: A Case of Tumaini University Makumira in Tanzania". As part of research as a requirement for the award of a Master's degree in Library and Information Management. In this regard I am pleased to inform you that the student was accorded the assistance in his research endeavour that spanned a month and ended on 3 June 2023