SCHOOL OF LIBRARY, ARCHIVES AND DOCUMENTATION STUDIES (SLADS)

RESEARCH REPORT ON:

ASSESSMENT OF THE USE OF INFORMATION AND COMMUNICATION TECHNOLOGY IN ENHANCING LIBRARY SERVICES AT DAR ES SALAAM INSTITUTE OF TECHNOLOGY (DIT)

BY

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A Research Report Submitted to the School of Library, Archives and Documentation Studies in Partial Fulfilment of the Requirements for the Award of the Ordinary Diploma in Library and Information management.

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CERTIFICATION

The undersigned certifies that has read this work and hereby recommends it for acceptance by the School of Library, Archives and Documentation Studies, a research report titled “Assessment of the Use of Information and Communication Technology (ICT) in Enhancing Library Services at Dar es Salaam Institute of Technology (DIT),” in partial fulfilment of the requirements for the award of the Ordinary Diploma in Library, Records and Information Studies.

Signature…….

(Supervisor)

MR. AMIRI JUMA

Date……...

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DECLARATION AND COPYRIGHT

I, **Kuruthum H. Halfani,** declare that this independent study is my own original work and that it has not been presented to any other institution for a similar or any other degree award.

Signature: .....

Date: .....

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DEDICATION

Thanks to almighty God for giving me his protection guidance and hear I dedicate this study to my lovely Parents who always spares their time to take care of me spiritually, physically, and with material support.

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LIST OF ABBREVIATIONS

AI	Artificial Intelligence
DIT	Dar es Salaam Institute of Technology
ICT	Information and Communication Technology
ILMS	Integrated Library Management System
LIS	Library and Information Science
OECD	Organization for Economic Co-operation and Development
OPAC	Online Public Access Catalogue
SLADS	School of Library, Archive and Documentation Studies
SPSS	Statistical Package for the Social Sciences
TZS	Tanzanian Shilling
UNESCO	United Nations Educational, Scientific and Cultural Organization

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ABSTRACT

The integration of Information and Communication Technology (ICT) has transformed the delivery of library services in higher learning institutions by improving access to information resources, enhancing operational efficiency, and supporting teaching, learning, and research activities. Despite increased investment in ICT infrastructure, many academic libraries in developed countries continue to experience challenges related to the effective utilization of digital technologies. This study aims to assess the use of Information and Communication Technology (ICT) in enhancing library services at the Dar es Salaam Institute of Technology (DIT). Specifically, the study identified the ICT tools and technologies available at the DIT library, examined the utilization of ICT in library service delivery, assessed users' satisfaction with ICT-based library services, and explore the barriers affecting the effective use of ICT in the library.

The study adopted a descriptive research design and employed a mixed-methods approach, integrating both quantitative and qualitative techniques. The target population comprised 100 registered library users and staff at DIT. From this population a sample of 40 respondents was selected, consisting of 25 students (questioner), 10 librarians, and 5 reader services staff (interview). Primary data were the collected through questionnaires and semi-structured interviews, while secondary data were obtained through documentary review of institutional reports, library records, and relevant scholarly publications. Quantitative data were being analyzed using descriptive statistics, including frequencies and percentages with the aid of the Statistical Package for the Social Sciences (SPSS), where qualitative data will be analyzed using thematic analysis to complement and explain the quantitative findings.

The study provided empirical evidence on the availability and utilization of ICT tools, the level of user satisfaction with ICT-based library services, and the major challenges limiting effective ICT integration at the DIT library. The findings are anticipated to inform institutional management, library professionals, policymakers, and other

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stakeholders in improving ICT infrastructure, strengthening staff capacity, enhancing digital service delivery, and promoting equitable access to information resources. Furthermore, the study were contribute to the growing body of knowledge on ICT applications in academic libraries in Tanzania and provide practical recommendations for improving the quality, efficiency, and sustainability of library services in higher education institutions.

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CHAPTER ONE
INTRODUCTION AND BACKGROUND OF THE STUDY

1.0 Introduction

This chapter presents the background of the problem, the statement of the problem, the purpose of the study comprising the general aim and specific objectives the research questions, the significance of the study, the scope of the study, and the limitations of the study.

1.1 Background to the Study

Information is a key factor in research and development and a fundamental resource for survival in today's competitive, interconnected world. The way information is accessed has changed considerably owing to developments in information and communication technology. Kemp (1976) considered information the fifth basic need of humankind, ranking after air, water, food, and shelter.

Quick and easy access to information is of supreme importance, particularly for libraries. Information technology and its associated techniques are used by libraries for information processing, storage, communication, dissemination, and automation.

Information and Communication Technology (ICT) has become an indispensable catalyst for transforming academic library services worldwide. ICT encompasses digital tools and systems, such as electronic databases, internet services, library management systems, and online catalogues, that support the creation, storage, retrieval, dissemination, and preservation of information (Mushi & Msoffe, 2024). In academic libraries, ICT enhances service delivery by providing faster access to scholarly information, facilitating resource sharing, automating routine tasks, and enabling remote access to collections. ICT applications also support user-centric services such as virtual reference, digital repositories, and e-learning platforms that extend access beyond the physical library space, thereby expanding opportunities for research and learning (Mushi & Msoffe, 2024).

In the context of Tanzania, academic libraries have increasingly integrated ICT to improve the efficiency, relevance, and reach of their services. However, effective utilization of ICT

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remains uneven due to infrastructure gaps, limited technical skills among staff, and constrained funding for technology upgrades (Mushi & Msoffe, 2024; Sayuni et al., 2025). At Dar es Salaam Institute of Technology (DIT, the library's ICT adoption plays a crucial role in supporting students, lecturers, and researchers by providing timely access to information resources. Despite this, there is limited empirical evidence on how ICT service delivery at the DIT library, including its impact on inclusivity especially

for users with different abilities, study modes (e.g., distance learners), and linguistic or digital literacy levels. An assessment of ICT use in this academic library is therefore timely and necessary to gauge its effectiveness in meeting evolving academic needs.

1.2 Statement of the Problem

Globally, Information and Communication Technology (ICT) has become a crucial component in transforming academic library services. Modern academic libraries increasingly rely on ICT tools such as Online Public Access Catalogues (OPAC), digital repositories, electronic databases, and institutional knowledge platforms to enhance access to information resources and improve service delivery. However, despite these advancements, many academic libraries in developing countries still face challenges in effectively implementing and utilizing ICT, including inadequate infrastructure, limited digital literacy among users, insufficient funding, unreliable power supply, and poor internet connectivity.

At the DIT Library, ICT tools such as electronic catalogues, digital repositories, integrated library management systems, and access to electronic databases are available to facilitate information access and service delivery. However, the extent to which these technologies are effectively utilized and integrated into library services remains unclear. In addition, limited empirical evidence exists regarding user awareness, the adequacy of ICT infrastructure, and the inclusiveness of ICT services for diverse users, such as students with disabilities, part-time learners, and remote users. This study therefore assessed the role and effectiveness of ICT in enhancing academic library services at the DIT Library, in order to identify existing gaps and propose strategies for improving access, service delivery, and user satisfaction.

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1.3 General Objective.

To assess the use of Information and Communication Technology (ICT) in enhancing library services at Dar es Salaam Institute of Technology (DIT).

1.3.1 Specific Objectives

i. To identify the ICT tools and technologies currently available at the DIT library
ii. To examine the utilization of ICT in the provision of library services
iii. To assess the level of user satisfaction with ICT based library services
iv. To explore the barriers and challenges affecting the effective use of ICT in the DIT library

1.3.2 Research Questions

The study will be guided by the following research questions:

i. What ICT tools and technologies are currently available at the DIT library?
ii. How is ICT utilized in the provision of library services at DIT?
iii. W hat is the level of user satisfaction with ICT-based library services at DIT?
iv. What barriers and challenges affect the effective use of ICT in the DIT library?

1.3.3 Significance of the Study

This study is significant to multiple stakeholders within and beyond the Dar es Salaam Institute of Technology (DIT). The findings assist institutional management in making informed decisions regarding investment in ICT infrastructure, staff training, and policy formulation to enhance library service delivery. For library management and staff, the study provides insights into the strengths and weaknesses of existing ICT systems, enabling improved efficiency, user-centered strategies, and inclusive access to information services. Students and academic staff benefit from improved access to digital resources, strengthening teaching, learning, and research. The study also contributes to the existing body of knowledge on ICT use in academic libraries within the Tanzanian higher-education context and may inform policymakers in developing effective ICT and library-service policies.

1.4 Scope of the Study

This study focused specifically on assessing the use of Information and Communication Technology (ICT) in library services at the Dar es Salaam Institute of Technology (DIT). It examined the ICT tools and facilities available in the DIT library, the application of ICT

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in various library operations and services, and the experiences of library users, including students, academic staff, and library personnel. The study also addressed issues of accessibility, efficiency, and user satisfaction with ICT-based services. Geographically, the research was limited to DIT and did not extend to other institutions. The study concentrated solely on ICT-related library services and did not extensively cover traditional non-ICT services unless directly connected to ICT integration.

1.5 Limitations of the Study

1.5.1 Financial Constraints

The budget allocated for this study was not sufficient to cover all the required costs. The researcher managed this limitation by carefully planning expenditure and prioritizing essential activities such as transport, printing, and data collection, so that the study could still be completed as scheduled.

1.5.2 Limited Research Experience

This was the researcher's first time undertaking an independent research study. This limitation was managed through guidance from the research supervisor and fellow students experienced in research matters.

1.5.3 Limited Cooperation from Some Respondents

Some respondents were initially reluctant to participate in the questionnaire and interview process. This was managed by clearly explaining the purpose and academic nature of the study, and by assuring respondents of the confidentiality of their responses before data collection began.

1.5.4 Time Constraints

The time allocated for conducting and compiling the research report was limited relative to the demands of travelling to the study area to collect data and securing appointments with respondents who had other commitments.

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1.6 Definition of Key Terms

Information and Communication Technology (ICT)

Information and Communication Technology (ICT) refers to a broad range of digital technologies and tools used to create, collect, process, store, retrieve, and transmit information electronically. ICT includes computers, internet services, telecommunications networks, software applications, databases, and digital communication platforms that facilitate information management and exchange. In academic libraries, ICT supports automation, digital resource access, and online service delivery (Mushi & Msoffe, 2024; UNESCO, 2023).

Information

Information refers to processed data that is organized and presented in a meaningful context to enhance understanding, reduce uncertainty, and support decision-making. It includes facts, knowledge, messages, or signals communicated through speech, writing, images, or electronic media. Information is a critical resource in education, research, governance, and development because it enables learning, innovation, and informed action (UNESCO, 2023).

Communication

Communication is the process of transmitting and exchanging information, ideas, thoughts, or messages between individuals or groups through verbal, non-verbal, written, or digital means. Effective communication ensures mutual understanding and facilitates collaboration, learning, and knowledge sharing. In the context of ICT, communication often occurs through digital platforms such as emails, online databases, and virtual learning environments (OECD, 2023).

Technology

Technology refers to the practical application of scientific knowledge, tools, systems, and techniques designed to solve problems and perform specific functions efficiently. In library services, technology includes hardware (computers, servers, scanners), software (library management systems, databases), and networking systems that enhance information processing and service delivery (World Bank, 2022)

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CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviews existing literature on the use of Information and Communication Technology (ICT) to enhance academic library services, focusing on four key areas: ICT tools and technologies available, utilization of ICT in library services, user satisfaction with ICT-based services, and barriers or challenges affecting the effective implementation of ICT. The review draws on recent empirical and theoretical studies from global and African contexts, with particular reference to Tanzanian academic libraries where available.

2.1 Information and communication technologies.

ICT has changed our world and ways we do things, which bring us not only tremendous benefit but also tough challenges of quickly adapting to new trends (Amuche & Solomon, 2014). Adoption of ICT to library operation shaped and revamped many operations ranging and not limited to library automation, digitization, Web 2.0 and Library 2.0, Barcode technology application, mobile phones application, the internet and web-based services, networking technology, scanning technology etc. (Parvez, 2011; Rehman & Shafique, 2011). Academic libraries are the nerve center of the university activities such as teaching, learning, research and other programs of an institution of higher learning. Now, these libraries are passing through a transition as pointed out by Singh and Pinki (2009). Academic libraries are under threat due to pressure mounted on them to improve on their service delivery as present ICT and digital revolution demanded from them. This revolutionary requires them to shift their focus from traditional library routines and activities such as acquisition, knowledge organization and bibliographical control, dissemination of information and so on to one that fit in into digital world that foster the use of electronic resources such as e-book, e-journals, networking and consortia etc. Most academic libraries are presently using computers and other ICT tools in performing library activities. The rationale for the establishment of a university library is to

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Support the university functions of teaching, learning, research and community services in such a manner that is consistent with supporting the mission and objectives of the parent institution (Whong & Ezra, 2016). DeWatteville and Gilbet (2000) contend that the term ICT as related to librarianship is the acquisition, analysis, manipulation, storage and distribution of information using ICT tools as well as making provision of infrastructure for such purposes. In consonance to the above, Mayer (2006) posited that ICT in Libraries is a concept that covers acquisition, processing, storage, and dissemination of information in textual, numerical, pictorial and audio-visual formats. The use of ICT tools in the libraries cannot be over-emphasized as digital libraries are capable of satisfying users; information needs more than capacities of manual system as pointed out by Whong and Ezra (2016).

2.2 ICT Tools and Technologies in Academic Libraries

Information and Communication Technology (ICT) encompasses a wide range of digital tools used to support information access, management, and dissemination in libraries. Studies show that academic libraries worldwide are increasingly adopting ICT systems such as integrated library management systems (ILMS), digital repositories, online public access catalogues (OPACs), electronic databases, institutional websites, and virtual reference platforms to enhance services (Pagore, 2024). These tools automate cataloguing, circulation, acquisitions, and inter-library cooperation, thereby improving library operational efficiency (Sayuni et al., 2025).

In the Tanzanian context, library management systems have been identified as crucial for bridging the gap between physical and digital services. Research indicates that ILMS tools facilitate faster retrieval of information, improve cataloguing processes, support user access to digital resources, and reduce manual workloads for library staff (Ntullo, Tawani & Jaiswal, 2025). However, the adoption and effectiveness of these systems vary across institutions due to differences in infrastructure and resource allocation.

Emerging technologies such as artificial intelligence (AI) and machine-learning tools are also gaining attention in academic library research. Recent systematic reviews note that AI applications like Chabot's and intelligent search engines are increasingly used to enhance reference services, improve user education, and support digital literacy,

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although their adoption is still evolving and often institution dependent (Boateng, 2025).

2.4 Utilization of ICT in Library Service Delivery

ICT utilization refers to how available technologies are applied in daily library operations and service delivery. Empirical evidence suggests that the extent of ICT use the quality and accessibility of library services. For example, in Nigerian university libraries, studies indicate that3ICT tools are moderately utilized, with internet connectivity and digital platforms being central to information access. However, the extent of use is constrained by institutional challenges (Enweani & Regha, 2025).

Similarly, research on virtual and distance learners in Botswana found that limited ICT adoption, unreliable connectivity, and low digital literacy lead to the underutilization of library services, thereby affecting academic outcomes. This highlights the importance of tailoring ICT systems to specific user groups to support inclusive access (Ndege, Gichohi & Mueni, 2025).

In Tanzania, utilization studies reveal that while libraries have adopted ICT tools, the integration into service workflows is uneven. Many academic libraries demonstrate a gap between infrastructure availability and practical use by library staff and users (Kaishe-Mulungu et al., 2025). This suggests that ICT resources alone do not guarantee improved service delivery; effective utilization depends on continuous training, system maintenance, and institutional support.

2.4 User Satisfaction with ICT-Based Library Services

User satisfaction is a critical indicator of how ICT influences library services. Satisfaction encompasses perceptions of ease of use, availability of resources, response time, and overall impact on academic productivity. Studies show that where ICT systems are well implemented and supported, users report higher satisfaction levels due to improved access to resources and quicker information retrieval (Performance Measurement & Metrics, 2025).

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In Tanzanian settings, research applying the Service framework found that inconsistencies in ICT quality especially those related to internet access, computer systems, and power supply have a direct negative effect on user satisfaction and service quality. Patrons often expect reliable and user-friendly digital services, but infrastructure and operational limitations limit the fulfillment of these expectations (Kaishe-Mulungu et al., 2025).

Moreover, studies on subscribed electronic scholarly resources in Tanzanian universities reveal that while awareness of digital resources may be moderate, satisfaction with the utility of these resources is accessibility and digital skills. Users who lack training to navigate digital platforms tend to underutilize subscribed services, leading to lower satisfaction and limited academic benefit (Daudi, 2025).

2.5 Barriers and Challenges Affecting ICT Use in Academic Libraries

Despite the potential benefits of ICT integration, several barriers impede effective use. A dominant theme in the literature is inadequate ICT infrastructure. Many academic libraries, especially in developing countries, face challenges related to poor internet connectivity, intermittent power supply, outdated hardware, and insufficient ICT investment (Zubairu & Musa, 2023).

Financial constraints remain a persistent barrier. The cost of acquiring, maintaining, and upgrading ICT systems is substantial, and limited university budgets often restrict the scope of technology implementation (Pagore, 2024).

Human resource constraints also affect ICT integration. Many library staff lack adequate training and digital competencies required to manage ICT systems effectively. Studies in Tanzania have identified gaps in staff skills related to digital tools, AI implementation, and online database navigation, which hinder optimal service delivery (Mubofu, 2025).

Institutional and policy challenges such as weak strategic planning, inadequate user training programs, and lack of supportive frameworks further limit the effective adoption and use of ICT in libraries (Daudi, 2025).

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Resistance to change among both staff and users is also noted in the literature. This resistance may stem from limited exposure to digital technologies, fear of new systems, or preference for traditional library services all of which slow down effective ICT uptake (Nazir & Khan, 2025).

2.6 Research Gaps

Research conducted by Pagore, 2024 & Sayuni et al., 2025 titled "Demonstrates that Information and Communication Technology (ICT) plays a transformative role in improving academic library services". Studies show that ICT tools such as Integrated Library Management Systems (ILMS), Online Public Access Catalogues (OPAC) and electronic databases enhance efficiency in information access, storage and dissemination. Furthermore, effective utilization of these technologies improves service delivery and supports teaching, learning, and research activities in higher learning institutions (Enweani & Regha, 2025; Kaishe-Mulungu et al., 2025).

Study conducted by Zubairu & Musa, 2023 &Nazir & Khan, 2025. "Indicate barriers continue to hinder effective ICT integration in academic libraries, particularly in developing countries". These include poor internet connectivity, unreliable power supply, financial constraints, and resistance to change among both library staff and users. Most studies provide generalized findings and do not adequately address how ICT tools are used in specific colleges or how different user groups experience these services. In particular, there is insufficient evidence on the relationship between ICT availability, utilization, user satisfaction, and the challenges faced within individual institutions such as the Dar es Salaam Institute of Technology (DIT)

Therefore, this study aims to fill this gap by conducting a context-specific investigation at DIT Library. It was examining the available ICT tools and technologies, assess their level of utilization, evaluate user satisfaction, and identify the challenges affecting effective ICT use. By focusing on a single institution, the study was providing detailed and practical insights that can support decision-making, improve ICT implementation strategies, and enhance library service delivery in Tanzanian academic libraries. This research is expected to contribute to both academic knowledge and professional practice

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by providing empirical evidence that can guide policy formulation, capacity building, and future ICT development in academic libraries.

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CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents and discusses the methodology used in carrying out this study. It describes how data were collected, the sources used, and the specific techniques applied during collection, analysis, and presentation. It presents the research design, the research approach and how its quantitative and qualitative components were integrated, the study area, the target population and its source, the sampling procedure, the data-collection instruments, validity and reliability procedures, response rates, data-cleaning procedures, the qualitative coding process, and the ethical considerations adhered to during data collection.

3.2 Research Design

A research design is the arrangement of conditions for the collection and analysis of data in a manner that combines relevance to the research purpose with economy in procedure (Galloway, 2016). This study adopted a descriptive research design, which involved describing the characteristics of ICT availability, utilization, satisfaction, and challenges as they actually existed at the DIT Library at the time of the study.

3.3 Research Approach and Integration of Methods

This study employed a descriptive research design combining quantitative and qualitative methods. The quantitative component, drawn from the structured questionnaire administered to student library users, was used to measure the extent of ICT availability, utilization, satisfaction, and challenges numerically. The qualitative component, drawn from semi-structured interviews with librarians and reader-services staff, was used to explain and contextualize those numerical patterns in the words of library staff. The two components were integrated at the discussion stage of Chapter Four, where quantitative results for each objective are read alongside the corresponding qualitative themes rather than presented as two separate, unconnected sets of findings.

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3.3 The Study Area

A population is the entire collection of elements or individuals that a researcher is studying and from which generalizations are drawn (Levin & Rubin, 2002). The institutional population accessible at the DIT campus library context exceeded 150 potential subjects, from which a representative sample framework was drawn.

3.4 population of the study

The population of the study refer to the entire group of individuals, cases, or elements that possess the characteristics the researcher is interested in and to which the findings are intended to generalize (kombo & Tromp,2009). The target population of this study comprised registered student library users, librarians and reader services staff at DIT library own administrative record the register of registered library users maintained by the library administration provided the sampling for students while the library staff establishment list provided the frame for librarians and reader services staff.

3.5 The Sample Size

A sample is the part of the population selected for the purpose of an investigation (Kothari, 2005). This study targeted a total sample of 40 respondents: 25 library-user students (questioner), 10 librarian (interviewers), and 5 reader-services staff.

3.6 Sampling Techniques

Sampling techniques indicate how cases are selected for observation (Kothari, 2005). These are broadly divided into probability and non-probability designs; both were used in this study.

3.6.1 Probability Sampling

Simple random sampling was used to select the student library users. Each student on the library's user list had an equal chance of selection, which helped minimize selection bias in this group (Kombo & Tromp, 2009).In this study, simple random sampling was used to select the 25 students (library users) to ensure an unbiased representation of the student body.

3.6.2 Purposive Sampling

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Purposive sampling was used to select librarians and reader-services staff believed to possess professional experience relevant to the study (Kothari, 2005). This method allowed the researcher to select information-rich cases for in-depth analysis of the library's technical infrastructure. The researcher applied this method to select the 10 librarians and 5 reader of section, as they possessed professional experience regarding the library's technical infrastructure.

3.6.3 Data Collection Methods

Methods of collecting data refer to the means used by the researcher to gather information from respondents to execute a successful study (Creswell, 2012). For this study, primary and secondary data sources were utilized.

Primary Data: Primary data are those collected fresh and for the first time, making them original in character (Lorenzen, 2001). The primary data collection methods used were: (1) Questionnaire Method: According to Kothari (2004), a questionnaire consists of a set of printed or typed questions that respondents answer independently. Questionnaires were highly effective because they allowed respondents to answer at their own convenience. Both open-ended and closed-ended questionnaires were prepared by the researcher and administered to the 25 library users (students). (2) Interview Method: Babbie (2005) defines an interview as a method of obtaining data by talking directly to the subject. The researcher used semi-structured interviews containing both structured and unstructured questions to collect detailed qualitative information from the 10 librarians and library managers.

Secondary Data: This method involved a comprehensive documentary review of relevant library publications, institutional reports, bulletins, meeting minutes, and online database logs. This method enabled the researcher to contextualize the primary findings against official institutional records.

3.7 Validity and Reliability of Research Instruments

Validity refers to the extent to which a research instrument measures what it is intended to measure, while reliability refers to the consistency and stability of the results it produces (Kothari, 2005). Content validity of the questionnaire and interview guide was established

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through expert review. After data cleaning 23 questionnaires were considered valid for analysis , validity was ensured through expert review by two senior lecturers in library and information science.

3.7.1 Pilot Testing

Before the main data collection exercise, the questionnaire was piloted with 40 respondents that is 10 librarians, 5 read service staff drawn from the DIT library user population but excluded from the final sample, in order to identify ambiguous wording, confirm that response categories were exhaustive and mutually exclusive, and estimate the time needed to complete the instrument.

3.7.2 Data Cleaning and Handling of Multiple-Response Questions

On return, all questionnaires were manually checked for completeness and consistency before data entry. Questionnaires with a substantial proportion of unanswered items, or with contradictory answers to related items, were excluded from analysis as spoilt or invalid. Of the 23 questionnaires distributed to students, were found valid for analysis after this cleaning process; this valid count is the sample size (n) used consistently in every table and figure in Chapter Four.

3.7.3 Interview Coding and Participant Identification

To protect the confidentiality of interview participants while allowing their contributions to be traced and verified, each interviewee was assigned a unique alphanumeric code rather than being identified by name. Librarians interviewed were coded L1 through L10, and reader-services staff interviewed were coded S1 through S5, in the order in which the interviews were conducted. These codes are used when quoting or referring to individual participants in Chapter Four. A master list linking codes to participant names was kept separately from the analysis file and was accessible only to the researcher, in line with the ethical undertaking.

3.8 Ethical Issues

To ensure compliance with academic research ethics, the researcher guaranteed that all information provided by the respondents was kept strictly confidential. No personal identifiers or individual identities were exposed, ensuring that all participants remained

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safe. The gathered information was used solely for academic research purposes, protecting the respondents from any potential administrative vulnerability.

3.9 Data Analysis Plan and Presentation

Data collected from the field survey were verified, cleaned, coded, and analyzed. Quantitative data were processed using descriptive statistics, such as frequencies and percentages, using SPSS software to clearly demonstrate the extent of the issues. The analyzed quantitative data were presented using clear statistical tables to ensure accessibility. Qualitative data obtained from the interviews were analyzed textually using thematic analysis to support the statistical findings, allowing the researcher to formulate clear conclusions and recommendations.

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CHAPTER FOUR

ANALYSIS, PRESENTATION AND DISCUSION OF FINDINGS

4.0 Introduction

This chapter presents an analysis, presentation and discussion of the finding of the data obtained from respondent through the questionnaires that were analyzed using a statistical package for the social science (SPSS 22v) whereby all results are presented in table by using words, numbers, frequency and percentages. The interview were analyze thematically to implement the qualitative data.

4.1Response Rate

The study involved the total numbers of 40 respondents that is 25 students, 10 librarians, 5 reader service staff. Questionnaires were distributed to students 25 questionnaires, of which 23 were returned making a response rate of 92% in addition interviews were conducted with 10 librarians and 5 reader service staff all of whom participated giving a 100% interview participation rate.

Table 4.1: Distribution of respondents by Rate (N=23)

Category	Distributer(frequency)	Returned(frequency)	Respondent rate(%)
Student (questioner)	25	23	92%
Librarians(interview)	10	10	100%
Reader-service staff (interview)	5	5	100%
Total	40	38	-

Source: Field Data, 2026

The study targeted 40 respondents, and 23 questionnaires were distributed. A response rate of 92% is considered excellent for survey research, and all librarians are participate in 100%and total of respondent is 38 indicating a high level of participant cooperation and providing sufficient data for reliable analysis and generalization of the study findings.

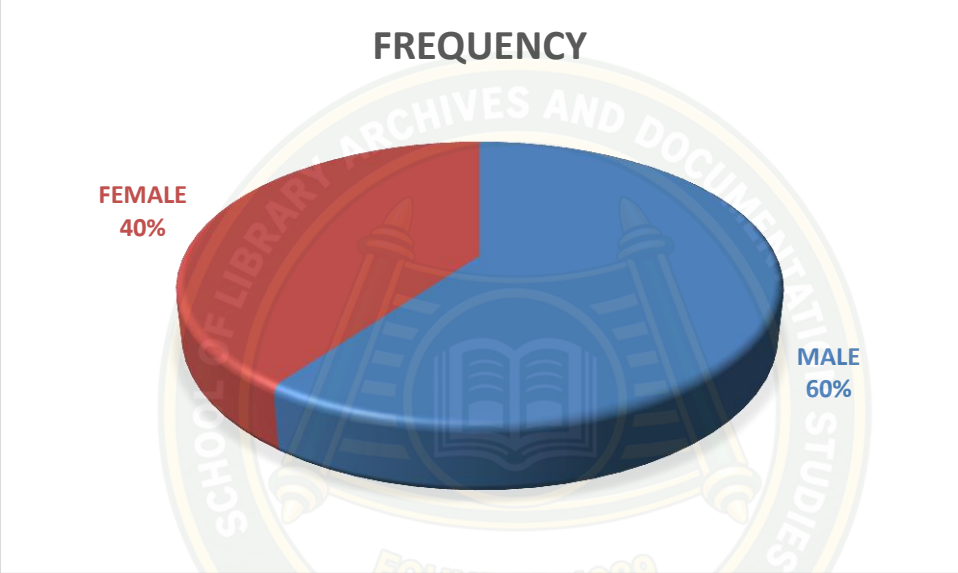
4.2 Demographic Information of the Respondents.

This section presents the demographic characteristics of the respondents in the study, including their gender, age, and education level of study and other relevant background information. Understanding the demographic profile of respondents is important because it

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help the research to assess the composition of the sample, determine whether it adequately represents the target population, and interpret the finding within the appropriate context. Demographic data also enables comparison of responses across different categories for example, whether male of female students, or student at different views on the use of ICT in enhancing service delivery.

4.2 Distribution of Respondents According to their Gender



Total target population: 100

Source: Field Data, 2026

The findings in Figure 4.1 illustrate the proportion of respondents who participated in the study compared to the total target population. Out of 100 targeted audience participants, 40 female (40%) successfully completed the questioner and interview, while male (60%) did not respond. The respond rate of 40% indicates a moderate level of participation, sufficient to provide reliable insights for descriptive analysis. The achieved sample reflects a balanced representation of the study population, including students, librarians and read service staff, the non-response rate 60% may be attributed to factors such as limited availability of participants, time, constraints, or lack of interest in research activities

4.3 Distribution of Respondents According to Education Level

Education level is an important demographic variable in this study because it has a direct bearing on respondents with ability to effectively use information and communication

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technology (ICT) tools in accessing and utilizing service at DIT. Respondents with varying level if education may differ in their digital literacy, exposure to ICT system and expectations regarding service delivery. It was necessary to establish the educational background of the respondents involved in the study. The finding as shown in table summarize the education attainment level of the respondents involve in the study.

Table:4.3. Distribution of respondents by education level (N=23)

Educational level	Frequency	Percentage (%)
Diploma	15	65.2%
Degree	8	34.8%
Total	23	100%

Source: Field Data, 2026

The findings in Figure 4 revealed that respondents involved in the study were as follows: 15(65.2%) diploma and 8 (34.8). This suggests almost all categories of education level except those with degree participated in study enabling understanding the experience of respondents with different education level**.**

"diploma was in large number to compare any education group. Diploma levels were best for teaching to compare certificates and undergraduate. In our collage we have few postgraduate degree and others level but most of them were degree".

4.4 Distribution of respondents to Age

Age is a significant demographic factor in this study because respondent's exposure to familiarity with and adaptability to information communication technology (ICT) tools used in service delivery. Younger respondents are generally presumed to have grown up with greater access to digital technologies and may therefore demonstrate different attitudes and level of competence toward ICT compared to older respondents help the researcher to understand whether the study captured views across different age and to contextualize findings regarding ICT usage patterns at DIT. Respondents were requested to indicate their age, and the findings presented in Table 4.1

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Table 4.4 Distribution of respondents by age (N=23)

AGE GROUP	FREQUENCY	PERCENTAGE
18-25 year	**16**	**96.6%**
26-35 year	**7**	**30.4%**
Total	**23**	**100%**

Source: Field Data, 20

Demographic show that the largest group of participant is young people aged 18-25 (96.6%), most of whom are diploma students. This indicates that ICT services are needed most by the young group who have urgent needs for education information.

4.5 ICT Tools and Technologies Currently Available at the DIT Library

The first objective sought to identify the ICT tools and technologies currently available at the DIT Library that support its users research, learning, and information needs. Key resources include computers for student and staff use, providing access to digital content and productivity software. The library provides internet service, enabling users to connect wirelessly or through desktop terminals for browsing, research and communication.

Users can search the collection using the online public access catalogue (OPAC), which digitally lists all library holding. The library has access to multiple integrated library management system (ILMS), granting users entry to a wide range of academic journals, article, and e-books. DIT library maintains an institution repository a digital archive that collect and preserves research output such as these, dissertation, and scholarly publications produced by the institutions, community. Respondents were asked to indicate the ICT facilities available in the library. The findings are presented in Table 4.2.

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Table 4.5: ICT Tools Available at DIT Library (N= 23)

ICT tool	Frequency	Percentage(%)
OPAC	**5**	**21.7%**
ILMS	**8**	**34.8%**
E-databases	**6**	**26.1%**
Internet	**4**	**17.4%**
Total	**23**	**100%**

Source: Field Data (2026)

The findings indicate that OPAC (21.7%) were the most available ILMS resource (34.8%), followed by e- databases (26.1%). The availability of internet (17.4%) demonstrates that the DIT Library has invested considerably in ICT infrastructure to facilitate access to academic information.

Interview responses from librarians further revealed that ICT technologies have cataloguing, circulation services, and access to scholarly information. However, librarians noted that some ICT facilities require upgrading to meet the increasing demand from students.

One library explained that

"The ICT system has really helped us to catalogue and issue books father than before, but some of our computers and printers are old and need to be replaced so that we can serve the increasing number of students without delay"

These findings are consistent with Pagore (2024), who reported that ICT tools improve efficiency in academic library services by enhancing access to digital information. Likewise, Ntullo et al. (2025) found that integrated library management systems improve cataloguing and information retrieval in Tanzanian academic libraries.

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4.6 Perception on Whether ICT Tools Have Improved Users' Ability to Find Information in the Library.

It was important to establish respondent's overall perception regarding the actual impact of ICT tools on their ability to locate and retrieve information within the library. This measure serves as a direct indicator of the effectiveness of ICT integration in supporting the core function of a library that is facilitating efficient access to information. Assessing this perception provide valuable insight into whether the ICT investments made by the DIT library have translated into tangible benefits for uses in their day to day search for academic and research material. This section present finding on respondent's perception regarding the extent to which ICT tools have improved their ability to find information in the library.

Table 4.6: Utilization of ICT Services (N=23)

Whether ICT Tools Have Improved Users' Ability to Find Information in the Library

RESPONSE CATEGORY	FREQUENCY	PERCENTAGE(%)
Strongly Agree	12	52.2%
Agree	7	30.4%
Neutral	3	13.0%
Disagree	1	4.4%
TOTAL	23	100%

Source: Field Data (2026)

The chart indicates that the majority of respondents (80%) agreed that ICT tools have improved their ability to find information in the library, while 13.0% were neutral and 4.4% disagreed. This suggests that ICT tools contribute positively to information access and retrieval among library user.

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4.7 Electronic Resources Accessed by Library Users

The assessment of ICT tools and technologies available at the DIT library it was equally important to establish the specific electronic resources that library users access using these tools while the availability of ICT infrastructure such as computers, internet connectivity and OPAC system provide the necessary platform for accessing digital content, it is the actual usage patterns of electronic resources that reveal the extent to which ICT investments translate into meaningful engagement with academic and research material. This section examines the various electronic resources accessed by respondents, including e-book, e-journal, online databases, and the institutional repository, in order to determine user preferences and identify area requiring improvement in resource utilization.

Table 4.7: Electronic Resources Accessed (N=23)

Electronic resources	**Frequency**	**Percentage**
E- books	8	34.8%
E-journals	6	26.1%
Online databases	5	21.7%
Institutional repository	4	17.4%
Total	**23**	**100%**

Source: Field Data (2026)

The findings indicate that E-books were the most frequently accessed electronic resource, with 8 respondents (34.8%) reporting that they use them. This suggests that library users prefer e-books because they provide convenient, flexible, and immediate access to academic materials required for coursework and research. E-journals were accessed by 6 respondents (26.1%), making them the second most frequently used electronic resource. This reflects the importance of scholarly journals in supporting research activities by providing access to current and peer-reviewed scientific information. Similarly, Online databases were used by 5 respondents (21.7%), indicating that more than half of the respondents rely on subscription-based databases to retrieve quality academic literature, research articles, and other digital information resources. The Institutional repository was the least accessed resource, with 4 respondents (17.4%) reporting its use. This

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comparatively lower utilization may indicate limited awareness of the repository, inadequate user training, or a preference for external electronic resources over locally produced institutional content.

Overall, the findings demonstrate that E-books and E-journals are the most commonly accessed electronic resources in the library, highlighting the growing reliance on digital information resources for teaching, learning, and research. However, the relatively lower use of the institutional repository suggests the need for increased user awareness, training, and promotion to enhance its utilization among library users.

4.8 Utilization of ICT in the Provision of Library Services

Having established the ICT tools available and the electronic resources accessed by library users, it was necessary to further investigate the extent to which these ICT facilities are actually utilized in the day to provision of library service. Availability of ICT infrastructure alone does not guarantee improve service delivery rather it is the practical application of these tools in core library functions such as information searching, cataloguing, circulation and reference service that determines their real impact on users. This section addresses the second specific objective of the study which examined how ICT is utilized in the provision of library service at DIT based on responses obtained from both student and library staff.

Table 4.8: Utilization of ICT Services(N=23)

ICT service category	Frequency	Percentage(%)
Cataloguing	7	30.4%
Circulation	6	26.1%
e- resources	5	21.7%
Communication	5	21.7%
Total	23	100%

Source: Field Data (2026)

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The results show that the majority of respondents (30.4%) use ICT facilities mainly for cataloguing, while (26.1%) conduct circulation. This indicates that ICT has become an essential component in supporting teaching, learning, and research at DIT.

Interview findings also showed that librarians use ICT in cataloguing, circulation, reference services, and digital resource management. Respondents explained that ICT has reduced the time required to retrieve information and has improved service efficiency. One reader service staff member stated that:

"*Using the computer system to search and retrieve information has really saved us time compared to searching manually through the old catalogue cards. Students now get assisted much faster than before."*

These findings support Enweani and Regha (2025), who observed that ICT enhances information retrieval and service delivery in academic libraries. Similarly, Kaishe-Mulungu et al. (2025) argued that effective utilization of ICT improves the quality and accessibility of library services.

4.9 Level of User Satisfaction with ICT-Based Library Services

The identifying the ICT tools available and show they are utilized in service provision it is equally important to assess users perceptions and satisfaction level regarding these service. User satisfaction serves as critical indicator of the overall effectiveness and success of ICT integration in library operations as it reflects the extent to which available technologies meet the actual needs and expectation of student and staff. Measuring satisfaction also helps to identify existing gaps, strengths, and weakness in the current ICT infrastructure providing valuable insight for improvement. This section address the specific objective of the study which sought to assess the level of user satisfaction which ICT based library service at DIT.

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Table 4.9: User Satisfaction with ICT Services (N = 23)

Satisfaction level	Frequency	Percentage (%)
Strongly satisfied	7	30.4%
Satisfied	8	34.8%
Neutral	4	17.4%
Dissatisfied	4	17.4%
Total	**23**	**100.0%**

Source: Field Data (2026)

The findings reveal that 34.4% of respondents were either satisfied or strongly satisfied with ICT-based library services. Respondents appreciated the availability of electronic resources, internet connectivity, and online catalogue services, which facilitated timely access to academic materials.

However, a few respondents expressed dissatisfaction due to slow internet speeds, limited computer availability during peak hours, and occasional system failures.

Interview responses confirmed that while the existing ICT infrastructure supports efficient service delivery, continuous maintenance and upgrading are necessary to meet users' growing information needs.

One librarian noted that:

"The system works well most of the time, but when the internet goes down or a computer develops a problem, it become very difficult to assist students promptly until the ICT support team resolves the issue."

These findings agree with Performance Measurement and Metrics (2025), which reported that user satisfaction increases when ICT systems are reliable and accessible. Similarly,

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Daudi (2025) concluded that accessibility to electronic resources and user satisfaction in academic libraries.

4.10 Barriers and Challenges Affecting the Effective Use of ICT in the DIT Library

The preceding section established that ICT tools are available at the DIT library are utilized in service provision and have generally resulted in satisfactory user experiences, it was equally important to investigate the challenges and barriers that hinder the effective use of these technologies. Identifying such barriers is essential because it enable the library management to understand the underlying factors the limit optimal ICT performance even where infrastructure has already been put in place. Without addressing these challenges, the full potential benefits of ICT investment in enhancing library service delivery cannot be realized. This section presents findings on the fourth specific objectives of the study which sought to identify the barriers and challenges affecting the effective user of ICT in the DIT library

Table 4.10: Challenges Affecting ICT Use (N=23)

CHALLENGE	FREQUENCY(n)	PERCENTAGE(%)
Poor internet	8	34.8%
Power issue	5	21.7%
Limited training	6	26.1%
Funding gaps	4	17.4%
Total	23	100%

Source: Field Data (2026)

The study established that poor internet (34.8%) was the most challenge affecting ICT utilization in the DIT Library. Respondents also poor issue (21.7%), limited training (26.1%) and funding gaps (17.4%), as barriers to effective ICT service delivery.

Librarians interviewed emphasized that increasing student enrolment has created higher demand for ICT facilities than the library can currently support. They also indicated that periodic system maintenance sometimes interrupts access to electronic resources.

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One librarian explained that:

"*The number of students has grown so much that the few computers we have are not enough for everyone. Sometimes maintenance work forces us to switch off the system for hours, which inconveniences students who need information urgently."*

These findings are consistent with Mushi and Msoffe (2024), who identified inadequate ICT infrastructure and limited funding as major obstacles to ICT implementation in Tanzanian academic libraries. Likewise, Zubairu and Musa (2025) reported that unreliable internet services, insufficient ICT infrastructure, and inadequate staff training remain common barriers to effective ICT utilization in developing countries.

4.11 Area for Improvement

Identification of challenges affecting the effective use of ICT at the DIT library it was necessary to establish respondent's perception on the specific areas that require improvement. While the previous section highlighted the barriers hindering by capturing users recommendation on where library should direct its effort and resources to enhance ICT based service delivery. Understanding these priority areas is important as it provides practical user driven guidance for library management in planning future ICT investments an intervention. This section presents the findings on the areas identified by respondent as requiring improvement to enhance ICT service in the DIT library.

Table 4.11 Areas for Improvement to Enhance ICT Services in the Library (N = 23)

Area for improvement	Frequency	Percentage
Expand ICT infrastructure	9	39.1%
Staff training	6	26.1%
Awareness campaigns	5	21.7%
Accessibility for disabled	3	13.0%
Total	**23**	**100%**

Source: Field Data (2026)

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The findings indicate that improving internet speed was the highest priority, identified by 9 respondents (39.1%). This suggests that users consider fast and reliable internet connectivity essential for accessing electronic resources and online library services. The staff training was the second most frequently mentioned area for improvement, with 6 respondents (26.1%) recommending that the library increase the availability of computers to meet users' growing demand.

Additionally, 5 respondents (21.7%) emphasized the need to improve access to awareness campaigns, indicating that expanding subscriptions to e-books, e-journals, online databases, and institutional repositories would better support teaching, learning, and research.

Finally, 3 accessibilities for disabled (13.0 %) recommended strengthening ICT training programs. This finding suggests that users recognize the importance of improving digital literacy and ICT competencies to maximize the effective use of library technologies and electronic information resources.

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CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter summarizes the finding of the study. It also provides conclusions of what has been revealed in the study as well as recommendation on strategies to solve the problems identified. The study focused on the adoption and utilization of ICT tools in academic libraries. Specifically it examined the availability of ICT tools at DIT library, assessed their utilization in service delivery, explored perception of ICT in improving access to information and identified challenges and areas for improvement.

5.1 Summary of the Findings

The study aimed to assess the use of Information and Communication Technology (ICT) in enhancing library services at the Dar es Salaam Institute of Technology (DIT). Four specific objectives guided the study.

5.1.1 ICT Tools and Technologies Available at DIT Library

The findings revealed that the DIT Library possesses a variety of ICT facilities that support library operations and service delivery. The most available ICT tools included computers, internet services, Online Public Access Catalogue (OPAC), and electronic databases. These technologies information organization, retrieval, and dissemination. However, respondents and librarians indicated that some ICT facilities require upgrading to accommodate the growing number of library users and changing technological demands.

5.1.2 Utilization of ICT in Library Service Delivery

The study established that ICT is widely utilized in supporting academic activities within the library. The majority of respondents reported using ICT mainly for searching academic information, accessing electronic journals and databases, conducting research, and completing assignments. Library staff also utilize ICT in cataloguing, circulation, reference

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services, and digital resource management. The findings indicate that ICT has considerably improved efficiency, speed, and accessibility of library services.

5.1.3 User Satisfaction with ICT-Based Library Services

The study found that users were generally satisfied with ICT-based library services. Most respondents appreciated the availability of electronic information resources, internet connectivity, and online catalogue services. Nevertheless, a few respondents expressed dissatisfaction due to slow internet connectivity, inadequate numbers of computers during peak periods, and occasional system failures. Overall, the findings suggest that ICT has positively influenced users' learning, research, and information access.

5.1.4 Barriers Affecting Effective Use of ICT

The study identified several challenges affecting effective ICT utilization at the DIT Library. The major challenges included slow internet connectivity, inadequate computer facilities, unreliable electricity supply, insufficient ICT skills among some users, and limited technical support. Furthermore, librarians reported that increasing student enrolment has placed greater pressure on the existing ICT infrastructure, thereby reducing service efficiency during periods of high demand.

5.2 Conclusion

The study concludes that Information and Communication Technology plays at role in enhancing library services at the Dar es Salaam Institute of Technology. The availability of ICT infrastructure has improved access to academic information resources, strengthened library operations, and enhanced service delivery to users. ICT has facilitated efficient cataloguing, circulation services, online information retrieval, and access to electronic resources, thereby supporting teaching, learning, and research activities.

Despite these achievements, the effectiveness of ICT utilization is constrained by infrastructural and operational challenges, including inadequate ICT facilities, poor internet connectivity, limited technical support, and insufficient digital competencies among some

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users. These challenges reduce the full benefits that ICT could provide in academic library service delivery.

Therefore, continuous investment in ICT infrastructure, regular maintenance of ICT systems, staff capacity building, and user training are essential for improving the quality, accessibility, and sustainability of ICT-based library services at DIT.

5.3 Recommendations

Based on the findings and conclusions of the study, the following recommendations are proposed:

5.3.1 Improvement of ICT Infrastructure

The management of Dar es Salaam Institute of Technology should increase investment in ICT infrastructure by procuring additional computers, upgrading servers, and expanding internet bandwidth to accommodate the growing number of library users.

5.3.2 Enhancement of Internet Connectivity

The institution should improve internet reliability and speed to ensure uninterrupted access to electronic resources, online databases, and digital library services.

5.3.3 Regular Maintenance of ICT Facilities

Library management should establish routine maintenance schedules for ICT equipment and software to minimize system failures and ensure continuous service availability.

5.3.4 Capacity Building for Library Staff

Continuous professional development programs should be organized to equip librarians with current ICT competencies, including emerging technologies such as artificial intelligence, digital repositories, cloud-based library systems, and electronic resource management.

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5.3.5 User Education and ICT Literacy

The library should provide regular orientation programmers, workshops, and training sessions to improve users' ICT skills and enhance effective utilization of available electronic information resources.

5.3.6 Strengthening Technical Support Services

DIT management should recruit or assign sufficient ICT technical personnel to provide timely maintenance and user support whenever technical problems arise.

5.3.7 Increase Funding for Library ICT Services

The institution should allocate adequate financial resources for continuous upgrading, maintenance, subscription to electronic databases, acquisition of modern ICT equipment, and implementation of innovative digital library services.

5.4 Suggestions for Further Studies

The present study focused on the use of ICT in enhancing library services at the Dar es Salaam Institute of Technology. Future researchers are encouraged to undertake studies in the following areas:

- Assessment of the impact of Artificial Intelligence (AI) on academic library service delivery in Tanzania.
- Comparative study of ICT utilization in public and private academic libraries.
- Evaluation of digital literacy competencies among academic library users in higher learning institutions.
- Assessment of factors the adoption of digital library technologies in Tanzanian universities.
- Investigation of the effectiveness of institutional repositories in supporting research productivity in higher learning institutions.

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APPENDIX I:

QUESTIONNAIRE FOR LIBRARY USERS

Dear Respondent,

My name is KURUTHUMU HAMISI a student pursuing an **Ordinary Diploma in Library and Information Studies at the School of Library, Archives and Documentation Studies**. I am currently conducting a study entitled:

"Assessment of the Use of Information and Communication Technology (ICT) in Enhancing Library Services at the Dar es Salaam Institute of Technology (DIT)."

You are kindly requested to participate in this study by filling in this questionnaire. Your participation is highly appreciated and very valuable to this research.

The information you provide will be used **strictly for academic purposes only**. All responses will be **kept confidential**, and no individual identity will be revealed in the final report.

Please choose your answer and fill in the bracket.

SECTION A: DEMOGRAPHIC INFORMATION

1. Gender
    a. Male ( )
    b. Female
2. Age Group
    a. 18 – 25 years ( )
    b. 26 – 35 years
    c. 36 years and above

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3. Educational Level

    a. PhD ( )

    b. Master's Degree

    c. Bachelor Degree

    d. Diploma

    e. Certificate

4. Which ICT facilities are available for users in the DIT Library?

    a. Computers ( )

    b. Internet services

    c. OPAC (Online Public Access Catalogue)

    d. Electronic databases

5. Which ICT tool do you use to search for library materials?

    a. OPAC ( )

    b. Library computer

    c. Internet search

    d. Ask the librarian

6. Which of the following electronic resources do you access in the library?

    a. E-books ( )

    b. E-journals

    c. Online databases

    d. Institutional repository

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7. Are library computers available when you need them?
    a. Always ( )
    b. Sometimes
    c. Rarely
    d. Never
8. For what purpose do you mainly use ICT facilities in the library?
    a. Searching academic information ( )
    b. Accessing online journals or databases
    c. Doing assignments or research
    d. Communication (email, etc.)
9. Have ICT tools improved your ability to find information in the library?
    a. Strongly agree ( )
    b. Agree
    c. Neutral
    d. Disagree

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10. Do librarians assist you in using ICT facilities when needed?

    a. Always ( )

    b. Sometimes

    c. Rarely

    d. Never

11. Are library computers functioning properly most of the time?

    a. Always ( )

    b. Sometimes

    c. Rarely

    d. Never

12. Do ICT services help you complete your academic work effectively?

    a. Strongly agree ( )

    b. Agree

    c. Neutral

    d. Disagree

13. What challenges do you face when using ICT facilities in the library?

    a. Slow internet connection ( )

    b. Limited computers

    c. Power interruptions

    d. Lack of ICT skills

14. Is technical assistance available when ICT systems fail?

    a. Always ( )

    b. Sometimes

    c. Rarely

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d. Never

15. What should be improved to enhance ICT services in the library?

a. Internet speed ( )

b. Number of computers

c. Access to electronic resources

d. ICT training program

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APPENDIX II :

INTERVIEW QUESTIONS FOR LIBRARIANS

1. What ICT tools and technologies are currently available in the DIT Library to support library operations and services?
2. Which ICT facilities are most frequently used by librarians in providing library services to users?
3. How do you use ICT tools in the provision of library services such as cataloguing, circulation, reference services, and information retrieval?
4. In what ways have ICT technologies improved the efficiency and effectiveness of library service delivery in the DIT Library?
5. How satisfied are you with the current ICT infrastructure and systems available in supporting library operations?
6. Which aspects of the ICT services in the library work well, and which areas need improvement?
7. What challenges do librarians face when using ICT tools and technologies in the provision of library services?
8. What strategies or suggestions would you recommend to improve the use of ICT in enhancing library services at the DIT Library?

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APPENDIX III

BUDGET FOR RESEARCH & DATA COLLECTION.

S/N	Budget Item	Description	Estimated Cost (TZS)
1	Transport	Transport to and from DIT library for data collection	50,000
2	Printing and Photocopying	Printing questionnaires, proposal drafts, and final report	40,000
3	Stationery	Pens, notebooks, files, and other office materials	10,000
4	Internet and Communication	Internet for research, emailing questionnaires, and communication	10,000
5	Data Processing and Analysis	Data entry and analysis using computer software	30,000
6	Binding and Final Report Production	Binding copies of the final research report	50,000
	TOTAL AMOUNT		**190,000/=**

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APPENDIX IV

TIME SCHEDULE

ACTIVITIES	1st **WEEK**	2nd **WEEK**	3rd **WEEK**	4th **WEEK**	5th **WEEK**	6th **WEEK**
Report at the school of library, Archive and documentation studies						
Distribution of questionnaire and interviewing respondents						
Observation the situation and collecting questionnaire and data analysis						
Data interpretation and report writing.						

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APPROVA LETTER

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF
EDUCATION, SCIENCE AND TECHNOLOGY
DAR ES SALAAM INSTITUTE OF
TECHNOLOGY

Our Ref. No: AB.83/284/01/125

11th March 2026

Kuruthumu Hamisi Halfani,
School of Library, Archives and Documentation Studies (SLADS),
Ukuni, Block S, Plot No.96,
P. O. BOX 227, **BAGAMOYO.**

RE: AUTHORISATION FOR DATA COLLECTION AT DIT

I acknowledge receipt of SLADS request for you to conduct data collection at the Dar es Salaam Institute of Technology (DIT) for your Project titled "Assessment of the use of information communication technology in academic library operations and services" as part of your Diploma Studies in Library and Information Management.

2. I am pleased to inform you that you have been granted permission to conduct data collection at DIT for your project from 23rd to 26th April 2026 as requested.

3. Kindly note that all the data that will be collected from DIT will have to be treated with the highest level of confidentiality and used exclusively for academic purposes.

5. If the results are to be published on any online platform, any text in which our Institute is mentioned must first be reviewed and approved by our Institute prior to publication.

6. Please present this letter to any Department Heads or respondents as proof of authorization while on campus.

7. If you have any questions or require further assistance during your time at DIT, please contact Dr. Ahab Ndabigaye, the Coordinator for Research, Publication and Innovation. He can be reached through his email ahab.ndabigaye@dit.ac.tz or mobile phone number 0775294539.

8. Thank you.

Dr. Ahab Ndabigaye
FOR RECTOR

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