



The Open University of Tanzania

Information and Communication Technology Master Plan

2019/2020 - 2023/2024

THE OPEN UNIVERSITY OF TANZANIA



Information and Communication Technology Master Plan

2018/19 - 2022/23

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It is our hope that the ICT master plan will highly serve the University and make OUT an champion of the technology development.

Prof. Alex B. Makulilo

Dar es Salaam.

Deputy Vice Chancellor (LT &RS), 2019

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List of Abbreviations

ODL	:	Open and Distance Learning
CCTV	:	Closed - Circuit Television
CRM	:	Customer Relation Management
HQ	:	Head Quarter
ICT	:	Information and Communication Technology
IEMT	:	Institute of Educational and Management Technologies
LAN	:	Local Area Network
M & E	:	Monitoring and Evaluation
MoU	:	Memorandum of Understanding
OER	:	Open Education Resources
OPRAS	:	Open Performance Review and Appraisal System
OUC	:	Open University of China
OUT	:	Open University of Tanzania
OUTeLMS	:	Open University of Tanzania eLearning Management System
RCs	:	Regional Centres
SARIS	:	Student Academic Register Information System
TV	:	Television
VC	:	Vice Chancellor
VoIP	:	Voice of Internet Protocol
VPN	:	Virtual Private Network
RM	:	Resource Management
RSP	:	Rolling Strategic Plan
ToR	:	Teams of Reference
ID	:	Identity Card

Preface

As the world moves further into the digital age, The Open University of Tanzania (OUT) has kept its spirit of governing OUT services by offering educational programmes through the Open and Distance Learning (ODL) mode. The purpose of this ICT Master Plan is to provide internal present and future plan to meet the strategic desire of the University. This document was developed based on the OUT Strategic Plan and Information and Communication Technology Policy.

In order to sustain and manage the global excellence and industrial development, OUT acknowledges the role of Information and Communication Technology (ICT) to meet the strategic interest of the University. The identified pillars in the ICT Master plan are designed to follow the University ICT policies and strategic objectives that are described in the University Rolling Strategic Plan. The pillars were drawn to facilitate implementation of quality ICT environment, manage and set a clear path to achieve the sustainable efficiency and effectiveness. It also provides detailed specification of ICT pillars and associated budget that is based upon the targets for ICT development, the ICT principles and the architecture as formulated in the ICT Policy document. The document also provides specific allocation of resources for each ICT project, covering a 5 years period (2019/20 -2023/24) and guidelines required to implement individual pillars/activities.

Finally I would like to extend my sincere appreciation to the University participatory organs, and in particular, the Management Committee, The Senate and The OUT Council for their strong support and discussing this document at different stages.

Prof. Elifas Tozo Bisanda
Vice Chancellor
Open University of Tanzania

Dar-es-Salaam
June, 2019

Executive Summary

The ICT Master Plan is developed to operationalize the ICT Policy in order to realize the university vision and mission statements and help the university to achieve its strategic objectives. The plan spans the years 2019/20 – 2023/24, a five year duration which is split into twelve (12) strategic pillars. The proposed strategic pillars would greatly facilitate the effective administration of OUT operations.

The twelve (12) strategic pillars are aligned to the University Rolling Strategic Plan (RSP) 2018/19 – 2022/23 and have been clustered within the seven (7) strategic objectives identified in the RSP namely, Teaching, Research and Consultancy, Governance, Human Resources Management, Financial Sustainability, Infrastructure, Marketing and Cross-Cutting Issues.

Twelve (12) strategic pillars have been identified for implementation as listed below:

1. Enhancing ICT infrastructure and Internet Services
2. Enhance Online Teaching and Learning
3. Enhance Ethical Issues in Online Teaching and Learning
4. Strengthen ICT Research and Innovations
5. Digitization of University Processes
6. Enhance Staff and Students ICT Capacity
7. Strengthen ICT Basic and Professional Courses Delivery
8. ICT hardware and Software Acquisition, Installation and Maintenance
9. Improve Staff and Students Communication Services
10. Strengthen Information Security and Improve Business Continuity Plan
11. Strengthen Monitoring and Evaluation of ICT Services
12. Improve Quality Assurance and Control of ICT Services

For each of the defined pillar, the plan provides a broad objective, the expected outcome, activities, implementation schedule and the estimated budget. The implementation plans will undertake aspects of initiatives defined for each of the twelve strategic pillars with special focus on implementing major activities on each specific pillar. The total cost estimate for all 12 identified pillars is **Tshs 4,123,200,000/-** .

The breakdown of this amount, indicating the cost of activities for each strategic pillar is summarised in **Table 1** and detailed budgets for individual projects are provided after each strategic pillar description. The cost estimates presented above are based on indicative prices.

CHAPTER ONE

1. INTRODUCTION

The Open University of Tanzania is cognizant of the great potential of ICT in the delivery of affordable and quality education, research and consultancy. The University has placed ICT as a priority sector which helps to achieve its short and long term strategies. A five year rolling strategic plan 2018/19 – 2022/2023 and Information and Communication Technology Policy 2019/20 – 2023/24 form the basis of this ICT Master Plan.

This Master plan provides a detailed specification of ICT strategies to be executed and associated planning based upon the targets for ICT improvement formulated in the ICT policy document. The 2019/20 to 2023/24 ICT Policy provides a framework for deployment, exploitation and development of ICT to support the university processes of teaching and learning, research and consultancy. Furthermore, the policy aims at enhancing the staff and student ICT capacity to increase utilization of ICT in order to realize institutional, community and sector development policies and strategies. The ICT Policy identified fifteen (15) priority areas which are clustered in only twelve main Strategic Pillars as listed in the executive summary.

It has become necessary to develop an ICT Master Plan with the objective to operationalize the ICT policy and to give direction to the ICT development in the university. Implementing the ICT Master Plan will facilitate the process to build a leading online university in knowledge creation and application. The mission of the university is to persistently provide relevant, quality, flexible, accessible, and affordable open online education, research, and services to community for social economic development of Tanzania and the rest of the world. The ICT Master Plan covers inclusive provision of ICT services not only in supporting university staff and students but also the community and vulnerable groups. Vital to addressing this concern the plan seeks to strengthen the formulation of an appropriate ICT regulation framework aimed at safeguarding existing ICT resources, protecting privacy, promoting digital services and innovations.

1.1 ICT Master Plan References

This ICT Master Plan provides a detailed specification of ICT strategic pillars to be implemented and associated planning based upon the targets for ICT improvement formulated in the ICT policy. The following table identifies sources of Strategic pillars including the ICT policy statements and university strategic objectives.

Table 1: Mapping ICT Policy statements and University strategic objectives to Projects in the ICT Master plan

No	Identified Strategic Pillar	ICT Policy Statement Reference	University strategic objectives
1.	Enhancing ICT infrastructure and Internet Services	2.1.3	5.1 Improve infrastructure and facilities
2.	Enhance Online Teaching and Learning	2.2.3	1.1 To strengthen open and online teaching, learning and assessment
3.	Enhance Ethical Issues in Online Teaching and Learning	3.3.3	1.1 To strengthen open and online teaching, learning and assessment
4.	Strengthen ICT Research and Innovations	4.4.3	1.1 To strengthen open and online teaching, learning and assessment
5.	Digitization of University Processes	5.5.3& 14.14.3	5.1 Improve infrastructure and facilities
6.	Enhance Staff and Students ICT Capacity	6.6.3& 13.13.3	1.1 To strengthen open and online teaching, learning and assessment 1.2 Strengthen knowledge creation necessary for social economic development of Tanzania 2.1 To improve governance efficiency and compliance
7.	Strengthen ICT Basic and Professional Courses Delivery	7.7.3	1.1 To strengthen open and online teaching, learning and assessment
8.	ICT hardware and Software Acquisition, Installation and Maintenance	8.8.3& 13.13.3	5.1 Improve infrastructure and facilities

9.	Improve Staff and Students Communication Services	9.9.3&15.15.3	5.1 Improve infrastructure and facilities
10.	Strengthen Information Security and Improve Business Continuity Plan Strategic	10.10.3	5.1 Improve infrastructure and facilities
11.	Strengthen Monitoring and Evaluation of ICT Services	11.11.3	2.1 To improve governance efficiency and compliance
12.	Improve Quality Assurance and Control of ICT Services	12.12.3	2.1 To improve governance efficiency and compliance

1.2 Organization of the Document

This document is organized into five chapters. Chapter one highlights general information, i.e. expected coverage of the master plan. Chapter two gives a review of the implementation of 2014/15 to 2018/19 ICT Master Plan. Chapter three defines the Structure of the ICT Master Plan, Objectives, Pillars and Sustainability Plan. Each Strategic Pillar, Broad Objectives, Outcome, Activities, Timeline for Implementations in the next five years and Estimated Budget for each activity are presented in Chapter four. Finally, Chapter five presents recommendations.

CHAPTER TWO

2. REVIEW OF THE IMPLEMENTATION OF 2014/15 - 2018/19 ICT MASTER PLAN

The following section provides an overview of progress made in ICT sector during the implementation period year 2014/15 to 2018/19. Twelve (12) projects were formulated for the implementation in the previous ICT Master Plan. This section therefore gives a brief review of the projects to show the achievements, shortfalls and the way forward.

2.1 Project 1: Establish Computer Labs and Install LAN in 10 Regional Centers

LAN was installed in two (2) Regional Centres namely Dodoma and Morogoro. Community labs were established at Kinondoni and Dodoma Regional Center in collaboration with Open University of China (OUC). Due to scarce resource LAN was not installed in other regions as it was planned.

2.2 Project 2: Increase Level of Automation to the University

The aim of this project was to automate manual processes in order to improve efficiency in the university services. Under this project a new website and intranet were developed and are accessible through <https://www.out.ac.tz> and <http://intranet.or.tz> respectively. Electronic repository was developed and is accessible through <https://journals.out.ac.tz>. Chief journal editors were trained on the use of the electronic repository. Also 1,300 renewable licenses for Bit defender antivirus software were procured on annual basis and were installed in all university computers. In addition to that Online OPRAS and Online Admission for Undergraduate and Postgraduate Students and ICT Asset Database were developed. KOHA system was recovered and re-installed in a new server. Human Resource Management Information System was improved and a tool (interactive web form) for staff data collection was also developed.

Furthermore, required hardware and software (API) to connect to the government e-payment gateway were acquired. System Configuration was done and tested successfully and SARIS can now send invoice and receive control numbers. End user training for accounts and technical staff was done to equip them with skill to manage the system. Students are provided with control numbers for various payments when they visit the banks. The University has also developed a mobile Application known as OUT Habari which work as OUT notice board, current news are posted as they are received for OUT staff, students and community to view. The major challenge to be addressed in the next period is to integrate the related systems in order to have a single login interface for users.

2.3 Project 3: Enhance Network Infrastructure at HQ and RCs

The demand for reliable and available network services has been growing due to increased needs of ICT usage at the university. With this regard, internet bandwidth for VPN was upgraded from 2Mbps to 5Mbps and the Internet main link was upgraded from 40Mbps to 70Mbps. Video conference facilities comprising of

big screen, mics and recording units were acquired in collaboration with Open University of China (OUC).which was installed in two centers, (HQ-Da-es-salaam and Dodoma). Backup printer for smart ID and materials for ID printing are being acquired on regular basis as the needs arises.

However there is a need to perform LAN repair in all RCs this includes replacement of active devices, Improvement of VoIP facility at HQ and RCs, Installation of CCTV and Smart Card facilities as well Installation of Wireless Access Points. It is also necessary to improve accessibility of VPN to RCs to at least 100Mbps to ease the communications and improve accessibility of internet to at least 1Gbps to enable access to university information systems and other online resources.

2.4 Project 4: Strengthen Customer Relations and Support Services

Customer Relation Management Information System (CRM) was enhanced to ensure all reported problems are recorded including the feedback for reference. The CRM is now fully operational where by users can log in and track the progress of their submitted requests. The plan is to develop automated feedback mechanism that will help users to get response instantly as well as to develop CRM mobile application to enhance the system usage on user reports /queries.

2.5 Project 5: Establish Centre for ICT Graduate

The purpose of this project was to expose ICT graduates to their area of specialization. This would help graduates to gain experience and acquire hands on skills which will enhance their confidence towards their professional development. On the other hand the project aimed at making ICT graduate become potential assets of the university as they will be able to perform university services in their course of study. The expected outcome of the project was to have graduates who are well competent in their field in order to meet the ICT industry demand.

The draft proposal for establishing the center was developed. However it was found that in order to make this project successful the university should guarantee the availability of resources to run the center. The resources should include financial resources, human resources and working resources. The university has not yet set the budget for this project therefore most of its activities were not implemented.

2.6 Project 6: Strengthen Training and Consultancy Services

Approximate 1000 students are being taught annually in basic, advance and professional courses. Two new professional courses were introduced namely digital marketing and Get Connect course. A brochure and study manual for instructional design course were also developed. However the instructional design course was not offered in the period. The plan is to start offering this course to OUT academic staff before advertising it to the external users. In order to increase the effectiveness of delivering the professional courses, IEMT is planning to develop tailor made courses to meet the needs for specific organizations. The plan is to prepare proposals for these products with respect to specific requirements of the organizations and to prepare a good marketing strategy to market these products.

Over the five year period, IEMT managed to develop a number of Information Systems for different organizations. These include Institute of Rural Development Planning (IRDP), Hubert Kairuki Memorial University (HKMU), Tumaini University Dar es Salaam College (TUDARCo), and MS-TCDC - MS Training Centre for Development Cooperation, Tanzania Institute of Bankers (TOB), Tanzania Institute of Education, Moshi Cooperative University (MoCU), Local Government Training Institute (LGTI) /President Office Regional Administrative Local Government (PORALG) and UNESCO/Ministry of Education, Science and Technology.

2.7 Project 7: Strengthen Monitoring and Evaluation for ICT Services

The purpose of the project was to oversee keep an eye to the ICT services delivered to support university services as well as community support services. The project target was to improve and increase the quality of the ICT services. Evaluations for ICT courses and services were performed periodically and suggestions and recommendation for improvements submitted to the university authority for implementation. In addition to that, tools for monitoring and evaluation were identified and used to monitor ongoing ICT projects. Despite these achievements there is still a high need to build capacity for ICT technical staff in the area of Monitoring and Evaluations (M & E).

2.8 Project 8: Enhance Teaching and Learning

The university has managed to employ one (1) multimedia specialist on contract basis and seven (7) instructional designers were recruited on permanent basis so as to provide support to academic staff in course development process. The university has also procured Articulate 360 software to enhance course contents and make the courses more interactive. Activity learning design using multimedia was developed and bandwidth has been improved to support online learning. The course development process and response from academic staff has been promising during the period. The skills acquired during capacity building workshops have made it possible to complete the development 280 courses in the Moodle system. The plan is to ensure that all the courses are delivered online by 2023.

The e-learning implementation strategy was reviewed and OER policy was developed during this period. Currently, three (3) OUT courses are considered as OERs, two (2) courses were developed from scratch and one was customized from existing courses. A Mobile application for OUTLeMS was developed and 80 academic staff and over 10,000 students were capacitated with e-learning usage. However the university needs to employ more multimedia specialists, instruction designers with sufficient skills to support Open and Distance Learning in order to achieve its strategic objective of becoming an open online university by 2023. More training and exposure visits for educational technologists and academic staff are also needed. Additionally, the process of upgrading mobile app of OUTLeMS, implementing activity learning design template using multimedia in all courses, integration of OUTLeMS with SARIS and maximizing the usage of ODL TV are the next milestone to enhance online teaching and learning. Furthermore, e-portfolio implementation to enable visibility of skills demonstrated by OUT students and developing more OER courses should be given priority.

2.9 Project 9: Enhance ICT Research Development, Innovation, Application and Publication Capacity

Research groups were established to carry out research on ICT related researches. Also Research portal was also created to be used as a repository for the various ICT research reports. Training to capacitate staff on research matters were regularly conducted during the period. However there is a need to develop framework for planning, conducting and disseminating ICT research and innovation activities and find out suitable sources of funding.

2.10 Project 10: Enhance ICT Services For Students with Special Needs

The purpose of this project was to use technology to support students with special needs. During the period the website for students with special needs was created. Also several courses were developed with sign language translation, others with video footage in order to ensure that students with special needs, especially those with eye and ear impairment can access online content. In order to strengthen this unit the university management decided to shift the unit to the office of VC in order to ensure close monitoring by the university higher authority.

2.11 Project 11: Establish Links and Collaborations with other Organizations

The project purpose was to establish collaborations with different organizations/institutions in order to share knowledge and experience in the ICT field. Collaboration areas were identified and preparation for modality of collaborations is underway. The modality for collaboration will enable the development of MoU towards establishing these partnerships with institution/organizations. The plan is to look for more organization/institution of which the university should benefit from in terms of technology innovations and experience sharing.

2.12. Project 12: Enhance Staff Capacity in Using, Developing and Managing ICTs

The purpose of this project was to build staff capacity in the ICT field in order to increase their job competency. Some technical staff attended various long and short trainings inside and outside the country. Since the university incur direct and indirect cost to support staff training, it is important to review staff retention mechanisms in order to sustain the availability of these staff.

CHAPTER THREE

3. STRUCTURE, OBJECTIVES, PROPOSED STRATEGIC PILLARS AND SUSTAINABILITY PLAN

3.1 Structure

The 2019/20-2023/24 ICT Master Plan focuses on improving university ICT services in order to improve quality of OUT services. The plan places emphasis on supporting ICT-based innovation and developing human capacity in the area of ICT. It also aims at accelerating quality education services and creates online learning enabling environment. Good and robust ICT infrastructure and enhancement of electronic services are strong support pillars of the Master Plan. The plan aligns with the university strategic objectives within the Rolling Strategic Plan, The University ICT Policy and other institutional and national ICT support documents.

3.2 Objectives

The overall objective of the ICT Master Plan is to provide reliable and high-quality ICT services necessary for realizing the ambitions of university.

3.2.1 Specific objectives

- To build an ICT infrastructure that fosters the delivery of university services
- To enhance internet governance, accessibility and usage
- To foster research, innovations and create readiness to online teaching and learning
- To expose teachers and students to ICT opportunities that lead to quality teaching and learning
- Strengthen the university competitiveness national and international through ICT applications.
- To ensure ethical and responsible use of ICT by staff and students

3.3 Strategic Pillars

The purpose of this section is to list all the strategic pillars that have been identified during the course of the review of the ICT master plan. The projects were identified and prioritized according to weight they carry in fulfilling university core business.

This master plan is divided into twelve Strategic Pillars as follows:

1. Enhance ICT infrastructure and Internet Services
2. Enhance Online Teaching and Learning
3. Enhance Ethical Issues in Online Teaching and Learning
4. Strengthen ICT Research and Innovations
5. Digitization of University Processes
6. Enhance Staff and Students ICT Capacity
7. Strengthen ICT Basic and Professional Courses Delivery
8. Acquisition, Installation and Maintenance of ICT hardware and Software.

9. Improve Staff and Students Communication Services
10. Strengthen Information Security and Improve Business Continuity Plan
11. Strengthen Monitoring and Evaluation of ICT Services
12. Improve Quality Assurance and Control of ICT Services

Table 2: Provisional Budget Estimates for Each Strategic Pillar

SN	Project Title	Budget estimate (Tshs)
1	Enhance ICT infrastructure and Internet Services	486,200,000
2	Enhance Online Teaching and Learning	305,000,000
3	Enhance Ethical Issues in Online Teaching and Learning	235,000,000
4	Strengthen ICT Research and Innovations	140,000,000
5	Digitization of University Processes	110,000,000
6	Enhance Staff and Students ICT Capacity	190,000,000
7	Strengthen ICT Basic and Professional Courses Delivery	130,000,000
8	ICT hardware and Software Acquisition, Installation and Maintenance	2,147,000,000
9	Improve Staff and Students Communication Services	40,000,000
10	Strengthen Information Security and Improve Business Continuity Plan	200,000,000
11	Strengthen Monitoring and Evaluation of ICT Services	85,000,000
12	Improve Quality Assurance and Control of ICT Services	55,000,000
GRAND - TOTAL		4,123,200,000

3.4 Sustainability Plan

The sustainability of ICT resources is proposed and planned at three levels:

- i. **Organizational level:** structures that must be put in place to ensure that an Organizational unit or individual owns ICT resources.
- ii. **Technical level:** Technical and managerial skills to manage control and maintain ICT resources developed and retained within the organization.

- iii. **Financial level:** Financial resources are available at the right time to ensure continuous availability of the resources. The ICT policy plan reinforces this by suggesting a charge-back principle for some ICT services.

3.4.1 Organization Perspective

ICT-related services and projects are centralized under the control of the Institute of Educational and Management Technologies (IEMT) to avoid duplication of efforts. Proper and functioning ICT governance was a pre-requisite for the operationalization of this Master Plan. The institute was restructured into four major departments namely Information Resource Management (IRM), Service Control and Planning (SC & P), Educational Technology (ET) and ICT Training and Consultancy (T &C). These four (4) departments are the focal point in the implementation of the ICT Master Plan and they are responsible for initiating, implementation and monitoring projects.

Various bodies which were formed by the university will also guide and participate in decision making processes related to the implementation of this Master Plan. These organs include IEMT board, ICT Steering committee, University Management, Senate and Council. Most of the institute decisions are made through deliberations of the members from these organs. The university RSP should also guide the implementation and monitoring activities of the institute.

3.4.2 Technical Perspective

The institute of educational and Management technology has more than 57 staff some being administrative, technical and academic staff. This will help to ensure the ICT services are professionally designed and sustainable, competently delivered and fairly assessed. For the successful implementation of the ICT Master Plan Staff Development and Succession Plan needs to be regularly updated to ensure all needs related to capacity building are identified and are being taken care of. Improving staff remuneration and formulating a staff retention plan will also sustain the implementation of the Master Plan.

3.4.3 Financial Perspective

The implementation of this Master Plan will depend on the budget allocation to each strategic pillar activity as per the time schedule. IEMT generates income from community training and consultancy. Part of the income will be used to support the implementation of the master plan as well as other budget as per university allocation in its annual budget.

CHAPTER FOUR

4. IDENTIFIED STRATEGIC PILLARS

This chapter of the Master Plan covers details on each pillar in terms of Objective, Outcome, Activities, Time frame and Estimated Budget.

4.1 Enhance ICT infrastructure and Internet Connectivity

4.1.1 Objective

Ensure all RCs and HQ have the required data backbones; Local Area Networks and WiFi coverage in order to support existing and anticipated future business requirements and also to ensure all communication links are efficiently utilized.

4.1.2 Outcome

Increased accessibility, availability and reliability of communication systems

4.1.3 Activities

- a. Conduct network Audit
- b. Installation of LAN and wireless access points in nine (9) RCs
- c. Repair of LAN and installation of wireless access points in 20 RCs
- d. Installation of wireless access points at HQ
- e. Increase internet bandwidth from 70Mbps to 1Gbps
- f. Increase Virtual Private Network bandwidth from 5Mbps to 100Mbps

4.1.4 Time Frame

Table 3: Implementation Schedule for ICT Infrastructure and Internet Connectivity

No	Activity	Duration
1.	Conduct network audit	July 2019 to June 2024
2.	Installation of LAN and wireless access points in nine (9) regional centres	July 2019 to June 2024
3.	Repair of LAN and installation of wireless access points in 20 regional centres	July 2019 to June 2024
4.	Installation of wireless access points at HQ.	July 2019 to June 2024
5.	Increase internet bandwidth from 70Mbps to 1GB	July 2019 to June 2024
6.	Increase Virtual Private Network bandwidth from 5Mbps to 100Mbps	July 2019 to June 2024

4.1.5 Estimated Budget

Table 4: ICT Infrastructure and Internet Services

No.	Activity	Unit (Tshs)	Total(Tshs) (000)
1	Conduct network audit	5,000,000 * 5 yrs	25,000
2	Procure LAN materials and WiFi for 9 RCs;		
	- LAN Materials	20,000,000*9 Rcs	180,000
	- WiFi	800,000*9Rcs	7,200
3	Procure LAN materials and WiFi for 20 RCs		
	- LAN Materials	10,000,000*20Rcs	200,000
	- WiFi: 800,000*20=	800,000 * 20 Rcs	16,000
	- Procure 10 WiFi for HQ	800,000*10	8,000
4	Increase internet bandwidth from 70Mbps to 1GB		*
5	Increase Virtual Private Network bandwidth from 5Mbps to 100Mbps		*
6	Acquire and installation and smart firewall	15,000,000 * 1 2,000,000 * 5 yrs (license)	25,000
7.	Acquire redundant distribution switch and core routers	25,000,000	25,000
Sub-Total			486,200

* The budget will depend on existing income generation

4.2 Enhance Online Teaching and Learning

4.2.1 Objective

To strengthen open and online teaching, learning and assessment at OUT

4.2.2 Outcome

- a. Increased relevant, updated and quality of e-content
- b. Assessments conducted online
- c. Improved Analytics Reports in the Learning Management System
- d. Leadership in technology enabled learning environment improved

- e. Effective use of OERs and Courseware

4.2.3 Activities

- a. Capacitate academic staff on digital fluency and facilitating online course
- b. Capacitate students on the usage of LMS and emerging technology enabled learning
- c. Develop and upload interactive content in OUT LMS
- d. Capacitate and prepare leaders to champion management of educational technologies at the University
- e. Improve online learning support
- f. Integrate Analytics and report tools
- g. Develop Online assessment system
- h. Expand and equip multimedia studio with state of the art hardware and software
- i. Promote development of OERs, use and re-use OERs

4.2.4 Time frame

Table 5: Time Schedule for Enhancing Online Teaching and Learning

No	Activity	Duration
1.	Capacitate academic staff on digital fluency and facilitating online courses	July 2019 – June 2024
2.	Capacitate students on the usage of LMS and emerging technology enabled learning	July 2019 – June 2024
3.	Develop and upload interactive content in OUT LMS	July 2019 – June 2022
4.	Capacitate and prepare leaders to champion management of educational technologies at the University	July 2020 – June 2024
5.	Improve online learning support	July 2019 – June 2020
6.	Integrate Analytics and report tools	July 2019 – June 2021
7.	Develop Online assessment system	Jan2020 – June 2022
8.	Expand and equip multimedia studio with state of the art hardware and software	Jan2020– June 2022
9.	Promote development of OERs, use and re-use OERs	July2020 – June 2024

4.2.5 Estimated budget

Table 6: Budget for Enhancing Online Teaching and Learning

No	Activity	Budget (Tshs)(000)
1	Capacitate academic staff on digital fluency and facilitating online courses	50,000
2	Capacitate students on the usage of LMS and emerging technology enabled learning	75,000
3	Develop and upload interactive content in OUT LMS	0
4	Capacitate and prepare leaders to champion management of educational technologies at the University	50,000
5	Improve online learning support	0
6	Integrate Analytics and report tools	10,000
7	Develop Online assessment system	0
8	Expand and equip multimedia studio with state of the art hardware and software	80,000
9	Promote development of OERs, use and re-use OERs	40,000
Sub-Total		305,000

4.3 Enhance Ethical Issues in Online Teaching and Learning

4.3.1 Objective

To ensure best practices on ethical issues in academic writing and online learning etiquettes

4.3.2 Outcome

- a. Improved quality of academic writing
- b. Improved ethical practices with regard to online learning
- c. Increased credibility and integrity of content produced at OUT

4.3.3 Activities

- a. Capacitate staff and students on the ethical issues with regard to academic writing and access to educational resources
- b. Upgrade anti plagiarism software license to cater for 2000 users
- c. Prepare guidelines and tutorials to utilize anti-plagiarism software
- d. Prepare code of conduct regarding etiquettes with regards to learners and facilitators
- e. Integrate anti-plagiarism plug-in in OUT LMS

4.3.4 Time frame

Table 7: Time Schedule to Enhance Ethical Issues

No	Activity	Duration
1.	Capacitate staff and students on the ethical issues with regard to academic writing and access to educational resources	Jan2020– June 2022
2.	Upgrade anti plagiarism software license to cater for 2000 users	Feb2020–June 2022
3.	Prepare guidelines and tutorials to utilize anti-plagiarism software	July2019 –June 2022
4.	Prepare code of conduct regarding etiquettes with regard to learners and facilitators	July2020 –June 2021
5.	Integrate anti-plagiarism plug-in in OUT LMS	July2021 –June 2022

4.3.5 Estimated budget

Table 8: Budget for Enhancing Ethical Issues

No	Activity	Amount (Tshs)(000)
1	Capacitate staff and students on the ethical issues with regard to academic writing and access to educational resources	50,000
2	Upgrade anti plagiarism software license to cater for 2000 users	150,000
3	Prepare guidelines and tutorials to utilize anti-plagiarism software	10,000
4	Prepare code of conduct regarding etiquettes with regard to learners and facilitators	10,000
5	Integrate anti-plagiarism plug-in in OUT LMS	15,000
Sub -Total		235,000

4.4 Strengthen ICT research and innovation

4.4.1 Objective

To effectively conduct ICT related researches and use the findings to improve university services in order to increase staff competences.

4.4.2 Outcome

- a. Increased number of staff engaged in ICT researches and innovation and existence of research groups
- b. University services improved
- c. Increased number of ICT researches and innovations projects
- d. Documents for guiding research and innovation activities developed.
- e. Increased number of acquired consultancies
- f. Increased number of ICT research publications

4.4.3 Activities

- a. Establish research and innovation groups and identify potential ICT research areas
- b. Update research database with all ICT researches carried out at the University
- c. Develop a framework for planning, implementing and disseminating ICT researches and innovation activities
- d. Develop implementation strategies for sustainable development of ICT research projects
- e. Develop quality assurance guidelines for ICT research projects
- f. Find out suitable sources of funding ICT researches and innovation projects and keep directory
- g. Valorizing and utilizing ICT research findings
- h. Conduct seminars/workshops / training on ICT research projects
- i. Prepare events for mentoring ICT research teams to promote positive change through development of ICT research skills and knowledge
- j. Establish global collaboration with related institutions to facilitate access to ICT research resources.
- k. Solicit ICT consultancy opportunities from various organizations/institutions
- l. Promote publication of research articles in credible journals and conferences

4.4.4 Time frame

Table 9: Time Schedule for Strengthening ICT research and innovation

No	Activity	Duration
1.	Establish research and innovation groups and identify potential ICT research areas	July 2019 to June 2024
2.	Update research database with all ICT researches carried out at the University	July 2019 to June 2024
3.	Develop a framework for planning, implementing and disseminating ICT researches and innovation activities	July 2019 to June 2020
4.	Develop implementation strategies for sustainable development of ICT research projects	July 2020 to June 2021
5	Develop quality assurance guidelines for ICT research projects	July 2020 to June 2021

6.	Find out suitable sources of funding ICT researches and innovation projects and keep directory	July 2019 to June 2024
7.	Valorizing and utilizing ICT research findings	July 2019 to June 2024
8.	Conduct seminars/workshops / training on ICT research projects	July 2019 to June 2024
9.	Prepare events for mentoring ICT research teams to promote positive change through development of ICT research skills and knowledge	July 2019 to June 2024
10.	Establish global collaboration with related institutions to facilitate access to ICT research resources.	July 2019 to June 2024
11.	Solicit consultancy from various organizations/institutions	July 2019 to June 2024
12.	Promote publication of research articles in credible journals and conferences	July 2019 to June 2024

4.4.5 Estimated Budget

Table 10: Budget for Strengthening ICT research and innovation

No	Activity	Amount(Tsh)(000)
1	Develop documents for ICT research guidance	40,000
2	Conduct and organize ICT research seminars/workshops/ training	50,000
3	Conduct capacity building, mentorship and valorizing ICT research	50,000
Sub-Total		140,000

4.5 Digitization of University Processes

4.5.1 Objectives

To regularly review the university processes and identify areas which needs digitization and develop application in order to improve productivity.

4.5.2 Outcome

- a. Manual business process identified and digitized
- b. Information in the website, intranet and mobile apps regularly updated

- c. Information systems upgraded and integrated

4.5.3 Activities

- a. Identify university manual business processes that require digitization
- b. Review and update website, intranet and mobile apps
- c. Review, audit and upgrade existing information systems
- d. Consolidate and integrate existing information systems
- e. Develop mobile apps to meet different university functions

4.5.4 Time Frame

Table 11: Time Schedule for Digitizing of University Processes

No.	Activity	Duration
1.	Identify university manual business processes that require digitization	July 2019 to June 2024
2.	Review and update website, intranet and mobile apps	July 2019 to June 2024
3.	Review, audit and upgrade existing information systems	July 2019 to June 2024
4.	Consolidate and integrate existing information systems	May 2020 to June 2022
5.	Develop mobile apps to meet different university functions	July 2019 to June 2022

4.5.5 Estimated Budget

Table 12: Budget for Digitizing of University Processes

No.	Activity	Unit (Tshs)	Amount (Tshs)(000)
1.	Identify university manual business processes that require digitization		0
2.	Review and update website, intranet and mobile apps	5,000,000*2	10,000
3.	Review, audit and upgrade existing information systems	10,000,000*2	20,000
4.	Consolidate and integrate existing information systems	20,000,000*3	60,000
5.	Develop mobile apps to meet different university functions	10,000,000*2	20,000
		Sub-Total	110,000

4.6 Enhance Staff and Students ICT Capacity

4.6.1 Objective

To provide staff and Students with opportunities to develop and sustain their ICT related knowledge and skills for the purposes of individual investments and to retain the university corporate image.

4.6.2 Outcome

- a. A system to allow students to demonstrate their competence acquired
- b. Increased number of competent and knowledgeable staff and students
- c. Increased university efficiency, effectiveness and productivity
- d. Increased level of ICT services sustainability
- e. Increased level of innovation among staff and students
- f. Staff and students retention improved

4.6.3 Activities

- a. Conduct training needs assessment for both students and staff
- b. Develop courses based on the needs assessment report
- c. Training of staff on new technologies and applications

4.6.4 Time Frame

Table 13: Time Schedule for Enhancing Students and Staff Capacity

No.	Activity	Duration
1.	Conduct training needs assessment for both students and staff	July 2019 to June 2024
2.	Develop courses based on the needs assessment report	Jan 2020 to June 2021
3.	Training of staff on new technologies and applications	July 2019 to June 2024

4.6.5 Estimated budget

Table 14: Budget for Enhancing Students and Staff Capacity

No	Activity	Amount (Tshs) (000)
1.	Conduct training needs assessment for both students and staff	50,000
2.	Develop courses based on the needs assessment report	40,000
3.	Training of staff on new technologies and applications	100,000
Sub- Total		190,000

4.7 Strengthen ICT Basic and Professional Courses Delivery

4.7.1 Objective

To provide ICT short trainings in order to expand community outreach.

4.7.2 Outcome

- a. Train at least 1000 students per year on different ICT courses.
- b. Increased sustainability of ICT services through revenue generated.
- c. Increased number of ICT professional courses in the University
- d. Increased awareness of ICT to the community.

4.7.3 Activities

- a. Develop ICT tailor made courses
- b. Employ instructors and support staff
- c. Review OUT discount guideline
- d. Conduct advertisement and promotion of ICT courses
- e. Develop marketing strategies for ICT courses

4.7.4 Time frame

Table 15: Time Schedule for Strengthen ICT Basic and Professional Courses Delivery

No.	Activity	Duration
1	Develop ICT tailor made courses	Jan 2020 to July 2021
2	Employ instructors and support staff	July 2019 to June 2024
3	Review OUT discount guideline	July 2019 to June 2020
4	Conduct advertisement and promotion of ICT courses	July 2019 to June 2024
5	Develop marketing strategies for ICT courses	July 2020 to June 2021

4.7.5 Estimated budget

Table 16: Budget for Strengthen ICT Basic and Professional Courses Delivery

No	Activity	Amount (Tshs)(000)
1.	Develop ICT tailor made courses	15,000
2.	Employ skilled instructors and support staff	25,000
3.	Review OUT discount guideline	5,000
4.	Conduct advertisement and promotion of ICT courses	75,000
5.	Develop marketing strategies for ICT courses	10,000
Sub-Total		130,000

4.8 ICT hardware and Software Acquisition, Installation and Maintenance

4.8.1 Objectives

To ensure the university acquires hardware and software that comply with institution, national and international standards, in line with existing procedures.

4.8.2 Outcome

- a. Availability of necessary hardware and software
- b. Procedures for procurement, replacement, maintenance and disposal of ICT assets effectively followed.
- c. Increased efficiency and productivity.

4.8.3 Activities

- a) Conduct needs assessment for ICT hardware and software
- b) Develop hardware and software requirements documents
- c) Acquire ICT hardware and software for HQ and RCs
- d) Installation of ICT hardware and software
- e) Equip ICT training labs in HQ and RCs
- f) Install video conferencing facilities in 7 zones
- g) Conduct systematic preventive maintenance

4.8.4 Time Frame

Table 17: Time Schedule for ICT hardware and Software Acquisition

No.	Activity	Duration
1	Conduct needs assessment for ICT hardware and software	July 2019 - June 2020
2	Develop hardware and software requirements documents	July 2020 - December 2020
3	Acquire ICT hardware and software for HQ and RCs	Jan2020 - June 2024
4	Installation of ICT hardware and software	July 2019 - June 2024
5	Equip ICT training labs in HQ and RCs	Jan 2020- June 2024
6	Install video conferencing facilities in 7 zones	July 2020 - June 2024
7	Conduct systematic preventive maintenance (annually)	July 2019 - June 2024

8.8.5 Estimated Budget

Table 18: Budget for ICT hardware and Software Acquisition

No.	Activity	Unit (Tshs)	Amount (Tsh)(000)
1	Conduct needs assessment for ICT hardware and software	10,000,000	10,000
2	Develop hardware and software requirements documents		5,000
3	Acquire ICT hardware and software for HQ and RCs	Lumpsum	950,000
4	Installation of ICT hardware and software	8,000,000 *9Rcs	72,000
5	Equip ICT training labs in HQ and RCs	40,000,000 *9Rcs	360,000
6	Install video conferencing facilities in 7 zones	100,000,000 * 7	700,000
7	Conduct systematic preventive maintenance (annually)	10,000, 000 *5 yrs	50,000
Sub-Total			2,147,000

4.9 Improve Staff and Students Communication Services

4.9.1 Objective

To provide a centralized and properly managed university communication system

4.9.2 Outcome

- a. Centralized support Unit established for all university communications
- b. Stable communication tools in place
- c. Timely response to students' queries
- d. Developed and increased culture of customer focus as per OUT Client Charter

4.9.3 Activities

- a. Form a task force for studying and carrying out needs analysis
- b. Prepare team of references (ToR) for forming a centralized communication unit/system
- c. Assign roles to properly manage available communication tools
- d. Expand and institutionalize usage of social media to attain university goals

4.9.4 Time Frame

Table 19: Time Schedule for Improving Students and Staff Communication

NO.	Activity	Duration
1.	Form a task force for studying and carrying out needs analysis	July 2019 to June 2020
2.	Prepare ToR for forming a centralized communication unit/system	July 2020 to June 2021
3.	Assign roles to properly manage available communication tools	July 2019 to June 2021
4.	Expand and institutionalize usage of social media to attain university goals	July 2019 to June 2024

4.9.5 Budget

Table 20: Budget for Improving Students and Staff Communication

NO	Activity	Amount (Tshs) (000)
1.	Form a task force for studying and carrying out needs analysis	5,000
2.	Prepare ToR for forming a centralized communication unit/system	10,000
3.	Assign roles to properly manage available communication tools	0
4.	Expand and institutionalize usage of social media to attain university goals	25,000
Sub-Total		40,000

4.10 Strengthen Information Security and Improve Business Continuity Plan

4.10.1 Objectives

To improve protection of information systems and minimize security vulnerabilities, ensure prompt and easy recovery of data and create ability to restore services within a specified acceptable period of downtime.

4.10.2 Outcome

- a. Improved security of ICT infrastructures
- b. Improved efficiency and productivity
- c. Improved integrity of information
- d. 24/7 availability of ICT services

4.10.3 Activities

- a. Conduct vulnerability assessment/security audit of ICT infrastructures and information systems.
- b. Prevent loop holes identified from vulnerability assessment
- c. Monitor and protect of ICT infrastructures and information systems from malicious attacks
- d. Review and implement business continuity plan and ICT security procedures
- e. Implement offsite backup

4.10.4 Time Frame

Table 21: Time Schedule for Strengthening Information Security

No	Activity	Duration
1	Conduct vulnerability assessment/security audit of ICT infrastructures and information systems.	July 2019 - June 2024
2	Prevent loop holes identified from vulnerability assessment	July 2019 - June 2024
3	Monitor and protect of ICT infrastructures and information systems from malicious attacks	July 2019 - June 2024
4	Review and implement business continuity plan and ICT security procedures	July 2020 - June 2022
5	Implement offsite backup	July 2020 - June 2021

8.10.5 Estimated Budget

Table 22: Budget for Strengthening Information Security

No.	Activity	Amount (Tshs)(000)
1	Conduct vulnerability assessment/security audit of ICT infrastructures and information systems.	30,000
2	Prevent loop holes identified from vulnerability assessment	50,000
3	Monitor and protect of ICT infrastructures and information systems from malicious attacks	25,000
4	Review and implement business continuity plan and ICT security procedures	20,000
5	Implement offsite backup	75,000
Sub-Total		200,000

4. 11. Strengthen Monitoring and Evaluation of ICT Services

4.11.1 Objective

To assess delivery of ICT services compliance with existing policies and procedures

4.11.2 Outcome

- a. Framework/model for Monitoring and Evaluation of ICT services developed
- b. ICT services are monitored and evaluated regularly

4.11.3 Activities

- a. Develop framework/model for monitoring and evaluation of ICT services
- b. Monitor and evaluate ICT services using framework developed
- c. Capacitate technical staff in the area of ICT monitoring and evaluation
- d. Arrange exposure visit to other institutions to share experience and learn on M & E procedures.

4.11.4 Timeframe

Table 23: Time Schedule for Strengthening Monitoring and Evaluation

No.	Activity	Duration
1.	Develop framework/model for monitoring and evaluation of ICT services	July 2020- June 2022
2.	Monitor and evaluate ICT services using framework developed	July 2019 - June 2024
3.	Capacitate technical staff in the area of ICT monitoring and evaluation	July 2019 - June 2024
4.	Arrange exposure visit to other institutions to share experience and learn on M & E procedures.	July 2020 - June 2022

4.11.5 Estimated Budget

Table 24: Budget for Strengthening Monitoring and Evaluation

No	Activity	Amount (Tshs)(000)
1	Develop framework/model for monitoring and evaluation of ICT services	20,000
2	Monitor and evaluate ICT services using framework developed	0
3	Capacitate technical staff in the area of ICT monitoring and evaluation	15,000
4	Arrange exposure visit to other institutions to share experience and learn on M & E procedures	50,000
Sub-Total		85,000

4.12 Improve Quality Assurance and Control of ICT Services

4.12.1 Objective

To strengthen and implement the existing quality assurance and control system

4.12.2 Outcome

- a. Quality of ICT services improved
- b. University Service standards maintained
- c. Increased effectiveness and efficiency of OUT services

4.12.3 Activities

- a. Design and develop ICT services quality standards and operation procedures
- b. Conduct audit of ICT products and services
- c. Evaluate accessibility and quality of online courses
- d. Develop quality guideline for ICT projects implementations

4.12.4 Time frame

Table 25: Time Schedule for Improving Quality Assurance and Control

No	Activity	Duration
1.	Design and develop ICT services quality standards and operation procedures	July 2019 - June 2021
2.	Conduct audit of ICT products and services	March 2020 - June 2024
3.	Evaluate accessibility and quality of online courses	July 2019 - June 2024
4.	Develop quality guidelines for ICT projects implementations	July 2019 - June 2020

4.12.5 Estimated budget

Table 26: Budget for Improving Quality Assurance and Control

No	Activity	Budget (Tshs) (000)
1.	Design and develop ICT services quality standards and operation procedures	20,000
2.	Conduct audit of ICT products and services	25,000
3.	Evaluate accessibility and quality of online courses	0
4.	Develop quality guideline for ICT projects implementations	10,000
Sub-Total		55,000

CHAPTER 5

5. SUMMARY

This ICT Master plan for The Open University of Tanzania details a wide range of activities, proposed over the coming five (5) years, to help the university meet its mandate to extend open and distance education opportunities to Tanzanians in all regions of the country.

Overall, it is recommended that any proposed ICT strategic pillars be sufficiently specific, yet connected to the broader ICT Master plan, to ensure success. Such projects require resources, focus and effort and need to be well thought-out before moving forward. Therefore, OUT's ICT Master Plan should be translated into a series of carefully managed steps, only taken after adequate resources (financial resources, managerial resources and human resources) are secured.

As a rule, it is recommended that all ICT-related services and projects should be centralized under the control of the IEMT to avoid the danger of duplication of efforts. It is further suggested to investigate the possibility of using backup power supply to ensure 24/7 accessibility, wherever practical. It is expected that the request to implement each strategic pillar activity will be prepared before implementation, and managed accordingly.

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*The Open University of Tanzania
P.O.Box 23409
Dar es salaam, Tanzania*