SOKOINE UNIVERSITY OF AGRICULTURE

INFORMATION AND COMMUNICATION TECHNOLOGY POLICY

3rd Edition

As Approved by SUA Meeting of the Council
On 30 March, 2023

FOREWORD

The SUA ICT Policy and Guidelines was formulated in 2002 and revised in 2014, to ensure ICT are mainstreamed into the University functions. It has enabled SUA to attain a number of achievements which have ten objectives: namely, ICT infrastructure and services, integrated management information systems, ICT security, content development, skills development, e- learning, e-resources, ICT standards, e-waste management, and sustainability of ICT. However, since the revision of the ICT Policy and Guidelines in 2014, several technological, institutional, management and structural changes that affect ICT development at SUA have occurred globally, nationally and within the University. Consequently, a number of gaps have been noted in the course of implementing the Policy. In view of this, the SUA ICT Policy and Guidelines (2014) has been revised to fill the identified gaps and capture emerging ICT-related issues that are relevant to the University.

The revised ICT Policy will enable SUA achieve excellence in training, research, consultancy and outreach or extension services, management, and administration services through the development and use of ICT applications. The Policy is organized into four chapters. Chapter One provides the background information. Chapter Two provides the ICT situation analysis at SUA. It also presents ICT vision, mission and objectives. Chapter Three gives the focus areas, policy statements and strategies. These fall under five categories, namely: ICT Governance, ICT projects, ICT Infrastructure, Information systems, ICT Security, ICT Service Continuity Management, Online Electronic Learning and Outreach, ICT skills development, ICT service management and change management. The final chapter presents the framework for policy implementation reviews and enforcement.

It is worth noting that the formulation of this policy involved a number of stakeholders. We would like to thank all those who contributed to the revision of the ICT Policy (2014). The shared vision, mission and objectives clearly defined in this Policy will be realized only if various actors play their roles effectively.

Prof. Raphael T. Chibunda
Vice Chancellor
April 2023

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ABBREVIATIONS

4IR	Fourth Industrial Revolution
e-Government	Electronic Government
e-learning	Electronic learning
e-procurement	Electronic procurement
HLIs	Higher Learning Institutions
ICT	Information and Communication Technology
IP	Internet Protocol
LAN	Local Area Network
M&E	Monitoring and Evaluation
SNAL	Sokoine National Agricultural Library
NHIF	National Health Insurance Fund
SUA	Sokoine University of Agriculture
SUASIS	Sokoine University of Agriculture Student Information System
TCP/IP	Transmission Control Protocol/Internet Protocol
TCU	Tanzania Commission for Universities
TERNET	Tanzania Education and Research Network
TCU	Tanzania Commission for Universities
NECTA	National Examinations Council of Tanzania
NACTVET	National Council for Technical and Vocational Education and Training
GePG.	Government electronic Payment Gateway
INAYA	SUA health information system
EDMS	Electronic Document Management System

DEFINITIONS OF KEY TERMS

Bandwidth describes the amount of data a network can transmit in a certain period of time, usually expressed in bits per second.

Cloud computing, a model for enabling access to a shared pool of configurable computing resources such as storage, applications, and services that can be rapidly provisioned and released with minimal management effort or service provider interaction.

Education 1.0, the first generation of the Web (Web 1.0), a largely one-way process. Students/ Learners go to [school/college/university] to get education from [lecturers/ instructors/ teachers], who supply them with information in the form of a stand-up routine that may include the use of class notes, handouts and textbooks (i.e., teacher centred learning and teaching). It is instructive, pedagogical teaching model based on the 3Rs (Receiving, Responding and Regurgitating)

Education 2.0, the second generation of Web (Web 2.0) which includes more interaction between the teacher and student; student to student; and student to content/expert. It is governed by collaborative learning supported by interactive web tools such as wikis, blog, social networking tools (i.e. problem and inquiry based learning and teaching). It is andragogical, constructivist approach to teaching and learning based on the 3Cs: communicating, contributing and collaborating.

Education 3.0, based on the belief that content is freely and readily available supported by Web 3.0 tools. It is self-directed, interest-based learning where problem-solving, innovation, entrepreneurship and creativity drive education (i.e student centred learning and teaching). It has a hauntological, connectivity approach to teaching and learning based on 3Cs: connectors, creators, and constructivists.

Education 4.0, the self-directed learning or self-driven learning in a global connectivity that is widely connected via Internet of Things (IoTs), smart machines and media able to change the linear and systems thinking patterns through communication

E-resources, information resources that users access electronically including, but not limited to electronic journals, electronic books and other Web-based documents.

Free Open-Source Software, a computer software that anyone is freely licensed to use, copy, study and modify in any way. In addition, the source code is openly shared, which encourages people to voluntarily improve the design of the software.

Information and Communication Technology (ICT), a diverse set of tools, systems, applications and services used for production, processing, storage, transmission, presentation and retrieval of information by electronic means.

Institutional repository, an online database for collecting, preserving and disseminating the intellectual output of an institution. The database includes materials such as journal articles (particularly preprints), theses and dissertations, research reports, course notes and other academic documents.

Internet, the world-wide collection of private and public router-based networks that are interconnected via gateways and exchange points, which all utilize the TCP/IP protocol.

IP address, a set of protocols developed to allow cooperating computers to share resources across a network.

Local Area Network (LAN), a computer network that spans a relatively small area such as a single building or group of buildings.

Policy, statement of intent and is implemented as a procedure or guideline or protocol.

SEO Search engine optimization is the process of improving the quality and quantity of website traffic to a website

CHAPTER ONE

INTRODUCTION

1.1. Background Information

Information and Communication Technologies (ICT) comprise of a diverse set of tools, systems, applications, and services used for the production, processing, storage, transmission, presentation, and retrieval of information by electronic means. ICT encompasses a wide range of rapidly evolving and increasingly-converging technologies including hardware, software, networks, audio-visual systems and associated applications. The capacity of ICT is growing exponentially, whereby computers and other devices become increasingly powerful; transmission capacity increases; and software applications make it easier to create multimedia resources.

ICT has increasingly become an integral part of Higher Learning Institutions (HLI) today's educational system throughout the world. ICT has the potential to support HLI's functions, namely; training, research, consultancy and outreach or extension services, management, and administration. Furthermore, ICT enhance sharing of information; increase collaboration among students, staff, and other stakeholders; and enhance the provision of open and distance learning. Therefore, ICT have brought new ways or approaches for HLIs to execute its mandates or functions. It has necessitated HLIs to adopt new or emerging ICT to transform and remain competitive in the globalized world. The HLIs have been transformed from education: i) education 1.0, education 2.0; education 3.0 and education 4.0 to match with the fourth industrial revolution (4IR). Hence, the transformation of higher education must be coupled with the effective application of ICT in teaching, learning, research, outreach, and administration.

In response to these demands, HLIs need to realign their practices to digital age standards by adopting ICT as an important tool for enhancing efficiency and effectiveness. The pedagogical and economical forces that drive universities to mainstream ICT in their functions include greater access to current information; interactive and activating teaching and learning environment; synchronous learning; asynchronous learning; lessening of high workloads; and increased student-to-teacher ratio. In addition, ICT provides pedagogical improvement

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through the use of student centered learning approaches such as problem learning, project-based learning, research-based learning approaches such as problem learning, project-based learning, research-based leaning, experiential based leaning coupled by different methods of delivering learning materials, presentation programs and tools such as computer simulation software. ICT can also improve cost-effectiveness through its ability to reach distant students and in large numbers. Generally, ICT provides an array of powerful tools that can transform isolated, teacher-centered, and text-bound classrooms into rich, student centered, and interactive environments.

Likewise, universities require enabling ICT environments in order to remain competitive in the increasingly globalized world. The ideal ICT requirements of a next generation university include efficient and sustainable network infrastructure; sufficient computing facilities and related accessories; reliable bandwidth; network centers with uninterruptible power supplies, backup-facilities and physical protection; integrated university information systems, and data recovery rooms.

Therefore, for SUA to realize the value out of ICT investment, ICT must be deployed to improve efficiency and effectiveness in internal and external services delivery. This means that a comprehensive framework should be established by ICT Policy to provide appropriate directives to harness the potential of ICT in facilitating SUA to achieve Strategic Objectives. Establishment of SUA ICT Policy is an important step toward ensuring that ICT assist SUA to attain its core objectives as documented in Corporate Strategic Plan (CSP 2021/22-2025/26). The ICT Policy will ensure that the ICT is utilized effectively and in alignment with the SUA's CSP, e-Government Act (2019), e-Government Standards and Guidelines (2017) and National ICT Policy (2016).

1.2. Sokoine University of Agriculture: Overview

Sokoine University of Agriculture (SUA) is a public university located on the slopes of Uluguru Mountains in Morogoro, Tanzania. The history of SUA dates back to 1965 when it started as an Agricultural College offering diploma training in the disciplines of agriculture. After the dissolution of the University of East Africa and the subsequent establishment of the University of Dar es Salaam (UDSM) in July 1970, the Agricultural College was transformed into a Faculty of Agriculture of the

University of Dar es Salaam (UDSM) and thereby started offering Bachelor of Science in Agriculture. In 1974, the Division of Forestry was established and hence became the Faculty of Agriculture and Forestry. The introduction of Bachelor of Veterinary Science in 1976 and the establishment of the Division of Veterinary Science, the Faculty was re-named as the Faculty of Agriculture, Forestry and Veterinary Sciences.

On the 1st of July 1984 by the Parliamentary Act No. 6 of 1984, the faculty was transformed into a fully-fledged University known as University of Agriculture (UA), which was thereafter renamed Sokoine University of Agriculture (SUA) in honour of the Late Prime Minister of the United Republic of Tanzania, Edward Moringe Sokoine who passed away on 12th April 1984. In 2005, the Universities Act No. 7 repealed Parliamentary Act No. 6 of 1984 and paved a way to the establishment of University Charters. Hence, SUA has been operating under its Charter and Rules, which were signed on 28th March 2007. The Rules were amended and published on 28th August 2020 as a Government Notice No. 683.

In terms of growth, the University has grown from 28 to 42 undergraduate degree programmes, 6 to 8 non-degree programmes and 45 to 69 postgraduate programmes between 2016/17 and 2020/21. Three (3) postgraduate Diploma have been introduced. By 30th June 2021, the total enrolment had increased from 7,299 in 2016 to 14,581 students in 2021, comprising 13,540 (93.1%) undergraduate students, 754 (5.2%) postgraduate students and 631 (4.3%) non-degrees students. The overall proportion of female students enrolled has reached 35.4 percent. By June 2021, SUA had 1,234 employees, among these 472 are academic staff and 762 are technical and administrative staff.

The University has five campuses namely, Edward Moringe Campus (2,376 ha) in Morogoro, Solomon Mahlangu Campus (1,050 ha) in Morogoro, Olmotonyi Campus (840 ha) in Arusha, Mazumbai Campus (320 ha) in Lushoto, Tanga, Mizengo Pinda Campus in Katavi Region (64 ha) and Tunduru Campus (509 ha). In addition, SUA has student field practical sites in Mbinga, Ruvuma region; Mgeta (Nyandira), Morning side and Kitulanghalo Forest in Morogoro Region.

The University has continued with the restructuring process. By October 2020, SUA had succeeded to elevate two prospective Colleges into fully fledged colleges namely, the College of Forestry, Wildlife and Tourism (CFWT) and the College of Veterinary Medicine and Biomedical Sciences (CVMBS). In June 2021, the School of

Agricultural Economics and Business Studies was elevated to a fully-fledged College of Economics and Business Studies (CoEBS). Similarly, the School of Engineering and Technology (SoET)[1] and School of Education (SoE)[2] were formed. The College of Social Science and Humanities (CSSH) still remains in the *prospective* status.

1.2.1.   SUA Vision

To be a leading University in the provision of quality knowledge and skills in agriculture and allied sciences.

1.2.2.   SUA Mission

To promote development in agriculture, natural resources and allied sectors through training, research and delivery of services.

In achieving its vision and fulfilling its mission, SUA adheres to eleven core values: *academic excellence*; *academic integrity*; *academic freedom*; *effectiveness*; *efficiency*; *integrity and accountability*; *participatory management*; *development responsibility*; *social and corporate responsibility*; *equality and social justice*; and *professional and ethical   behavior.*

1.3.   Purpose of the ICT Policy

This Policy is expected to improve the quality of teaching, learning, research, consultancy and outreach at the University using modern approaches enabled by ICT. From pedagogic and other perspectives, ICT will enhance staff-students, staff-staff, and students-students' interactions; reduce staff workloads; prepare SUA graduates for knowledge-based work environment; enhance access to electronic information resources and library services; and increase the visibility of the University's research output, among many other benefits. The Policy is also intended to increase efficiency and effectiveness of the University's administrative functions. This Policy aligns with the Corporate Strategic Plan (2021 - 2026), which

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[1] Constituted by the Department of Engineering Sciences and Technology and Food Technology of the Department of Food Technology, Nutrition and Consumer Sciences both from the College of Agriculture.
[2] Constituted by the Department of Education from the former Solomon Mahlangu College of Science and Education (SMCoSE).

advocates the use of ICT to increase efficiency, cost effectiveness and competitiveness.

1.4. Rationale for ICT Policy Review

The SUA ICT Policy was formulated in 2014 with the aim of guiding the identification, promotion and appropriate utilization of ICT at SUA. The Policy aimed at ensuring that ICT applications are integrated into planning and implementation of the University mission to improve the quality of activities. However, since the review of the SUA ICT Policy in 2014, several technological, institutional and structural changes have occurred globally, nationally, regional and within the University that have influence on ICT development at SUA. Globally, there have been phenomenal ICT developments in terms of availability, emergence and obsolescence of technologies. There are also technological convergences that increasingly blur distinctions between different types of ICT.

At the national level, the ICT policy and procedures are in-line with the following National Frameworks and key policy documents: (a) e-Gov Act (2019); (b) e-Gov Guidelines and Standards 2007; (c) The Tanzania's National ICT Policy of 2016, which emphasizes the use of ICT to enhance and improve the quality of delivery of education in all areas; (d) The Education and Training Policy (2014) that emphasizes the importance of the application of ICT in the Universities to improve teaching and learning and other related functions; (e) The Universities Act (2005) which advocates on the need for the availability of adequate ICT facilities and services in terms of quality and quantity to support the core functions of the University; (f) National Agriculture Policy (2013), Tanzania Development Vision 2025, the National Strategy for Growth and Reduction of Poverty (NSGRP), Five Year Development Plan and the Sustainable Development Goals (SDGs); (g) Tanzania Cybercrimes Act, 2015 and various legislations and regulations from Tanzania Communications Regulatory Authority (TCRA); (h) Circular No. 3 of 2013 guidelines on the implementation of various ICT systems; (g) Circular No. 5 of 2009 on proper use and ICT security; (i) Circular No. 6 of 2009 on Storage and disposal of information on ICT devices (j) establishment of Information and Communication Technologies (ICT) Commission in 2015.

At regional level, there is ICT policy of Inter- University Council of East Africa (2009) and its Strategic Plan (2021-2026) which put emphasize on use of ICT for

teaching, learning, research and outreach services.

At SUA level, the current University restructuring, establishment of Academic Information Management System (AIMS) unit in 2021, and the review of SUA Corporate Strategic Plan (2021-2026) are among the new frameworks that have influence on ICT developments. Also, increased University population in terms of staff and students as well as establishment of new programmes (particularly ICT-related programmes) also causes demand for higher quality and more diverse ICT services. The revised Policy will guide the development and appropriate utilization of ICT at SUA. This Policy will also enable SUA to harness the potential of ICT to provide high standard services to students, staff and the wider community.

CHAPTER TWO

ICT SITUATION ANALYSIS

2.1. ICT Policy Vision and Mission

Vision

The University utilizes excellent ICT solutions

Mission

To integrate ICT into University's core functions, which include training, research, consultancy and outreach services

2.2. Review of Implementation of the SUA ICT Policy (2014)

The SUA ICT Policy (2014) has enabled the University to accomplish several ICT developments that support academic, research, consultancy, outreach and administrative functions. In implementing SUA ICT Policy (2014), the following achievements and challenges were identified for each objective:

2.2.1 Objectives 1: ICT Infrastructure and services

2.2.1.1 Achievements

i. Efficient and effective LAN backbone established through USAID project in 2014 revamped the academic network infrastructures to span a distance of 2.4km to include all existing buildings and targeted locations.

ii. The number of computers in student's computer laboratories has increased from 120 in 2014 to 317 in June, 2022 which is equivalent to the ratio 1:46, representing one computer is utilized by 46 students at once.

iii. Intercom telecommunication system and the implementation activities have been initiated, also PABX system and forty (40) IP phone receivers procured using University funds.

iv. ICT hardware parts replacement in computers and network equipment are being done as required

v. The University has maintained licenses for Turntin plagiarism software checker and domain renewals.

vi. The payment of tuition fees is done electronically by the students.

vii. Availability of solar power backup that was established through USAID project has increased the electrical power backup for University computer laboratories from eight hours to seventy-two hours.

viii. The Internet bandwidth has increased from 40mbps in 2014 to 246mbps in 2022.

ix. Network link between SUA Edward Moringe Campus and Solomon Mahlangu Campus has been strengthened through fiber link supported by Higher Education Research Institute (HERI) project

x. Improved access to Internet through provision of wireless connectivity at strategic places since 2015.

xi. Two server rooms (data hosting facilities) ten kilometers (10KM) apart have been established at EMC and SMC. The SMC hosting facility serves as a secondary data storage facility.

2.2.1.2 Challenges

Despite the aforementioned achievements made, there are still challenges such as;

i. Lack of LAN backbone to new buildings hinders network and internet access of academic resources to staff and students.

ii. The ratio of computer to students is one to forty six (1:46). This ratio is too large for effective teaching.

iii. The existing solar backup system was meant for computer laboratories is being overwhelmed, but now the system serves university data center as well during power blackouts.

iv. The internet bandwidth is not enough for SUA community. Currently, the overall students' enrolment has increased from 8,578 in July 2016/17 to 14,581 students in June 2020/21 and the number of staff has increased from 1193 in 2017 to 1500 in September 2022 resulting

to internet slowness in downloading learning and teaching materials.

v. The wireless infrastructure spans only 10% of the University strategic locations limiting network and internet access.

vi. The maintenance of network infrastructure has been hindered by the inadequacy of maintenance tools (troubleshooting equipment) and quick replacement of ICT equipment.

vii. The distance between primary data centre and secondary data centre (hosting facilities) at SUA are ten kilometers (10KM) apart which risky to the date in case of natural disaster such as earthquake. It is recommended to establish other secondary hosting facilities at other approved strategic locations.

2.2.2 Objective 2: Integrated management information systems

2.2.2.1 Achievements

The University has developed, acquired, deployed and maintained several information systems as follows;

i. Developed SUA student information system (SUASIS), which store and process undergraduate and postgraduate data exchanges data with Government systems such as NHIF, TCU, NECTA, NACTVET and GePG.

ii. Developed Electronic Document Management system (EDMS) for managing and tracking various documents at the University. For example, University staff request electronic leave of absence through EDMS.

iii. Developed Hospital management information system (INAYA), which store and process hospital data for the University community.

iv. Developed Research and Publication Documentation System (RPDS), which store and process research project data.

v. Developed an integrated financial management information system (VOTEBOOK) to oversee budget, payroll, revenue management, daily expenditures, staff imprest, student finances and the generation of financial reports.

vi. Acquired Student record system (SR2) for managing student financial details.

vii. Establishment of mobile applications in different ICT projects, for example Afyadata (Health Data) is a digital disease surveillance app which enables people in communities to report patients suspected of contracting infectious diseases such as Ebola, Rift Valley Fever, Marburg and cholera. Also SUA in collaboration with Ministry of health developed afyamsafiri, an online web based surveillance to gather traveller information pertaining to the purpose of improving public health.

2.2.2.2 Challenges

Despite the aforementioned efforts made in the development and deployment of information systems, several challenges have emerged such as;

i. There are various initiatives at the University to integrate ICT into academic research arms. It has been observed that scientists at this University may establish information systems to accomplish their research goals. The established information system may lack proper qualities as they are developed without following proper procedures and standards.

ii. The University lacks centralized framework to identify all information systems and report them to the Government. The exact number of information systems existing at the University is not known and most are not interoperable with other information systems.

iii. Some of these information systems lack documentation and editable computer program (source code) hindering software evolution, transfer of knowledge and reusability.

2.2.3   Objective 3: ICT access, use and security

2.2.3.1 Achievements

i. Development of ICT systems that adhered to institutional controls that lead to effective and efficient security of institutional data.

ii. CCTV installation at administration building, college of economics and business studies to ensure security of the SUA community.

iii. Development of ICT security procedures for servers and server room, media in transit, equipment rooms and internet use

iv. Development of ICT disaster recovery plans to ensure university business continuity management.

v. Adoption of national electronic management platforms including the Government electronic payment gateway (GePG), Planning and Reporting (PlanRep), the Government Accounting System (Mfumo wa Ulipaji Serikalini, MUSE), Tanzanian National e-Procurement System (TANePS) and Human Capital Management Information System Security (HCMIS).

vi. Use of Virtual Private Network (VPN) and firewall supports different systems from Government Bus.

2.2.3.2 Challenges

i. The University has not been able to put in place adequate security gateway at the network border, threatening the security of the network infrastructure, users and information systems.

ii. Users of the internet and network resources lack adequate awareness on security issues as a result contributing at large on security holes.

2.2.4 Objective 4: Content development

2.2.4.1 Achievements

i. The University website has expanded to include all existing and new units amounting to one hundred and twenty-two websites (122)

ii. The University has created technical university website committee for each unit/ department that has the role to ensure the contents of the website are relevant, accurate, consistent and updated

iii. Three University repositories, Mkulima collection, SUAIR and TACCIRE were established to generate online academic contents.

iv. Library resources are accessible within and outside SUA through Online Public Access Catalogue (OPAC) since 2015.

v. Increased visibility of University contributed to SUA ranking number one

(1) in Tanzania citation index with a total of 98,143 citations by June 2021 compared to 89,752 citations recorded in January 2021 and 82,220 citations in July, 2020. Based on Webometrics ranking records for June 2021, the University was ranked 51st position out of 100 Universities in Africa up from the 53rd position in January 2021 and 84th position in January 2020.

2.2.4.2   Challenges

Despite the aforementioned achievements, The University website still needs to be updated its contents regularly since it has incomplete or missing webpages. Also, the contributing factors for these challenges are: lack of skills among stakeholders which in turn causes lack of websites for established research projects. More efforts are still required to equip skills to stakeholders with emerging website technologies so that they post updated contents according to search engine optimization (SEO). Moreover, the University website can highly benefit with scientific contents if appropriate controls are put in place during the implementation of the research projects. Similarly, all memorandum of understanding should be publicized online so that collaborating parties can get visibility through backlinks (referral domains).

2.2.5   Objective 5:   ICT skills development

2.2.5.1   Achievements

i. ICT technical staffs from DICT, library and informatics department were trained on Linux administration and computer network management (CISCO) under ESUA ICT project.

ii. 90% of academic staff have been equipped with Turnitin software (Anti plagiarism checker) and e-learning system (MOODLE) during University Teaching and Learning Improvement Programme (UTLIP) conducted at SUA.

iii. 80% of office management secretaries were trained on the use of free and open-source software (FOSS)

iv. 50% of ICT technical staffs have been facilitated to attend various ICT workshops and seminars.

v.   100% of students were trained on the use of free and open-source software (FOSS). Teaching computer laboratories were installed with free and open-source software (FOSS) which enables instructors to conduct appropriate ICT skills to them

vi.   Each year students are trained on various ICT services available at university during orientation week

2.2.5.2 Challenges

ICT is the infrastructure or components of the todays modern computing which is changing fast and has fasten the administrative functions of the university. Utilization of ICT requires skilled staff and students. Even though University has achieved a number of initiatives still the university faces;

Lack of adequate ICT trainings to instructors, administrative staff and students to align with rapidly changing of technology.

2.2.6   Objective 6:   E-learning

2.2.6.1 Achievements

i.   The e-learning system (MOODLE) was established to ensure E-learning is conducted at the University

ii.   The University has established three (3) video conferencing facilities which assist in teaching and learning. An instructor can provide lecturers to two classes located at different locations at once.

iii. The University has procured 21 ZOOM licenses to support distance learning and e-meetings

iv.   E-Learning module has been mainstreamed into UTLIP

2.2.6.2 Challenges

The Learning Platform or course management system (CMS), MOODLE was established to help instructors create interactive courses for learners to achieve learning goals. Despite these efforts, the following challenges exist;

i.   Lack of eLearning policy, eLearning guidelines and eLearning procedures lead to underutilization of the learning platform.

ii.   Lack of digital tools, instructional design team, and digital media teams are both hindering utilization of the learning platform.

2.2.7   Objective 7:   Electronic information resources

2.2.7.1   Achievements

i.   The University has subscribed to e-resources for use by its community members. The total number of full-text journals is 12,342 (EBSCOhost-8856, Emerald-3300, Emerald ebooks-300, Science Direct (Elsevier)-186)

ii.   All curricula for undergraduate have a course on ICT (Computer Application-CIT100). This course imparts students' different skills on Internet, Information search among many topics

iii.   The number of electronic resources has grown in SUAIR to 3800 while on TACCIRE it is 560 and MKULIMA collection has 633.

iv.   Different trainings have been done to students at SUA both undergraduate and postgraduate. Also, students and staff from Bigwa Folk community Development college, Livestock Training Agency (LITA) Morogoro, Ministry Of Agriculture Training Institute (MATI) Ilonga, SUA AIC agriculture incubation centre (PASS), Sokoine University Graduate Entrepreneurs (SUGECO) were also trained how to access electronic resources

2.2.7.2   Challenges

SUA needs more dedicated server to host an integrated institutional repository consisting of e-resources from SUAIR, TACCIRE and Mkulima collection. This is needed because there is growing number of e-resources from SUA community and collaborating institutions.

Also, the SUA has e-resources which are hosted outside its data centre and thus we need to populate them into a proposed integrated repository. Research articles hosted by TAJAS, TVJ in AJOL need to be replicated or mirrored in our hosting environment to promote and get more visibility and marketing.

2.2.8   Objective 8: ICT standards

2.2.8.1   Achievements

Controls are in place to verify implementation and procurement of ICT initiatives.

2.2.8.2   Challenges

The enacted ICT policy 2014 has enabled SUA to develop ICT guidelines and regulations documents. Also, ICT Strategy was developed to allocate resources to ICT initiatives in a timely manner. Despite these achievements we have not developed the following documents so that the implementation of ICT can be standardized as per eGA guideline and standards. The missing documents for ICT standard are namely: Enterprise Architecture, ICT Security Policy, ICT Service Management Guidelines, Disaster Recovery Plan, Acceptable ICT Use Policy, ICT Project Management Guidelines and ICT Acquisition, Development and Maintenance Guidelines.

2.2.9   Objective 9: E-waste Management

2.2.9.1   Achievements

The University developed guidelines on e-waste management which protects confidentiality of university information and guides on e-waste disposal.

2.2.9.2   Challenge

SUA developed guidelines for e-waste management but its implementation was faced by hurdle since there is lack of unified framework working towards harmonizing efforts from different sections or units within the University and also working with different stakeholders such as NEMC.

2.2.10   Objective 10:   Sustainability of ICT

2.2.10.1 Achievements

i. Guidelines for ICT sustainability were developed these committed to allocations of adequate financial resources for ICT development, priority on utilization of free and open-source software and cloud computing.

ii. Two Internet Service Providers (ISP) were established and are being maintained: thus increasing availability and reliability of internet services.

iii. Ccontinuous performance of server computers ensured by the adequate cooling conditions in the server rooms.

iv. Formulation of Information and communication Technology bureau (ITCB) in 2011 helped increase income generating activities as mechanisms for staff retention and supporting procurements of small accessories of ICT hardware.

2.2.10.2 Challenges

The university has been utilizing a number of FOSS resources to integrate ICT into administrative functions. Operating systems, application programs, browsers and databases have all been utilized from FOSS. Despite this effort, the university faces;

i. Security vulnerability may be caused by FOSS as the program code may be known to intruders

ii. High expenses of maintaining solar power backup compared to electrical power from generators.

2.2.11 ICT leadership strengths

2.2.11.1 achievements

i. The upgrading of the University Computer Centre to Centre for ICT and recently restructuring of SUA Management system has promoted into Directorate of ICT (DICT). It now reports to DVC (PFA) instead of DVC (Academic).

ii. Establishment of ICT steering committee that has a mandate to determine strategic prioritization of ICT-enabled investment programmes in line with the SUA Corporate Sstrategic Plan and priorities, track status of ICT initiatives, resolve resource conflicts and monitor ICT services.

iii. Establishment of the board of DICT that has a mandate to oversee all ICT activities and initiatives in line with SUA Corporate Strategic Plan.

iv. The establishment of University Wide Website committee (UWC) has a mandate to determine university website activities and report them to the

board of DICT.

2.2.11.2 Challenge

The number of ICT staff is eleven (11), which is not enough to solve ICT problems around the university with many academic units. Integration of ICT into university functions is not complete, thus more efforts are required to automate the university in an appropriate manner.

2.3. Requirements from E-Government guidelines

Finally, SUA ICT policy 2014 was formed before the formulation of E-Government guidelines 2017. Thus, there are some issues which ICT policy of SUA was silence as per E-Government guidelines (section 1.3.2)

It is now mandatory to include these directives in the revised SUA ICT policy. The directives in of E-Government guidelines are as follows:

i. Ensure corporate ICT strategies are prepared, endorsed and periodically reviewed and updated, in order to be closely aligned to the organization's business needs and priorities and yield value.

ii. Perform a business driven risk assessment to evaluate the business influence of vital business assets, likelihoods, effects of vulnerabilities and security threats.

iii. Develop and implement Institutional ICT Security Policy that provides directives for managing ICT Security in the respective Institution by complying with the e-Government Security Policy.

iv. Develop Disaster Recovery Plan, as part of the ICT Security Policy implementation

v. Implement the ICT service management to ensure effective ICT service delivery and support.

vi. Ensure that e-Government projects are managed in compliance with e-Government Guidelines

vii. Ensure Enterprise architecture is established

2.4.   Objectives

The general objective of the ICT policy is to mainstream ICT access and proper use to support teaching, learning, research, consultancy and outreach. To achieve this main objective, the specific objectives of this policy are to:

i.   To develop SUA ICT strategy that align with SUA corporate strategic planning (2021-2026)
ii. To adopt Enterprise Architecture as an approach to implementing e-Government services
iii. Perform ICT risk assessment
iv. To develop ICT guidelines for managing ICT projects
v.   To expand the wireless infrastructure to accommodate more targeted locations
vi. To extend ICT infrastructure to new constructed buildings and targeted locations
vii. To enhance the capacity of power backup mechanism to meet the University data center requirements
viii. To enhance maintenance planning for sustainability of network infrastructure
ix. To create documentation for all information systems
x.   To acquire editable program for facilitated information systems
xi. To develop guidelines for developing information systems
xii. To develop ICT acquisition, development and maintenance guidelines
xiii. To develop ICT security policy to protect users and systems of the university
xiv. To develop disaster recovery planning document
xv. To enhance university website with rich and meaningful contents
xvi. To enhance effective utilization of e-learning platform
xvii. To provide ICT capacity building to ICT staff and university community to keep changing with technologies
xviii. To develop ICT service management guidelines
xix. To develop change management guidelines

CHAPTER THREE

FOCUS AREAS, POLICY STATEMENTS AND STRATEGIES

3.1   Overview

This chapter presents the focus areas, policy statements and strategies necessary for effective implementation of policy objectives.

3.2   ICT Governance
3.2.1   ICT Management Processes
3.2.1.1   Policy issues

SUA upgraded the University Computer Centre to Centre for ICT (CICT) and recently restructuring of SUA Management system has promoted CICT into Directorate of ICT (DICT). ICT initiatives within SUA are administered by DICT and reported to the board of DICT which also report to higher organs of the university. There is an establishment of ICT steering committee that has a mandate to oversee ICT initiatives within the university and later report them to the national ICT steering committee through e-GA. The University has established University Wide Website committee (UWC) that has a mandate to determine university website ranking activities and report to the board of DICT. The university has high motivation in injecting funds into ICT projects, which has been observed through implementation of e-SUA project in 2014 which brought major ICT improvements in systems and infrastructure. The SUA corporate strategic planning (CSP) (2016/2021) prioritized ICT initiatives in its strategic objectives number three (3), four (4) and five (5), similarly CSP (2021/2026) prioritized ICT initiatives in its strategic objectives number three (3), four (4) and seven (7). Despite the aforementioned achievements, the university faces challenges in setting up strategies for enterprise resource planning and management as well as mitigating risks associated with improved ICT systems and infrastructure.

3.2.1.2   Policy statements

SUA shall ensure that;
i.   ICT Steering Committee, UWC and the board of DICT oversee ICT initiatives and Implementation based on SUA cooperate strategic planning and report to Higher organs of SUA and the Government.

ii.   ICT Risk Management done at least once in a year.

iii. ICT strategic plan and Enterprise Architecture are well established and operationalized.

3.2.1.3 Strategies

i. Establish an ICT strategic plan and Enterprise Architecture.

ii. Conduct ICT risk assessment at least once in a year.

3.3   ICT Projects

3.3.1 Policy issues

There are various ICT project initiatives at SUA which highly contribute to the development of the university. These initiatives may either come from top management itself through CSP or from units through their respective researchers. It has become sometimes difficult to report ICT initiatives from researchers as they are conducted without approval from DICT.

3.3.2 Policy statements

i.   ICT projects shall conform to the Government ICT projects management guidelines

ii. ICT projects shall conform to the internal standard ICT guidelines for managing projects

iii. All ICT projects shall be registered by SUA DICT before implementation.

3.3.3 Strategies

i.   Develop standard ICT guidelines for managing ICT projects

ii. Create and provide awareness on standard ICT guidelines for managing ICT projects

3.4   ICT Infrastructure

3.4.1 Computer Network and Wireless infrastructures

3.4.1.1 Policy issues

The University is erecting more buildings on campus for the purpose of improving University functions. The new constructed buildings are meant for different purpose such as lecture halls, offices and computer labs. The existing wireless

infrastructures only span 10% of the university locations. Despite these efforts, some of the buildings have not been installed proper LAN and connection to the university network backbone, which in turn hinders efficient utilization of network resources to staff and students. It is now important to scale up computer network to new constructed buildings. The wireless coverage need to be increased so that more users will be able to access network resources. Outdoor and indoor wireless equipments are supposed to be increased to extend the wireless facility.

3.4.1.2   Policy statements

SUA shall ensure that:

i.   Computer Network Infrastructure is established in all new university buildings and targeted locations.

ii. Appropriate Wireless infrastructures are established and span wide targeted locations

3.4.1.3   Strategies

i.   Develop appropriate computer network and wireless infrastructure   that supports current and future needs.

ii. Develop proper standard ICT guidelines for establishing computer network and wireless infrastructure

3.4.2 Data Management Storage and power backup
3.4.2.1   Policy issues

Data storage management refers to the process of managing data more effectively. It requires a proper understanding of data facilities and the availability of various types of data. The University maintains two data facilities for hosting and management of data located at EMC and SMC respectively. These two facilities are equipped with solar backup system to ensure their availability and reliability during power outages. Despite the aforementioned efforts, the data facilities are very close to each other which endanger the existence of data during natural calamities and lack of offline backup servers. Furthermore, the solar backup facility is not enough to power the facility for more than twelve hours

3.4.2.2 Policy statements

SUA shall ensure:

i.   Availability of more servers for storage and management of data.

ii. Utilization of Government approved data facilities for hosting University data.

iii. Expansion of power backup capacity to sustain the data facilities for more than twelve hours.

3.4.2.3 Strategies

i.   Acquire more servers for storage and management of data.

ii. Acquire more power backup mechanism to sustain the data facility for longer time

iii. Use approved Government data facility for hosting data.

3.4.3 ICT Equipment

3.4.3.1 Policy issues

The University has been equipping staff and students with ICT equipment such as: computers, laptops, printers, scanners, and other ICT related equipment. Despite the aforementioned efforts, the number of ICT equipments is insufficient to meet the growing number of students and staff.

3.4.3.2 Policy statements

SUA shall ensure that;

ICT equipment are sufficient to meet the growing number of staff and students

3.4.3.3 Strategies

Acquire sufficient ICT equipment for staff and students

3.4.4 ICT Infrastructure Maintenance and Support

3.4.4.1 Policy issues

The Academic network infrastructure once operational requires effective maintenance for its sustainability. ICT and data storage equipments may at any time get

malfunctioned and require maintenance. The university has sustained the ICT infrastructure with maintenance equipment such as: networking components for replacement, ICT related hardware and troubleshooting tools. Despite the aforementioned efforts, user needs do evolve and there are always new emerging technologies as well as networking components, ICT related hardware and troubleshooting tools wear off and become inadequate thus hinders the efficient performance of ICT infrastructure

3.4.4.2 Policy statements

SUA shall ensure that;

i.   Networking components, ICT related hardware and troubleshooting tools are adequate enough to sustain the ICT infrastructure

3.4.4.3 Strategies

i.   Prepare maintenance plan for the ICT infrastructure

ii. Acquire adequate networking components, ICT related hardware and troubleshooting tools for maintenance and support

3.5 Information Systems

3.5.1 Information system Development

3.5.1.1 Policy issues

The university has put much efforts in integrating ICT into its functions. Information systems are efficiently utilized into university functions such as: student academic information processing where by 90% of student issues are offered electronically, for example admission, accommodation, and exam results processing. Health information processing, electronic documents tracking processing, research project tracking processing are also other achievable information systems. Furthermore, individual scientists have created various information systems to achieve their research objectives. Despite the aforementioned efforts, some of these information systems lack interoperability and documentation.

3.5.1.2 Policy statements

SUA shall ensure that;

i.   More university activities are automated with information systems in an

appropriate and secure manner.

ii. Standard ICT guidelines for information system development are available.

3.5.1.3 Strategies

i. Develop standard ICT guideline for information system development

ii. Provide awareness on standard ICT guidelines for information system development

3.5.2 Information System Acquisition, Outsourcing, and Customization

3.5.2.1 Policy issues

There are methods in which the university can get an information system. Information system acquisition is a process of procuring a system from an external vendor. Information system outsourcing is a process of facilitating the vendor for information system development. Information system customization is a process of acquiring a system from external partners and customizing it according to the university requirements. All these methods have been utilized at the university in the due course. For example, SUASIS was acquired through customization process while EDMS was outsourced. Despite the aforementioned efforts, there are still systems which lack source code of the software project and lack documentation.

3.5.2.2 Policy statements

SUA shall ensure that:

i. The vendor releases source code of the software project in case the University has facilitated the software project

ii. ICT guidelines for information system acquisition, customization and outsourcing are available.

3.5.2.3 Strategies

i. Develop proper standard ICT guidelines for information system acquisition, customization and outsourcing.

ii. Provide awareness on standard ICT guidelines for information system acquisition, customization and outsourcing.

3.5.3 Information Systems Maintenance and Support

3.5.3.1 Policy issues

Information systems do evolve and need updates for various factors such as: user needs changes and advancement of technology. These factors caused an information system to also change. New emerged requirements from the stakeholders will also change an information system. Therefore, the developed information systems face a change of having regular user support and maintenance.

3.5.3.2 Policy statements

SUA shall ensure that:

i. Information system maintenance and support for all established information systems is an on-going process that will last throughout the life cycle of the application.

ii. Documentation of the information system maintenance and support shall be maintained.

3.5.3.3 Strategies

i. Develop proper standards for ICT guidelines for information system maintenance

ii. Provide awareness on ICT guidelines on information system maintenance

3.6 ICT Security

3.6.1 ICT Security Management

3.6.1.1 Policy issues

ICT Security covers all the processes by which computer-based equipment, information and services are protected from unintended or unauthorized access (confidentiality), change or destruction (integrity), authenticity and availability (CIA) throughout an organization. SUA has put in place security procedures and controls in information systems, data center facilities, operating systems, computer network and user computers to remain protected. Besides these efforts, there is insufficient security awareness among staff and students and inadequate security controls to protect the network against cyber threats.

3.6.1.2 Policy statements

SUA shall ensure that;

i. ICT security policy is established to emphasize the implementation of ICT security controls in place that ensures ICT security risks are mitigated and controlled.

ii. ICT security assessment shall be performed at least once in a year.

iii. Systems are designed, acquired and implemented with effective ICT security controls to safeguard the integrity, confidentiality and continual availability throughout the entire life cycle.

iv. Users of systems are ethically responsible for protecting the University's information resources.

3.6.1.3 Strategies

i. Establish ICT security policy.

ii. Provide training on ICT security awareness at least twice in a year.

iii. Perform ICT security assessment at least once in a year.

3.7 ICT Service Continuity Management

3.7.1 Policy issues

SUA maintains the running state of ICT services efficiently. Disaster Recovery Plan (DRP) and Business Continuity Plan (BCP) were developed to support service continuity in any case. Despite these efforts, there is need to improve DRP and BCP in accordance with technological changes and revision of ICT Policy.

3.7.2 Policy statements

SUA shall ensure that;

i. ICT environment are maintained so that it remains in a running state and does not affect the business performance or services.

ii. A disaster recovery plan is improved and maintained

iii. Robust business continuity plan is improved and maintained.

3.7.3 Strategies

i. Establish a disaster recovery plan document

    ii.   Prepare business continuity plan document

3.8   Online Electronic Learning and Outreach

3.8.1 Website Content Enrichment

3.8.1.1   Policy issues

The university has put in place a mechanism for enriching university website contents. The UWC has developed a university website guideline that contribute highly to administer and upload accurate, consistent and up to date contents thus contribute to SUA being ranked number 1 in Tanzania for citation index and 51 in Africa in 2021. Despite the aforementioned efforts, several challenges have emerged such as: inadequate website skills among stakeholders which can assist them to manage unit websites, lack of website for some of the research projects and inadequate information about local and international collaborative research work.

3.8.1.2   Policy statements

SUA shall:

i.   Establish and maintain a comprehensive University website that has webpages according to university website guidelines

ii.   Maintain and improve university website guidelines

iii.   Equip stakeholders with relevant skills for crafting communication products (e.g. news articles, research success stories) and uploading contents on their respective unit or research project website.

3.8.1.3   Strategies

i.   Maintain and improve university website guidelines.

ii.   Train designated staff dealing with website contents generation and packaging from various units across the University on content management.

3.8.2 E-learning

3.8.2.1   Policy issues

SUA established an e-learning platform to blend teaching and learning to our students. The platform requires instructors to create courses and upload learning materials for enrolled students. Despite the aforementioned efforts, the e-learning

platform is not mandatory to be utilized at SUA, leading to low utilization of the resource. Furthermore, the quality of learning materials needs to be reviewed before uploading to the platform.

3.8.2.2 Policy statements

SUA shall:

i.   Develop an e-learning policy that will enforce utilization of the e-learning platform.

ii. Promote the use of e-teaching and e-learning to staff and students

iii. Maintain an e-learning system in order to enhance teaching and learning

3.8.2.3 Strategies

i.   Develop an e-learning policy and strategies for achieving it.

ii. Promote the use of e-learning and other ICT tools and services in teaching and learning activities

3.9   ICT Skills Development

3.9.1 Policy issues

SUA is active in providing short ICT training to staff and students. ICT staff attended various seminar and workshops on ICT technologies to improve their careers. Secretaries and students are also trained on how to use FOSS for their daily operations. The installation of various information systems requires training to staff for effective utilization. Trainings are done to users of SUASIS, INAYA and EDMS regularly for their maximum utilization. Despite the aforementioned efforts, there are rapid technological changes which require further training to staff and students to keep the pace of rapidly advancement of ICT.

3.9.2 Policy statements

SUA shall,

Equip staff and students with appropriate ICT skills

3.9.3 Strategies

i.   Train all students in relevant computer application courses during their studies.

ii.   Regularly train all staff in order to equip them with up-to-date ICT skills

3.10 ICT service management

3.10.1   ICT service Help desk

3.10.2   Policy issues

SUA maintains various ICT services which need proper management. ICT staff have been stationed at various service desks around the campuses to attend users on various ICT problems. Also, there is ICT help desk to collect user queries and forward them to a responsible staff assigned to a particular IT Service Zone. All these efforts have helped to minimize disruptions of ICT services to SUA community. There is a need to enhance and strengthen ICT service desk and ICT helpdesk for the betterment of ICT services.

3.10.3   Policy statements

SUA shall ensure that;

   i.   ICT service desks are maintained around the campuses and colleges where ICT staff will be stationed to receive, record and solve problems.
   ii. ICT help desk (a single point of contact) is maintained, where requests will be recorded, escalated to the correct group, resolved and closed to ensure restoration of normal ICT service operations as quickly as possible.
   iii. ICT service management guidelines are developed.

3.10.4   Strategies

   i.   Allocate ICT staff to campuses and colleges to attend user ICT problems
   ii. Maintain ICT help desk as a single point of contact to resolve ICT problems
   iii. Develop ICT service management guidelines.

3.11 Change Management

3.11.1   Policy issues

The ICT infrastructure requires upgrade which result into changes of its architecture or topology. The underlying causes for this might be either technical infrastructure failure or problems or advancement of technology. SUA has been implementing updates, upgrades and changes in software, hardware or services

which have contributed to the operational stability of the ICT infrastructure. The challenge which still remains is the inadequate approved steps to follow before the changes are implemented.

3.11.2 Policy statements

SUA shall ensure that;

i. Process for recording, assessing and authorizing all changes prior to implementation, including changes procedures, processes, systems and service parameters is established.

ii. Change management guideline is developed

3.11.3 Strategies

i. Develop change management guidelines

CHAPTER FOUR

IMPLEMENTATION, REVIEWS AND ENFORCEMENT

4.1   Implementation and Reviews

4.1.1   This document shall come into operation once tabled and agreed in management meeting, and approved in its first page, and then shall be considered mandatory for all SUA business operations.

4.1.2   The policies described below provide top level issues for common understanding of adoption and usage of ICT at the University based on eGovernment standards and guidelines and where necessary detail procedures could be developed.

4.1.3   SUA management will use this policy in conjunction with the documents in Section 5, below to ensure that it operates within a well geared ICT ecosystem.

4.1.4   All employees and other authorised users of SUA shall comply with requirements of this policy.

4.1.5   The director of DICT shall enforce compliance by using audit trails and triggering access denial to SUA systems and networks.

4.1.6   SUA staff found to have violated this policy may be subject to withdrawal and / or suspension of systems and network privileges or disciplinary action in accordance with rules defined by SUA administrative regulations.

4.1.7   This document shall be reviewed within three years, or whenever business environment of SUA changes in a way that affects the current policy.

4.2   Exceptions

4.2.1   In case of any exceptions to this policy, it shall be thoroughly documented and follow through a proper channel of authorization using the same authority which approved this document.

4.3   Roles and Responsibilities

4.3.1 Vice Chancellor

4.3.1.1   Review and approve General ICT Policy, and provide strategic directives on utilization of ICT in order to enhance productivity by ensuring effective and efficient systems;

4.3.1.2   Appoint an ICT Steering Committee (or equivalent) and determine its terms of reference [Could be the Management Team Sitting with a focus on ICT Matters]; and

4.3.1.3   Ensure implementation of the ICT Policy.

4.3.2 ICT Steering Committee

4.3.2.1   Shall propose SUA's ICT Policy for the consideration of Vice Chancellor;

4.3.2.2   Shall coordinate the establishment and continues review of SUA's ICT Policy, ICT Strategy and Enterprise Architecture;

4.3.2.3   Shall ensure that the ICT Strategy is aligned with SUA's Corporate Strategic Plan;

4.3.2.4   Shall advice the Vice Chancellor in making considered decisions about the focus of ICT resources;

4.3.2.5   Shall review all ICT services and applications including SUA's website and infrastructure with the view to advice SUA on required improvements; and

4.3.2.6   Shall ensure that risks associated with ICT are managed appropriately.

4.3.3 DICT board

4.3.3.1   Shall translate the Policy into implementable programmes and play a leading role in their implementation.

4.3.3.2   Shall also advise and assist all units and stakeholders across the University on issues related to ICT.

4.3.3.3   Shall report the implementation of the Policy to the University Senate.

4.3.3.4   Shall advice on changes needed for ICT policy

4.3.4 Principals/Deans/Directors/Head of Departments and Units

4.3.4.1   Shall ensure that all users under their supervision are aware and comply with this policy;

4.3.4.2 Shall provide adequate and appropriate protection of ICT assets and resources under their control;

4.3.4.3 Shall ensure availability, integrity and confidentiality of information produced by systems under their areas of functional responsibilities and thereby ensure continuity of operations; and

4.3.4.4 Shall review and approve procedures, standards, policies and guidelines developed from this policy for the purpose of maintaining business continuity and security of SUA's ICT resources.

4.3.4.5 Shall be custodian of "Data and Information" for their respective Colleges/Schools/Directorates/Departments/Sections/Units.

4.3.5 Director of DICT

Subject to general oversight of Vice Chancellor and advice of the ICT Steering Committee, the Director responsible for ICT shall oversee the overall implementation of this policy; and in particular he/she shall;

4.3.5.1 Report to the DICT Board on all Policy matters, and the Board shall report the same to the University Senate for approval, and where necessary, for onward transmission to the University Council.

4.3.5.2 Coordinate the review and amendment of this policy, as and when required in order to accommodate new technologies or services, applications, procedures and perceived dangers;

4.3.5.3 Plan and develop ICT Strategy and SUA's Enterprise Architecture and ensure its implementation.

4.3.5.4 Monitor adherence to the ICT Policy and the presence of potential threats and risks by ensuring periodic ICT security reviews are conducted

4.3.5.5 Keep abreast of ICT developments in respect of ICT industry in general and SUA's systems in particular.

4.3.5.6 Initiate and recommend proposals to change, modify or improve this policy; and

4.3.5.7 Recommend procedures, standards and policies for effective implementation of this policy in line with eGovernment Standards and Guidelines.

4.3.5.8   Be the custodian of all ICT resources of SUA including those centrally stored in server room/data centre.

4.3.6 Chief Internal Auditor

4.3.6.1   Shall audit the ICT Function of SUA and ensure compliancy with the policy.

4.3.7 Users of ICT Systems

4.3.7.1   Shall be responsible to safeguard ICT assets of SUA in their custody.

4.3.7.2   Shall comply with this policy.

4.3.8 Monitoring and Evaluation

4.3.8.1   ICT Steering Committee shall meet at least quarterly to monitor and evaluate the achievements in ICT initiatives against SUA ICT Policy, Strategic Plan and Enterprise Architecture.

5.0   Related Documents

5.1   ICT Strategy

5.2   Enterprise Architecture

5.3   ICT Security Policy

5.4   ICT Service Management Guidelines

5.5   Disaster Recovery Plan

5.6   Acceptable ICT Use Policy

5.7   ICT Project Management Guidelines

5.8   ICT Acquisition, Development and Maintenance Guidelines