



ICT STRATEGIC PLAN 2018-2023



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ACRONYMS

BAI	Book Aid International
CAK	Communications Authority of Kenya
CCP	County Connectivity Project
CEO	Chief Executive Officer
CIO	Chief Information Officer
EIFL	Electronic Information for Libraries
ERP	Enterprise Resource Planning system
GOK	Government of Kenya
ICTA	ICT Authority
ICT	Information Communication technologies
IoT	Internet of things
LAN	Local Area Network
LMS	Library Management System
NOFBI	The National Optic Fibre Backbone
OTT	Over the top
WAN	Wide Area Network

FOREWORD

Deliberate efforts to revolutionize provision of technology driven library services at knls began in 2010. Since then knls has achieved a number of mile stones. Besides having the basic computing equipment, knls has an interactive and up-to-date website; a domain (knls.ac.ke); an email system; ERP; LMS; 61 e-resource centers; internet bandwidth available in 61 branches and 13 ICT staff.

Besides these great achievements, knls Board continues to encounter a number of challenges that hinder the sprout and growth of innovative library services. These include: low automation levels, un-automated ICT help desk, gaps in the ICT establishment, inadequate ICT staff, passive resistance to use of technology, inadequate LAN coverage, lack of WAN, lack of ICT risk management framework among others.

This ICT Strategic plan (2018-2023) will facilitate the knls Board to embrace use of technologies as guided by Government ICT standards. It will enhance effectiveness and efficiency in delivery of services to library users and Kenyans at large. The strategic plan gives knls an opportunity to use its strengths to innovatively deliver its mandate to Kenyan citizens and overcome the existing technological challenges.

The Strategic plan identifies the key priority activities for knls among them: development of major policy documents guiding ICT operations; automation of all knls libraries; collaboration with county libraries; optimization of the ERP; management of digital content; establishment of the virtual library, the National Webcat and a WAN for knls.

knls ICT Strategy will be implemented through performance contract targets, departmental work plans and individual work plans. It is my sincere hope that the full implementation of this ICT Strategic Plan will create an enabling environment for innovation and creativity in library service provision.

I wish to thank all those who participated in the preparation of this ICT Strategic Plan whose diverse contributions made this exercise a success. I look forward to concerted effort and commitment by all stakeholders in walking together with knls as we roll out the proposed strategic ICT interventions.

Hon. Noah Katana Ngala, EGH
Chairman, knls Board

ACKNOWLEDGEMENT

This ICT Strategic Plan (2018-2023) sets out the vision, mission and objectives of the knls ICT function. It is intended to enable the Board to take advantage of the opportunities available, and to address the challenges that could impede its technological journey in the next five years.

It is majorly aligned to the knls boards' strategic plan 2017-2022 and governance standards 2016 developed by the Government through the Ministry of ICT. The standards seek to ensure coherence, unified approach to acquisition, deployment, management and operation of ICTs across state agencies and counties. These standards provide a blueprint for improving and aligning business processes and information flows.

Implementation of this strategic plan therefore, will position the knls Board centrally in development of innovations to enhance efficiency and effectiveness in service delivery. It is worth noting that this is the first ICT strategic Plan that knls Board is developing and will ensure that ICT functions will be implemented in structured manner.

Development of this ICT Strategic Plan 2018-2023 considered the input, wisdom and contributions from various experts and stakeholders. We therefore wish to take this opportunity to express our thanks to all those, who, through dedicated efforts and commitment contributed to its triumph. Special acknowledgement goes to the Ministry of ICT through the ICT Authority for providing critical guidance and technical expertise throughout the development of this plan.

With unwavering commitment from knls Board, staff and other stakeholders, the successful implementation of this knls ICT Strategic Plan 2018-2023 will no doubt position knls as the hub of innovation and quality service delivery.

Richard Atuti, OGW

CEO/Director

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Kenya National Library Service (knls) Board is a statutory body of the Government of Kenya established by an Act of Parliament, Cap 225 of the Laws of Kenya, in April 1965. The Act mandates knls to promote, establish, equip, manage and maintain libraries in Kenya. The Board is currently under the Ministry of Sports, Culture and Heritage. The Board is also guided by the State Corporations Act, Cap 446 of the laws of Kenya.

Provision of information for development through the national and public library network enables people to fight poverty, deprivation and illiteracy and thus supports reading and recovery program by the Government. Access to information about the country enables citizens to participate effectively in the art of governance. Through various reading campaigns, knls provides opportunities for communities to enhance their reading and information seeking habits, and therefore sustain literacy. knls is committed to offering access to information and knowledge for empowerment. ICT strategically drives, fortifies and supports achievement of this mandate.

knls is committed to provide Kenyan communities with high quality and accessible library and information services that the available resources will allow. Hence, availability of adequate and relevant information and communication technologies is an integral part of knls service delivery system.

Advanced technologies that provide on-demand services have changed the demand and expectations on library service delivery. Internet of Things (IoT), cloud computing and advanced mobile technologies will completely change the way libraries operate, bringing forth ubiquitous libraries and on-demand information services. These advancements offer an opportunity for knls to innovatively design new interactive and customer focused services.

1.2 Status of ICT in knls

Since 2010, knls has put in deliberate efforts to gradually develop an ICT infrastructure. The table below provides a comparative assessment of the state of the ICT infrastructure between now and the year 2010.

Table 1: Status of ICT in knls

ICT infrastructure in 2010	Current ICT infrastructure
55 branches countrywide	62 branches.
Less than 50 Computers	Over 700 with each branch having at least 5 computers
256kbps Internet only	Internet services in 61 branches with a total of over 200mbps
LAN only in HQ	All 62 branches have Cat 6 LANs

ICT infrastructure in 2010	Current ICT infrastructure
Less than 20 Printers	More than 250 multifunction equipment (printers/scanners/Photocopiers) across all branches with each branch having at least one printer
No Wi-Fi	Wi-Fi available in 61 branches
No ICT policy and Procedures	ICT Policies and procedures in place
2 ICT technical staff	13 ICT technical staff across knls
2 server (HP G5 servers)	Fully fledged tier one data center and an automated offsite backup with 5 servers at Headquarters (Buruburu). knls also has 48 servers in other 48 branches.
No official domain and only one generic email address	knls.ac.ke domain with over 600 email addresses.
Only Nairobi Area Library, CDBD, and NLD functions were automated using Amlib LMS	Library functions automated in 15 (fifteen) Branches using Koha LMS and 8 (eight) using Amlib LMS
Only a few finance and procurement functions were automated with Navision	All finance, procurement and HR functions automated using Ms Dynamic Navision ERP
Overall automation level as at 22%	Overall Automation Level at 61.6%

1.3 Core Functions of knls Board

As stipulated in the knls Board Act, Cap 225 of the Laws of Kenya, the core functions of the Board are:

- i) Acquire books and information sources produced in and outside Kenya and such other materials for a National Library.
- ii) Preserve and conserve the national imprint for reference and research and maintain the National Bibliographic Control through issuance of the publication of the Kenya National Bibliography Kenya Periodicals Directory and ISBN.
- iii) Promote, establish, equip, manage and maintain libraries in Kenya as a National Library Service;
- iv) Plan and Coordinate library, documentation and related services in Kenya.
- v) Advise the Government, local authorities and other public bodies on all matters relating to library, documentation and related services.
- vi) Provide facilities for the study of, and for training in the principles, procedures, and techniques of librarianship and such other related subjects as the Board may determine.
- vii) Sponsor, arrange or provide facilities for conferences and seminars for discussion on matters in connection with library and related services.

- viii) Carry out and encourage research in the development of library and related services.
- i) Stimulate Public interest in books and promote information literacy for knowledge, information and leisure.

1.4 Rationale for Development of the 2018-2023 ICT Strategic Plan

Knls ICT department has all along been operating without a strategic plan. Development of this ICT Strategic Plan, was motivated by the need to improve service delivery and provide innovative library services. In addition, the plan was also developed in compliance with the requirements of GoK IT governance standard 2016.

The following technological developments and operational environment of the Board were considered in the formulation of this ICT Strategic Plan:

- i) Requirement for Implementation of Government IT standards
- ii) Need to align ICT intervention to business plans
- iii) Increased demand for interactive and innovative library services
- iv) knls Strategic plan 2017/2022
- v) The Big four agenda
- vi) Vision 2030
- vii) Rapid technological advancement at the global arena.

1.5 Strategic Plan Development Methodology

This Strategic Plan was developed through structured and consultative discourses in retreats, seminars and meetings. Participants included: officers from ICT Authority, knls Board of Directors, knls staff, library clients and development partners. The methods used for collecting information included guided interviews, desk reviews, face to face interviews, focused group discussions and questionnaires.

1.6 Functions of ICT Department

The functions of ICT department are:

- i) Ensure adherence to established ICT standards;
- ii) Provide guidelines on ICT systems use and advice on all ICT related issues;
- iii) Carry out system analysis, design and program specification in liaison with users;
- iv) Develop, implement and maintain ICT systems and solutions;
- v) Schedule maintenance and carry out repair of all ICT equipment and associated peripherals;
- vi) Provide user support including staff training and helpdesk services;
- vii) Ensure availability, security, confidentiality and integrity of information
- viii) Provide secure ICT infrastructure

CHAPTER TWO

2.0 SITUATIONAL ANALYSIS

2.1 Introduction

The situation analysis involved undertaking assessment of the environment, both external and internal, in which the knls ICT function operates. The purpose of this process was to identify and establish (1) the potential gains that knls could leverage on for increased efficiency; (2) the shortcomings that could threaten sustainable value addition to business processes. The situational analysis was achieved by undertaking a SWOT, PESTEL and stakeholders' analysis.

2.2 SWOT Analysis

The SWOT analysis revealed some the critical infrastructural/resource strengths, weaknesses, threats as well as opportunities. The table below provides the findings of the SWOT analysis process.

Table 2: SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> • Qualified and competent IT Staff • ICT addressed in Organizational Strategic Plan 2017 - 2022 • Positive co-operation amongst various organizational functions • Existence of ICT infrastructure • Funding from the Government • Existing LMS and ERP • Supportive Organizational Board • Availability of an Interactive website • Diverse clientele • Donor support 	<ul style="list-style-type: none"> • Lack of clarity of in role/reporting definition • Gaps in the ICT establishment • Inadequate ICT staff in relation to the entire organization i.e. Organogram and ratio to the organization Patronage • Passive resistance to the use of technology i.e. ICT systems • Low awareness of users on existing systems, policies and procedures • Inadequate LAN coverage in some branches. • Lack of WAN in the organization. • Lack of ICT risk management framework. • The ICT leadership does not report to the CEO. • Budgetary allocation below the 5%, global bench mark, of the total organizational budget

Opportunities	Threats
<ul style="list-style-type: none"> • Potential ICT support from public agencies e.g. CAK, ICTA • Availability of affordable ICT solutions - open source software • Mature ICT labour market place • High ICT literacy levels amongst library clientele • Availability of GOK standards, National ICT policy and ICT Masterplan • Ubiquitous national Fiber connectivity through NOFBI and CCP • Development of new technology based Library services • Growing national demand for online services • Emerging technologies e.g. IoTs, OTT, Big data and Internet of things. • Growing demand for information access for Pwds. • Multiple business application - LIS (Amlib, KOHA) • Un-operationalized ERP modules 	<ul style="list-style-type: none"> • Rapid change of technology- high rate of technology obsolescence • Cyber insecurity • Changes in Government policies and laws • Unpredictable natural calamities

2.3 PESTEL Analysis

This ICT strategic plan will be implemented within particular constraints in the institutional, national and international scenes that could both facilitate its success as well as impede achievement of the set goals and objectives. The PESTEL analysis identified the trends that could positively or adversely affect the implementation of the ICT Strategic Plan.

The table below identifies these trends and posits actions for building synergy or mitigations to address the issue or reduce its impact to the plan: -

Table 3: PESTEL Analysis

ISSUES	TRENDS
POLITICAL	<ul style="list-style-type: none"> • Government support of the digital agenda • Disruptions caused by changes in Government structures. • Potential for ICT support from development partners due to political stability • Growing global political goodwill • Transfer of Public Library function to county Governments

ISSUES	TRENDS
ECONOMICAL	<ul style="list-style-type: none"> • Potential for increased revenue generation due to rising demand for online products e.g. ISBN • Affordability of technological devices • Increase in disposable family income • Growing and expanding economy • Reduced funding from the Government causes disruption of planned ICT projects
SOCIAL & CULTURAL	<ul style="list-style-type: none"> • Increasing demand for online services • Increasing digital literacy levels • A growing culture for online reading • A high youth population • Cultural barriers to adoption of ICT • A national education system that supports ICT
TECHNOLOGICAL	<ul style="list-style-type: none"> • Internet penetration and availability of access devices • High rate of cybercrimes • Mobile telephony services • Integrated ICT tools e.g. Google Scholar • Social platforms • Nascent local ICT industry – ICT innovations and Incubation, Konza Technopolis • Emerging technologies of renewal energy
ENVIRONMENTAL	<ul style="list-style-type: none"> • Massive growth of E-waste • Emerging Green Technology • Climate Changes • Clean power; Solar, wind energy
LEGAL	<ul style="list-style-type: none"> • An improving ICT legal regime • Service Delivery Frameworks; ISBN, Legal Deposits. • Centralization of procurement of ICT goods and services

2.4 Stakeholders Analysis

In executing this ICT strategic plan, knls will interact with many stakeholders of varied influence, contribution, impact and priority. Full identification and correct classification of the stakeholders is critical to ensuring the right information, involvement and participation for buy-in, support and ownership of the strategy. This in turn ensures smooth and seamless interactions for successful implementation of the plan. The development process of this ICT strategic plan has therefore put commensurate emphasis to stakeholder identification, categorization, roles and influence/importance to the implementation of the plan as outlined in the following table:

Table 4: Stakeholders' analysis

Category of Stakeholders	Stakeholders	Influence/Relationship/Impact
GOK	Ministry of Sports Culture and Heritage	<ul style="list-style-type: none"> Provision of conducive operating environment Budgetary support Policy formulation and harmonization
	State Department of Culture and Heritage	
	County Governments	<ul style="list-style-type: none"> Goodwill in establishment, funding and maintenance of public library services Collaboration with the National Government on Library matters
	ICTA	<ul style="list-style-type: none"> Support in ICT standards and policies formulation and development Support in ICT strategic planning
	Ministry of Information Communication Technology	<ul style="list-style-type: none"> Centralization of procurement of ICT goods and services ICT consultation and advise
	Kenya Institute of Curriculum Development	Developing curriculum for electronic support materials
	National Treasury	Timely disbursement of funds
	Kenya Education Network	<ul style="list-style-type: none"> Website hosting services Facilitate collaboration with research member institutions
	Communication Authority of Kenya (CAK)	<ul style="list-style-type: none"> Financial Support ICT regulation
	Kenya Copyright Board	<ul style="list-style-type: none"> Regulate dissemination of digital materials
knls Board		<ul style="list-style-type: none"> Budgetary Support Oversee and approve budgets and policies Determining corporate strategic direction ICT skills development
knls Employees		<ul style="list-style-type: none"> Consumers of ICT services and products; Application and systems ownership; Safeguarding of the Boards ICT assets and resources

Category of Stakeholders	Stakeholders	Influence/Relationship/Impact
		<ul style="list-style-type: none"> • Implementation of programs, projects and activities. • Marketing of ICT based services to users and stakeholders • Support of ICT services • Articulation of business requirements;
Publishers		Publishing and supply of information materials in electronic format.
Client	Library users	<ul style="list-style-type: none"> • Consumption of e-resources i.e. computers, e-readers and Kio-kits • Provide timely feedback on new products and resources
	Learning Institutions	<ul style="list-style-type: none"> • Adoption of modern technology in service delivery through outreach programs. • Provide interns and industrial attachees • Collaborations in research
Development Partners	<ul style="list-style-type: none"> • BAI, • World Reader • EIFL • CAK 	<ul style="list-style-type: none"> • Support in digital literacy programs i.e. e-readers, Kio-kits • Timely disbursement of Donor funds as per MoUs • Financial support of ICT projects • ICT training
ICT Industry	ICT service providers	<ul style="list-style-type: none"> • Compliance with GoK standards through ICTA accreditation • Provision of ICT solutions • Information on emerging technologies

2.5 Challenges and System Gaps in ICT

Whereas the organization has made significant trends in deploying and leveraging information and communication technologies, there are still areas where there are inherent challenges. These include:

- Outdated ICT Policy framework
- Inadequate ICT infrastructure
- Insufficient funding for ICT initiatives
- Inadequate ICT human resource capacity and ICT skills among the staff
- Manual processes within departments despite implementation of an ERP
- Lack of Business Continuity Plan
- Review of the ICT structure and gaps within it.

CHAPTER THREE

3.0 MISSION, VISION AND CORE VALUES

3.0.1 Vision

The model ICT function

3.0.2 Mission

To leverage ICT in secure storage, access and sharing of information for enhanced service delivery

3.0.3 Core Values

ICT function will be guided by the overall knls Board's core values:

- T - Technology driven:** We will continually integrate technology in all our operations and service delivery
- I – Innovation:** We will embrace new ways, ideas and products to satisfy our customer needs
- C - Customer focus:** We will serve our customers with passion, integrity and professionalism
- K - Knowledge based:** We will continually review our services and products to support social economic Development

3.1 ICT STRATEGY

This ICT Strategic Plan focuses on supporting knls with effective and responsive ICT solutions. By reflecting on the rapidly changing ICT environment, the plan is forward-looking, innovative and provide a bold vision in which ICT is an effective enabler of the organization's core functions. It is firmly grounded on practical interventions that will be undertaken and implemented in the short, medium and long terms.

The strategy has a five-year implementation period (2018/19 – 2022/23) and shall oversee transformation of internal support processes, as well as maintaining a sound technology infrastructure that ensures sustainability and business continuity.

To meet these goals and aspirations, the strategy focuses on the following six broad thematic areas:

- Focus Area 1: ICT governance
- Focus Area 2: ICT Human Capacity and Development
- Focus Area 3: ICT Infrastructure
- Focus Area 4: Systems and applications
- Focus Area 5: ICT security
- Focus Area 6: Electronic records management

These thematic areas make up the fabric in managing information systems, networks and end user devices. This will ensure that ICT systems are secure, adequately developed, tested, controlled and maintained.

Addressing these focus areas will successfully set the ICT function at a pivotal position in efficient and cost-effective service delivery.

3.1.1 Focus Area 1: ICT Governance

This thematic area aims at enhancing ICT organization, compliance with governance standards, policies and procedures. This will enhance efficiency, improve ICT risk management and quality of service.

Table 5: ICT governance

Strategic Objective	Strategies	Key Activities
Enhance ICT governance in the organization	Strengthen ICT governance	<ul style="list-style-type: none"> Adopt and enforce Government ICT standards Improve the ICT compliance level Review, disseminate and enforce policies and procedures
	Develop ICT risk management plan	<ul style="list-style-type: none"> Identify organizational ICT risks Develop ICT risk management framework. Conduct staff training and awareness on ICT risk management Implement the risk management framework Undertake periodic review of ICT risk management framework
Achieve an effective structure for ICT operations and governance	Establish an organizational structure that ensures ICT effectively supports organizational goals	<ul style="list-style-type: none"> Set up an ICT steering committee at boards level by Developing ICT terms of reference for HR committee of the Board Revise organizational structure based on global best practices and the needs of the Board. Fill the vacant positions

3.1.2 Focus Area 2: ICT Human Capacity and Development

A sustainable ICT human capacity is a pre-requisite for an organizational competitive advantage. This thematic area identifies the objectives and strategies that will ensure development of ICT human capacity that fits the aspirations of the organization in achieving its vision.

Table 6: ICT Human Capacity and Development

Strategic Objectives	Strategies	Key Activities
Improve ICT service delivery	Enhance ICT technical capacity.	<ul style="list-style-type: none"> Develop ICT training programs Execute the training programs Membership to ICT professional bodies and participation in ICT forums.

Strategic Objectives	Strategies	Key Activities
	Build adequate ICT capacity for end users.	<ul style="list-style-type: none"> • Develop ICT training Program for end-users. • Execute training of staff in line with the training Program • Maintain an ICT skills register • Conduct change management training for all new ICT systems.
	Collaborate with County Government to build capacity to county library staff	<ul style="list-style-type: none"> • Develop MoUs with county Governments • Develop ICT training Program • Jointly Implement training program • Conduct Monitoring and Evaluation on effectiveness of the training programs

3.1.3 Focus Area 3: ICT Infrastructure

To provide efficient and effective services to employees and clients across all branches, there is need for setting up a robust, resilient and scalable infrastructure. This ICT strategic plan will strive to institute the following interventions:

Table 7: ICT Infrastructure

Strategic Objectives	Strategies	Key Activities
Ensure a highly available and reliable network infrastructure.	Maintain high performance LANs for the organization	<ul style="list-style-type: none"> • Provide maintenance services for the LAN • Expansion of LANs in identified branches
	Deploy a WAN interlinking National, county and other libraries	<ul style="list-style-type: none"> • Assess the WAN requirements • Procure, install, test, commission and maintain WAN
	Ensure optimal utilization of network resources.	<ul style="list-style-type: none"> • Develop and implement network management monitoring system • Collaborate with county Governments to develop their own network management monitoring systems
Ensure a highly available and reliable internet connectivity.	Enhance the internet bandwidth.	<ul style="list-style-type: none"> • Assess the current internet bandwidth • Procure additional internet bandwidth.

Strategic Objectives	Strategies	Key Activities
Optimize data processing, access, storage and management.	<ul style="list-style-type: none"> Establish a fully-fledged datacenter 	<ul style="list-style-type: none"> Undertake assessment of the current data center infrastructure. Identify suitable space for establishment of the datacenter Acquire, Install, configure, test and commission the hardware and software Train staff on management of the data center Maintain Service Level Agreements.
Enhance productivity and service delivery.	Acquire and Maintain ICT end user devices.	<ul style="list-style-type: none"> Undertake an assessment to identify the staff to device ratio Undertake assessment of usage of e-resource centers Acquire and deploy ICT devices on need basis Acquire specialized ICT devices for PwDs.
Enhance effective management and maintenance of ICT assets	Develop, implement and maintain an ICT asset management system	<ul style="list-style-type: none"> Develop and maintain an electronic ICT asset register Tag all ICT assets Conduct preventive, corrective and administrative maintenance of ICT assets

3.1.4 Focus Area 4: Systems and Applications

knls Board has been experiencing increasing demand for efficiency and effectiveness in service delivery. knls must therefore leverage ICT in all its operational and business processes by deploying relevant systems in all its core functions. To achieve the intended aspirations, the plan posits the following strategic objectives, strategies and key activities.

Table 8: Systems and Applications

Strategic Objectives	Strategies	Key Activities
Optimize the use of automated support systems	Fully operationalize the ERP	<ul style="list-style-type: none"> Optimize finance and procurement modules Activate Human resource, administration, warehousing, fleet management Modules

Strategic Objectives	Strategies	Key Activities
To enhance provision of Library operations and services	Enhance revenue collection	<ul style="list-style-type: none"> Acquire, install, configure and commission an automated revenue collection system Train staff on the implementation of the system Monitor and Evaluate the system Service level agreements
	Enhance Internal Audit management system	<ul style="list-style-type: none"> Install, configure, test and commission an automated audit management system Train staff on the implementation of the system Monitor and Evaluate the system Service level agreements
	Optimize library information management system	<ul style="list-style-type: none"> Install, operationalize and commission KOHA in 47 branches Integrate KOHA with Amlib
	Provision of mobile device application for access to digital content	<ul style="list-style-type: none"> Develop a mobile devices content management systems Develop an online Institutional repository Develop an interactive Library as a mobile application Establish knls Virtual Library and a National Webcat Acquire, develop and disseminate digital content Training staff and users
	Enhance user support services	<ul style="list-style-type: none"> Develop and maintain an automated helpdesk support system

3.1.5 Focus Area 5: ICT Security

Information security is essential in the day-to-day operations of an organization. Knls systems must therefore ensure confidentiality and integrity of information, while at the same time providing availability to the users. Laying the foundation for effective information security management is the most critical factor towards ensuring protection of information assets and personal privacy.

Information security is achieved through the use of controls, which may be proactive (meaning they attempt to prevent an incident) or reactive (meaning that they allow the detection, containment and recovery from an incident). To achieve this, the plan posits the following strategic objectives and strategies.

Table 9: ICT Security

Strategic Objectives	Strategies	Key Activities
Enhance ICT security	Establish ICT security framework.	<ul style="list-style-type: none"> Develop and implement ICT security policies Sensitization and awareness of the Security policy
	Improve Physical security	<ul style="list-style-type: none"> Deploy Biometrics, baggage handlers, scanners and CCTV cameras in information processing facilities
	Enhance network security	<ul style="list-style-type: none"> Undertake assessment of the network security Implement a network monitoring System
	Ensure Business continuity	<ul style="list-style-type: none"> Undertake a business impact assessment Develop a Business Continuity Plan and Disaster Recovery Plan Sensitization and training on Disaster Management

3.1.6 Focus Area 6: Electronics Records Management

Records Management (RM) is the field of management responsible for the efficient and systematic control of the creation, receipt, maintenance, use and disposition of record. RM includes the processes for capturing and maintaining evidence and information about business activities and transactions in form of records. ICT endeavors to automate RM in order to meet requirements of the Electronic records standards and ensure secure storage and controlled retrieval of records.

Table 10: Electronics Records Management

Strategic Objectives	Strategies	Key Activities
Enhance access to services	Establish data ownership protocols	<ul style="list-style-type: none"> Define all the data owners and data custodians Develop electronic records management and retention policy

CHAPTER FOUR

4.0 IMPLEMENTATION PLAN

4.1 Resource Mobilization

This strategic plan forms the basis for revolutionizing the core business processes through automation of internal support systems, re-engineering service delivery processes as well as maintaining cutting edge technological infrastructure that ensures sustainability and business continuity.

Successful implementation of this plan will require mobilization of resources from the knls Board, GoK and other development partners. The table below summarizes the financial requirement for 2018/2019 - 2022/2023: -

Table 11: Financial requirements

Strategic Objective	2018/2019 (Kshs)	2019/2020 (Kshs)	2020/2021 (Kshs)	2021/2022 (Kshs)	2022/2023 (Kshs)	Total (Kshs)
Enhance ICT governance in the organization	2,600,000.00	1,500,000.00	1,400,000.00	1,500,000.00	1,200,000.00	8,200,000.00
Achieve an effective structure for ICT operations and governance	2,300,000.00	2,200,000.00	2,200,000.00	2,200,000.00	2,200,000.00	11,100,000.00
Improve ICT service delivery	2,900,000.00	4,100,000.00	4,500,000.00	4,000,000.00	4,500,000.00	20,000,000
Ensure a highly available and reliable network infrastructure	11,400,000.00	9,200,000.00	9,200,000.00	7,200,000.00	6,200,000.00	43,200,000
Ensure a highly available and reliable internet connectivity.	25,100,000	25,000,000	25,000,000	25,000,000	25,000,000	125,100,000
Optimize data processing, access, storage and management	200,000.00	5,100,000.00	43,000,000.00	56,000,000.00	3,000,000.00	107,300,000
Enhance productivity and service delivery.	17,000,000.00	16,000,000.00	16,000,000.00	16,000,000.00	16,000,000.00	81,000,000
Enhance effective management and maintenance of ICT assets	4,000,000.00	4,000,000.00	1,500,000	2,000,000.00	1,700,000.00	13,200,000
Optimize the use of automated support systems	6,000,000.00	5,000,000.00	3,000,000.00	3,000,000.00	3,000,000.00	20,000,000

Strategic Objective	2018/2019 (Kshs)	2019/2020 (Kshs)	2020/2021 (Kshs)	2021/2022 (Kshs)	2022/2023 (Kshs)	Total (Kshs)
Enhance provision of Library operations and services	11,700,000.00	54,700,000.00	39,700,000.00	30,200,000.00	29,700,000.00	166,000,000
Enhance IT security	3,800,000.00	7,300,000.00	3,800,000.00	3,800,000.00	3,800,000.00	22,500,000
Enhance access to services	200,000.00	700,000.00	300,000.00	300,000.00	300,000.00	1,800,000
TOTAL	87,200,000	134,800,000	149,600,000	151,200,000	96,600,000	619,400,000

4.2 Implementation Matrix

Table 12: Implementation Matrix

Strategic Objective	Strategies	Key Activities	Responsibility	Time Frame	Expected output	Performance Indicator	Timeline/Cost in Millions				
							2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023
IT Governance											
Enhance ICT Governance in the organization	Strengthen ICT Governance	Adopt and enforce Government ICT standards	CIO	5yrs	Standardized ICT operations	Survey	0.3	0.3	0.3	0.3	0.3
		Improve the ICT compliance level	CIO	5yrs	Compliance level	Compliance audit	0.3	0.3	0.3	0.3	0.3
		Review, disseminate and enforce policies and procedures	CIO	5yrs	Approved ICT policy and procedures	- No. of sensitization seminars - ICT policy availed - Circulars released	0.5	0.2	0.1	0.3	0.1
	Develop ICT risk management plan	Identify organizational ICT risks	CIO	1yr	Risk register	Risk assessment tools	0.5				
		Develop ICT Risk management framework.	CIO	4yr	Risk management framework	TORs for risk management expert	0.5	0.2	0.2	0.1	

Strategic Objective	Strategies	Key Activities	Responsibility	Time Frame	Expected output	Performance Indicator	Timeline/Cost in Millions				
							2018/2019	2019/2020	2020/2021	2021/2022	2022/2023
		Conduct staff training and awareness on ICT risk management	CIO	5yrs	Trained staff	- No. of staff trained - Training report	0.2	0.2	0.2	0.2	0.2
		Implement the risk management framework	CIO	5yrs	Risk mitigation mechanism	No. of risks mitigated	0.1	0.1	0.1	0.1	0.1
		Undertake periodic review of ICT risk management framework	CIO	5yrs	Approved risk management framework	Risk gaps	0.2	0.2	0.2	0.2	0.2
Achieve an effective structure for ICT operations and governance	Establish organizational structure that ensures ICT effectively supports organizational goals	Setup an ICT steering committee at the boards level	CEO	5yrs	Steering Committee in Place	Boards resolutions on ICT	0.2	0.2	0.2	0.2	0.2
		Revise organizational structure based on global best practices	CEO	1yr	Organizational structure	Review committee	0.1				
		Fill the vacant positions	CHRO	5yrs	Filled positions	Job adverts Interviews	2	2	2	2	2
ICT HUMAN CAPACITY AND DEVELOPMENT											
Improve ICT service delivery	Enhance ICT technical capacity.	Develop ICT training program.	CIO	5yrs	Training program	Training schedules	0.2	0.2	0.2	0.2	0.2
		Execute the training program.	CHRO	5yrs	Trained ICT staff	- No. of ICT staff trained - Training certificates	0.5	0.5	0.5	0.5	0.5

Strategic Objective	Strategies	Key Activities	Responsibility	Time Frame	Expected output	Performance Indicator	Timeline/Cost in Millions				
							2018/2019	2019/2020	2020/2021	2021/2022	2022/2023
		Membership to ICT professional bodies and participation in ICT forums.	CIO	5yrs	Registered ICT members	- No. of ICT staff registered - No. of events attended	1	1	1	1	1
	Build adequate ICT capacity for the end users.	Develop ICT training Program for end-users.	CIO	5yrs	Training program	Training schedules	0.1	0.1	0.1	0.1	0.1
		Execute training of staff in line with the training Program.	CIO	5yrs	Trained end users	No. of users trained	0.5	0.5	0.5	0.5	0.5
		Maintain an ICT skills register	CIO	5yrs	Skilled end users	ICT skills register	0.1	0.1	0.1	0.1	0.1
		Conduct change management training for all new ICT systems	CIO	5yrs	Acceptance and ownership of the systems	- Change management program. - No. of staff involved	0.5	0.3	0.2	0.2	0.2
	Collaborate with County Government to build capacity to county library staff	Develop MoUs with county Governments	CEO	4yrs	Signed MoUs	No of MoUs Signed	-	0.3	0.3	0.3	0.3
		Develop ICT training program /Curricula	CIO	4yrs	Training program	No of programs developed	-	0.1	0.1	0.1	0.1
		Jointly Implement training program	CIO	4yrs	Trained staff/users	No. of trained staff/users	-	1	1	1	1
		Conduct Monitoring and Evaluation on effectiveness of the training programs	CIO	2yrs	Quality Training programs	No. of Reports	-		0.5		0.5
ICT Infrastructure											

Strategic Objective	Strategies	Key Activities	Responsibility	Time Frame	Expected output	Performance Indicator	Timeline/Cost in Millions				
							2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023
Ensure a highly available and reliable network infrastructure.	Maintain a high performance LAN for the organization	Provide maintenance services for the LAN	CIO	5yrs	Reliable LAN available for use	Maintenance schedules	0.7	0.7	0.7	0.7	0.7
		Expansion of LAN in identified branches	CIO	5yrs	Increased no. of data points	No. of branches	2	2	2	2	2
	Deploy a WAN interlinking National, County and other libraries	Assess the WAN requirements	CIO	5yrs	Assessment Reports	Specifications developed	0.5	0.5	0.5	0.5	0.5
		Procure, install, test, commission and maintain WAN	CIO	5yrs	Interlinked libraries	No. of libraries interlinked	5	5	5	3	2
	Ensure optimal utilization of network resources.	Develop network management monitoring system	CIO	5yrs	Management systems installed	Enhanced systems	3.2	0.5	0.5	0.5	0.5
		Collaborate with county Governments to develop their own network management monitoring system	CEO	4yrs	Enhanced service delivery	No. of network management system at counties	-	0.5	0.5	0.5	0.5
Ensure a highly available and reliable internet connectivity.	Enhance the internet bandwidth.	Assess the current internet bandwidth.	CIO	1yr	Identified Internet requirement per branch	Assessment report	0.1				
		Procure additional internet bandwidth.	CIO	5yrs	Increased bandwidth capacity	- LPO - Contracts - SLA	25	25	25	25	25
Optimize data processing, access,	Establish a fully-fledged data centre	Undertake assessment of the current data center infrastructure.	CIO	1yr	Assessment report	Specifications	0.2				

Strategic Objective	Strategies	Key Activities	Responsibility	Time Frame	Expected output	Performance Indicator	Timeline/Cost in Millions				
							2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023
storage and management.		Identify suitable space for establishment of the datacenter	CIO	1yr	Identified Space	Report	-	0.1			
		Acquire ,install ,configure, test and commission the hardware and software	CIO	3yrs	Functional tier-three data center	- LPO - Contracts - SLA	-	5	40	55	-
		Train staff on management of the data center	CIO	2yrs	Trained staff	No. of trained staff Reports	-	-	2	-	2
		Maintain Service Level Agreements.	CIO	3yrs	Efficient service delivery	SLA signed	-	-	1	1	1
Enhance productivity and service delivery.	Acquire and maintain ICT end user devices.	Undertake an assessment to identify the staff to device ratio	CIO	1 yrs	Assessment report	No. of devices required	1				
		Assess the usage of e-resource centers	CIO	1 yrs	Usage report	Usage statistics	1				
		Acquisition and deployment of ICT devices on need basis	CIO	5 yrs	Functional ICT devices deployed	No. of devices deployed	15	15	15	15	15
		Acquire specialized ICT devices for PW Ds	CIO	4yrs	Enhanced service delivery to PwDs	No. of devices deployed	-	1	1	1	1
Enhance effective management	Develop, implement and maintain an	Develop and maintain an electronic ICT asset register	CIO	2 year	Electronic ICT asset register	No. of ICT assets registered	1	1			

Strategic Objective	Strategies	Key Activities	Responsibility	Time Frame	Expected output	Performance Indicator	Timeline/Cost in Millions				
							2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023
and maintenance of ICT assets	ICT asset management system	Tag all ICT assets	CIO	5 yrs	Secure/easy management of ICT assets	No. of asset tagged	2	1.5		0.5	0.2
		Conduct preventive, corrective and administrative maintenance of ICT assets	CIO	5yrs	Efficient Service Delivery	Reports	1	1.5	1.5	1.5	1.5
Systems and Applications											
Optimize the use of automated support systems	Fully operationalize the ERP	Optimize finance and procurement modules	CIO	2 yrs	Efficient service delivery	Reports	1	1			
		Activate Human resource, administration, warehousing, fleet management Modules	CIO	5 yrs	Enhanced service delivery	Reports	5	4	3	3	3
Enhance provision of Library operations and services	Enhance revenue collection	Acquire, install, configure and commission an automated revenue collection system	DDFA	2 yrs	Increased Revenue collected	Automated revenue collection	-	3	2		
		Train staff on the implementation of the system	CIO	1yr	Trained staff	No. of staff Trained	-	1			
		Monitor and Evaluate the system	DDFA	4yrs	Functional Systems	Reports	-	0.3	0.3	0.3	0.3

Strategic Objective	Strategies	Key Activities	Responsibility	Time Frame	Expected output	Performance Indicator	Timeline/Cost in Millions				
							2018/2019	2019/2020	2020/2021	2021/2022	2022/2023
		Service level agreements	CIO	4yrs	Functional System	Signed Agreements	-	1	1	1	1
	Enhance Internal Audit management system	Acquire, install, configure and commission an automated audit management system	CIA	2yrs	Enhanced internal Controls	System installed	2.5	1			
		Train staff on the implementation of the system	CIA	1yrs	Trained staff	No. of trained staff	-	0.5			
		Monitor and Evaluate the system	CIA	4yrs	Functional system	Reports	-	0.2	0.2	0.2	0.2
		Service level agreements	CIO	4yrs	Functional system	Signed Agreements	-	0.6	0.6	0.6	0.6
	Optimize library information management systems	Install, operationalize and commission KOHA in 47 branches	CIO	5 yrs	- Enhanced service delivery	- No. of libraries automated	2	2	2	2	2
		Integrate KOHA with Amlib	CIO	1 yr	- Centralized access to services	- API developed				0.5	
	Provision of mobile device application for access to digital content	Develop mobile devices content management systems	CIO	5 yrs	Enhanced access to online content	Operational application	1	1	1	1	1
		Develop Online Institutional repository	CIO	5 yrs	Repository	Usage statistics	1.5	1.5	1.5	0.5	0.5
		Develop interactive Library as a mobile application	CIO	5 yrs	Functional mobile device application	System specifications, ToR	0.2	0.1	0.1	0.1	0.1

Strategic Objective	Strategies	Key Activities	Responsibility	Time Frame	Expected output	Performance Indicator	Timeline/Cost in Millions				
							2018/2019	2019/2020	2020/2021	2021/2022	2022/2023
		Establish knls Virtual Library and a national Webcat	CEO	5 yrs	Functional system	- System specifications - ToR - No. of catalogues	1	20	10	3	3
		Acquire, develop and disseminate digital content	HOD CDBD	5yrs	Digital content	No. of people accessing Digital Content	3	20	20	20	20
		Train staff and users	CIO	5	Trained staff	No. of staff trained	0.5	0.5	0.5	0.5	0.5
	Enhance user support services	Develop and maintain an automated helpdesk support system	CIO	4 yrs	Functional helpdesk system	- System specifications - ToR		2	0.5	0.5	0.5
IT Security											
Enhance IT security	Establish ICT security framework.	Develop and implement the ICT security policies	CIO	4 yrs	Approved ICT Security policy document	ICT security policy document		0.5	0.5	0.5	0.5
		Sensitization and awareness of the Security policy	CIO	4 yrs	Improved security levels	No of sensitized users		0.5	0.5	0.5	0.5
	Improve Physical security	Deploy Biometrics, baggage handlers, scanners and CCTV cameras in information processing facilities	CIO	4 yrs	- Functional Biometric systems - CCTV cameras	- ToRs - SLAs - Contracts		3	1	1	1
	Ensure secure network	Undertake assessment of the network security	CIO	5 years	Network security assessment report	- No of branches assessed - Security assessment tools	0.3	0.3	0.3	0.3	0.3

Strategic Objective	Strategies	Key Activities	Responsibility	Time Frame	Expected output	Performance Indicator	Timeline/Cost in Millions				
							2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023
		Implement a network monitoring System	CIO	4 yrs	Functional Monitoring system	- TORs - Specifications - RFP		2	0.5	0.5	0.5
	Ensure business continuity	Undertake a Business Impact Assessment	CIO	1 year	Approved Business Impact Assessment report	Contracts	1				
		Develop Business Continuity Plan and Disaster Recovery Plan	CIO	5 yrs	- Business Continuity - Plan Disaster recovery plan	Contract LSO	2	0.5	0.5	0.5	0.5
		Sensitization and training in Disaster Management	CIO	5 yrs	Trained staff on disaster management	- No of trained staff - Training programs	0.5	0.5	0.5	0.5	0.5
Electronics Records Management											
Enhance access to services	Establish data ownership protocols	Define all the data owners and data custodians	CIO	5 yrs	Defined data owners and custodians	No of data owners and custodians	0.2	0.2	0.2	0.2	0.2
		Develop electronic records management and retention policy	CIO/CH RO	4 yrs	Approved Electronic records management and retention policy	Minutes of the board approval		0.5	0.1	0.1	0.1

4.3 Risk Management

Risk management framework is based on the analysis of combination of risk factors including, impact (what effect the risk would have on the organization's core business if it occurred) and likelihood (the probability of the risk occurring). To ensure thorough and periodic review of all ICT related risks is undertaken, a dedicated ICT risk management mechanism needs to be established. ICT risks anticipated during the implementation of this strategy are listed in the table below:

Table 13: ICT Risks Identified

Risk	Level of Risk	Mitigation Measures
i. Resistance to change.	Medium	- Carry out change management training. - Good customer service.
ii. Inadequate Staffing levels may affect implementation of plans.	high	Hire adequate and competent staff
iii. Staff capability to cope with changes in the technology.	Medium	Staff training on new technologies
iv. Delayed decision-making in recruitment of ICT personnel	High	Develop policy setting clear recruitment decision-making timelines
v. Organizational culture may affect effective implementation of the plan.	High	Initiate culture and attitudinal change Awareness creation
vi. Lack of inter-departmental cohesion in sharing of ICT resources.	Medium	Enhance teamwork and inter-departmental co-ordination and harmony
vii. Lack of a clear policy framework on ICT operational issues.	Medium	-Develop clear operational manuals. -Review ICT policy
viii. Inadequate financial resources allocated to ICT function.	High	- Put in place financial measures for allocating sufficient funding for ICT - Design resource mobilization strategies.
ix. Lack of investment in new technologies	Medium	Develop sound investment policy on new technologies.

CHAPTER FIVE

5.0 MONITORING, EVALUATION & REPORTING

Monitoring and evaluation (M&E) serves several purposes; facilitates the identification and resolution of problems, enhances project performances, provides the basis for technical and financial accountability, builds local capacity to implement and manage projects successfully, promote the identification and dissemination of lessons learned by participants themselves.

Monitoring and Evaluation (M&E) will guide stakeholders in executing the ICT strategy to evaluate its implementation and in the event of any deviation, to ensure appropriate and timely action is taken. The Monitoring, Evaluation and Reporting process will be undertaken at both the Board and Management levels, with the ICT department playing a key role.

A Monitoring and Evaluation Committee (M&EC) will be constituted to oversee the implementation of the strategic plan through the five years. The Committee will comprise members from the Board, Management and ICT department.

5.1 Strategy Implementation Team

5.1.1 The Board

The Board's role will be to approve the ICT strategy for implementation and ensure it is monitored to accomplish the set objectives. The Board is also expected to approve the follow-up and control systems to be established at all levels, which will include review meetings, budgets and progress reports through the Chief Executive Officer.

5.1.2 Management

The management control system will be necessary to ensure the Strategy is implemented as planned. The system will involve routine data collection and analysis on the progress of the Strategy. The results from the analysis will then be used to make informed decisions, including taking timely corrective action where deviations in implementation have been noted. The Monitoring and Evaluation Committee (M&EC) in collaboration with ICT department will coordinate collection of M&E data, analysis and reporting.

5.1.3 ICT Department

The ICT department will take responsibility in coordinating the implementation of the Strategy. ICT department will also promote ownership of the ICT Strategy by all departments and branches. The Departments in turn, will monitor ICT activities administered within their respective jurisdictions and subsequently submit reports as required. These reports will be reviewed regularly against the set targets to measure progress.

5.2 Data Collection and Analysis

In monitoring the implementation, the M&EC will be expected to systematically collect qualitative and quantitative data on progress of implementation against the planned targets. These data will provide the

Committee and other stakeholders an indication on the extent of progress made towards achieving the set objectives.

The monitoring process will be guided by the following:

- i) Clear targets and Indicators
- ii) Data sources
- iii) Frequency of data collection
- iv) Responsibility for data collection
- v) Data analysis and use
- vi) Reporting and dissemination.

5.3 Reporting and Communication of Information

The reporting and communication of information will be informed by the level of stakeholders, users and participation. The M&EC is expected to establish the appropriate system of disseminating the lessons learnt to staff and identified stakeholders, and ensure implementation of best practices.

5.4 Performance Review

5.4.1 Mid-Term Evaluation (MTR)

The purpose of the Mid- Term Evaluation (MTR) will be to assess the extent to which the Plan is meeting its implementation objectives and timelines and ensuring that it remains relevant and feasible. This will provide an opportunity to give recommendations for the remaining phase of the Plan. The MTR will be done by the M&EC in liaison with external consultants to ensure objectivity.

5.4.2 Online and Mid-Course Corrections

The purpose of mid-course corrections is to correct and prepare for the final phase of the plan implementation. These corrections will be derived from the MTR and this will give a clear picture of how the plan is implemented and the various challenges encountered.

5.4.3 Final Evaluation

The prime purpose of the Final Evaluation for the ICT Strategic Plan 2018-2023, expected to be carried out towards the end of **June 2023**, will be to address the following issues:

- i) Effectiveness (Impact): The extent to which the implementation of activities met the stated strategies and objectives
- ii) Sustainability: Assesses the sustainability of the achievements made
- iii) Challenges: Document the challenges encountered.
- iv) Lessons Learnt: Document lessons learnt and employ best practices.

ANNEXES

Table 14: Monitoring and Evaluation Plan

Activity	Indicator	Purpose	Output/ Outcome	Baseline	Target	Data Collection/ Source	Tools	Frequency	Responsible Persons

Table 15: Roles & Responsibilities

Role	Responsibilities