

---

**PROJECT TITLE:**

**ICT STRATEGY FOR AUTOMATION OF THE EIGHT (60) KNLS  
LIBRARY BRANCHES.**

**Submitted to**

**PROUCEMENT  
KENYA NATIONAL LIBRARY SERVICE  
P.O. BOX 30573 – 00100  
NAIROBI  
KENYA**

---

**Submitted by:**

**SOFT PRODUCTS LIMITED  
P. O. BOX 12699 – 00100  
VISION PLAZA  
OFF MOMBASA ROAD  
NAIROBI  
KENYA**

---

**Contact person:**

**DENNIS KITHEKA  
CELL: 0727-044818  
Email: [dennis.kitheka@softproducts.co.ke](mailto:dennis.kitheka@softproducts.co.ke)**

---

**TABLE OF CONTENTS**

<b>ITEM</b>	<b>PAGE</b>
<b>INTRODUCTION .....</b>	<b>4</b>
<b>EXECUTIVE SUMMARY .....</b>	<b>4</b>
BACKGROUND AND HISTORY .....	5
SCOPE .....	5
DIRECTION AND RESULTS.....	6
GOALS .....	7
STRATEGIC ISSUES AND PLANS .....	8
<b>CONTEXT .....</b>	<b>9</b>
<b>1. ACQUISITION OF AUTOMATION SOFTWARE/APPLICATION.....</b>	<b>10</b>
1.1. PRESENT SOFTWARE(S) AUTOMATION LEVEL IN ALL 10 BRANCHES.....	10
1.2. TO ADDRESS THIS ISSUE THE FOLLOWING SHOULD BE CONSIDERED: .....	12
A. ACQUIRE INTEGRATED LIBRARY MANAGEMENT SYSTEMS (ILS). .....	12
B. CRITERIA FOR SELECTION OF LIBRARY SYSTEMS .....	18
<b>2. HARDWARE/NETWORK EQUIPMENT .....</b>	<b>19</b>
2.1. PRESENT LEVEL OF HARDWARE AUTOMATION IN ALL 10 BRANCHES .....	19
2.1.1. NAKURU BRANCH.....	21
2.1.2. KISUMU BRANCH .....	23
2.1.3. KAKAMENGA BRANCH .....	25
2.1.4. ELDORET BRANCH .....	27
2.1.5. NYERI BRANCH .....	29
2.1.6. EMBU BRANCH .....	31

2.1.7.	GARISSA BRANCH .....	33
2.1.8.	MOMBASA BRANCH .....	35
2.2.	RECOMMENDATIONS. ....	37
2.2.1	COMPUTERS .....	38
2.2.2	SERVER.....	40
2.2.3	PRINTER. ....	40
2.2.4	BARCODE SCANNER.....	41
2.2.5	CYBER – CAMS.....	41
2.2.6	DATA CARD PRINTER. ....	41
3.	HUMAN RESOURCE.....	42
	RECOMMENDATIONS .....	43
4.	EVALUATION AND MONITORING .....	43
	FINANCIAL ESTIMATES .....	44
	CONCLUSION .....	46

## INTRODUCTION

The Staff of The Kenya National Library Services (KNLS) has developed this ICT strategic plan with assistance from Soft Products Ltd. It provides The Kenya National Library Services KNLS with a roadmap for support services and ICT policy implementation. The Board of Directors and staff can review the progress and update the plan as needed.

This plan was developed with broad involvement and guidance from all stakeholders. The staff helped coordinate the planning process and provided important support and analysis to complete this plan.

Soft Products Ltd facilitated the planning process using an adaptation of the principles of the *Drucker Foundation Self- Assessment Tool*. Soft Products Ltd conducted an environmental scan including an internal organization assessment and interviews with several stakeholders and a review of demographic and market data. The environmental scan and organizational assessment help Kenya National Library Service (KNLS) assess both the challenges and opportunities it is likely to face over the period of automation and set the context for the choices reflected in this ICT strategic plan.

Soft Products Ltd is a professional ICT solutions company based in Nairobi, which specializes in provision of several IT services including IT Consultancy, IT Support and Administration, Software development, Mobile application development, web based application design and development, Database development, Search Engine Optimization (SEO), and networking.

## EXECUTIVE SUMMARY

The Kenya National Library Service (KNLS) mission is to make information resources available and preserve the national imprint for use by all communities through utilization of appropriate technology.

KNLS Board is mandated to establish, equip, promote, manage and maintain libraries in Kenya. Given these responsibilities, use of ICT platform is critical success factor in making information and knowledge accessible to all our communities.

ICT is fundamentally changing the way in which people and organizations interact with each other. The e-government agenda is concerned with modernizing public services and ensuring that they exploit this major and ongoing change in our society. Citizens will expect that the ways in which ICT supports activities in their private and working lives are also present in their dealings with public services. ICT will therefore be key to the KNLS meeting increased societal and individual demands through changing and improving the ways in which services are planned and delivered. The opportunities are immense but there are significant challenges. ICT will need to be embraced, valued and recognized as a fundamental tool for the delivery learning materials. Technology must be acquired and implemented, processes changed and staff enabled and supported.

Recognizing that library staff is key to delivering services, they will be enabled and empowered with tools and competencies, enabling them to provide quality services and accomplish library goals. Timely and responsive technical support services to develop, maintain, and support patron services and library operations will be provided.

This means through acquisition or development, implementation, and support, high quality state-of-the-art computing and telecommunication system will assist the KNLS libraries in managing and providing access to their traditional collections, increase the productivity of library staff, improve inter-library sharing and expand the electronic delivery of information resources to support of teaching, learning, and research for all patrons and staff.

Library automation will provide selected bibliographic and digital access to information in a variety of formats including but not limited to print, magnetic, film, optical, and digital forms.

## BACKGROUND AND HISTORY

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 board's mandate is to develop, promote, establish and equip libraries in Kenya.

## SCOPE

This document describes ICT strategic plan for library automation. Relationships to KNLS strategic planning efforts are examined. Though technologies, needs, and goals will change with time, this plan identifies methods to routinely assess strategic goals of library automation and implement timely responses to changing needs.

Kenya National Library Service (KNLS) has engaged Soft Products to prepare a strategic plan on library automation. The Soft Products has prepared this plan based on:

- Developing an infrastructure for communicating with all participants in the planning process;
- Defining the problem to be addressed through automation;
- Needs assessment;
- Determination of staffing needs and financial resources;
- Project budget preparation;
- Assistance with technical aspects of planning that goes beyond the library's staff experience or expertise.

## DIRECTION AND RESULTS

The strategic direction and goals included in this plan are the Kenya National Library Service (KNLS) response to its understanding of the obligation to contribute to the Government of Kenya's strategic objectives that are broadly aimed at holistic development of the nation.

With a fresh perspective on its mission, understanding what it does well, and the environment in which it operates, Kenya National Library Services will pursue the following strategic direction which is in-line with KNLS strategic objective five (5) – To automate all libraries annually to enhance service delivery.

At present, the Vision Statement presents a very wide range of requirements and possible ICT developments. However, it is key to recognize that it will not be feasible to meet all of these requirements and undertake all of the possible ICT developments within the immediate one-year planning horizon.

Requirements for automation of the knls network

	<b>Item</b>	<b>Quantity per branch</b>
1	Rack Servers	1
2	All in one computer/pc	10
3	Installation and operating charges for Wi-Fi service to outdoor service	2
4	LAN cabling for sites with server/switch cabinets	1
5	LAN Wi-Fi identity base appliance with licenses	1
6	ID Card/badge Printers with HD pro webcam	1

7	Multi-functional Printer /copier	1
8	Microsoft Office 2013	10
9	Windows o/s 7 (pre-installed)	10
10	Anti-Virus –organization license for 2 years	10
11	Screen Reading Software	5
12	Screen Enlargement Software	5
13	Furniture	10
14	Internet Bandwidth 1mbs kbps up/downlink (two years)	1
15	Solar power solution	1
	<b>Total Cost (Kshs)</b>	

1. Purchase of ICT Equipments:

- Computer equipment and accessories.
- Photocopiers.
- Consumables
- Routers.
- Bindery embosser & stitcher.
- Portable Scanners.
- Servers (Domain)
- Computer tables.
- Printers.
- Laptops.

## GOALS

Following goals for the KNLS to automate atleast 10 libraries annually the Organization should respond to the important issues identified in the environmental scan that was completed as part of the strategic planning process. These goals provide a roadmap for fulfilling the strategic objective.

The automation initiative identifies goals and sets priorities for:

- Accessing academic resources including books, databases, and electronic publications.
- Opportunities for distance learning and study abroad.
- Ongoing mechanism for evaluating and responding to changes in technology.

Kenya National Library Service (KNLS) indents to:

- Provide a cohesive package of library services to library patrons in the library building and online, by coordinating computers, communications, content, and staff competencies.
- Maintain and improve access to worldwide library resources and services via library automated system.
- Provide digital tools for library patrons to access, retrieve, evaluate, and use information resources.
- Support library operations in the acquisition, organization, and dissemination of information resources.
- Secure and protect library information technology, knowledgebase, and databases.
- Provide technical support services for planning, implementing, and maintaining library information technology resources.
- Obtain increased operational efficiencies.
- Relieve professional staff from clerical chores so that they are available for user-oriented services.
- Improve the quality, speed and effectiveness of services.
- Improve access to remote users and other stakeholders, e.g., the general public.
- Improve access to resources on other networks and systems, including the Web.
- Provide new services not hitherto possible.
- Improve the management of their physical and financial resources.
- Facilitate wider access to information for their clients.
- Facilitate wider dissemination of their information products and services.
- Enable their participation in resource-sharing library networks, and
- Enable rapid communication with other libraries (including outreach libraries) and professional peers.

## STRATEGIC ISSUES AND PLANS

### **1. Developing the Infrastructure for Information Technology**

- Develop servers for distributing information resources, printing documents, requesting and delivering services, and providing system support.
- Build a network to support patron services, staff workstations, public workstations, and patron access to library resources via laptop within the library.
- Plan and install ergonomically designed furniture for patron and staff workstations.

### **2. Addressing Equipment & Software Functionality and Obsolescence**

- Develop computer and equipment replacement cycles and budgeting for replacements over the cycle.
- Upgrade workstation hardware, software, and peripherals as needed, considering a balance among functionality, costs, and training issues.
- Continue upgrading operating system, database, and library system software.
- Migrate to an online library system based on client/server architecture while upgrading hardware that has reached the end of its life cycle.
- Provide workstations, software, and peripherals to access network and library resources and meet needs described in the KNLS strategic plan 2008 – 2012.

### **3. Migrating to Graphic User Interface and Client/Server Architecture**



- Provide staff and patron training in new hardware and software modules.
- Increase KNLS library branches' workstations for accessing, retrieving, and manipulating information resources.
- Migrate staff modules such as cataloging and circulation to client/server architecture.

#### **4. Improving Access to Local and Worldwide Services and Resources**

- Expand and develop asynchronous forms-based services such as book order requests.
- Implement electronic document delivery and printing mechanisms.
- Enhance and develop electronic reserves to deliver full text reserve materials via the network; make multimedia archival and media resources available via the network.
- Implement First-Search Direct request, and KNLS branch reciprocal requests to improve access and reduce turnaround time for requesting materials.

#### **5. Enhancing Library Systems Support**

- Coordinate securing support from internal and/or external providers to maintain equipment, software, applications, and training.
- Cross-train additional staff in workstation and system support to cover increased workstations and systems; provide continuous training for systems staff in new technologies.
- Identify and implement a mechanism for tracking, quantifying, and indexing support requests.

## CONTEXT

The automation incorporates the removal of existing constraints and is enabled by the facilities and equipment, modern communications and computing technology and the committed human resources of the organization.

It's understood that in-line with KNLS strategy objective 5, it was broadly agreed that automation of the libraries will be used as a means to achieve better overall service to patrons and the staffs. The plan has the following components, among others:

- Acquisition, installation and implementation of Software – the automation application system.
- Hardware acquisition and installation – the ICT automation equipments.
- Network installation – the connection of the hardware in the library to communicate.
- Man-power and Staff training – the availability and capability of the supportive staff.
- Evaluation and Monitoring – the quality assurance/measure of the automation standard achieved as indicated in the automation plan.

To achieve the objective 5, Kenya National Library Service (KNLS) requires a plan to determine what types of library activities should be computerized and what outputs are expected as a result of this project. The following steps are recommended to be followed in achieving the objectives outlined in KNLS 2010 ICT policy paper.

The preliminary survey shows that:

1. KNLS has already started the automation process in some branches where in Nairobi main (KNLS headquarter) and Buruburu branches the automation is complete and working efficiently with all the equipments in place, automation software installed, and fully networked. In Nakuru branch, KNLS has put in place a modern infrastructure which includes a state-of-art building, furniture, and the expected network.
2. In all other branches which are Kisumu, Kakamenga, Eldoret, Nyeri, Embu, Garissa, and Mombasa there is need for improvement in the infrastructure although the available can accommodate the required automation equipments.
3. The survey also shows that the automation mirage covered is around 45 percentage of what is expected in the strategic plan.

## 1. ACQUISITION OF AUTOMATION SOFTWARE/APPLICATION.

### 1.1. PRESENT SOFTWARE(S) AUTOMATION LEVEL IN ALL 10 BRANCHES.

Realizing the important role that the library management system plays in planning and implementing library automation projects, was is necessary to do the survey of what KNLS has already in-place and know more about the system(s) if any.

The surveillance was carried out in ten (10) KNLS branches which includes: Nairobi (Main Branch), Buruburu, Nakuru, Kisumu, Kakamenga, Eldoret, Nyeri, Embu, Garissa, and Mombasa. The outcome was based on the availability and efficiency of the automation software and the supportive applications.

The survey shows that KNLS has procured and installed automation system (Amlib) which is already working efficiently in Nairobi main branch and Buruburu branch. The following was witnessed in the other branches:

#### 1. Nakuru Branch.

- Automation system neither installed nor procured. This includes the automation application and the database management system.
- Operating system platforms where in this case includes server operating system which can be either windows server or Linux. This not yet procured.
- For windows server platform anti-virus is a must and also not in-place.
- Operating System (OS) in all user workstations, which is as described in the hardware part for each available and working computer so far, not available.

#### 2. Kisumu Branch.

- Automation system neither installed nor procured. This includes the automation application and the database management system.
- Operating system platforms where in this case includes server operating system which can be either windows server or Linux. This not yet procured.
- For windows server platform anti-virus is a must and also not in-place.
- Operating System (OS) in all user workstations, which is as described in the hardware part for each available and working computer so far, not available.

### **3. Kakamenga Branch.**

- Automation system neither installed nor procured. This includes the automation application and the database management system.
- Operating system platforms where in this case includes server operating system which can be either windows server or Linux. This not yet procured.
- For windows server platform anti-virus is a must and also not in-place.
- Operating System (OS) in all user workstations, which is as described in the hardware part for each available and working computer so far, not available.

### **4. Eldoret Branch.**

- Automation system neither installed nor procured. This includes the automation application and the database management system.
- Operating system platforms where in this case includes server operating system which can be either windows server or Linux. This not yet procured.
- For windows server platform anti-virus is a must and also not in-place.
- Operating System (OS) in all user workstations, which is as described in the hardware part for each available and working computer so far, not available.

### **5. Nyeri Branch.**

- Automation system neither installed nor procured. This includes the automation application and the database management system.
- Operating system platforms where in this case includes server operating system which can be either windows server or Linux. This not yet procured.
- For windows server platform anti-virus is a must and also not in-place.
- Operating System (OS) in all user workstations, which is as described in the hardware part for each available and working computer so far, not available.

### **6. Embu Branch.**

- Automation system neither installed nor procured. This includes the automation application and the database management system.
- Operating system platforms where in this case includes server operating system which can be either windows server or Linux. This not yet procured.

- For windows server platform anti-virus is a must and also not in-place.
- Operating System (OS) in all user workstations, which is as described in the hardware part for each available and working computer so far, not available.

#### 7. Garissa Branch.

- Automation system neither installed nor procured. This includes the automation application and the database management system.
- Operating system platforms where in this case includes server operating system which can be either windows server or Linux. This not yet procured.
- For windows server platform anti-virus is a must and also not in-place.
- Operating System (OS) in all user workstations, which is as described in the hardware part for each available and working computer so far, not available.

#### 8. Mombasa Branch.

- Automation system neither installed nor procured. This includes the automation application and the database management system.
- Operating system platforms where in this case includes server operating system which can be either windows server or Linux. This not yet procured.
- For windows server platform anti-virus is a must and also not yet procured.
- Operating System (OS) in all user workstations, which is as described in the hardware part for each available and working computer so far, not available.

This survey show all the above software requirements cuts across in all the eight branches and indicates the attention needed.

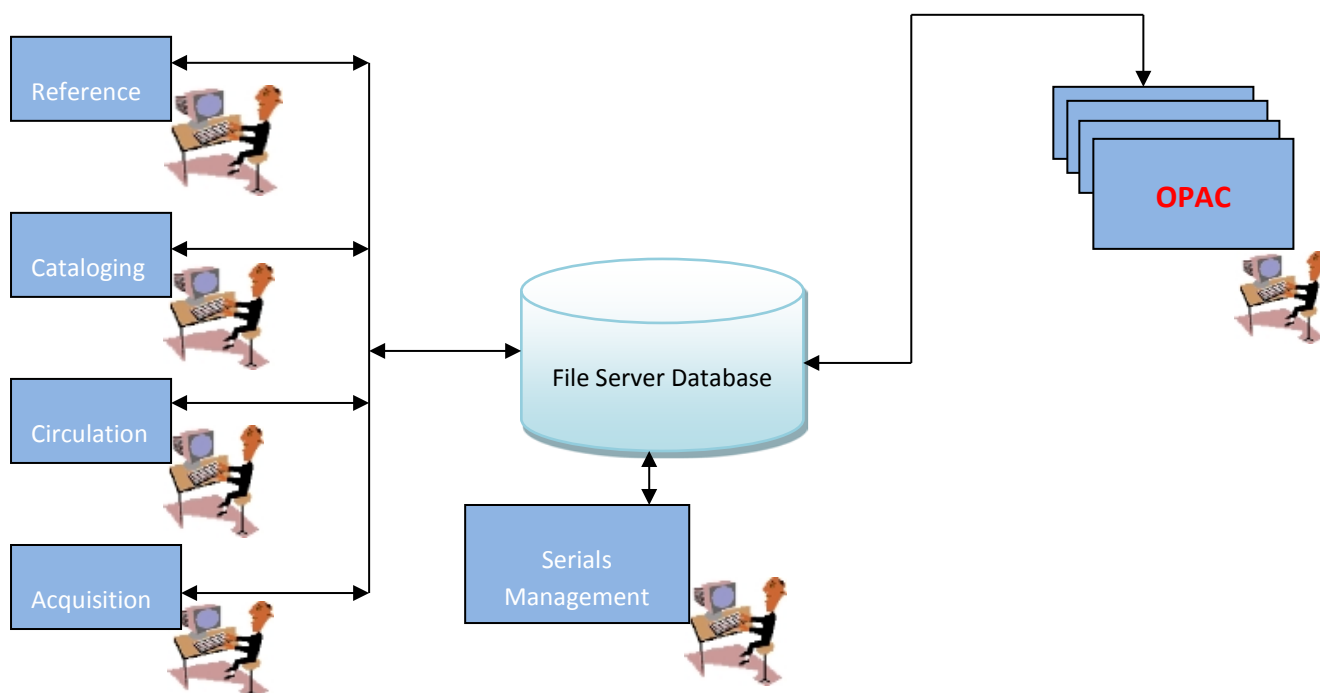
#### 1.2. TO ADDRESS THIS ISSUE THE FOLLOWING SHOULD BE CONSIDERED:

##### A. ACQUIRE INTEGRATED LIBRARY MANAGEMENT SYSTEMS (ILS).

To understand which ILS system KNLS will acquire, the following should be considered as mandatory features of an ILS:

1. **Authority Control** – enables libraries to customize MARC fields and search options to be used within the library system database, together with easy-to-use importing of MARC records.
2. **Borrower/Patron Maintenance** - detailed management of all library patrons, including special interest profiles (SDI) and Housebound Management, Borrower records can be imported and updated from other systems such as administration departments.

3. **Catalogue** – Utilizes full MARC21 format standards with an easy to use interface. Also should features a Web OPAC for online Z39.50 searching of other libraries and databases simultaneously (e.g. search Kinetica, universities and library of congress in a single search) then select records in search results to edit and import to the system database.
4. **Circulation** – complete management of all library loans, returns, reservations and location transfers, including optional display of borrower photographs to enhance security.
5. **Finance** – features detailed reporting of financial transactions and orders, including invoices.
6. **Interlibrary Loan** – librarians can quickly place ILL requests and reserves for library patrons, and manage the circulation of the ILL items.
7. **Mobile Library** – allows the library to utilize computers on the bookmobile(s) to accurately track circulation usage at each stop.
8. **Offline circulation** – continued operation of Circulation from a local PC workstation or Laptop when a server failure occurs during regular library hours.
9. **Offline and online Inventory Control** – scanning items for inventory/stocktaking during regular library hours.
10. **Orders/Acquisitions** – complete order processing together with budget reports, commitments, and expenditures.
11. **Periodical Management** – flexible serials management of all library subscription materials including, issue prediction scheduling.
12. **Public Access Catalogue Module (OPAC)** – patron access the library’s catalogue and personal account information within the library. Most libraries use the browser based OPAC on intranet or internet, but a Windows based OPAC is also available. Can also work with Web OPAC, a Z39.50 web client for the public.
13. **Reports and Statistics** – flexible and comprehensive reporting module operating across all modules and featuring automatic notice generation and production of notices via email or SMS.
14. **Self Check Out** – patrons can check out their own materials according to selected security features. This module can operate as a stand-alone module or in conjunction with other SIP2 compliant Self Check & Security and Telephone Renewal systems.
15. **Stock Item Management** – manages all items within the database.
16. **Supervisor** – enables the administrator to extensively customize the system settings.
17. **Z39.50 Server Module** – enables other libraries to include your database within a “multi-library database” search using the Z39.50 standard.
18. **Standards** - For maximum interoperability with other library databases, devices and systems, the system should comply with a wide of library and technology standards:
  - *Library standards include:* Marc21, MarcXML, Z39.50, SIP2, NCIP and RFID
  - *Technology standards include:* ODBC, OLE, SQL, SMTP, MAPI, XML and HTML

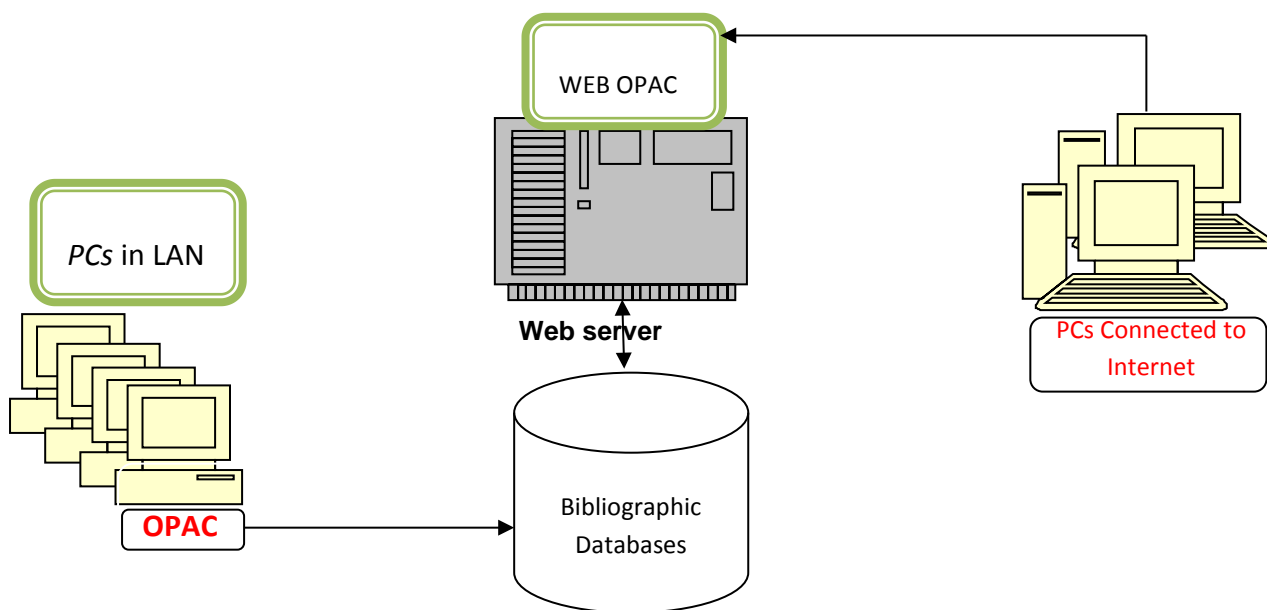


### Cataloging module

- Used for the creation, storage, retrieval and management of bibliographic records and/or indexes.
- Defines the record format used in the database and provides for authority control author, subject headings etc.
- Usually there are two different interfaces for search and retrieval of the electronic catalog :
  - For catalogers that allows them to maintain the library database (the main cataloging module),
  - For users that allows them to search and display the results – the Online Public Access Catalog (OPAC)

### The OPAC

Cataloging activities using an ILS produce an electronic catalog. The means of access to the catalog for users which is limited to search and display is called an Online Public Access Catalog or OPAC. An OPAC is usually offered as an add-on module that is integral with the cataloging module. The specific search and display features of an OPAC vary from system to system.



### Circulation module

- Handles circulation activities such as: lending, return, renewal, and place on hold.
- Manages library materials - circulation type, location and status; patron database - patron type, profiles, privileges; and other transactions such as computation and payment of overdue fines, lost books, etc.
- May have added value functions like: import, export, and backup and restore functions for the databases; inventory; report generation; and support for MARC, Z39.50, ILL standards.
- May support integration with security systems that complement the self-check-in and checkout features of the circulation module.

### Acquisitions module

- Automates the acquisition process - ordering, receiving, claiming materials from suppliers, and returns, and cancellations of materials
- Used to maintain statistics, and in some cases manage accounting activities.
- Acquisition can be done online if system is linked to an external network.

### Serials Control Module

- Manages placing, canceling, claiming of orders; returning defective, unwanted and unordered material; and accounting and statistical information
- Provides a system for recording issues and keeping track of undelivered issues by generating claim reports.
- May permit serial ordering online.

### Interlibrary Loan Module

- Provides staff with an information management system for interlibrary loan transactions. This includes automatic monitoring of loans and accounts, making claims, putting holds on materials being borrowed, etc.

- Can also monitor the library's ILL activities, e.g. the number of items borrowed by individual clients, from where, for whom, etc. This module is seldom required except by libraries with very heavy ILL transactions.

#### **Add-on Modules**

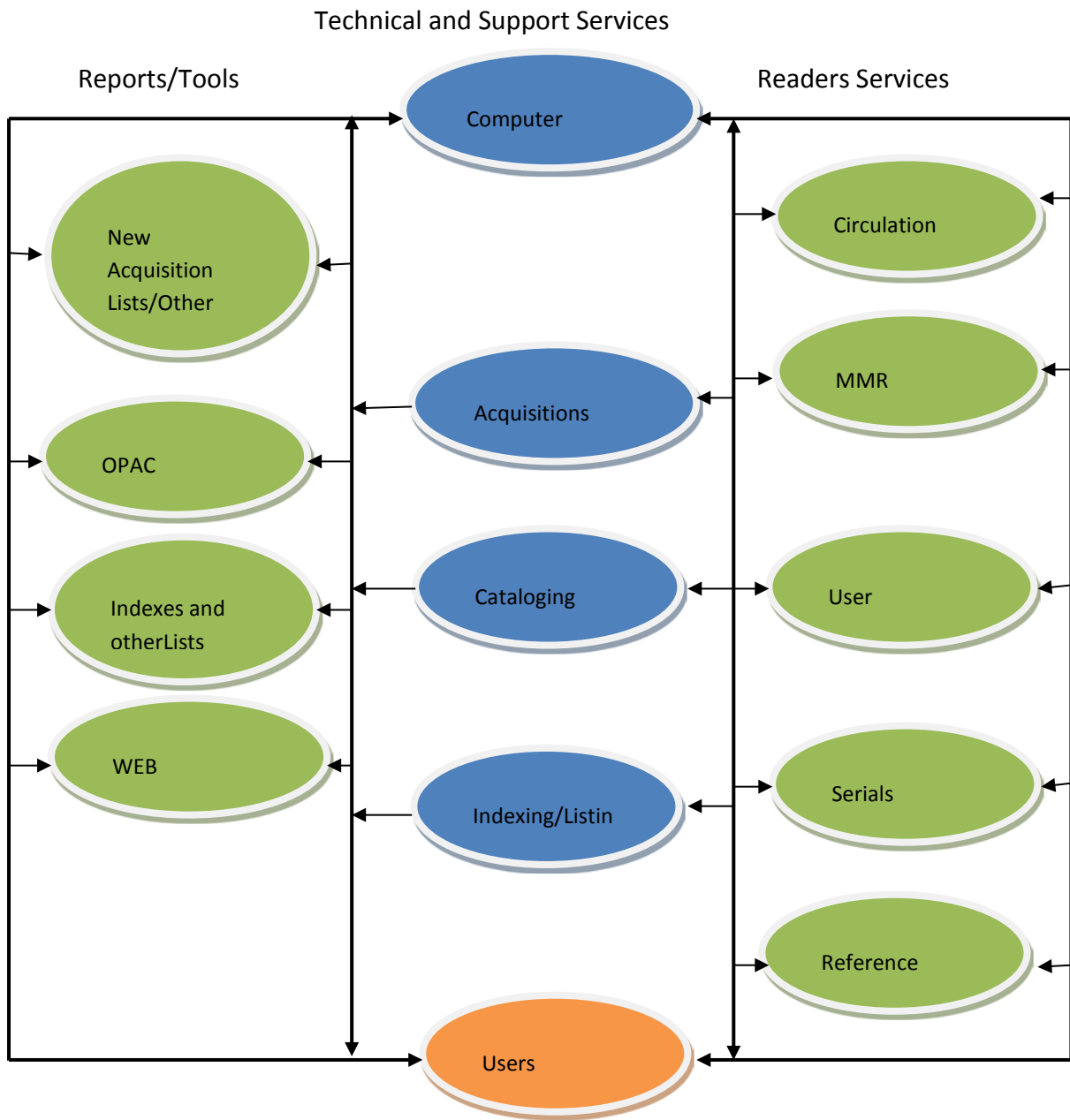
- Usually offer additional functions and features as optional to the basic functions or as an integral part of a module. Examples are report generation, inventory, short loan transactions, import / export of records from / to MARC formats, Web OPAC, Z39.50 client and/or server services, and security systems linked to or integrated with the cataloging / circulation module.

#### **Library automation standards**

The standards adopted by the library industry and community that facilitate data interchange between libraries and institutions, and which are supported by most systems are MARC (Machine Readable Cataloguing) standards and Z39.50, the information search and retrieve protocol standard.

- **MARC**  
The Machine-Readable Cataloging (MARC) formats are standards used for the representation of bibliographic and related information for books and other library materials in machine-readable form and their communication to and from other computers.
- **Z39.50 Protocol**  
Z39.50 is generally defined as the information search and retrieve protocol standard used primarily by library and information related systems. The standard specifies a client/server-based protocol for searching and retrieving information from remote databases simultaneously using a single interface.





To determine the best package for your library, analyze and identify your needs and match it with the features and functions of integrated library systems as guided above. The following categories of software should also be considered

- In house - locally developed by the institution
- Commercial software
  - Off-the-shelf turnkey systems
  - Software packages only - modular, customizable systems

### 1. In-house systems

Advantages:

- a. highly customized, specific to the library's wants and needs
- b. Make use of locally available resources: materials and personnel

Disadvantages:

- a. Strong need for staff expertise.
- b. Proper documentation.
- c. Turns out to be more expensive.
- d. May not be as flexible and user-friendly

### 2. Turnkey systems

Advantages:

- a. Ready to run standardized package
- b. Worry free installation: hardware and software

Disadvantages:

- a. Highly dependent with the vendor.
- b. Costly – initial cost and maintenance.
- c. Usually uses proprietary systems - difficult to upgrade or migrate to another system

### 3. Software packages only

Advantages:

- a. Modular – lower initial cost
- b. Customizable

Disadvantages:

- a. Needs a certain level of staff expertise.
- b. Cost for added functional modules.

## B. CRITERIA FOR SELECTION OF LIBRARY SYSTEMS

The criteria must be based on:

1. Identifying and analyzing technological needs that met with the library objectives.
  - How it matches the library's requirements.
  - Product quality
  - Cost
  - Features
  - Functions
  - Installation date and time duration of installation,
  - staff training
  - Support services

All library stakeholders should be involved at this stage. The selection of a library system must not be left solely to computer technology specialists with no library training. Consultation should embrace the whole user community, led by the library.

2. Determining the resources available within the library or the organization, including human resources, financial resources and existing infrastructures.
3. Examining in detail different types of software for automating libraries as bided/demonstrated by vendors, including in-house systems, commercial and open-source software.
4. Finding out about the library information system developers, whether an institution, a reputable company or individuals.
5. Developing criteria for evaluation based on needs assessment.
6. Finding out how frequently the system has been revised or updated since its first launch, the adaptability and flexibility of the system to keep up with rapidly changing technology and to smooth its successful implementation in the region and the world at large.
7. Ascertaining the availability of training and guidance during and after installation.
8. Ascertaining the support capability of the vendor.
9. Requesting the vendor for a demonstration and presentation.
10. Visiting other libraries that use the same library information system, customer support and back-up service, as experienced in other institutions where the system was installed.
11. Determining and comparing the initial and total costs of each library system.
12. Vendor credibility, regional and international experience.

## 2. HARDWARE/NETWORK EQUIPMENT

### 2.1. PRESENT LEVEL OF HARDWARE AUTOMATION IN ALL BRANCHES

To show the present level of automation as per the Computer Hardware and Network Equipments a survey was also done in all the 10 branches. The table below shows a brief report of the hardware and local area network (LAN) inspection activities undertaken:

**Inspected site(s):**

Kenya National Library Service – Nakuru Branch: Situated in Nakuru Town.

Kenya National Library Service – Kisumu Branch: Situated in Kisumu Town.

Kenya National Library Service – Kakamenga Branch: Situated in Kakamenga Town.

Kenya National Library Service – Eldoret Branch: Situated in Eldoret Town.

Kenya National Library Service – Nyeri Branch: Situated in Nyeri Town.

Kenya National Library Service – Embu Branch: Situated in Embu Town.

Kenya National Library Service – Garissa Branch: Situated in Garissa Town.

Kenya National Library Service – Mombasa Branch: Situated in Mombasa Town.

**Scope of Inspection:**

- i. The number and availability of computers.
- ii. The number and availability of servers.
- iii. The number and availability of printers.
- iv. The number and availability of barcode scanners.
- v. The number and availability of cyber-cams.
- vi. The number and availability of data card printers
- vii. The number and availability of network switches.
- viii. The number and availability of network points.
- ix. The number and availability of network cable/ trunks.
- x. The condition of available computers, printers, barcode scanners, switches, cyber-cams, data card printers, network points, network cable/ trunks, and servers.
- xi. The specification of available computers, printers, barcode scanners, data card printers, network switches, and servers.
- xii. The major required applications/software in each computer and each server.

The surveillance was carried out in all branches at all library desk points but mostly concentrating in the following major library desk points:

- i. Reception areas - which is the help desk where the customers can be assisted in many ways including but not limited to searching availability/location of materials in the library.
- ii. Circulation desk – where these activities are done: registration of members, issuing and returns of library materials, revenue collection.
- iii. Librarian desk.
- iv. Secretary desk.
- v. Adult section desk.
- vi. Junior section desk.
- vii. Cyber section.
- viii. EL section.

**Findings and observations relevant to the inspection.**

**2.1.1. NAKURU BRANCH**

<b>Equipments</b>	<b>Desk/point</b>
-------------------	-------------------

<p><b>A. Computer(s)</b></p>	<p><b>1. Circulation.</b></p> <p>None</p> <p><b>2. Reception/Customer Care</b></p> <p>None</p> <p><b>3. Librarian.</b></p> <p><b>QNT:</b> One (1).</p> <p><b>Specifications:</b> Desktop, CRT Monitor, Pentium 4, 3.4Ghz processor, 256MB RAM, 80GB HDD, CR-ROM, 32-bit</p> <p><b>OS:</b> Windows XP Service Pack 2.</p> <p><b>4. Secretary.</b></p> <p><b>QNT:</b> One (1).</p> <p><b>Specifications:</b> Desktop, CRT Monitor, Pentium 4, 2.4Ghz processor, 1GB RAM, 40GB HDD, CR-ROM, 32-bit</p> <p><b>OS:</b> Windows XP Service Pack 2.</p> <p><b>5. Adult Section.</b></p> <p><b>QNT:</b> Two (2).</p> <p><b>Specifications:</b> Desktop, CRT Monitor, Pentium 4, 2.4Ghz processor, 512MB RAM, 40GB HDD, CR-ROM, 32-bit</p> <p><b>OS:</b> Windows XP Service Pack 2.</p> <p><b>6. Junior Section.</b></p> <p><b>QNT:</b> One (1).</p> <p><b>Specifications:</b> Desktop, CRT Monitor, Pentium 4, 2.5Ghz processor, 258MB RAM, 20GB HDD, CR-ROM, 32-bit.</p> <p><b>OS:</b> Windows XP Service Pack 2.</p>
------------------------------	--

<p><b>B. Network Point (S).</b></p>	<p><b>1. Circulation.</b> Available/Sufficient.</p> <p><b>2. Reception/Customer Care</b> Available/Sufficient.</p> <p><b>3. Librarian.</b> Available/Sufficient.</p> <p><b>4. Secretary.</b> Available/Sufficient.</p> <p><b>5. Adult Section.</b> Available/Sufficient.</p> <p><b>6. Junior Section.</b> Available/Sufficient.</p>
<p><b>C. Printer (S).</b></p>	<p><b>1. Secretary.</b> <b>QNT:</b> One (1). Type: Hp Laser Jet P2055d.</p>
<p><b>D. Barcode Scanner (S).</b></p>	<p>None.</p>
<p><b>E. Network Switch (es).</b></p>	<p>Available and Sufficient.</p>
<p><b>F. Cyber Cam (S).</b></p>	<p>None.</p>
<p><b>G. Data Card Printer</b></p>	<p>None</p>
<p><b>H. Server (S).</b></p>	<p>None.</p>
<p>2.1.2. KISUMU BRANCH</p>	

<p><b>A. Computer (S).</b></p>	<p><b>1. Circulation.</b></p> <p>None</p> <p><b>2. Reception/Customer Care</b></p> <p>None</p> <p><b>3. Librarian.</b></p> <p><b>QNT:</b> One (1).</p> <p><b>Specifications:</b> Desktop, CRT Monitor, Pentium 4, 3.4Ghz processor, 256MB RAM, 80GB HDD, CR-ROM, 32-bit</p> <p><b>OS:</b> Windows XP Service Pack 2.</p> <p><b>4. Secretary.</b></p> <p><b>QNT:</b> One (1).</p> <p><b>Specifications:</b> Desktop, CRT Monitor, Pentium 4, 2.4Ghz processor, 1GB RAM, 40GB HDD, CR-ROM, 32-bit</p> <p><b>OS:</b> Windows XP Service Pack 2.</p> <p><b>5. Adult Section.</b></p> <p><b>QNT:</b> Two (2).</p> <p><b>Specifications:</b> Desktop, CRT Monitor, Pentium 4, 2.4Ghz processor, 512MB RAM, 40GB HDD, CR-ROM, 32-bit</p> <p><b>OS:</b> Windows XP Service Pack 2.</p> <p><b>6. Junior Section.</b></p> <p><b>QNT:</b> One (1).</p> <p><b>Specifications:</b> Desktop, CRT Monitor, Pentium 4, 2.5Ghz processor, 258MB RAM, 20GB HDD, CR-ROM, 32-bit.</p> <p><b>OS:</b> Windows XP Service Pack 2.</p>
--------------------------------	--



<b>B. Network Point (S).</b>	<p><b>1. Circulation.</b> Unavailable but Nearer.</p> <p><b>2. Reception/Customer Care</b> Available.</p> <p><b>3. Librarian.</b> Available.</p> <p><b>4. Secretary.</b> Available.</p> <p><b>5. Adult Section.</b> Unavailable.</p> <p><b>6. Junior Section.</b> Unavailable.</p>
<b>C. Printer (S).</b>	<p><b>1. Secretary.</b> QNT: One (1). Type: Hp Laser Jet P2055d.</p>
<b>D. Barcode Scanner (S).</b>	None.
<b>E. Network Switch (es).</b>	Available but new needed for sufficient network.
<b>F. Cyber Cam (S).</b>	None
<b>G. Data Card Printer.</b>	None
<b>H. Server (S).</b>	None
2.1.3. KAKAMENGA BRANCH	

<p><b>A. Computer (S).</b></p>	<p><b>1. Circulation.</b> None</p> <p><b>2. Reception/Customer Care</b> None</p> <p><b>3. Librarian.</b> None</p> <p><b>4. Secretary.</b> None</p> <p><b>5. Adult Section.</b> QNT: Two (2). <b>Specifications:</b> Desktop, CRT Monitor, Pentium 4, 2.6Ghz processor, 258MB RAM, 40GB HDD, CR-ROM, 32-bit <b>OS:</b> Windows XP Service Pack 2.</p> <p><b>6. Junior Section.</b> QNT: One (1). <b>Specifications:</b> Desktop, CRT Monitor, Celeron 4, 2.7Ghz processor, 258MB RAM, 80GB HDD, CR-ROM, 32-bit. <b>OS:</b> Windows XP Service Pack 2.</p>
--------------------------------	--

<p><b>B. Network Point (S).</b></p>	<p><b>1. Circulation.</b> Unavailable.</p> <p><b>2. Reception/Customer Care</b> Unavailable.</p> <p><b>3. Librarian.</b> Unavailable.</p> <p><b>4. Secretary.</b> Unavailable.</p> <p><b>5. Adult Section.</b> Unavailable.</p> <p><b>6. Junior Section.</b> Unavailable.</p>
<p><b>C. Printer.</b></p>	<p><b>1. Secretary.</b> <b>QNT:</b> One (1). Type: Hp Laser Jet P2055d.</p>
<p><b>D. Barcode Scanner (S).</b></p>	<p>None.</p>
<p><b>E. Network Switch (es).</b></p>	<p>Available for cyber section.</p>
<p><b>F. Cyber Cam (S).</b></p>	<p>None.</p>
<p><b>G. Data Card Printer.</b></p>	<p>None.</p>
<p><b>H. Server (s)</b></p>	<p>None.</p>
<p>2.1.4. ELDORET BRANCH</p>	

<p><b>A. Computer (S).</b></p>	<p><b>1. Circulation.</b> None</p> <p><b>2. Reception/Customer Care</b> None</p> <p><b>3. Librarian.</b> QNT: One (1). Specifications: Desktop, CRT Monitor, Pentium 4, 2.8Ghz processor, 512MB RAM, 40GB HDD, CR-ROM, 32-bit OS: Windows XP Service Pack 2.</p> <p><b>4. Secretary.</b> QNT: One (1). Specifications: Desktop, CRT Monitor, Pentium 4, 2.5Ghz processor, 258MB RAM, 40GB HDD, CR-ROM, 32-bit OS: Windows XP Service Pack 2.</p> <p><b>5. Adult Section.</b> None.</p> <p><b>6. Junior Section.</b> None.</p>
--------------------------------	---

<p><b>B. Network Point (S).</b></p>	<p><b>1. Circulation.</b> Unavailable.</p> <p><b>2. Reception/Customer Care</b> Unavailable.</p> <p><b>3. Librarian.</b> Available</p> <p><b>4. Secretary.</b> Available.</p> <p><b>5. Adult Section.</b> Unavailable.</p> <p><b>6. Junior Section.</b> Unavailable.</p>
<p><b>C. Printer.</b></p>	<p>None.</p>
<p><b>D. Barcode Scanner (S).</b></p>	<p>None.</p>
<p><b>E. Network Switch (es).</b></p>	<p>Available for Cyber section.</p>
<p><b>F. Cyber Cam (S).</b></p>	<p>None.</p>
<p><b>G. Data Card Printer.</b></p>	<p>None.</p>
<p><b>H. Server (s)</b></p>	<p>None.</p>
<p>2.1.5. NYERI BRANCH</p>	

<p><b>A. Computer (s).</b></p>	<p><b>1. Circulation.</b> None</p> <p><b>2. Reception/Customer Care</b> None</p> <p><b>3. Librarian.</b> QNT: One (1). Specifications: Desktop, CRT Monitor, Pentium 4, 3.0Ghz processor, 258MB RAM, 80GB HDD, CR-ROM, 32-bit OS: Windows XP Service Pack 2.</p> <p><b>4. Secretary.</b> QNT: One (1). Specifications: Desktop, CRT Monitor, Celeron 4, 2.3Ghz processor, 258MB RAM, 40GB HDD, CR-ROM, 32-bit OS: Windows XP Service Pack 2.</p> <p><b>5. Adult Section.</b> None.</p> <p><b>6. Junior Section.</b> None.</p>
--------------------------------	---

<p><b>B. Network Point (S).</b></p>	<p><b>1. Circulation.</b> Unavailable.</p> <p><b>2. Reception/Customer Care</b> Unavailable.</p> <p><b>3. Librarian.</b> Available</p> <p><b>4. Secretary.</b> Available.</p> <p><b>5. Adult Section.</b> Unavailable.</p> <p><b>6. Junior Section.</b> Unavailable.</p>
<p><b>C. Printer.</b></p>	<p><b>QNT:</b> Two (2). Type: Hp Laser Jet P2055d.</p>
<p><b>D. Barcode Scanner (S).</b></p>	<p>None.</p>
<p><b>E. Network Switch (es).</b></p>	<p>Available for cyber section.</p>
<p><b>F. Cyber Cam (S).</b></p>	<p>None.</p>
<p><b>G. Data Card Printer.</b></p>	<p>None.</p>
<p><b>H. Server (s)</b></p>	<p>None.</p>
<p>2.1.6. EMBU BRANCH</p>	

<p><b>A. Computer (s).</b></p>	<p><b>1. Circulation.</b> None</p> <p><b>2. Reception/Customer Care</b> None</p> <p><b>3. Librarian.</b> QNT: One (1). <b>Specifications:</b> Desktop, CRT Monitor, Celeron 4, 2.8Ghz processor, 512MB RAM, 80GB HDD, CR-ROM, 32-bit <i>OS: Windows XP Service Pack 2.</i></p> <p><b>4. Secretary.</b> QNT: One (1). <b>Specifications:</b> Desktop, CRT Monitor, Celeron 4, 2.5Ghz processor, 258MB RAM, 80GB HDD, CR-ROM, 32-bit <i>OS: Windows XP Service Pack 2.</i></p> <p><b>5. Adult Section.</b> None.</p> <p><b>6. Junior Section.</b> None.</p>
--------------------------------	---



<b>B. Network Point (S).</b>	<p><b>1. Circulation.</b> Unavailable.</p> <p><b>2. Reception/Customer Care</b> Unavailable.</p> <p><b>3. Librarian.</b> Unavailable</p> <p><b>4. Secretary.</b> Unavailable.</p> <p><b>5. Adult Section.</b> Unavailable.</p> <p><b>6. Junior Section.</b> Unavailable.</p>
<b>C. Printer.</b>	<p><b>QNT:</b> One (1). Type: Hp Laser Jet P2055d.</p>
<b>D. Barcode Scanner (S).</b>	None.
<b>E. Network Switch (es).</b>	Available for Cyber section.
<b>F. Cyber Cam (S).</b>	None.
<b>G. Data Card Printer.</b>	None.
<b>H. Server (s)</b>	None.
2.1.7. GARISSA BRANCH	

<p><b>A. Computer (s).</b></p>	<p><b>1. Circulation.</b> None</p> <p><b>2. Reception/Customer Care</b> None</p> <p><b>3. Librarian.</b> QNT: One (1). <b>Specifications:</b> Desktop, CRT Monitor, Celeron 4, 2.5Ghz processor, 512MB RAM, 40GB HDD, CR-ROM, 32-bit <i>OS: Windows XP Service Pack 2.</i></p> <p><b>4. Secretary.</b> QNT: One (1). <b>Specifications:</b> Desktop, CRT Monitor, Pentium 4, 2.7Ghz processor, 258MB RAM, 80GB HDD, CR-ROM, 32-bit <i>OS: Windows XP Service Pack 2.</i></p> <p><b>5. Adult Section.</b> None.</p> <p><b>6. Junior Section.</b> None.</p>
--------------------------------	---

<b>B. Network Point (S).</b>	<p><b>1. Circulation.</b> Unavailable.</p> <p><b>2. Reception/Customer Care</b> Unavailable.</p> <p><b>3. Librarian.</b> Unavailable</p> <p><b>4. Secretary.</b> Unavailable.</p> <p><b>5. Adult Section.</b> Unavailable.</p> <p><b>6. Junior Section.</b> Unavailable.</p>
<b>C. Printer.</b>	<p><b>QNT:</b> One (1). Type: Hp Laser Jet P2055d.</p>
<b>D. Barcode Scanner (S).</b>	None.
<b>E. Network Switch (es).</b>	Available for Cyber section.
<b>F. Cyber Cam (S).</b>	None.
<b>G. Data Card Printer.</b>	None.
<b>H. Server (s).</b>	None.
2.1.8. MOMBASA BRANCH	

<p><b>A. Computer (s).</b></p>	<p><b>1. Circulation.</b></p> <p><b>QNT:</b> One (1).</p> <p><b>Specifications:</b> Desktop, CRT Monitor, Pentium 4, 3.0Ghz processor, 512MB RAM, 80GB HDD, CR-ROM, 32-bit</p> <p><b>OS:</b> Windows XP Service Pack 2.</p> <p><b>2. Reception/Customer Care</b></p> <p>None</p> <p><b>3. Librarian.</b></p> <p><b>QNT:</b> One (1).</p> <p><b>Specifications:</b> Desktop, CRT Monitor, Celeron 4, 2.5Ghz processor, 512MB RAM, 40GB HDD, CR-ROM, 32-bit</p> <p><b>OS:</b> Windows XP Service Pack 2.</p> <p><b>4. Secretary.</b></p> <p><b>QNT:</b> One (1).</p> <p><b>Specifications:</b> Desktop, CRT Monitor, Pentium 4, 2.7Ghz processor, 258MB RAM, 80GB HDD, CR-ROM, 32-bit</p> <p><b>OS:</b> Windows XP Service Pack 2.</p> <p><b>5. Adult Section.</b></p> <p><b>QNT:</b> One (1).</p> <p><b>Specifications:</b> Desktop, CRT Monitor, Pentium 4, 2.8Ghz processor, 258MB RAM, 40GB HDD, CR-ROM, 32-bit</p> <p><b>OS:</b> Windows XP Service Pack 2.</p> <p><b>6. Junior Section.</b></p> <p><b>QNT:</b> One (1).</p> <p><b>Specifications:</b> Desktop, CRT Monitor, Pentium 4, 2.8Ghz processor, 258MB RAM, 40GB HDD, CR-ROM, 32-bit</p> <p><b>OS:</b> Windows XP Service Pack 2.</p>
--------------------------------	---

<b>B. Network Point (S).</b>	<p><b>1. Circulation.</b> Available.</p> <p><b>2. Reception/Customer Care</b> Available.</p> <p><b>3. Librarian.</b> Available</p> <p><b>4. Secretary.</b> Available.</p> <p><b>5. Adult Section.</b> Available.</p> <p><b>6. Junior Section.</b> Available.</p>
<b>C. Printer.</b>	<p><b>QNT:</b> Two (2). Type: Hp Laser Jet P2055d.</p>
<b>D. Barcode Scanner (S).</b>	None.
<b>E. Network Switch (es).</b>	Available but new needed for sufficient network.
<b>F. Cyber Cam (S).</b>	None.
<b>G. Data Card Printer.</b>	None.
<b>H. Server (s)</b>	None.

## 2.2. RECOMMENDATIONS.

These are the minimum hardware and network recommendations for actions (if any) which will assist KNLS to achieve the percentage of automation required at this level. The specifications will cut across all the KNLS library branches.

2.2.1 COMPUTERS			
<u>Desk-Point</u>	<u>Accessory</u>	<u>Specifications</u>	<u>Quantity</u>
i. Reception/help desk	Monitor	14'' TFT Monitor.	1
	CPU	Atleast Pentium 4, 3.0 Ghz Processor, 1GB RAM, DVD Drive, and 160 GB HDD	1
	Keyboard		1
	Mouse	Optical	1
	Mouse Pad		1
ii. Circulation desk	Monitor	14'' TFT Monitor.	1
	CPU	Atleast Pentium 4, 3.0 Ghz Processor, 1GB RAM, DVD Drive, and 160 GB HDD	1
	Keyboard		1
	Mouse	Optical	1
	Mouse Pad		1
iii. Librarian	Monitor	17'' TFT Monitor.	1
	CPU	Atleast Pentium 4, 3.0 Ghz Processor, 1GB RAM, DVD Drive, and 160 GB HDD	1
	Keyboard		1

	Mouse	Optical	1
	Mouse Pad		1
iv. Deputy Librarian.	Monitor	17" TFT Monitor.	1
	CPU	Atleast Pentium 4, 3.0 Ghz Processor, 1GB RAM, DVD Drive, and 160 GB HDD	1
	Keyboard		1
	Mouse	Optical	1
	Mouse Pad		1
v. Secretary	Monitor	17" TFT Monitor.	1
	CPU	Atleast Pentium 4, 3.0 Ghz Processor, 1GB RAM, DVD Drive, and 160 GB HDD	1
	Keyboard		1
	Mouse	Optical	1
	Mouse Pad		1
vi. Adult Section	Monitor	14" TFT Monitor.	2
	CPU	Atleast Pentium 4, 3.0 Ghz Processor, 1GB RAM, DVD Drive, and 160 GB HDD	2
	Keyboard		2
	Mouse	Optical	2

	Mouse Pad		2
vii. Junior Section	Monitor	14" TFT Monitor.	2
	CPU	Atleast Pentium 4, 3.0 Ghz Processor, 1GB RAM, DVD Drive, and 160 GB HDD	2
	Keyboard		2
	Mouse	Optical	2
	Mouse Pad		2

## 2.2.2 SERVER.

<u>Location</u>	<u>Accessory</u>	<u>Specifications</u>	<u>Quantity</u>
	Monitor	17" TFT Monitor	1
	CPU	Rack server,	1
	Keyboard	With Sensor Mouse attached.	1
	UPS		1

## 2.2.3 PRINTER.

<u>Location</u>	<u>Accessory</u>	<u>Specifications</u>	<u>Quantity</u>
	Printer		1



	Printer		1
2.2.4 BARCODE SCANNER.			
<b><u>Location</u></b>	<b><u>Accessory</u></b>	<b><u>Specifications</u></b>	<b><u>Quantity</u></b>
	Barcode Scanner		
2.2.5 CYBER – CAMS.			
<b><u>Location</u></b>	<b><u>Accessory</u></b>	<b><u>Specifications</u></b>	<b><u>Quantity</u></b>
Circulation/Reception	Cyber-Cams		
2.2.6 DATA CARD PRINTER.			
<b><u>Location</u></b>	<b><u>Accessory</u></b>	<b><u>Specifications</u></b>	<b><u>Quantity</u></b>
	Data Card Printers		

The Local Area Network (LAN) should be done extensively in all KNLS eight (8) branches except Nakuru branch which is already networked with state-of-art architecture. The following is advised in all other branches:

<b><u>ITEM</u></b>	<b><u>SPECIFICATION</u></b>	<b><u>QUANTITY</u></b>
--------------------	-----------------------------	------------------------

Switch	24 port Switch	2.
Giganet Patch Panel	Giganet Patch Panel	2
Cabinet	12u Metal Cabinet	1
Trunks	Metal trunks 50*50	20
Cable	Utp cat 6 23 AWG solid cable	5
Data Point	Cat 6 module double	15

### 3. HUMAN RESOURCE.

In this topic the capacity and skills of the staffs was considered mostly to check if KNLS has enough/adequate man-power to roll-out this project.

Despite the fact that all aspects of change are required and will be introduced simultaneously, the library business process becomes the baseline and rallying point for integration delivering. This should be maintained during automation to avoid much resistance from the system users. A thorough training can help in achieving this.

A surveillance study has been undertaken in process to identify service needs and objectives of the automation as understood by the representative staffs and users. The purpose of such an effort is to allow participants to articulate their interests and concerns, share perspectives and learn about possibilities in a collaborative setting. Group and personal interaction was an important contributing factor in the success of the goal, which is to develop and sustain library automation in the years ahead.

The main challenge for the KNLS after implementation is to change the mindset of users through concerted and co-ordinated training. Like the older generation of academics feel challenged by new systems because learning to use ICT resources is a new phenomenon.

This is not small feat and it is harder than it appears to accomplish the automation without integrated and assessed user-education programme. It has observed that training is needed for library staff to grasp the fundamental issues of the automation.

- It has been observed that across all branches the staffs are well equipped with basic computer skills but most requested retraining.
- From the survey done it's evidentially that most of the KNLS branches' staffs don't understand and have not used any Library automation system.
- Most of the staffs and potential system users are mentally prepared to change from manual to automated library business processes.
- The technical aspects of automation can't be handled by the library's staffs.
- Also the training is needed for user at data entry, stock taking, system administration and management, and system troubleshooting.
- It's has been proven that KNLS has no capacity to roll-out the required training.

### RECOMMENDATIONS

The ILS programme is the critical bridge between the digital content and the end user, however users has to be trained the use of e-resources in order to make effective use of the content in lifelong learning. More critically, there is a need to enable users to create a link between electronic information and print information. Training should be given top priority right from the beginning of the automation process.

- In order to ensure relevance and ensure that KNLS can effectively use newly acquired ICTs, it is mandatory to provide thorough and intensive data entry and user technical training. This training will ensure that KNLS is adequately enabled to operate, maintain, manage, and use the acquired facilities.
- Rigorous formal ICT and related library information systems training should be done to develop the capacity of library staff to manage the ICT facilities, resources and services.
- Further training should be done after the automation to give the users enough confidence in handling the system much better.
- The provision of the required training shall be possible to the needed and expected level through outsourcing the service because KNLS is not in-place to roll-out the in-house training.

## 4. EVALUATION AND MONITORING

Once the entire automation process is complete, it recommended to conduct a quality assurance exercise to ensure that all units (software, LAN, Training) that make up the automated state are achieved. This is basically to ensure that all the ICT standards are met:

### 4.1. LIBRARY MANAGEMENT SYSTEM:

Quality software is reasonably bug free, delivered on time and within budget, meets requirements and/or expectations, and is maintainable. Quality assurance on the software will

ensure that the LMS procured meets the ISO 9000 standards which deals with the fundamentals of quality management systems

#### 4.2. LOCAL AREA NETWORK (LAN)

This will ensure that network related aspects like performance, configuration of devices, maintenance, error control, up-gradation and migration are assured.

#### 4.3. TRAINING

Quality assurance on training will be necessary to ensure that trained staffs have the relevant and adequate training to manage the systems that have been put in place during the automation process.

## FINANCIAL ESTIMATES

This indicates the current market prices of the needed and necessary computers, accessories, and network equipments, and also the automation system. These cost estimates might change before the implementation of the project due to current economic crises experienced not only in the country but also worldwide.

<b>A. SOFTWARE PER BRANCH</b>		
#	ITEM	PRICE (KSH).
1.	Library Automation Software	650,000
2.	Library Automation Software Licenses	819,000
3.	Web OPAC	665,000
4.	Implementation	540,000
5.	Training	350,670

6.	SQL Server	250,000
7.	Vat on Services & License	273,547.2
Total Software Cost Per Branch		3,548,217
<b>B. HARDWARE</b>		
#	ITEM	PRICE (KSH)
1.	Server	250,000
2.	PC(9)	540,000
3.	Data Card Printer	195,000
Total Hardware Cost Per Branch		985,000
<b>C. LOCAL AREA NETWORK</b>		
#	ITEM	PRICE (KSH)
1.	LAN Networking	600,000
Total LAN Cost Per Branch		600,000
<b>Total Cost Per Branch</b>		<b>5,133,217</b>
<b>The Total Cost for Eight (8) Branches</b>		<b>41,065,736</b>

## CONCLUSION

ICT has and is upgrading the business process of libraries and information centers and all the KNLS branch users and supporters/staff are very willing and ready to change from manual to automated business processes. This has been much contributed by increased number of users, a great demand for library materials, an increase in the number of materials being published, new electronic formats and sources, and the development of new, cheaper, and high quality computers and computer peripherals.

The interaction with KNLS staffs indicates that KNLS has already procured an Integrated Library Management System (Amlib) which is in use in community,garissa,Kisumu,nakuru,Mombasa, eldoret and Buruburu branches and because Library services are timely, relevant, efficiently provided, and effective, KNLS should continue using this system in these branches and implement the same system in all the other branches for the compatibility requirement, it also meets the requirements outlined above, and for smooth operations process.

KNLS has recognized that most of the information resources shall be in digital form as web resources/ electronic journals accessible within and/or outside KNLS centers. It is therefore the policy of KNLS to continuously modernize and equip all its centers in order to facilitate provision of information resources in electronic and digital formats.

More human resource is required to successfully complete the automation of the KNLS branch to the recommendable level. More man-power is needed in the data entry, further automation training in system administration and maintenance. Well trained and skilled personnel are essential ingredients for implementing ICT in all KNLS library branches. This shall be possible through outsourcing because KNLS is not in-place to roll out all these service from within.