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**IMPACT OF LIBRARY CONSORTIA ON RESOURCE SHARING IN ACADEMIC
LIBRARIES: EVIDENCE FROM THE UNIVERSITY OF NAIROBI LIBRARY**

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Abstract

The purpose of the study was to determine the impact of library consortia on resource sharing in academic libraries in Kenya with reference to the University of Nairobi library. The study also sought to propose a framework to enhance resource sharing in academic libraries and employed a descriptive case study design using both qualitative and quantitative approaches to collect and analyse data. The study found out that library consortium model was the dominant method of resource sharing which greatly influenced resource sharing activities. The consortium (KLISC) was shown to be very significant in ensuring wider access to shared information resources, institutional repository development and capacity development for resource sharing. However, resource sharing was shown to be limited to the provision of collectively acquired information resources, with limited emphasis information exchange and inter-library integration. It was recommended that comprehensive standards be adopted to improve prospects of system integration and increased efforts made to improve the proportion of local content in shared information resources. The prioritisation of local content in the development of shared resources was also recommended and a framework for resource sharing was proposed to help tackle identified gaps in existing policies and frameworks.

Key Words: Resource Sharing, Consortium, Academic Libraries, KLISC

1.1 Introduction

Rapid developments in information and communication technology (ICT) has driven significant change in the information landscape and resulted in the introduction of innovative ways of handling and sharing information (Kimanga, 2018). The increasing popularity of electronic resources (e-resources) and their preference as a medium of scholarly communication has been a factor of change in academic libraries. The adoption of ICT for the creation of information resources eliminated several existing barriers to the production of knowledge (Saini, 2017). Consequently, there has been a rapid growth of global literature which is often described as the information explosion. As the quantity and diversity of information resources in electronic format increased, libraries became responsible for obtaining access to these resources. Eventually perspectives of librarianship shifted from the pursuit of resource self-sufficiency to ensuring enhanced access. This was mostly due to the acceptance of the reality that no library can single-handedly obtain all the literature globally available to satisfy the needs of their users (Saini, 2017).

Wakeling, Rutter, Birdi and Pinefield (2018) describes resource sharing as the most appropriate response to a wide array of challenges libraries face including technological and budgetary challenges, and considers resource sharing as the most viable strategy to ensure that libraries continue to provide access to information that meets the needs of a wide range of users. Resource sharing involves the common use of information and technological resources by a group of libraries and information centers with emphasis on enhancing access to information and ensuring mutual benefit (Antwi & Ankrah, 2020: 3). North America currently leads existing resource sharing efforts on the globe with World Share Interlibrary Loan Connect (World Share ILL) which was developed by Online Computer Library Center (OCLC) being the largest resource sharing platform in the world, connecting several thousand libraries in North America and the rest of the world. In Africa, library consortia have been at the forefront

of the resource sharing effort. In South Africa, the South African Bibliographic and Information Network (SABINET) was developed in 1983 to support digitisation efforts, collection development and resource sharing in higher education and research institutions in South Africa. SABINET connects over 90 libraries and partners with the EIFL and OCLC to provide access to the largest collection of information resources about Africa to users all over the world and also enables access to World Share ILL for member libraries (Marais, Quaye & Burns, 2017). SABINET also has a local inter lending service known as ReQuest, which enables remote access, borrowing and lending between academic libraries in different institutions in Southern Africa while Article exchange is facilitated it's Tipasa service (an automated information request management system) (SABINET, 2021; Hattingh, 2018).

Academic libraries in West Africa have also adopted resource sharing to enhance their user's experience and improve information access. In Ghana, resource sharing was pioneered by the Ghana Inter-Library Lending and Document Delivery Network (GILLDDNET) which connected several academic libraries (Antwi & Ankrah, 2020: 5). In 2004, the network was replaced by the Consortium of Academic and Research Libraries (CARLIGH) which was created to increase accessibility and use of e-resources. Thereafter, resource sharing activities saw a steady improvement (Tetteh, 2018; Antwi & Ankrah, 2020).

Within the East African sub-region, various efforts have been made at country level within different countries with respect to library consortia development. In Tanzania Mwilongo et al. (2020) noted that the Consortium for Tanzania Academic and Research Libraries (COTUL) was founded to support academic instruction and research in academic and research institutions through the promotion of collaboration in collection development and the provision of access to information resources. In 2020, COTUL had 50 members libraries and spearheaded most resource sharing efforts including the provision access to technology, information resources and an integrated system. In Kenya library collaboration has been spearheaded by the Kenya

Information Services Consortium (KLISC). KLISC has been promoting the adoption of open access and supporting Kenyan academic libraries with information provision and access by pooling the collective resources of libraries and collaborating with international partners (Weng'ua & Rotich, 2019) such as the Electronic Information for Libraries (EIFL) and other international information networks to facilitate document delivery and inter library loans among members and with academic libraries across the world (Mwaurah & Namande, 2018,: 29). KLISC represents a broad array of universities with different research objectives, academic interests and information needs which often poses a challenge in the development of shared collections and the proportional allocation of resources for various disciplines (Mwaurah & Namande, 2018; Weng'ua & Rotich, 2019). This study uses the University of Nairobi Library to provide insight to library consortia and their impact on resource sharing in academic libraries in Kenya.

1.2 Statement of the Problem

The number of Kenyan public universities has increased from just two public universities to thirty one in just thirty years (CUE, 2020). Similarly, the scope of academic and research interest of higher education institutions continues to expand without a corresponding expansion in the provision of much needed physical and technological infrastructure, and library and information services (Kimanga, 2018, Weng'ua & Rotich, 2019). Research is the primary objective of Kenyan academic institutions and as a result libraries have assumed a critical role of supporting teaching, learning and research, as well as the dissemination of research information (Wachira & Onyanacha, 2017). To facilitate the digital transformation of Kenyan academic libraries, several initiatives have been adopted including the provision of technology and critical infrastructure, and the development of resource sharing initiatives to enhance information provision and access.

Despite the importance of resource sharing in mitigating challenges of limited funding and in enhancing access to information in academic communities, several challenges have impeded resource sharing in Kenya and African such as the challenge of funding, personnel competency and ownership (Uwamwezi, 2017), limited consensus within consortia and a lack of broad stakeholder involvement in the decision making and limited funding (Machimbidza & Mutula, 2019). UNESCO (2018) opines that budgetary limitations in academic libraries in Kenya hinder information provision and impede access to information. In addition, there has been a generally low level of government prioritisation of library activities including resource sharing (Mwaurah & Namande, 2018). Furthermore, there is a lack of a general methodology for communication of data about collections and no existing comprehensive resource sharing policy in the country. It is therefore imperative to examine resource sharing as a concept in the Kenyan context, and examine existing efforts and challenges encountered in developing and enhancing access to shared information resources.

Previous studies on resource sharing have failed to examine the subject of library cooperation and the emerging issues or challenges in resource sharing (Mwaurah & Namande, 2018: 29-31), and the role of institutions tasked with facilitating library cooperation. In addition, previous studies have been limited to the role of consortia in supporting access to research infrastructure (Weng'ua & Rotich, 2019) without much emphasis on the concept of resource sharing, and the challenges in facilitating access to shared information resources. Most previous studies on resource sharing that adopted a case study approach (Kimanga, 2018; Mwaurah & Namande, 2018) and were inadequate in using their findings to propose a viable and sustainable framework for resource sharing in academic libraries in Kenya. While others that were surveys (Oyieke & Dick, 2017) focused on comparative evaluation and service assessment, rather than on providing insight to the critical issue of resource sharing. Previous studies have also failed to adequately explore the role of consortia in facilitating the adoption of technology to enhance resource sharing. There is therefore a need to address these gaps in the existing literature on the

subject. It is against the backdrop of the contextual and methodological research gaps identified above, and the issues faced by Kenyan libraries in responding to the dynamics of the digital transformation in libraries, and the emerging issues in resource sharing that this study is conducted.

1.3 Aim and Objectives of the Study

The aim of this study was to examine the influence of library consortia on resource sharing in academic libraries with reference to the University of Nairobi library.

Specific objectives of the study were to:

- i. Examine the extent of resource sharing in the University of Nairobi library.
- ii. Find out the methods of resource sharing adopted at the University of Nairobi library.
- iii. Establish consortia initiatives that improve resource sharing at the University of Nairobi library.
- iv. Propose a framework to enhance library consortia and resource sharing in the University of Nairobi library

2.0 Literature Review

2.1.1 Resource Sharing in Academic Libraries

Resource sharing is increasingly being employed by academic libraries across the world. There are several reasons for this wide adoption of resource sharing in academic libraries. The emergence of efficient means of publishing resulted in an exponential increase in available information and new options for accessing, reproducing and manipulating information emerged (Pina, 2017). Even though information resources became abundant, budgetary limitations resulted in a funding crisis which shifted the focus of academic libraries from the pursuit of

resource self-sufficiency to the expansion of access through collaboration, (Kalbande, 2018). In addition, users' information needs have become dynamic and complex, and this has pushed librarians to explore new ways of providing access to information to support teaching, research and learning in academic communities (Chisita & Fombad, 2019). The realisation that resource self-sufficiency is a near impossibility also led libraries to explore alternative options such as resource sharing (Saini, 2017). Chisita and Fombad (2019) opine that the proliferation of digital technology has enhanced academic libraries' capacity to develop critical resource sharing infrastructure and expertise in resource sharing in response to the issues discussed above. Resource sharing aims at providing information to users within and beyond a library's user community. It is therefore not only limited to the sharing of information resources alone, but also the sharing of technology and expertise required to exploit shared information resources (Posner, 2017). It encompasses all formal and informal efforts made by a group of libraries to share their information resources, expertise, technology and data (Chisita & Fombad, 2019). Resource sharing enables academic libraries to bridge the gap between resource-endowed and deprived libraries. This is done through the integration of library services and the reduction of financial costs of providing access to information resources (Muhonen & Saarti, 2016; Kalbande, 2018).

Yuvaraj (2015) used the phases in the progressive adoption of resource sharing in academic libraries to distinguish resource sharing activities into four categories. In the first phases of development, academic libraries are pushed to cooperate with each other and share their resources in response to rising costs of information resources and dwindling funding. Within the context of resource sharing, the era of library co-operation was dominated by traditional inter library lending. In the next phase, academic libraries took advantage of the development of ICTs to enable the recording, processing and transmission of information and the formation of networks to enable resource sharing (Khiste, 2017). Library consortia emerged as the

predominant resource sharing method in the third phase. Library consortia are informal or formal groups of academic libraries that work together to attain common objectives including the sharing of resources and facilitation of access to these resources. In the 21st century, cloud sharing has emerged as the direction of current resource sharing activity and refers to a method of resource sharing that relies on cloud computing to reduce costs associated with storage equipment, increase accessibility and availability of information resources and overcome geographic restrictions in accessing shared information (Yuvaraj, 2015).

2.2 Resource Sharing Practices and Methods in Academic Libraries

The scope of resource sharing activities in academic libraries is quite broad and includes digitisation, provision of reference and instruction services, development and sharing of union catalogue, enabling circulation of information and ensuring access to shared information (Posner, 2017). Initially, resource sharing was limited to interlibrary loans, document delivery and lending from commercial document suppliers. Recent advancements in technology has enabled the transition of resource sharing from a request and supply service for physical documents, to a service that handles information requests and services for documents in a variety of formats with workflows linked with other core library services (Chisita & Fombad, 2019). Digital technology has greatly influenced progressive change in the prevailing methods of resource sharing across time and the adoption of more efficient technology based resource sharing options. The rapid development of networks enabled the creation of networked information systems while the introduction of cloud computing further revolutionised resource sharing (Yuravaj, 2015). This study examined the various methods of resource sharing in adoption in academic libraries: monolithic interlibrary lending, document delivery services, and library consortia. In addition to this, the study also examined modern aspects of resource sharing which is referred to as digital resource sharing.

2.2.1 Monolithic Interlibrary Lending

Monolithic interlibrary loan services are an age-old model of interlibrary loans in which the library makes use of a centralised service to share resources with other libraries (Saarti & Tuominen, 2020). Interlibrary lending refers to customer centred efforts made by a library to provide information that meets the specific information needs of a user, often made in the form of a formal request (Posner, 2017). Interlibrary lending serves a very important role in libraries because no library has access to information that exhausts its users' needs. In addition, it is a cost-effective mechanism of providing information to users since some academic libraries charge fees for information provided through interlibrary lending platforms (Posner, 2017). Interlibrary lending helps libraries improve overall collection development through the determination of existing gaps in collection, and areas of priority upon analysis of interlibrary lending data (Posner, 2017). Technology has driven change in interlibrary lending including the use of automated request management systems, the introduction of user notification and the networking of several centralised services (Posner, 2017). Despite the opportunities interlibrary lending offer to libraries, it is often not a core service in several academic libraries because it requires heavy commitments in financial costs, time and training (Posner, 2017: 5). Most often interlibrary lending services are poorly funded, underutilised or lack capacity to process so many requests (Posner, 2017). The most widely used monolithic resource sharing platform today is the OCLC's WorldCat Resource Sharing which offers centralised interlibrary loan services and bibliographic services to libraries.

2.2.2 Document Delivery Services

Document delivery is slightly different from interlibrary lending in that it involves the delivery of information directly to the users using technology applications such as facsimile and specialised applications such as Ariel and Odyssey to delivery information (Kristof, 2018). Document delivery can also make use of regular emails and secured websites to deliver

requested information. Digitisation has greatly affected document by reducing the need to scan documents prior to document delivery and by enabling the development of user-centred services and more efficient tools for document delivery (Braggioli, 2018). However, the use of technology to track electronic materials for example has impeded the use of information and has limited document delivery to the use of particular routes or access to only a few sections of a document at a time, in line with license agreements (Classen, 2019). OCLC's Article exchange is the best known example of a global document delivery service (Kristof, 2018).

2.2.3 Library Consortia

Pereira & Franco (2020) defined a library consortium as a group of libraries or library systems that work together on the basis of a formal agreement to facilitate resource sharing among other objectives. The emphasis on resource sharing in academic libraries has been largely attributed to the development of new technology and the funding crisis in academic libraries (Kalbande, 2018). Consortia resource sharing is a more efficient and cost effective than other methods because it establishes a shared pool of resources for member libraries and their users. Technology has a critical role to play in resource sharing and the adoption of technology in library consortia has enabled the management and streamlining of workflows and the reduction of staff intervention through the adoption of information technology. Babaryka-Amelchanka et al. (2019) categorises library consortia into discipline specific or general. Discipline specific consortia usually collect information resources for academic libraries in the same academic discipline such as the Global Network of Agricultural Libraries (Agilenet) (Babaryka-Amelchanka et al., 2019). Library consortia support resource sharing through cooperative bibliographic services facilitating collection development, inter library loans, training and the sharing of technology (Saini, 2017). OCLC is the largest library network in the world, and its World Share ILL is used by several thousand libraries across the world to obtain access to a globally shared pool of information resources (Classen, 2019).

2.3 Resource Sharing Initiatives in Academic Libraries

Academic libraries have embarked on several initiatives to enhance resource sharing. Traditionally, resource sharing was limited to activities such as inter-library loans, collection development and cooperative cataloguing (Konnur, 2019). However, digitisation has increased the need for cooperation in areas of training and capacity building to enable librarians to acquire and develop the requisite technological capacity to support resource sharing services (Konnur, 2019). In addition to these, academic libraries in the digital era are increasingly involved in the development of cooperative reference services including the development and management of union catalogues (Osterman et al., 2020). Union catalogues are very essential and constitute a comprehensive record of the bibliographic data of all resources within a library network such as Amicus and OCLC's WorldCat (Singh & Singh, 2018). Other resource sharing initiatives undertaken to enhance access to shared resources include the use of shared systems and infrastructure, collaboration in the development of automated storage modules (Tshirren & Grossgarten, 2019), and the development and management of workflow systems for sending and requesting information, managing and scheduling information requests and notification management within library networks (Tshirren & Grossgarten, 2019: 99).

Cooperative storage has also been an avenue of cooperation among academic libraries (Osterman et al., 2020). Academic libraries have focused on the development and management of shared databases including the adoption of cloud storage to enhance access and reduce storage costs (Xiong et al., 2020). To facilitate information exchange and reciprocal borrowing, academic libraries have focused their recent attention to issues of interoperability and the standardisation of databases and systems. Standardisation has enabled seamless integration of library systems and horizontal expansion of networks (Li & Yang, 2018). To enhance integration, library networks have adopted common interfaces for all constituent library systems. The adoption of single login platforms or gateways for all libraries in a network is

recently becoming a trend and this has resulted in the development of vast virtual networks of libraries, thereby expanding access to information resources (Chisita & Fombad, 2019; Michalka & Thompson, 2017).

One critical activity libraries undertake to enhance resource sharing within library networks or consortia is engaging in collaboration with other information networks to ensure reciprocal access to information. Most libraries in the Africa have joined global information networks to enhance access to a wider pool of shared resources. These include INASP, EIFL and OCLC (Chisita & Fombad, 2019). EIFL and INASP are the most notable partnerships that have enhanced resource sharing initiatives in academic libraries across the world (Chisita & Fombad, 2019). INASP developed the Programme for the Enhancement of Research Information (PERI) to help academic libraries in developing countries develop resource sharing initiatives including the development and funding of consortia. It was replaced by the Strengthening Research and Knowledge Systems (SRKS) in 2013. SRKS assists consortia with the deployment of technology and systems to enhance information exchange (Chisita & Fombad, 2019).

2.4 Resource Sharing Trends in Academic Libraries

Advancements in technology have influenced broad changes in the information landscape with the library being no exception. In resource sharing the adoption of technology has influenced a number of current trends including the adoption of cloud computing, increasing emphasis on open access and efforts to increase integration and standardisation (Xiong et al., 2020). One of these has been the increasing adoption of cloud based storage. which makes the sharing of resources more flexible and cost effective, and enhances access by supporting options such as remote access while also enhancing the optimal utilisation of shared resources (Xiong et al., 2020). Two major issues in the use of cloud computing for resource sharing are interoperability and information exchange from one cloud architecture to another (Wada, 2018). The emphasis on these issues has led to increased efforts towards standardisation. Continuous efforts are

being made by the Cloud Computing Interoperability Forum and the Open Cloud Consortium to enhance standardisation and ensure interoperability (Xiong et al, 2020; Wada, 2018). Current international standards for resource sharing include ISO 10161 (ISO ILL), ISO 10160 (interlibrary loan application service), Virtual Document eXchange (VDX) which was used by OCLC from 2007 to 2018, NISO Circulation Interchange Protocol (NCIP) and Session Information Protocol (SIP) (Wanner, 2019). The ISO 10161 specified the protocols for information exchange between information networks or from one consortium to another until its recent replacement by ISO 18026 (Monika, 2018). ex-Libris is an example of a cloud based peer to peer software for resource sharing that uses both ISO 10161 and NCIP, and has been widely employed by library consortia to manage lending, borrowing, request management and information exchange (Monika, 2018)

There has been also general trend in academic libraries across the world to shift to peer to peer resource sharing through the development of platforms that enable collaboration between academics and institutions such as Sci-Hub (Saarti & Tuominen, 2020). Resource sharing today has also been enhanced by the advent of web-based discovery services such as EBSCO Discovery Service, WorldCat Local and Ex Libris which facilitates access to research articles in shared information pools (Breeding, 2018). The adoption of single library systems and a common login interface for library networks and consortia is also a current trend in resource sharing which makes information exchange easy (Li & Yang, 2018). Another increasing trend has been the merger between consortia to form larger information networks. In 2009, there was a merger between SOLINET and NELINET in USA to form Lyris, and between Lyris and DuraSpace (DSpace) in 2019 (Lyris, 2019). Similarly, in the Research Libraries Group (RLG) merged with OCLC in 2006, and subsequently with RLIN further widening OCLC's global reach by several hundred libraries (McCourry, 2019).

The open access revolution has also driven change in resource sharing. Increasing demands for open access has affected traditional resource sharing mechanisms and tools for exchanging information and has inspired a transition of the library into a virtual digital learning environment (Saarti & Tuominen, 2020). Open access has accelerated changes in resource sharing and has encouraged the involvement of policymakers and organisations that fund research to develop policies that support information resource utilisation and the provision of enhanced access options (Saarti, 2018). Saarti and Tuominen (2017) note that further development in open access publishing models may increase direct use of resources and reduce costs associated with providing access to information in future. Therefore libraries will be mere facilitators of resource sharing rather than principal actors, and demand for interlibrary lending and document delivery services may dwindle (Piwowar et al., 2018).

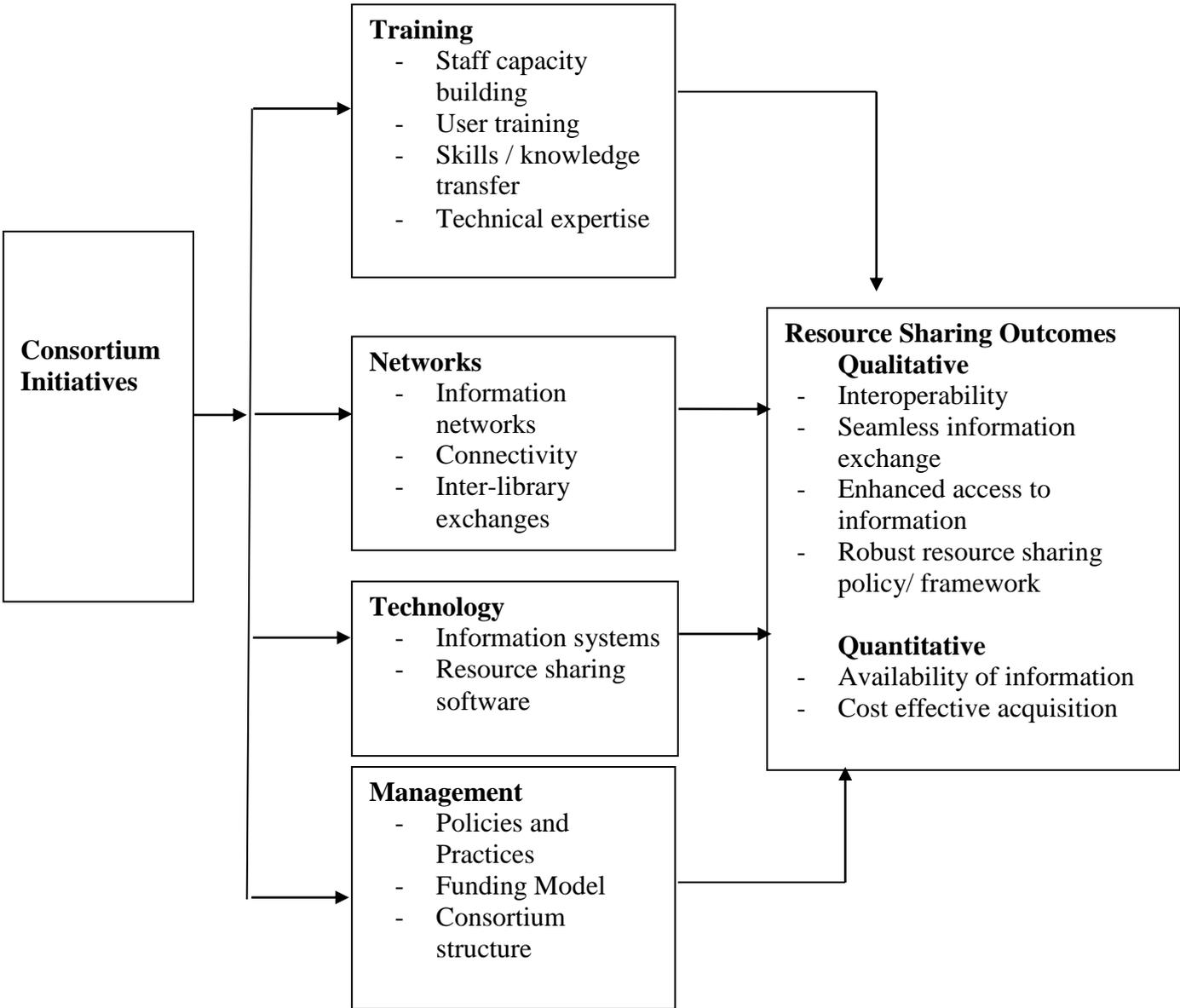
2.5 Conceptual Framework

Hughes, Davis and Imenda (2019) posit that a very important step in any research study is the visual illustration of the logical flow of concepts, which is referred to as the conceptual framework. Conceptual frameworks suggest what data was collected in a study and how it guided the study (Hughes, Davis & Imenda, 2019: 28). In this study the framework illustrated in Fig 2.1 identifies the various variables, concepts and constructs that moderates the impact of resource sharing in academic libraries and illustrates their relationship with each other. The study made use of the following dependent variables: training (staff expertise and capacity development to enhance resource sharing), technology (availability of technological infrastructure, systems and technical expertise), information networks (connectivity and interoperability), and management (policy, initiatives and funding). The outcome variables were research output, information access, interoperability, user satisfaction and cost effective acquisition. Resource sharing includes not only sharing of information but also technology, expertise and systems (Posner, 2017). However academic libraries are often challenged in

funding modern infrastructure required to implement resource sharing programs (Chisita & Fombad, 2019). Furthermore, staff expertise and proficiency in the use of modern technology is often lacking thus impeding resource sharing (Reisman, 2017). In addition to these, the critical problem of standardisation and interoperability has impeded information exchange thereby making resource sharing difficult (Kannisto, Hästbacka, & Marttinen, 2020). The study adopted these variables based on the relationships presumed above to provide a tentative explanation how they are affected by consortium management, practices and initiatives.

Figure 1: Conceptual Framework

INDEPENDENT DEPENDENT OUTCOMES



3.0 Methodology

The study employed a descriptive case study design. Case studies are in-depth investigations into phenomena within a specific context, and using various data sources (Rashid et al., 2019: 2). A case study was adopted because it allowed for in-depth analysis of the issues pertaining to resource sharing and the role of consortia in resource sharing. The researcher employed both qualitative and quantitative approaches to data collection and analysis to carry out the study, with the incorporation of some quantitative aspects for illustration and clarity. The area of the study was the University of Nairobi library system which consists of twelve different libraries of the University of Nairobi. A sample of 40 library staff from the twelve libraries in the University of Nairobi library system was employed using both purposive and stratified sampling techniques. Purposive sampling was used to select library staffs that were directly concerned with resource sharing and utilisation, and top management, while stratified sampling was employed because it allows for consideration of variations in perspectives of resource sharing across different libraries within the university library network thus reducing the likelihood of skewed results.

The study relied predominantly on primary data elicited from the identified sample within the target population. In this study both questionnaires and interview guides were designed for adoption in data collection. Due to the public health restrictions and travel limitations imposed in response to the COVID-19 pandemic the researcher had to merge both instruments into a single electronic tool using the Google Forms tool, to facilitate easy administration. Questionnaires were employed for the collection of data and consisted of both open ended and closed ended questions.

The study employed both qualitative and quantitative approaches to data analysis. Qualitative data from open ended questions were edited and summarized to facilitate analysis. Qualitative

data analysis aimed at discussing issues of resource sharing from respondents' perspectives with view of determining the state of resource sharing, current methods and consortia initiatives for resource sharing and their effectiveness. Qualitative data was analysed using Nvivo software. Thematic analysis was employed for the qualitative analysis of data, where responses were discussed based on several broad themes in line with the concepts under study and the objectives of the study. Thematic analysis is often employed in qualitative analysis of responses to open questions, and is very useful in identifying patterns and trends between variables and concepts in a study.

Quantitative data in the study was analysed using Microsoft Excel. Data was coded and entered into Microsoft Excel spread sheet to allow statistical analysis. The results obtained were illustrated using tables and charts. Aspects of the study that required quantitative data analysis included the provision of a demographic profile of participants and an assessment of the effectiveness of resource sharing initiatives. The parameters employed to assess resource sharing methods and initiatives were interoperability, information access and availability and framework scope and effectiveness. After the data analysis, the results were discussed in relation to the various research questions and in line with reviewed literature to facilitate the interpretation of the results.

In conducting the study, the researcher observed the following ethical considerations. After the proposal for the study was approved by the department, the researcher applied for a research permit from the National Commission for Science, Technology and Innovation. In addition, prior to the collection of data, a formal introduction letter was obtained from the department which was attached to emails sent to participants.

Participation in the study was voluntary, with the purpose of the study explained in the research instrument. The confidentiality of information disclosed to the researcher was protected, and information disclosed was used exclusively for the analysis and report. Furthermore, the

integrity of information disclosed was preserved, and its meaning unaltered. The researcher also strived to remain neutral and objective. Lastly, the researcher avoided plagiarism in the writing of the final report and adhered to university approved referencing styles.

4.0 Findings

4.1.1 Extent of resource sharing and Level of Consortium Involvement

The study determined scope of resource sharing to be limited to cooperative collection development and access provision, institutional repository development and the capacity building for resource sharing. However the aspects of resource sharing in adoption were significantly dependent on consortium involvement in their realisation. KLISC was identified as the principal library consortium (95%), alongside other networks such as EIFL (92.5%) and AFLIA (77.5%). The study also determined the level of consortium involvement in resource sharing to be very significant. The library's representation in the management of the consortium was determined as very high (90%), meanwhile its level of participation in decision making with respect to resource sharing was determined as moderate (57.5%). The consortium (KLISC) was also shown to be responsible for the provision of access to the bulk of shared information resources available to users (95%).

Table 1: Consortium Involvement in Resource Sharing

Consortium Involvement	<i>High</i>		<i>Medium</i>		<i>Low</i>	
	<i>f</i>	<i>(%)</i>	<i>f</i>	<i>(%)</i>	<i>f</i>	<i>(%)</i>
Consortium is dominant resource sharing model	36	90.0	4	10.0	0	0.0
Representation in consortium's management	33	82.5	7	17.5	0	0.0
Active participation in decision making	23	57.5	14	35.0	3	7.5
Responsible for provision of majority of shared information resources	38	95.0	2	5.0	0	0.0

Majority of respondents described the state of resource sharing in the University of Nairobi Library as being able to meet the current demands of information users but with considerable room for improvement in a number of areas as discussed below. According to a respondent who also served as a member of KLISC's strategic management committee, the current state of resource sharing could sustain the needs for current information provision and access, but faced limitations with respect to inter-system navigation and the deployment of modern technological infrastructure to support the interoperability and information exchange. The results indicated that that the Kenyan Library and Information Services Consortium (KLISC) was the principal library consortium to which the library retained membership as expressed by 95% of respondents (n=38). Other international consortia and information networks were determined to supplement KLISC. Responses ranked AFLIA (77.5%), INASP (90%) and EIFL (92.5%) as the international information networks in which the library retained membership aside KLISC. The study also sought to determine the dominance of the consortium model as a resource sharing method. Respondents indicated that the consortium model of resource sharing was the dominant model in adoption, among other methods. The consortium model of resource sharing was considered to be the dominant model in adoption by 90% of respondents and KLISC was identified as the principal vehicle for enabling resource sharing for the University of Nairobi's library.

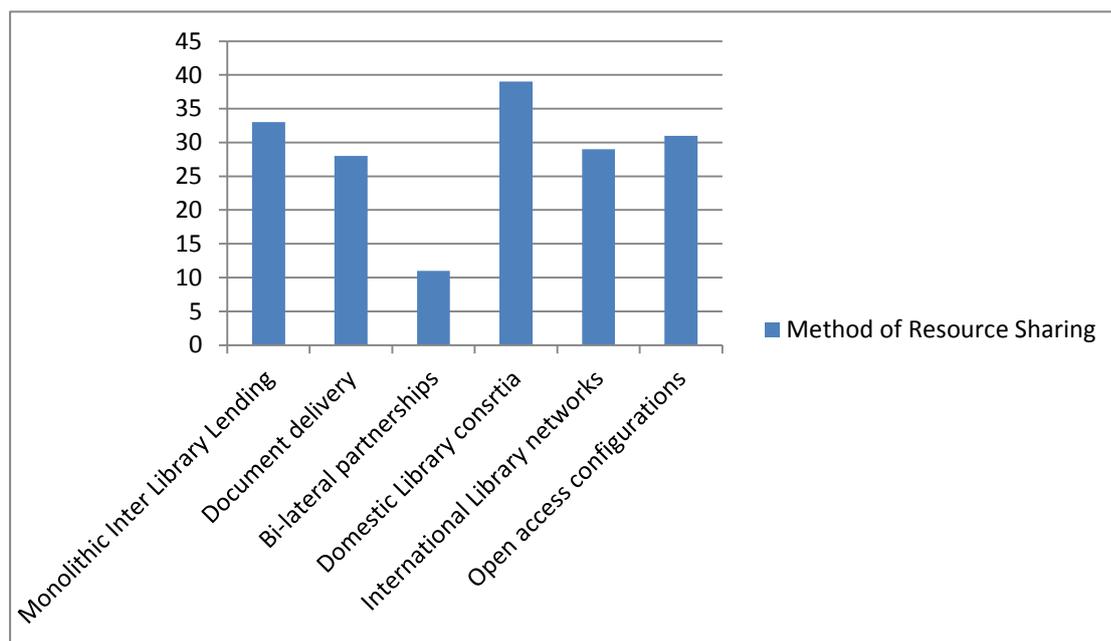
The findings confirm that library consortia are the dominant model for resource sharing in Kenyan academic libraries (Mwaurah & Namande, 2018). The challenges with decision making within the consortium reflect the views of Kostek (2019: 210) who opined that decision making in library consortia is often a challenge, especially in decentralised models where representatives of member libraries have to come to a consensus. Academic libraries join library consortia and international information networks such as INASP and EIFL to improve access to information for their users through PERI and SRKS programs. This allows libraries to

have access to information resources that exceed their individual capabilities. However prevailing challenges such as inadequate capability and technological limitations may limit the maximisation of the prospects of enhanced access and information provision that resource sharing could provide

4.1.2 Methods of Resource Sharing and an Evaluation of their Effectiveness in Enhancing Resource Sharing.

The study identified various methods of resource sharing in adoption at the University of Nairobi library. Some of these methods were more dominant than others, with the most dominant being domestic library consortia(97.5%), followed by monolithic interlibrary lending (82.5%) and international library networks (72.5%). Bi-lateral partnerships outside of the consortium were identified as the least dominant method of resource sharing (27.5%). Findings suggested that the most important model of resource sharing was the domestic library consortium, in this case KLISC, and that the University of Nairobi library had joined KLISC and other international library networks to enhance access to information resources for its users. The findings indicate that the resource sharing methods in adoption at the University of Nairobi library were very effective in ensuring wider access to information (100%), supporting open access (82.5%), improving information resource usability (77.5%) and ensuring research output visibility (70%). However, they were only moderately effective in facilitating information interchange at the (62.5%) and in ensuring interoperability (60%). The use of current methods of resource sharing to support cloud storage was however ineffective (45%), likewise in in facilitating multi-user single access to shared resources (37.5%).

Figure 2:Methods of Resource Sharing



4.1.3 Consortium Initiatives and Activities to Enhance Resource Sharing

The findings indicate that the consortium facilitated several resource sharing initiatives which benefitted the University of Nairobi library. The most dominant of these initiatives were cooperative collection development (95%), the provision of support for institutional repository development (92.5%), the provision of access to a shared information pool (77.5%) and the provision of inter-library lending services (77.5%). Despite being important resource sharing initiatives often prioritised by library consortia, the findings suggest that the provision of network support services by the consortium was not dominant at the University of Nairobi library (35%) and the development of union catalog was not pursued by the consortium (27.5%).

Table 2: Resource Sharing Initiatives

Resource Initiatives	Sharing	<i>High</i>		<i>Medium</i>		<i>Low</i>	
		<i>f</i>	<i>(%)</i>	<i>F</i>	<i>(%)</i>	<i>f</i>	<i>(%)</i>
Union Catalog		11	27.5	17	42.5	12	30
Shared information pool		31	77.5	8	20	1	2.5
Inter-library lending		31	77.5	7	17.5	2	5
Network support services		14	35	21	52.5	5	12.5
Institutional repository development		37	92.5	3	7.5	0	0
Cooperative collection development		38	95	2	5	0	0

The study also suggested the absence of any single multi-user login platforms or gateway to access shared information resources. Similarly, the findings suggested that interoperability and standardisation efforts were much limited. The adoption of DSpace with consortium support had helped the University of Nairobi library maintain prevailing standards with respect to open access configurations and bibliographic description of information resources in its institutional repository. Beyond this, the study suggested the absence of adequate efforts by the consortium to support standardisation at the University of Nairobi library.

Table 3: Significance of Consortia in Facilitating Resource Sharing Activities

Significance of Consortia in facilitating resource sharing activities	<i>High</i>		<i>Medium</i>		<i>Low</i>	
	<i>f</i>	<i>(%)</i>	<i>f</i>	<i>(%)</i>	<i>F</i>	<i>(%)</i>
Co-ordination of collection development	34	82.5	13	32.5	3	7.5
Provision of integrated library system	10	25	9	22.5	21	42.5
Integrated network architecture	6	15	3	7.5	31	77.5
Access to shared catalog	25	62.5	9	22.5	6	15
Technical support and training	37	92.5	3	7.5	0	0
Bibliographic information exchange	9	22.5	12	30	19	47.5
Access to ILL WorldShare	11	27.5	13	32.5	16	40

4.1.4 Resource Sharing Frameworks and Policies

The findings suggested that the University of Nairobi library had to rely on several external policies for resource sharing and had no internal policy that exclusively caters the subject of resource sharing. At the national level, there was also no binding resource sharing policy to inform the direction of resource sharing activities at the University of Nairobi library. A wide range of issues were shown to have been covered in these policies and frameworks, and to various degrees of prioritisation. The findings suggest that issues of capacity building for resource sharing were the most prioritised (80%), followed by interoperability and information exchange (60%). On the other hand, issues of alternative funding (6%) and flexibility to reflect changes in the environment were of the least priority (6%). Even though existing resource sharing policies from external institutions in adoption were not comprehensive, the findings suggested that prevailing institutional differences between the University of Nairobi and other members in the consortium was also shown to have been a limiting factor in the realisation of the objectives of existing policies.

Table 4: Prioritisation of Issues in Resource Sharing Frameworks

Level of prioritisation of issues in resource sharing policy/ framework	<i>High</i>		<i>Medium</i>		<i>Low</i>	
	<i>f</i>	<i>(%)</i>	<i>f</i>	<i>(%)</i>	<i>f</i>	<i>(%)</i>
Enhancing interoperability and information exchange	24	60.0	9	22.5	7	17.5
Ensuring standardisation	16	40.0	14	35.0	10	25.0
Alternative funding models	6	15.0	11	27.5	23	57.5
Capacity building	32	80.0	7	17.5	1	2.5
Flexibility to accommodate changing information environment	6	15.0	11	27.5	23	57.5

4.2 Conclusion

Resource sharing is a very critical aspect of librarianship and improves information users' access to information, and the diversity of information resources available to users. However, the scope of resource sharing activities in Kenyan academic libraries is narrow and does not fully meet the information needs of users. Issues of standardisation and interoperability have limited resource sharing in Kenya to the development and use of jointly acquired resources, despite the potential for a broader scope of resource sharing activities and the integration of library services to attain seamless information exchange and enable cross-searching. The enforcement of standards in the development of shared information resources and the management of associated resource sharing infrastructure is critical for bibliographic exchange, union catalog development and in ensuring conformity within information networks or consortia. Institutional repositories have employed open access to ensure visibility of domestic research output but local content is still inadequate in shared information databases, while institutional repositories are in need of strengthening. The absence of potential for cross-searching further compounds to the problem and limits access to indigenous research as opposed to research made available by the consortium through partners such as EIFL. Resource sharing policies are very important in coordinating resource sharing efforts, assigning responsibilities, specifying standards and determining resource sharing objectives. The absence of a comprehensive policy at the level of the University of Nairobi or at the national level has undermined resource sharing efforts. The consortium model of resource sharing is heavily dependent on support from international institutions such as EIFL and INASP. While these institutions greatly support information provision and access, over reliance on them may threaten sustainability and financial viability in the absence of continuous funding.

4.3 Recommendations

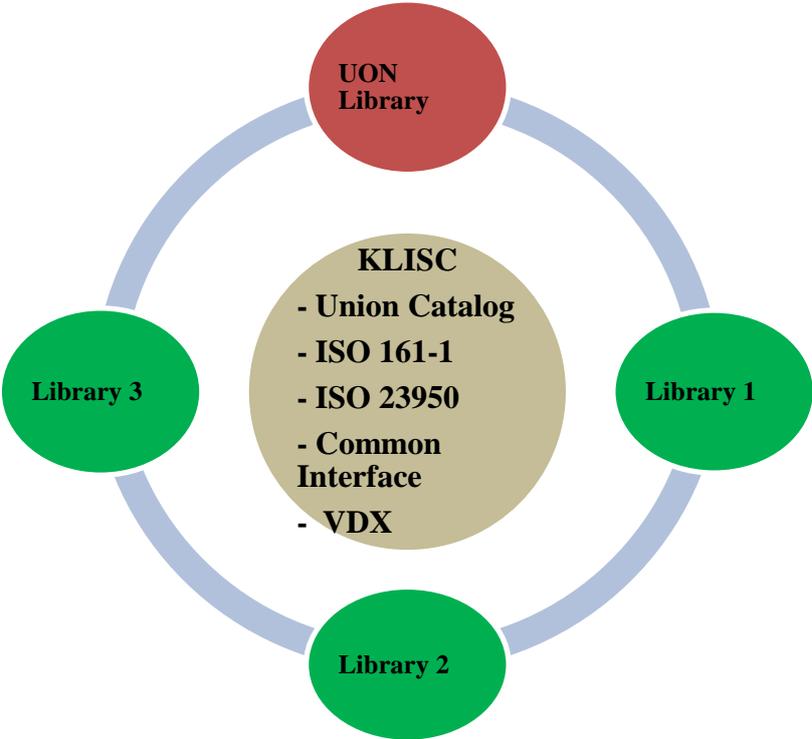
This study recommends the adoption of cloud computing by the University library and the consortium at large to help reduce storage costs for hosting locally held resources. The findings suggest that despite the prospects of cloud computing in enhancing resource sharing, its adoption was low. Efforts must also be made to strengthen institutional repositories and increase the proportion of local content among shared resources. The adoption of a specified set of standards in the deployment of institutional repositories will also enhance the usability of local content. The absence of a union catalog must also be addressed through collaborative effort, to enable the development of a unified bibliographic record of all bibliographic information held within the consortium. This will enhance bibliographic exchange. Lastly, to ensure the sustainability of the consortium model for resource sharing, it is recommended that alternative models are explored ensure continuity in the event of unexpected budgetary challenges from consortium members. This is important because the consortium is made up of a diverse array of member with different financial strengths and limitations and no guarantees for continuous funding.

4.3.1 Proposed Framework for Resource Sharing

The study recommends the adoption of an exclusive resource sharing policy which integrates relevant aspects of directives from Commission for University Education (CUE) for resource sharing taking into consideration the capabilities and available resources held within the consortium and its resource sharing objectives. The policy should be comprehensive enough to cover all aspects of resource sharing relevant to member libraries, including the defining of the scope of resource sharing and the assignment of resource sharing responsibilities, the provision of avenues for alternative funding, and the specification of standards for the deployment of technological infrastructure associated with resource sharing. The policy should make provision for the adoption of the ISO 23950 model to enhance capacity to support remote access to

information resources and the ISO 10161-1: 2014 which is a framework for information management that supports open systems and enhances the technical inter-operability of databases. The adoption of this framework ensures the specification of protocols for user-provider interactions including interlibrary loan services, and facilitates the development of a union catalogue through the provision of reciprocal access to bibliographic information between the University of Nairobi library and other libraries in the consortium. This framework must also supports single login for multi-user access, and support the integration of the University of Nairobi library system with other library systems upon subsequent adoption. The integration of library systems within the consortium would improve information exchange and help in the materialisation of the long expected virtual union catalog.

Figure 3: Proposed Resource Sharing Framework



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