

**UTILIZATION OF DIGITAL INFORMATION AT THE KENYA NATIONAL  
LIBRARY SERVICE, NAIROBI COUNTY, KENYA.**

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AWARD OF THE MASTER OF SCIENCE DEGREE IN INFORMATION  
SCIENCES (M. Sc), MAASAI MARA UNIVERSITY**

**OCTOBER, (2022).**

**DECLARATION**

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## **DEDICATION**

I would want to dedicate this thesis to my husband, John, for his selfless support and my daughters, Angela and Anne, for their moral support and understanding throughout my study and being a source of my inspiration.

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I owe all I am to the Great and Powerful God, and I begin with the opportunity and privilege accorded to me to undertake this study for the protection and good health. He has always been my strength in all things.

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## **ABSTRACT**

The rapid spread of digital information hastens societal changes that provide fresh problems and potential benefits. In order to succeed in the modern global economy, one must be able to create, share, and use information while also adapting to changing circumstances. Today, the marketplace, the workplace, and the larger society all largely rely on digital technology for the production of all things, the collecting of information, and the communication processes. The constant growth of IT is advantageous for public libraries and other information centres. With the use of associated technologies like multimedia, knowledge navigation, multilingual, and networking systems, public libraries will be capable of offering a larger range of services. The utilization of digital resources by public libraries is focused on facilitating easy access to a wide variety of information. Researching the usage of digital resources by the Nairobi County branch of the Kenya National Library Service was the primary focus of the whole investigation. This research was conducted to answer the following questions: what types of digital information resources are available at the Kenya National Library Service in Nairobi County, Kenya; to what extent are these resources used; to what extent do users encounter challenges when utilizing these resources; and to what extent could these challenges be overcome. With the use of a descriptive questionnaire approach, this study was conducted. A study of 100 regular users of digital information was conducted. Scientific analysis was done on the research's findings after it was performed using questionnaires. Version 25 of SPSS was used to do the data analysis. The quantitative data were shown using tables and pie charts (frequency distributions, means, standard deviations, and percentages, for example). According to the results of the study, most people who visit the KNLS make use of the digital information resources offered by the library. Digital information sources were selected by users due to their convenience. Based on the study's findings, recommendations have been made to identify which assets are frequently used so that applicable memberships are not settled, especially with the base financial plans allocated to electronic data asset memberships, and to assess whether there is a need to increase refinement projects and data proficiency abilities for students and scholarly staff to work with support.

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## **LIST OF ABBREVIATIONS AND ACRONYMS**

<b>SPSS</b>	Statistical Packaging of Social Sciences
<b>KNLS</b>	Kenya National Library Service
<b>IT</b>	Information Technology
<b>ICT</b>	Information and Communication Technology
<b>EALII</b>	East African Legal Information Institute
<b>NACOSTI</b>	National Commission for Science, Technology, and Innovation
<b>CD-ROMS</b>	Compact Disk -Read-Only Memory
<b>DL</b>	Digital Library
<b>DLS</b>	Digital Library System
<b>DLMS</b>	Digital Library Management system

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1. Background of the Study**

In view of how the increasing adoption of digital technology has altered user expectations and behavior, public libraries need to be redesigned. The proliferation of digital information has had a tremendous impact on libraries and the job they do. Therefore, by enabling them to more effectively satisfy the ongoing information needs of library users, digital technology will significantly help the Kenya National Library Services accomplish its goal. Digital technology have generally become the foundation of how we do business and interact with one another in the workplace and the rest of the world. Using digital information in public libraries entails integrating computers and other types of electronic communication equipment (including scanners, printers, mobile phones, and the Internet) into regular activities to boost efficiency and elevate the level of service given to users (Enakrire & Ocholla, 2017). Picking objects, obtaining them, processing them, disseminating them, and storing them are frequent practices.

The Kenya National Library Service has begun digitizing materials from 1948 onward as a result of data gathered on the digital divide (Gichohi, 2016). This category includes books, reports from the government, session papers, and other library materials. Because of this, more individuals can use these resources, and the library is better equipped to control book circulation and stop piracy. Customers of public libraries have profited from the library's choice to digitize their offerings in a number of ways (Palumbo, 2022).

According to Oyedokun et al. (2018), libraries' digitization activities helped to facilitate the globalization of knowledge resources made feasible by developments in information and

communication technology (ICTs). Full books, bibliographical databases, and digital library collections are only some of the information resources, services, and tools that users may now access instantaneously online. Long-term public access to information and communication technologies (ICT) is best served by public libraries when it comes to providing "infrastructure, content, and access" (Hilbert, 2016) Digital public libraries, according to study (Stilwell, 2016), offer a number of advantages, including assisting people in finding employment, promoting online learning (both officially and informally), building community, and facilitating communication.

The demand for knowledge and aid in facilitating the dissemination of information on important subjects like agriculture, health, and education, however, is much greater in the developing world. To a large extent, information resources are not utilized effectively, which is one of the reasons the digital divide continues to exist (Rene, 2022). The use of digital information is alarmingly low in Sub-Saharan Africa (Africa Akanbi et al., 2012). Several African countries have started implementing national-scale digital infrastructure intending to close the informational chasm. One of these rollouts in various countries is the distribution of electronic resources to public libraries. While this opens up exciting new possibilities for African public libraries, it also poses difficulties for librarians who must accept the new technology and teach employees how to efficiently use it. They have to contend with the high expectations that politicians and library users have for the value and promise of digital materials. When services fall short of expectations, both librarians' anxiety and library users' resentment grow. EIFL created a training program for public librarians to fill this demand, emphasizing e-literacy techniques and skills. This curriculum equips public librarians to teach digital and e-literacy in their local communities, acting as both champions and

communicators (Petuchovaite & Lipeikaite, 2015). The Kenya National Library Service has made e-readers accessible for reading digital books, exchanging information, and acquiring digital access. In Ghana, Kenya, and Uganda, the capacity-building effort has been tested. Thanks to financing from the Communication Authority of Kenya, ten separate KNLS (Kenya National Library Service) branches around the nation have been furnished as "E-Resource centers" (CAK). The CAK initiative provided funding for the acquisition of computers for library users as well as for staff training in fundamental ICT and internet access. The Rural Communications Development Fund, a project of the Uganda Communication Commission, has provided computers and internet connections to public libraries in Uganda that were previously without access to digital services (Lipeikaite & Schnuer, 2019). The Ghana Investment Fund for Electronic Communications (GIFEC) Library's Connectivity Project gave Ghana's 26 district public libraries and 10 regional libraries computers, Internet connectivity, and basic digital training (Taddese, 2020). The Kenya National Library Service's adoption and availability of digital objects, Electronic reading materials have been made feasible by the country's broad usage of digital services (Alabi, 2018).

The potential for digital information to revolutionize society in underdeveloped nations is hampered by insufficient connecting infrastructure and a general lack of ICT skills among the populace and the working population. Researchers have concluded that Africa is entering a new phase of digital adoption and diffusion as it transitions transitioning from localized trial programs funded by outside organizations to larger scale implementation guided by nationwide federal policy. Positive trends in digital utilization were found in a recent World Bank survey on digital education in Africa (Klees et al., 2017). 2012; Trucano and colleagues, 2007. An effort of the Kenyan government's information infrastructure and communications development programs, the Kenya National Library Service aims to provide For Kenya's urban and rural poor, information



and communication technology (ICT) inclusion (among other institutions). EIFL discovered that neither library stakeholders nor the general public identified public libraries with internet content or neighborhood outreach in six African nations. According to the EIFL survey, the great majority of public library employees do not feel sufficiently qualified to utilize digital resources effectively or to provide these services to their communities (Amollo, 2011). Both of these findings emphasize how important it is to provide African public libraries resources and to train public librarians and library directors to actively promote digital inclusion and development in the twenty-first century. Through the worldwide non-profit organization EIFL (Electronic Information for Libraries, <http://www.eifl.net>), the Bill & Melinda Gates Foundation provided financing in 2009 for the establishment of the Public Library Innovation Programme (EIFL-PLIP). The initiative's declared objectives were to spread awareness of the contribution that public libraries make to the development of strong communities via the provision of cutting-edge library services and the sharing of information. Since its founding in 2009, EIFL-PLIP has assisted eight African nations in implementing fresh, innovative public library projects. Several of these projects have evolved into long-term library resources throughout time (Modiba, 2016).

The knowledge network system of digital information, which is expandable in internet-based environments, has the potential to increase literacy rates by linking individuals to online resources. Since the early 1990s, several nations have given priority to and actively developed online information services. Many nations have been researching and developing innovative methods for managing digital public libraries as a direct reaction to this problem. In light of the cultural and societal importance of digital libraries, all of these methods work to take use of search engines while avoiding their shortcomings (Martzoukou & Elliott, 2016). Customers may now get their hands on digital content thanks to the Internet's role as a vast library of knowledge. Therefore,

library information professionals encounter several obstacles in their job. Users/clients need information literacy skills to properly discover, evaluate, and utilize information (Daphine, 2017).

People who work in the information sector are battling for unrestricted access to all types of media that convey information on a global scale. In response to the exponential expansion of knowledge available on the Internet and related sources, as well as the corresponding rise in demand, digital public library systems that offer a range of services have arisen. The solutions are made to make it easier for the archive's contents to be massively digitized, stored, accessible, mined for knowledge, and used in electronic information services, digital reference services, and search coordination (Kumbhar & Harake, 2015). For many years, the Kenya National Library Service has been an essential component of the global network of libraries and other information sources. The Kenya National Library Service has made a wealth of knowledge and experience accessible for the benefit of Kenyans has spent decades collecting, categorizing, arranging, and making accessible to them as they pursue their individual, professional, and community goals and aspirations. Because of their capacity to gather and disseminate information from all over the world, public libraries continue to be crucial for the growth of society, government, and industry. Therefore, public libraries are crucial for closing the knowledge gap inside countries as well as across borders (Kavulya, 2007). The equipment and services provided by public libraries for the modern era have been pioneered by librarians. Public libraries have traditionally been the finest resource for knowledge on anything, anywhere in the world. But they will need to modify their approaches in light of the increase of digital information. Among the various ways information professionals use ICTs to improve service delivery are cataloging categorization, serials organization, collection administration, redistribution services (Bhoi, 2017).

Digital components must also be technically sound and take into consideration social, economic, legal, organizational, and economic needs and linkages since they are interconnected aspects of dispersed and multidimensional systems that comprise people, processes, and technology (Buchanan, 2010). Numerous studies have demonstrated the benefits of online resource tools for data. The advantages of using digital libraries have been well investigated (Okongo, 2014). Given these benefits, it is imperative that digital libraries be built in order to give Sub-Saharan Africa with access to knowledge. Digital knowledge may be easily shared and made accessible to everyone, unlike print libraries, which must duplicate expensive content in several locations (Okongo, 2014).

Additionally, digital libraries provide quicker access to, consumption of, and exchange of knowledge across many industries, including government, academia, the medical field, and business. The Diffusion of Innovations Theory guided the investigation (Rogers et al., 2014a). The use of modern technology in public libraries was the research to which the hypothesis was more successfully implemented. Understanding the elements that influence technology adoption, as well as normal usage behaviors and intended communication results in developing countries. Each person has a unique method for adjusting new technology to fit their unique needs.

By helping users find, use, and understand pertinent information in a constantly-evolving and complicated environment, librarians promote critical thinking and lifelong learning. stronger and more stable (2014). The entire nature of information is continually changing in today's technology- and Internet-driven culture, and experts must adapt to keep up. E-information resources are in great demand, thus a strategy for producing, maintaining, and granting access to data will need to be developed by specialists from several sectors working together. The Kenya National Library

Service and the information industry as a whole have traditionally placed a high focus on providing access to information for those who need it. The methods used to accomplish this goal have changed and grown throughout time. This includes both the use of already available tools and the demands of a society that is becoming more data-driven.

Innovations in knowledge storage, presentation, archiving, collection creation and administration, the information explosion, and the use of computers for information retrieval have all had an influence on information activities (Iyoro, 2014). IT professionals assist librarians as they gather, classify, retrieve, and share knowledge. A digital library cannot be built without information workers who are adequately trained and equipped (King, 2013). Despite the urgent need to transition from outdated to more modern ways of information transmission, the Kenya National Library Service has struggled. Its importance in providing the general public with digital information cannot, however, be emphasized. These issues are addressed by this research by looking at how the Kenya National Library Service in Nairobi County, Kenya, utilizes digital resources.

## **1.2. Statement of the Problem**

In Kenya, the majority of public libraries are still run manually, findings show customers of the Kenya National Library Service are among those least keen in making use of the library's digital resources. Users are unhappy as a result, and public libraries are receiving complaints about the inadequate dissemination of digital information resources. The Kenya National Library Service has not conducted any studies regarding digital library materials. In conclusion, the research confirmed that the Kenya National Library Service in Nairobi County makes use of digital resources. Digital information has brought innovation in recent years, allowing people to access, retrieve, and exchange information instantly and affordably; thriving societies are those that

produce, disseminate, and utilise information while also adjusting to new conditions. There has been a recent shift toward using digital information resources, and the Kenya National Library Service is one of the first to embrace this development. ICT has completely altered the way we think about and use public libraries.

Empirical research indicates that the Kenya National Library Service is increasingly becoming digitalized with more extensive and free academic materials than may be found on other websites. Kenya National Library Service has made substantial investments in digital information resources including e-books, e-journals, and subscriptions to academic databases to promote education and research in Kenya. Putting these assets to good use is the only way to get a return on such a large investment. Many libraries now have more electronic resources than print information materials due to the high demand for digital information items and easy access to them both in-library and remotely. First and foremost, it is important to notice the massive investment made by the Kenya National Library Service in providing clients with access to information and other critical services via the use of electronic information services and other technologies. One of the goals of this study is to have a deeper understanding of the Kenya National Library Service makes use of digital resources. This, in turn, has the ability to increase communal wealth by creating a system of human relatives (Mbaya, 2010).

### **1.3. Aim of the Study**

The research was motivated by the following aims:

#### **1.3.1. General Aim**

This research set out to analyze how the Nairobi County branch of the Kenya National Library Service makes use of digital resources.

#### **1.3.2. Specific Objectives**

The specific objectives of the study were to:

- i. Examine the digital information resources available at Kenya National Library Service, Nairobi County.
- ii. Determine the extent of the utilization of digital information at Kenya National Library Service, Nairobi County.
- iii. Find out the challenges experienced in using digital information at Kenya National Library Service, Nairobi County.
- iv. Suggest possible solutions to the problems identified using digital information at Kenya National Library Service, Nairobi County.

### **1.4 Research Questions**

The following research questions guided the study:

- i. What are digital information resources available at Kenya National Library Service?
- ii. To what extent is the utilization of digital information at Kenya National Library Service?
- iii. What challenges are experienced in the utilization of digital information in Kenya National Library Service?
- iv. What possible solutions can be provided to the problems experienced using digital information Kenya National Library Service?

### **1.5 Assumption of the Study**

The following assumptions guided the study:

1. Kenya National Library Service is situated in Nairobi County; hence it has a large number of library users who are least interested in using digital services despite the library having massive investment in various digital services in the library.
2. The librarians lack the skills to provide digital information resources and services effectively.
3. There is a need for the library clientele to be trained on the utilization of digital resources in the Kenya National Library Service.

### **1.6 Significance of the Study**

The results of this research have the potential to inform policymakers by providing an in-depth analysis of how people are currently using digital information and by suggesting ways to better serve the public through digital services offered by libraries. The results can be used to improve policymakers' use of digital information resources. It could also provide inspiration for public library's long-term projects to improve patrons' ability to find and use digital material.

Finally, this research has the potential to add to the existing body of knowledge and serve as a foundation for future investigations into the variables that affect library service provision. As a result of these discoveries, it is hoped that public libraries will be able to host even more research. In addition, it may help users and staff put in place effective and efficient information digital literacy initiatives by revealing hurdles to their implementation.

### **1.7 Scope of the Study**

The study was conducted at the Nairobi County branch of the Kenya National Library Service. One goal of this study was to quantify the frequency with which the Kenya National Library Service makes use of digital information resources. Research was carried out from April to October of 2021.

### **1.8 Limitations of the Study**

As a result, several respondents were hesitant to complete the survey. research's sensitive nature, respondents' lack of availability due to their work schedules, and budgetary limitations all hampered the study.

Most of the time during data collection, the crews were hard at work and focused. Due to this, the researcher had to extend the time allotted for respondents to complete the surveys before collecting the data. The other problem was that the participants were suspicious of the study and so reluctant to volunteer important information. However, this was solved by promising participants that their responses would remain anonymous and that the study's goals were strictly academic in nature.



## **1.9 Operational Definition of Terms and Concepts**

**Information** - Generally speaking, it refers to a body of thought that attempts to quantify the value of processed, organized, and structured data as well as its qualitative aspects. As a result, it helps put information in perspective and facilitates decision-making.

**Digital Information** - Information obtained from any medium and transferred to digital format for inclusion in an electronic database. You'll find the library's electronic resources listed here.

**Public Libraries**- These are taxpayer-supported libraries open to the general public.

**Digital** - Positive and negative aspects of electronic technology used in data generation, storage, and processing are discussed.

**Digital information Resources** - Data or software written in a certain language so that a computer may read it and use it for its own purposes over a network connection. Computer programs, digital books, and online reference works all fall under this umbrella.

**Utilization**- The action of making practical and effective use of something

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1. Introduction**

Literature review of the research is included in this section. It establishes links between the findings of various studies and investigations. The study's rationale and findings are also discussed in length.

#### **2.2 Range of Digital Information Resources**

Modern libraries have maintained some of the earlier, more traditional library services while transitioning from centralized, paper-based systems to decentralized, digital and non-digital content networks in order to better serve its users. Because of the exponential rise in both the amount of things accessible and the degree of expectation put on libraries by their users, libraries are under growing pressure to do more with fewer resources. The library industry may provide a viable application for intelligent agent technology (Cox et al., 2018).

To keep up with the explosion of digital resources and information sources, systems must move from being reactive (with minimal space for user input) as preventative (with customized information for individual users). Configurability, which helps to fulfill each customer's specific demands by understanding their preferences, is one of the most well-liked and successful strategies to improve the quality of service offered by digital libraries (Li et al., 2019).

In essence, any product or service that can be purchased or offered wholly online falls under the category of "digital services." The range of services includes computer storage of collections ranges from the very simple (providing online resources and a virtual environment for content exchange and collaboration) to the more complex, dispersed, and involved. of regional history books that are intended to supplement regional school curricula through online learning

environments. Ultimately, the online library aims to promote lifelong learning, health, and wellbeing in the domains of education, healthcare, and the arts. It does this by acting as an access point that collaborates with other public information providers (Buchanan & McMenemy, 2010; Costello, 2018).

The unidirectional communication that characterizes digital reference services—typically via email or online forms—is their defining feature. In addition to frequently asked questions (FAQs), online resources including topic guides, lists, journals, and other information, as well as other kinds of communication, it consists of email messages that may be form-based or address-oriented. Users of a networked digital information service have access to a network of resources, specialists, and mediators that can assist them in getting the information they require (Wiberg, 2017). For the many different reasons that necessitate decentralized database administration, quick retrieval, interesting user interfaces, and digital photography of documents. Hypertext database management system, intellectual property rights enforcement, integration of multimedia information services, governance of multilingual collections, information mining, automated reference service, electronic record distribution, isolation, and knowledge isolation are all features of the structure. mining—each present their own unique set of challenges and opportunities. As a result, implementing digital information systems entails combining multiple distinct IT disciplines (Korpela et al., 2017).

The International Federation of Library Associations and Institutions (IFLA) lists several advantages of digital systems, including the availability of multimedia content, search and retrieval capabilities, and user-friendly interfaces (Irvall & Nielsen, 2005). Professionals have vigorously

argued the idea that the proliferation of digital and web-based information is making libraries obsolete (Hjorth & Richardson, 2017). Building trusting connections with customers is essential for public help from librarians and other information pros in order to keep up with the needs of the digital generation. Social software like instant messaging (IM), blogs, online chat, and Wikis may be used into both teaching and reference services to better serve library customers. Kenya's public libraries will continue to use cutting-edge data management techniques (Connaway, 2015a)

Additionally, libraries must approach the sale of their information resources in a professional manner. This necessitates ongoing monitoring and analysis of the evolving information landscape. Libraries should be viewed as informational mercantile establishment that employs suitable technology to sell a broad variety of informational products and services, not just a place where people may borrow books (Horsfall, 2020).

The digital format opens up a number of options for producing books as interactive learning materials, and in some circumstances, digital books can take the role of locally produced learning experiences and tools. Many public libraries can only offer a limited number of electronic books due to financial restrictions. Public libraries in the present day are able to offer their one-of-a-kind information resource services and instructional activities to communities outside of their physical walls because to recent breakthroughs in networking technological progress and the meteoric rise of the internet. When connecting to the library's databases and other services, many public libraries make use of a virtual private network (VPN). making it simple for instructors, students, and staff to use. Using a VPN, library users may securely access library resources from any location in the globe. A significant user of wireless networking in public library technology is the Kenya National

Library system. Digital libraries should guarantee that everyone has access to the totality of human knowledge at any time and from any location by removing geographic, linguistic, and cultural obstacles and making use of a broad variety of internet-connected devices (Obongo, 2014).

### **2.3 Information Systems**

Users have the ability to access electronic resources whenever and wherever they choose thanks to the information system. Because all of the library's materials are accessible over the internet 24/7/365, the library's operating hours and a user's personal visit are immaterial (Connaway, 2015). An notion known as a "digital library" combines the internal cataloging with up-to-date, frequently-used resources available in both print and digital versions, and delivered through an electronic network that connects to and pulls content from worldwide libraries, commercial information sources, and knowledge sources located all over the world (Tamilselvan & Sivakumar, 2012; Anunobi & Ezeani, 2011). The system should be viewed as an electronic ecosystem that integrates resources and people to support the whole lifespan of data, information, and knowledge from inception to retirement rather than merely as digitized information objects and their associated management tools. Academic libraries are setting intermediate goals to support teaching, student achievement, and intellectual investigation. Public libraries frequently provide a variety of services aimed at making users' collections easier to maintain and access.

Online databases, databases obtained from other sources, remote information services, and locally created publications like newsletters, bulletins, and journals are just a few examples of these services (Gavit, 2019).

## **2.4 Public Libraries' utilization of Digital Information**

### **2.4.1. Range of digital information Resources available at KNLS**

In the present day, patrons of libraries are expected to fully utilize the digital resources available to them. Information organizers may now categorize information according to a number of criteria since people are capable of writing down their experiences, thoughts, and discoveries in concrete formats (Sweller et al., 2019). He asserts that data may be divided into two categories: by content, and by physical storage. Information resources can be found in physical form in the form of books, databases, technical reports, gray literature, and electronic resources (Auger, 2017). Olaewe (2004) claims that the Kenya National Library provides electronic books, journals, and newspapers in addition to its traditional library collection, which consists of a wide variety of data available in several forms stored in a variety of structures (Olaewe et al., 2019). The library offered a variety of tools and directions to aid users in finding what they were searching for, but they were only available to individuals who went to the library in person. Since the tides have changed, having access to these instructions is more crucial than ever. Using personal computers and other terminals at the library or at their place of employment, he claimed, users may now access a range of informative resources. He attributed this to advancements in computing and telecommunications. According to Corbeil and Valdes (2007), the daunting task of directing researchers to pertinent material that is distributed across several mediums and places will be faced by future libraries. Without first comprehending how their clients utilize libraries and the resources inside of them, librarians cannot successfully help students how to use libraries (Corbeil & Valdes, 2007).

### **2.4.2 Electronic Information Resource**

Databases and Other Electronic Information Sources Every public library now has to have access to electronic information, say Gakibayo and Okello. Information management practices in several fields have been drastically altered by the advent of electronic information resources, often known as e-electronic resources (Gakibayo & Okello-Obura, 2013a). Hughes remarked that scholars and students may now tap into global knowledge resources, especially electronic ones (Hughes, 2009).

The lack of progress in the creation of electronic information resources is blamed for the public library system's failure to provide patrons with up-to-date research materials (Jaeger et al., 2012). Public libraries in Africa can facilitate the transfer of technology from the developed world to the continent's expanding economy, therefore helping to realize these goals. Electronic information resources are defined as those "offered in electronic form," as defined by Terence and Kashimana (2019). In this category are places like e-books, e-journals, online databases, CD-ROM databases, and other computer-based electronic networks that can be accessed from anywhere in the world (Ternenge & Kashimana, 2019).

### **2.4.3 E-readers Program**

Modern times are a digital period. In Africa, internet usage has skyrocketed, bringing with it all the contemporary amenities that go along with it. For the first time ever, the number of mobile money accounts in that of traditional bank accounts in 2016. The Kenyan government created the Kenya National ICT (Information and Communication Technology) Master Plan 2014-2017 in response to these changes in order to "provide the integrated infrastructure backbone necessary to allow cost-effective delivery of ICT goods and services to Kenyans" (Gillwald et al., 2017). This objective was reflected in the 2012–2017 strategy plan for Kenya National Library Services, which

described it as "becoming the center for information and knowledge for empowerment." Digital content distribution eliminates the need for any type of pricey warehousing, shipping, or distribution (Heavner et al., 2017). These savings are significant when compared to literature created in minority languages. Technology-based solutions have frequently failed to scale, much as how producing a paper book in a short print run costs more each copy despite the idea that technology may benefit from economies of scale (Douglas, 2012).

It is unusual for numerous initiatives to test simultaneously without being meaningfully linked in a sector where there have been many "flashy, one-off pilots," as well as hackathons and competitions that "undermined the prospects for durable and scalable digital solutions." Scientists Ritzhaupt, et al ( 2020). It is critical that our combined insights be utilized to steer the effective and moral growth of technology-enabled programs given the overwhelming consensus in the development community that mobile technology is the most efficient tool for enhancing access to underserved places. At this time, every public library in Kenya is taking part in the project.

Since 2014, World Reader has worked closely with the Kenya National Library Service to equip Kenyan libraries with the resources and knowledge they need to become thriving centers of their communities. With the use of digital books, cheap and portable electronic reading devices, and committed library staff, World Reader and the Kenya National Library Service (KNLS) launched a pilot program in eight libraries to assess the viability of a statewide digital reading initiative in Kenyan libraries (Kwanya, 2011). In 2016–2017, KNLS and its partners will roll out LEAP 2.0, a statewide iteration of the digital reading initiative based on the successful Libraries, E-Reading, Activities, and Partnerships (LEAP) pilot program. As the first program of its kind in Kenya to be implemented in all of KNLS' public libraries, and as part of Kenya's master plan, Vision 2030, this



was an important step forward for KNLS. With the idea that libraries are vital to a thriving knowledge economy and community information centres, LEAP and LEAP 2.0 were developed to provide digital reading to 61 KNLS public libraries (Heavner et al., 2017; Kwanja, 2011). World Reader and the Kenya National Library Services (KNLS) were determined that leveraging the potential of libraries was crucial to achieving Kenya's national ICT strategy and catapulting the country to a new level of digital access and information sharing. The availability of thousands of new reading materials and unique digital reading technologies that are frequently utilized outside of library walls for outreach activities allows for tremendous improvements in digital literacy (Wanjohi, 2017).

Digital data proliferation has disrupted previously reliable economic models, government regulations, and corporate structures. The move has caused significant harm to many media firms, including newspapers, music labels, TV networks, film studios, and publishers. Libraries may be compared in the same way. The arrival of the Amazon Kindle NW and similar devices the following year only exacerbated this trend. The introduction of the Sony Reader in late 2006 caused a rise in demand for electronic books (2012).

#### **2.4.4 The Internet.**

If we are to fulfill the development aims and objectives of the twenty-first century, more effort needs to be done to make advantage of the expanding internet information resources. Over the past 50 years, the internet has developed and altered, reflecting the value of information and fueling a surge in global demand for data from all fields and regions. Currently, only around 35 percent of the seven billion people on the planet have access to the internet (Koontz & Gubbin, 2010). The community as a whole gains in numerous ways when governments invest in public libraries by

supplying them with ICT. These express the perspective that as more and more information and other products (both textual and multimedia) are made available online, the Internet will become a more significant competitive element for libraries in the future (Rural & Development, 2018).

The internet is frequently referred to as "a large public library" in the media (Hubbert, 2013). All libraries are indirectly impacted by the Internet phenomenon, but because public libraries already operate on a tight budget, this impact will most certainly be seen there first. The Hoima Population Library in Uganda reportedly offers free internet access and educational opportunities to both the general public and health professionals. A survey conducted two years after the service's launch found that thanks to the "Improving Community Health Through ICT" project and a series of public lectures and films, Health-related library visits increased by almost 38 percentage points among children, 39 percentage points among males, and 28 percentage points among females (Kawalya, 2021; Omona, 2020).

54 African countries, according to Gakibayo & Okello (2013b) and Yermack (2018), had access to the Internet. Africa had a penetration rate of just 1.4% in 2009, despite the world average being 12.7%. (Yermack, 2018; Gakibayo & Okello-Obura, 2013b). Due to Kenya's advanced internet infrastructure, KNLS is able to provide the general public and library users with reasonably priced internet access. The internet has made access to electronic resources such as indexes, journals, and monographs easier than ever, but they are frequently ignored for a variety of reasons (Kwanya, 2011). Because of the internet, public libraries in less developed countries may now be able to compete with those in more developed ones (Lamba & Madhusudhan, 2019). Public libraries must have internet links to maintain one's place in the modern academic environment. A fantastic

approach for users and librarians to communicate in libraries is through the internet. It's the fastest method for sending digital files (Farkas, 2007; Main, 2008).

#### **2.4.5 Electronic Journals**

Scientists and academics saw the internet's promise when it initially gained popularity as a quick and easy tool to share information and remove previously impassable obstacles by transferring full ownership of the publication's intellectual property to the publisher. It has a variety of purposes and helps shorten the generally drawn-out process of setting up a Be bridge (2011). Electronic journals make it easier to provide information to library customers while also enhancing their access to information, especially in the setting of public libraries' constrained resources. Recently, the price of publishing in online journals has become less expensive than that of print publications (R. Singh & Singh, 2018). Electronic journals come in two varieties: those that are published exclusively online and those that may also be published in print. The former is maintained by an editor and the academic community separately from a publisher. Both of these might have significant effects on how knowledge is produced and disseminated. The Kenyan national library service rapidly subscribes to any and all new electronic resources that become available because it prioritizes having access to the most up-to-date global information resources on the World Wide Web (Tanwar & Tanwar, 2017). According to user studies, there is a need for more information about e-journal series and individual publications' availability and future. Libraries like KNLS have had to update their systems to provide better reference and help services as a result of an increase in clientele (Hasan & Naskar, 2020; Singh & Asif, 2019). Everybody engaged has been impacted by the switch to online journals, not only readers and librarians. Additional processes and administrative tools are needed to keep up with the ever-evolving e-journal collections, which has had an impact on librarians who work in both technical and public services (Chibini, 2011).

The transition to electronic resources, according to Mischo et al., "has had huge ramifications for information management" (2006). Walters (2013) observes that various publications and studies have focused on the challenges involved with maintaining electronic journals in terms of staffing, processing, licensing, troubleshooting, and workflow when analyzing serials literature from 2000–2003. A survey of 15 libraries by Mischo et al. (2006) revealed that more staff are required to manage the growing volume of digital assets. Several libraries have simplified their e-book handling processes (Stewart, 2010). Bibliographic administration of all serials, including electronic, print, and microform journals, has been rethought in light of the advent and meteoric rise of e-journals. Several unorthodox methods have been tried out in an attempt to improve journal management and bibliographic oversight. In order to better manage and provide access to their electronic and print journal collections, several public libraries have developed supplementary proprietary systems, in addition to embracing automated tools and services to enhance serials operations. Newer search engines, such as the ORR e-resources management system and the JAL system enable access to electronic and print collections as well as user-friendly, full-text e-journals (Burrows, 2006).

#### **Digital Repositories 2.4.6**

To make available digital books and journals for its users, public libraries should pay for online databases that can be searched online. Online databases contain electronic books and journals (e-books) issued by a variety of scientific publishers (Asogwa et al., 2016; Roy & Barooah, 2019). Many of these databases' manufacturers and publishers provide them free of charge to libraries in underdeveloped nations. The writings of Gakibayo et al. (2013) and Agora are among them (2020). However, there is a monthly cost to access Blackwell Synergy (2008) and Emerald Database

(2007). With access to these databases, users and researchers may browse hundreds of academic publications pertinent to their fields of study (Swain, 2010). It is crucial that end users learn and perfect the skills necessary to do so in order to maximize the massive digital resources at their disposal (Gakibayo & Okello, 2013). Both users and librarians may develop the skill of properly navigating and using KNLS.

#### **2.4.7 Mobile-Friendly Information Literacy: Its Importance**

The ways in which people gather, consume, and share information have changed significantly in recent years. These days, we expect instantaneous retrieval of our email, the latest news, maps, and library holdings from our handheld devices (smartphones, e-readers, tablets). This trend is not exclusive to the United States; worldwide, mobile internet use has almost doubled in the last two years (Chibi et al., 2021). It seems that the personal computer's era as the major information access device is winding down. The development of mobile technology has generated enthusiasm among librarians and the public library system. "Recently, interest in converting public library resources and services for usage on mobile devices has skyrocketed" (Cassell & Hiremath, 2019).

A key trend for public libraries in 2012, according to the ACRL Committee on Research Planning and Review (2012), was the use of mobile devices. 2013 (Havelka). Information consumption, dissemination, and all three have seen significant change in recent years. It is quite easy to have access to our inboxes, current events, places, and local resources (like libraries) while "on the go" With the technology at hand (smartphones, e-readers, tablets). Website visits from mobile devices have approximately doubled over the previous two years, and this growth is not exclusive to the United States (Chibi et al., 2021). The era in which the desktop computer was the only information access tool appear to be coming to an end. Sales of smartphones have overtaken those of personal

computers as of the fourth quarter of 2011. (Saunders, 2015). A high degree of mobile information literacy is necessary for those who have switched from traditional media to digital devices that offer quick access to information, such the millions of people who use the internet via mobile devices globally (De la Sablonniere, 2017).

The general population has to be taught these skills via mobile devices, including how to recognize and evaluate the quality and reliability of information obtained online, how to develop and share information efficiently, and how to interact safely and securely online. In order to increase people's capacity to utilize and distribute trustworthy material across all media, literacy in information access, creation, evaluation, and sharing through mobile devices. In order to teach the next generation of employees the most efficient and secure ways to use computers and the internet, the majority of public and commercial institutions throughout the world have adopted a PC-era curriculum. Students in education programs that only emphasize skills are not sufficiently prepared for the workforce because they lack a more comprehensive understanding of the world. The main aim of the research is to offer a response to the following general question: What degree of specific knowledge, comprehension, and perspective are required for people to properly utilize mobile devices to access the internet? The Mobile Information Literacy curriculum, a constantly expanding collection of teaching tools designed to improve information literacy via the usage of public libraries, is available every month to millions of people all over the world. In an attempt to instruct newcomers in the effective and secure use of computers and the internet, public and commercial organizations from all over the world have modified information and digital literacy curricula created for the PC age. Information, concepts, and viewpoints from more thorough curriculum. Is there a notable difference between those who use the internet mainly on mobile devices and those who use desktop computers in terms of knowledge, understanding, and

perspective? There are two possible approaches to complete the courses. The Kenya National Library Service and EIFL updated the nation's curriculum for library education as part of the program Information Strategies for Societies in Transition (Day, 2015).

#### **2.4.8. Extent in Utilization of Digital Information**

When it comes to meeting the digital requirements of today's patrons, public libraries must prioritize fostering relationships with the millennial age. The Millennial generation, comprising Generation X, individuals born between 1977 and 1994, is the largest generation since the Baby Boomers (Higgs et al., 2013). Modern library users have diverse information needs, calling for a diversity of approaches. Musangi et al. (2019) argue that for the most part, a central library is there to serve as a repository of knowledge. Due to this, the library's design must provide for increased demand for quiet study areas and a higher tolerance for background noise.

In addition, customers today would rather text than use any other kind of contact (Thomas, 2016). Therefore, the library should have the appropriate software installed so that patrons may satisfy their informational demands. The current generation of tech-savvy library patrons has high expectations when it comes to how they may interact with the library's collection. They are likely to look elsewhere if the library doesn't have what they need. In order to better serve their patrons, public libraries increasingly rely on technologies of information and communication for a wide variety of tasks, including book and serial purchases, monetary transfers, classification and cataloging, reference assistance, user orientation, circulation, interlibrary lending, document shipping, electronic content help, email and chat support, web 2.0 dynamic information exchange, bibliography service, and photocopying. By taking use of these opportunities, libraries may better

serve their patrons by providing them with up-to-date information (Berube, 2011; Patel et al., 2013).

Onyekwelu (1999) claims that the Internet is the most impressive technological achievement of the 20th century. Fitzgerald and Savage (2004) analyzed how the Internet changed the logistics of providing library services (Fitzgerald & Savage, 2004). The public library's access to the internet and email makes it possible for patrons to quickly and easily access a wealth of information from around the world (Okay, 2010). Boulos observed how blogs have changed the library experience for its patrons since their explosion (Boulos et al., 2010). Public libraries in poor countries cannot meet patrons' expectations for 21st-century information access without investing in information and communication technology (ICT) infrastructure, as demonstrated by the work of Oyedokun et al (Oyedokun et al., 2018). Recent years have been marked by fast change and increased skill needs in the library and information field (Rafiq et al., 2017). Rafiq, et al (2017). Professional incentives for continuing education and the development of new LIS skills, as well as training and retraining, are needed to accommodate the integration of ICT into library operations. Therefore, university librarians need to take use of computer training centers in order to improve their knowledge of information and communications technology. The Oyovwe group, along with others (2021). With the goal of making knowledge more easily available, the KNLS community branch has embraced digital technologies such as e-reader services, e-books, and e-journals.

## **2.5. Challenges Experienced In Utilization of Digital Information**

Linking individuals who have information with others who are looking for it is the responsibility of the Kenya National Library Service in Kenya. To handle the difficulties of the information environments of today and future, data specialists must be well-equipped. Sarojadevi and others (



2016). In the current data environment, data experts must overcome challenges like getting closer to clients, adopting an advertising strategy to deal with authoritative data administrations, effectively balancing business needs with data administrations, and providing clients with data rather than just information. The main goal is to make sure that excellent data administrations are available. They need to be knowledgeable about and skilled in a variety of areas relating to information services, such as knowledge management technology systems. A new information services curriculum that includes more information areas is necessary (Koltay, 2015). The majority of libraries lack ICT or are unable to provide ICT to satisfy users' demands, according to research in Nigeria and other nations. As a result, virtually little ICT training is provided to library employees (Olatokun & Njideaka, 2020). According to a poll of Nigerian public library patrons, a major contributing cause to patrons' unhappiness with public libraries is the absence of internet and ICT services (Ikenwe & Adegbilero-Iwari, 2014).

Kenya, like the majority of industrialized and developing countries, has recently given the issue of the digital divide a lot of attention. The digital gap refers to uneven access to ICT between those with and without access to information, which has exacerbated societal inequity (Jamil, 2021). The digital gap and disparities in access to information and communication technology are significantly influenced by people's inadequate computer skills and understanding. Kenyan libraries have created advanced ICT infrastructure in an effort to reduce the digital gap in the nation.

According to Anderson & Johnston, information literacy skills are now essential for finding employment, participating effectively in society, and continuing to pursue education for the rest of one's life (Anderson & Johnston, 2016) by giving them the most recent information PC and

online access as well as programs for data education preparation. Governments from all around the globe have realized the importance of public libraries in helping people advance their information literacy abilities. Public library budgets have benefited as a consequence for the installation of Internet connections, the purchase of computers, and the employment of a variety of information literacy techniques. Real and other (2014).

The bulk of current literature centers on the role of public libraries and its information literacy initiatives, despite widespread agreement that these institutions are crucial to the education of a society's future citizens. Findings from studies of information literacy instruction in book stores still lacking, particularly in regards to the standard and association of data education courses and the data proficiency capabilities of public bookkeepers. Since information literacy skills have been identified as a crucial component, including information literacy learning into tutoring at all levels should be a crucial necessity for enabling deep learning and maintaining awareness of the rapidly changing world (Anunobi & Udem, 2014).

Leung emphasized that even if someone claims to have a high degree of computer confidence, they may not have the best information literacy abilities. In most cases, public libraries offer easy access to information via the internet. However, users waste so much time because they lack the skills needed to find pertinent resources, evaluate information, and properly apply knowledge to problem-solving (Leung, 2010). Working in the field of public advanced libraries has several difficulties, but the most significant one is the wide variety of client demands and the possibility that only a small number of people may use the content, which reduces economies of scale. Ages fluctuate from birth to death, early learning ability and experience are unreliable, and learning

perspectives are incredibly diverse. Many people might believe that learning is a difficult process that they should steer clear of.

Customers might be ignorant or hold a master's or higher degree. Over 90% of the money used to support Kenya's national library service comes from the government budget. In order to close the resource gap in Kenya's public libraries, ongoing and sustained efforts must be made to acquire special/intervention money (Commission, 2013).

## **2.6. Possible Solutions to Problems Identified At Kenya National Library Service**

The information and communication technology (ICT) and digital revolution are having a direct impact on how quickly public libraries are evolving. Therefore, content must be instantly delivered to users' computers, regardless of their locations, times, or preferred formats. The function of libraries and other informational institutions has changed since the explosion of digital information. A variety of media, including but not limited to still images, sound, and moving images, are used to make information resources and systems available. Public library librarians should be instrumental in managing the digital information resources and technologies that are so vital to today's society (Ogar & Dushu, 2018).

Thanks to developments in information and communication technology, public libraries may now give their clients easier access to information. The abundance of data means that electronic resources are always accessible. The user doesn't even need to enter the library to use these resources. Digital resources for information can be shared. Each person shoulders some responsibility, which lowers costs. Digital data collection requires a lot of collaboration. Nowadays, the vast majority of libraries take part in some kind of cooperative project.

Additionally, a lot of trustworthy businesses, like the East African Legal Information Institute (EALII), provide free online resources (John-Okeke, 2018).

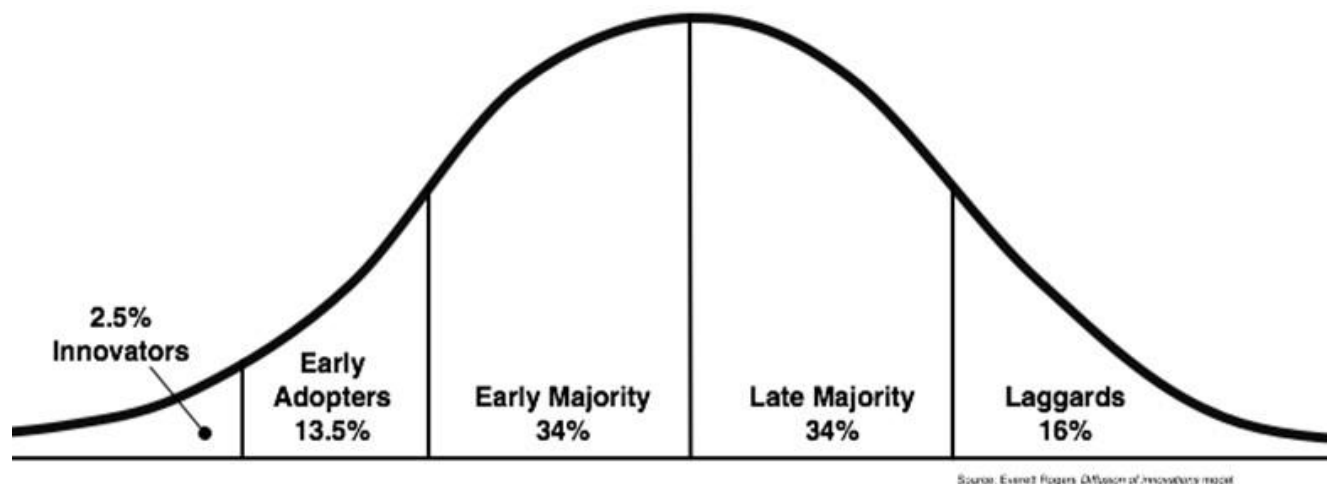
In addition to identifying the specific resources and services that are lacking, it's critical to acknowledge the challenges that the community as a whole (and not just the public library) is facing. As a result, the library is better able to pay more attention to important issues in the community. The Kenya National Library Service's Community Branch must first conduct an assessment and choose appropriate and reasonably priced technologies and tools to address the needs of the local community before they can find solutions to the problems they face. Staff training to ensure librarians have the abilities required to assist library users in making the most of the updated services and resources analysis of the local community's needs Creating Beneficial Alliances Selecting the Right Tools Welcome to Our Service, please Impact recorded Communication of the obvious and quantifiable advantages of ICT-equipped public libraries in the fight against the digital divide and low ICT literacy levels; advocacy for long-term viability, careful curation, and, if necessary, creative repackaging and distribution of digital content tailored to the specific interests and needs of target audiences; inclusion of staff ICT skills and service innovation training as essential components of any initiative aimed at bridging the digital divide; It is necessary to collect information on the use and impact of technology-enabled library services, present this information to decision-makers to obtain more funding, and mobilize the community to support these services (Petuchovaite & Lipeikaite, 2015).

## **2.7. Theoretical Framework**

The Diffusion of Innovation theory guided this study.

### 2.7.1. Diffusion of Innovation Theory

The hypothesis of the spread of innovations was first proposed by Rogers et al. (2014). Diffusion of innovations theory was used to learn more about the drivers, habits, and aims of communication in a developing country where technological advancements may be useful. Included in this category are the factors that contribute to an innovation's success and the ways in which individuals adapt their own methods of innovation to meet new challenges. Communication is the interaction between at least two individuals whereby a mutual understanding is reached via the exchange of ideas and information (Rogers, 1995). Perceptions of innovative features, adopter traits, and contextual circumstances are the three major aspects that determine the adoption and propagation of an invention, according to this theory. The method of invention is being studied. Invention, social system diffusion (or communication), time, and impacts are the four components, as stated by (Rogers, 1995). Information is exchanged via networks. The potential for an idea to be adopted is influenced by factors such as the composition of relevant networks and the positions of influential individuals.



**Figure 2. 1 Theoretical model**

*Source:* (Rogers, 1995)

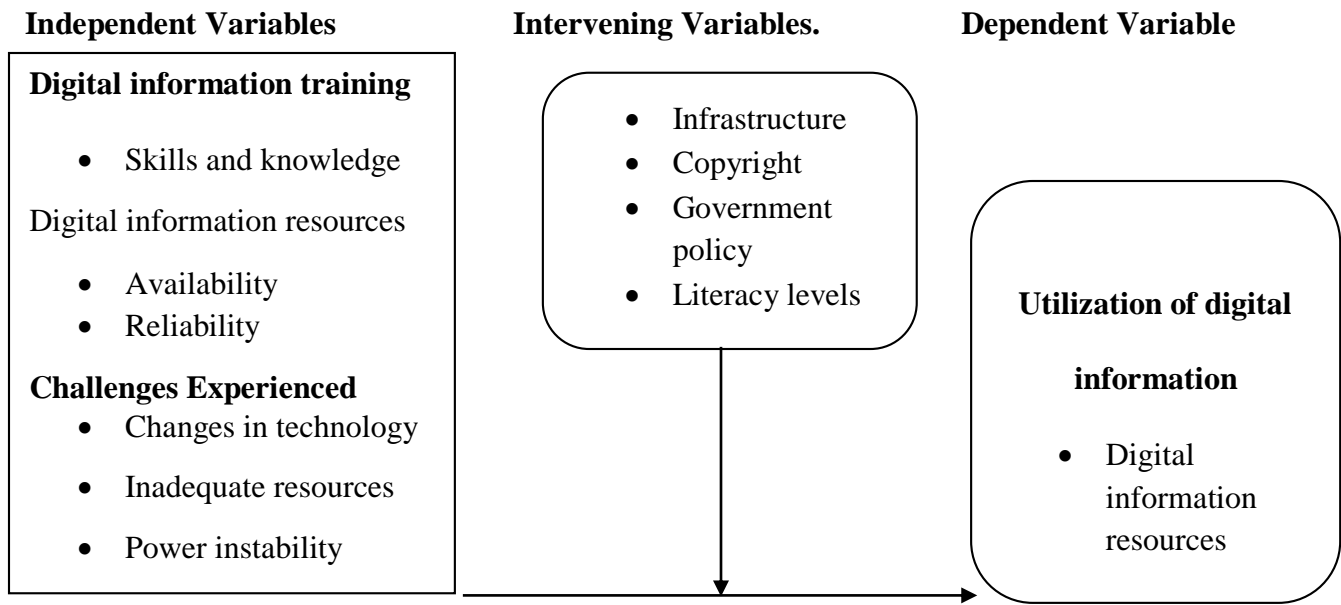
Based on its attempt to shed light on the factors that influence people's receptivity to cutting-edge information delivery systems like digital libraries, this theory was found to be applicable to the research. Opinion leaders are simply one kind of intermediary in the diffusion process, but personal connections between opinion leaders and their followers may have a big influence on audience behavior. This idea has been put into practice by digital libraries, which employ a range of information technologies to support librarians in their information management activities (Gagnon et al., 2010). People who are entrepreneurs are keen to try out new technologies first. They take risks and are receptive to new ideas. These people typically take the lead in developing fresh ideas and have a high risk tolerance. To appeal to this group, little to no effort is necessary. Thanks to the efforts of these pioneers, KNLS currently has state-of-the-art equipment at its disposal. Early adopters and opinion leaders are regarded as prominent members of a group. These folks are open to leadership and development opportunities. They are receptive to new ideas and conscious of the need for change. Strategies geared at this group include how-to instructions and implementation guidelines. Regardless of the information, they may decide for themselves. The ICT departments of public libraries assist the organization in adopting new technologies and giving children early access to freedom. Although individuals like this are not frequently leaders, they frequently adopt fresh ideas early. Unless they have seen evidence of an innovation's effectiveness, people are frequently unwilling to adopt it.

Two strategies to appeal to this audience are success stories and evidence of the innovation's use. Late Majority: These people are resistant to change and won't embrace a new idea until the majority has given it a shot. One tactic to engage this audience is to provide statistics on the number of individuals who have attempted and successfully executed the idea. This group has aided public libraries by offering training on the value of embracing new technologies to both librarians and

users. Laggards – These folks are extremely traditional and bound by tradition. Due to their ingrained reluctance to change, they are the hardest to influence. Data, fear appeals, and peer pressure from other adopter groups are among tactics to sway this demographic.

## **2.8. Conceptual Framework.**

Various factors are pertinent for assessing digital information utilization by public libraries in Kenya. The conceptual framework in **figure 2.2** shows the relationship between the dependent, independent and intervening variables.



**Figure 2. 2 Conceptual Framework**

*Source: Author (2021)*

The dependent variable is how digital public libraries are run. The dependent variable and the independent variables of librarian training, patron service, user awareness, and challenges were correlated in research. As a result, the Kenya National Library Service requires an efficient and functional framework to make it simple for users to access digital information. The intervening factors, including infrastructure and copyright, shed light on how the dependent and independent variables interact with one another. The conceptual framework provides a clear explanation of how these factors interact to help the study achieve its goals.

## **2.9. Summary of the Literature Review**

A succinct summary of the theoretical and empirical literature that supports this study is given in this chapter. The numerous ways that theories aid in directing research have become increasingly clear. Clear emphasis has been placed on the study issue, findings, and conclusions as well as any knowledge gaps and how this study addresses them. Objectives-based research overviews have



been provided. The link between the conceptual model and the study's variables is also shown diagrammatically.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1. Introduction**

The theoretical and methodological analysis of the procedures that make up a discipline's accepted mode of inquiry is referred to as "research methodology" (Kothari, 2004). How to do research; what approach to take; how to describe, explain, and predict events in order to address a challenge (Wanjohi, 2017). This section describes the methods for gathering data and the approaches for analyzing that data. Here, the sample size, sample demographics, and sampling methodology for the study are all described. Discussions are had on ethical issues, data processing, and the general validity and dependability of the study tools.

#### **3.2. Research Design**

Researchers used a descriptive strategy in this investigation. To better comprehend the population or issue being examined, descriptive research seeks to provide answers to questions such "who," "what," "where," "when," and "how" (a strategy assessment method) (Rahi, 2017). According to Salari (2012), descriptive surveys entail interviewing subjects or giving out questionnaires to a representative sample of the population.

Participants were able to more accurately explain the incidents and conditions that make up their profiles thanks to the technique, which helped the study. A descriptive research approach allows for a full analysis of variables and demographic components in addition to inexpensively gathering vast volumes of data. Data for the study might be produced. This is due to the descriptive approach's heavy reliance on secondary material, which helps establish the argument through the use of facts, details, and archive research.

The study's technique was perfect due to the untapped potential of KNLS, Nairobi County's absorption and consumption of digital information. It made it possible for the researcher to get information that reflected respondents' viewpoints and assessments.

### **3.3 Research Approach**

The study included both quantitative and qualitative research approaches. This research method bases its findings on a plausible, continuous scenario. The researcher might get information about the activity by participating in it. To do this, it is necessary to methodically summarize, clarify, and evaluate data collected from either closed- or open-ended research questions.

### **3.4 Area Study**

The research included both quantitative and qualitative approaches. This methodology bases its study on a plausible, continuing situation. Participating in the task would allow the researcher to get first hand data. To do this, you'll need to carefully summarize, explain, and analyse data collected from either closed or open-ended study questions.

### **3.5 Target Population**

The term "population" is used to describe all of the people and objects (the units of analysis) that share the characteristics under consideration (Bhattacharjee, 2012). Students, scholars, researchers, public and private organizations, and other library patrons made up the study's target group. One hundred and ten out of the intended population ended up answering the survey.

**Table 3.1. Target population**

<b>Library users</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Students	56	56%
Researchers	12	12%
Government Agencies	27	27%
Private Institutions	15	15%
<b>Total</b>	<b>110</b>	<b>110</b>

**Source: Nairobi County (2022)**

### **3.6 Sample size and Sampling Procedure**

We describe the sample size, sampling method, and participant selection for the study in this section (Mugenda & Mugenda, 2003). Sampling describes the method used to choose research participants. This procedure need to be applied to every member of the public (Ogula, 2005). Through the use of a census-sampling approach, participants were chosen. The census sample approach is employed when doing research on a group, organization, or other small population. When the target population is under 200, this can be the case (Patton, 1990). The sample for the study was made up of all 100 respondents.

### **3.7. Data Collection Instruments**

Information was gathered from KNLS residents using questionnaires for the research. Questionnaires were used because of their speed and efficiency in collecting data from a wide cross-section of the population. Users of the library were surveyed using questionnaires to compile the data.

### **3.7.1 Questionnaires**

A questionnaire is a collection of statements asked of respondents to elicit useful information for achieving research aims. Questionnaires are favored because of the speed and low cost with which they can cover large segments of the population.

The questionnaire's framework and questions were developed in tandem with the aims of the study. The surveys were employed because they provide respondents enough time to complete them, provide them with a sense of privacy, and are objective because the respondents' individual qualities do not impact the results. The capture of all qualitative data was ensured by including both closed- and open-ended questions.

### **3.8 Pilot Study**

The techniques of data collection in this study were pilot tested to ensure their validity and reliability. During pre-testing, the researcher was expected to familiarize themselves with and evaluate factors like question flow, difficulty level, and interpretation that may impact the data collecting process. The questionnaires were put through a preliminary examination to confirm their independence. KNLS, which is in Narok, served as the study's basis.

Two students, two researchers, one government agency, and one private organization were randomly selected as the pre-test population. Quantitative and qualitative analysis of the results was performed. Based on the results of the pilot research, the questions were revised and reformulated. The researcher's supervisors helped them restructure the research instrument such that the questions were consistent, the instrument was easy to understand, and the study flowed well.

### 3.8.1 Validity

According to Creswell (2009), validity demonstrates that instrument results make sense, are pertinent, and enable the researcher to extrapolate significant conclusions about the population from the sample. The study evaluated both internal and external validity. To determine the validity of the instruments, experts in survey research design evaluated and determined if the questions were appropriate for the study's objectives (Murray et al., 2010). In this study, a content validity index was used to assess the tools' validity. According to Taherdoost (2016), the only reliable way to verify the accuracy of a piece of writing is to consult an expert. Both external and internal consistency metrics of validity were examined in this study. The questionnaire must be both succinct and detailed enough to gather all the essential data in order to pass the "facial validity" test. The way the questions are arranged and presented also influences how valid people think the exam to be. In contrast, the content validity evaluation was carried out by two subject matter specialists from the relevant division. We solicited input from the two experts in order to construct the validity coefficient index (VCI) as defined by (Taherdoost, 2016).

$$\text{VCI} = \frac{\text{Average number of common responses from the two experts}}{\text{Total number of question items on the question}}$$

According to (Amin, 2005), a VCI of 0.6 and above is acceptable for an instrument to be considered valid.

$$\text{VCI} = \frac{12}{18} = 0.667$$

The results were computed and revealed that VCI was 0.667, which is greater than 0.6, indicating that the questionnaires were valid.

### 3.8.2 Reliability of the Research Instruments

When used on many samples drawn from the same population, a research tool's consistency in output is said to be reliable (Kimberlin & Winterstein, 2008). We investigated the consistency of the surveys using the parallel form reliability technique. The questionnaires were written in English to allow participation from teachers and students who have hearing loss. In addition, the Cronbach alpha reliability test and Statistical Package for the Social Sciences version 25 were used to assess reliability following a single round of questionnaire administration. The results may be believed if the questionnaire's alpha coefficient was at least 0.7. (Kothari, 2014). With a Cronbach value of 0.773, the SPSS computation of the Cronbach alpha reliability test showed that the questionnaire may be relied upon. Table 3.1 presents these numbers.

**Table 3. 1 Reliability Statistics**

<b>Respondents</b>	<b>Cronbach's Alpha</b>	<b>N of Items</b>
Respondents' questionnaire	0.773	18

### 3.8.3 Credibility of Research Instruments

Credibility analysis is a statistical method for judging the reliability of a study's results. The focus here is on high-quality rather than quantity. The quality of the data gathered, rather than its quantity, is a much more important factor in establishing credibility. Data triangulation by various professionals ensured the reliability of the gathered data for this investigation. The participants' only real role was to judge the results' credibility.

### 3.9 Data Collection Procedures

Maasai Mara University's School of Postgraduate Studies sent an invitation to the researcher in the form of a formal letter. The investigator next sought review approval from the National

Commission for Science, Technology, and Innovation (NACOSTI). As soon as the researcher was given the green light to conduct the study, data collection got underway.

### **3.10 Data Analysis and Presentation**

In order to grasp key information, make recommendations, and aid decision-making, this section discusses examining, cleaning, converting, and modeling data. After the respondents' data had been gathered, this procedure took place. The data was quantitatively analyzed because it was mostly numerical in nature. Data cleaning, coding, presentation, interpretation, and discussion were the stages used in the analysis of this data.

Data cleaning is the process of removing confusing components from obtained data. Information gleaned from open-ended questions included in the questionnaires was also subjected to this. Also performed was data coding. It involves giving respondents numerical symbols so that the responses could be categorized into certain groups. Wherever data is transformed into values appropriate for computer input and statistical analysis, coding is essential. To make the analysis process simpler, variables were made from the data collected.

The researcher then used averages, percentages, and frequencies in SPSS version 26 to summarize the earlier-coded data to aid in data presentation. Tables and figures were used to present the gathered data.

Finally, the researcher discussed and interpreted the results. This involves giving feedback on the conclusions that would have been drawn from the data analysis. This was also done in light of the literature review that was discussed in chapter 2.



### **3.10 Ethical Considerations**

Research ethics include describing the nature of the study, the roles and responsibilities of participants, and the methods used to obtain and protect their anonymity and confidentiality.

#### **3.10.1 Access to the Study sites**

The study sites were only accessible if the researcher formally introduced themselves, obtained permission from KNLS Narok and KNLS Nairobi, and provided a letter of authorisation.

#### **3.10.2 Informed Consent**

With a thorough understanding of the facts, consequences, and effects of an action, informed consent is given. The subject must possess appropriate cognitive capacity and be aware of all pertinent information in order to give informed consent (Kothari, 2005). The participants were given an explanation of the nature and procedures of data collection. The researcher advised respondents to be open and willing to provide information, and to respect the viewpoints of participants if they want to withhold it.

#### **3.10.3 Privacy**

Privacy is the capacity of an individual or organization to keep themselves or information about themselves private and hence express themselves only when desired. Although the boundaries and substance of what is considered private vary between cultures and people, some patterns are universal. When something is personal to a person, it typically means that they find it special or sensitive. The area of privacy and the security domain (confidentiality), which might include the rules of appropriate usage and data protection, are somewhat overlapping. Body integrity can also be referred to as privacy (Kothari & Goel, 2008). The right to privacy and the right to keep personal information private should both be recognized as independent rights that people can enjoy to the fullest degree.

#### **3.10.4 Confidentiality**

This has to do with how information is handled once someone has shared it in a trusted setting with the assumption that it won't be shared with others in ways that aren't compatible with the original disclosure's intent. During the informed consent procedure, if appropriate, subjects were advised of the precautions that would be taken to maintain the confidentiality of the data and the persons who may have access. Respondents were able to evaluate the effectiveness of the security measures and the propriety of possibly releasing private information to interested parties as a result (Kothari, 2009). The researcher assured the participants that the information they supplied would be held in the strictest confidence, would only be used for the purposes specified in the study, and would not be accessed by anyone not authorized by them. Only a coding known only to the researcher would contain the respondents' information on the data instrument. This increased genuineness and openness.

#### **3.10.5 Anonymity**

To lessen the need for identifying information about research subjects to be gathered and maintained, anonymity should be established. While hiding their identities on the instruments, the researcher requested the respondents to fill out information. The researcher utilized codes to identify the respondents. The participants were protected from unneeded exposure. This made it easier to get through the participants' hesitant reactions.

### **3.11. Summary**

The descriptive research technique, the design, the study area, the target population, the sample and sampling methods, and the sample size are all covered in this chapter.

The methods for gathering data were precisely described, and the justification for utilizing a questionnaire to do so was made obvious. Utilizing research tools like a pilot study, the findings of the investigation were presented. The validity and reliability of the research were evaluated

using the results of the pilot study and the data utilized to calculate the reliability. Data were analysed and presented in relation to the study questions and objectives, information was kept confidential, and ethical issues were taken into account. Data were gathered from the users of digital information using 100 questionnaires.

## **CHAPTER FOUR**

### **RESEARCH FINDINGS AND DISCUSSIONS**

#### **4.1 Introduction**

This chapter presents the data on utilizing digital information resources at the KNLS, Nairobi County, Kenya. The study was done on 110 library users who were asked to complete questionnaires. The chapter begins with an examination of respondents' basic information before moving on to an examination of the research goals. The findings of free-form interviews were reported in prose form.

#### **4.2. Questionnaire Return Rate**

In this part, we take a look at the information gleaned from the field-returned surveys. One hundred surveys were given out at various library locations. Respondents were given two weeks to go over the research questions and provide honest, accurate responses. After waiting two weeks, the researcher went door-to-door to collect the completed surveys.

Unfortunately, only 92 of the 110 surveys were returned. Questionnaires were either lost or left blank by some responders. There were 92 responses from the population under study, for a response rate of 92%. Since the response rate was high, the study was able to accomplish its goals. Mitchel et al. (2021) state that a response rate of 60% or above is appropriate for analysis and reporting, whereas 70% or greater is extraordinary.

The researcher may have had the greatest return rate since he or she personally delivered the surveys, followed up with the respondents, and collected the questionnaires.

### 4.3. General Information

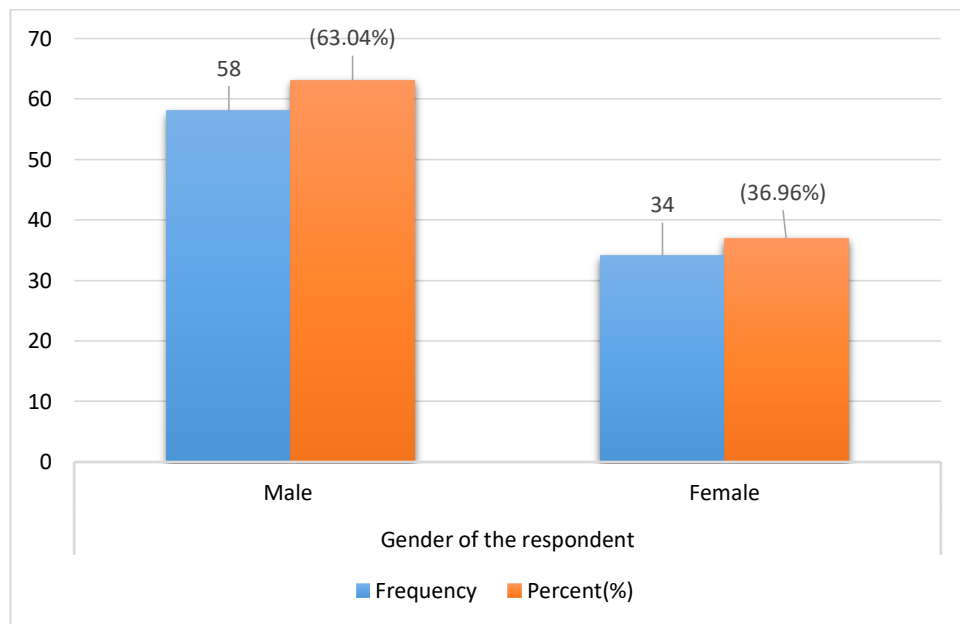
The respondents' general information was covered in several of the questionnaire's questions.

The categories for these queries were age, gender, and greatest level of education.

The researcher was able to get pertinent information on the appraisal of digital information use and use by public libraries in Kenya thanks to the general information supplied by the survey respondents. The following subsections present the findings:

#### 4.3.1. Respondent's Gender

It was critical to know the gender of the respondents as it provided more insight into the information gathered. This is because, in most African communities, women are barred from giving information without the consent of their husbands. The respondent's gender from the findings is presented in **figure 4.1**.



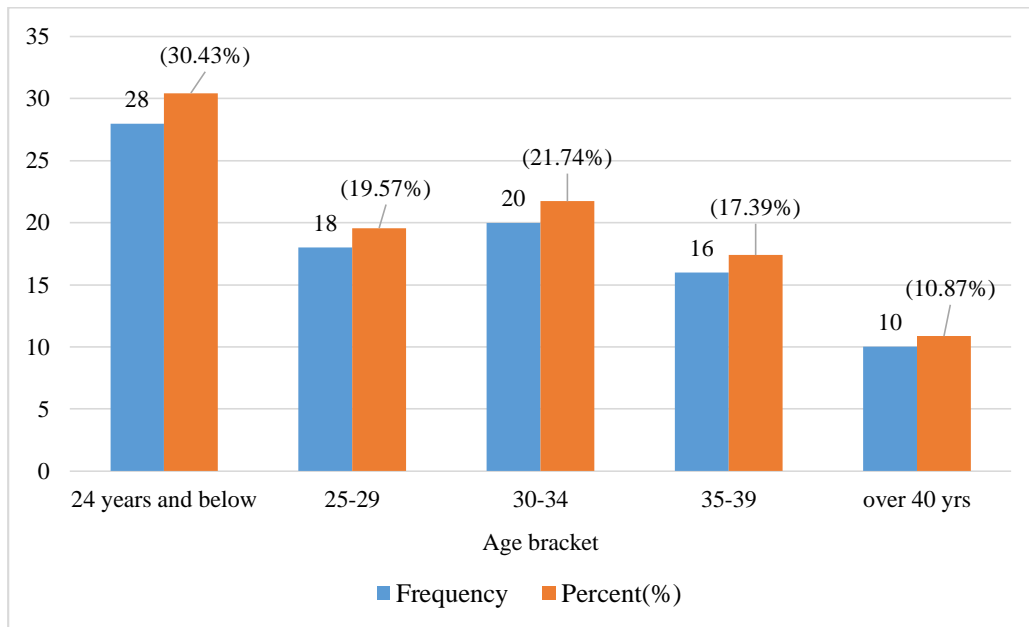
**Figure 4. 1 Respondent's Gender**

*Source: Researcher, 2021.*

The findings show that 34 respondents (36.96%) were female and 58 respondents (63.04%) were male. This indicates that while responses were predominately given by men, female respondents were rather well represented (Goode, 1996). On the ethics and perception of social research, a good representation of the population provides reliable data that is not biased. Thus, from this study, however, the number of female representatives was less than that of males; reliable data was perceived to have been provided.

### 4.3.2 Distribution of Respondents by Age

Figure 4.2 displays the results of the study's attempt to determine the average age of the respondents. With the advancement in technology and the digitization of learning, business, and various activities, utilization of the available digital resources provides a measure of how humanity has acquired digital skills.



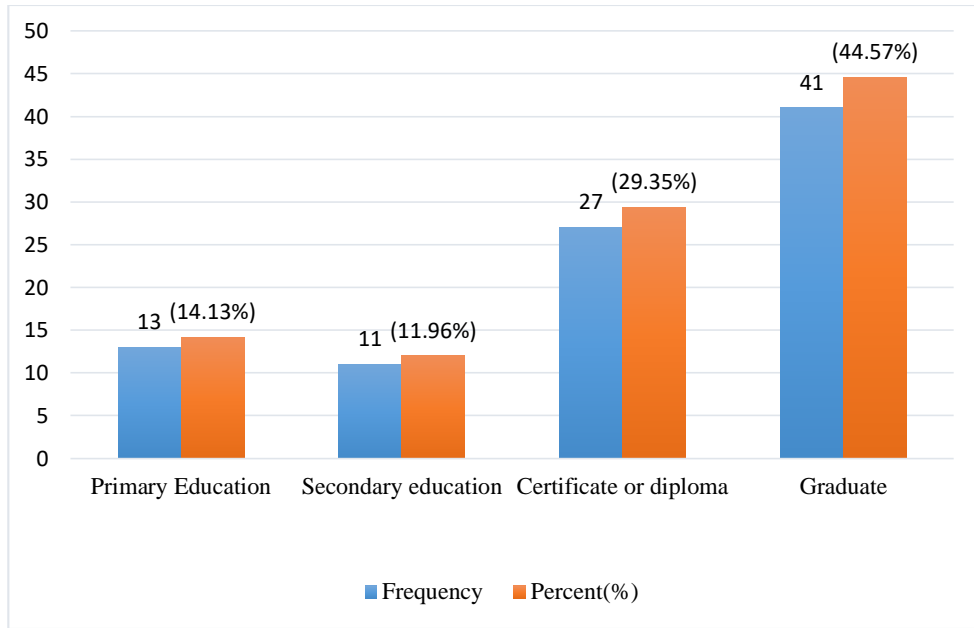
**Figure 4. 2 Distribution of Respondents by Age**

*Source: Researcher, 2021.*

According to the data, a majority of 28(30.43%) of the respondents were between 24 and below, 20(21.74%) were between 30-34 years, 18(19.57%) were between the ages of 25 and 29, 16(17.39%) were between the ages of 35 and 39, and ten were above 40 years. The findings clearly indicated that the library users' ages were evenly distributed and that reliable information on the utilization of digital information in KNLS, Nairobi County, was obtained. These results were consistent with studies (Hargittai, 2010) that looked at differences in internet proficiency and usage among the "next generation." He discovered that younger generations use digital information less than elder generations do. To make matters worse, Hargittai (2010) discovered that men are more likely than women to use internet resources.

#### **4.3.3 Respondent's Highest Level of Education**

It was asked of the responders that they provide their educational background. The data is shown in Figure 4.3. The respondent's education level is critical during data collection, especially regarding digital information use and utilization. Older people might not have the same passion for digital information in the same manner as young people. It was thus necessary to know the age of the respondents to get a better insight into the assessment of digital information utilization by KNLS.



**Figure 4. 3 Respondents' highest level of education**

*Source: Researcher, 2021.*

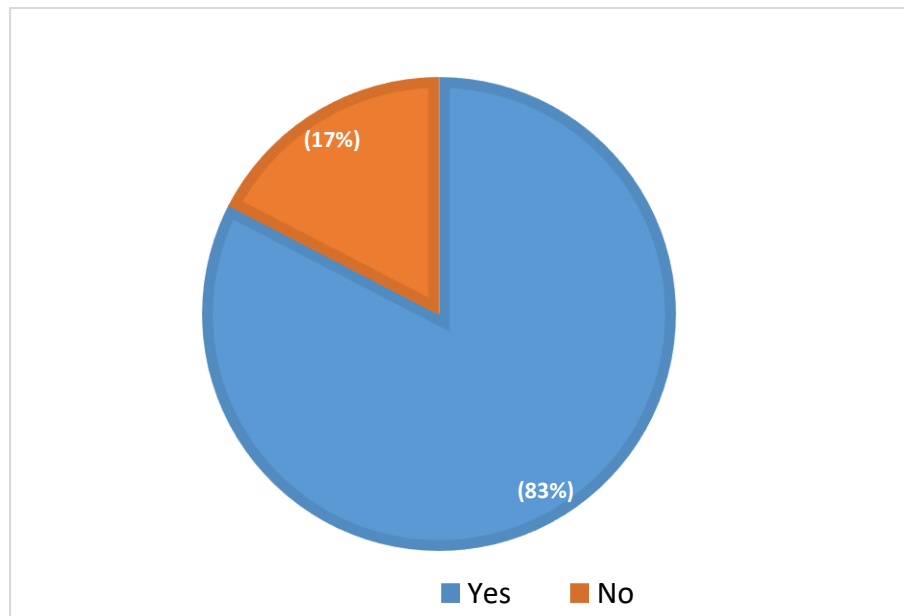
The results showed that out of the whole sample, 42 (46.67%) had bachelor's degrees and 32 (32.56%) had master's degrees or higher certificates or diplomas. Thirteen (14.13%) had only completed elementary school, while eleven (11.96%) had completed high school. This suggests that most respondents had education levels above those required for entry into the labor force (i.e., secondary school). This was an undeniable sign that fresh data on the topic of the study had been collected. Results from this study corroborate those by Arif (2017), who indicated that college and graduate students are more likely to use digital resources than those with less education. The results are consistent with those of a research by (Ghweeba et al., 2017) that found that catering to consumers' specific information needs depends heavily on factors like their level of education.



#### 4.4 Digital Information available in KNLS

##### 4.4.1 Availability of digital information in KNLS

The purpose of this research was to examine how readily available digital information resources are at KNLS in Nairobi County. Study results are shown in **figure 4.4**.



**Figure 4. 4 Availability of digital information**

*Source: Researcher, 2021.*

According to the study's results, the vast majority of participants (83%) agreed without dissent that digital information resources were accessible. A lower percentage of respondents (17%) said there were no digital information resources accessible.

##### 4.4.2 Digital information resources available at KNLS.

The purpose of this research was to assess the accessibility of digital information resources at the KNLS in Nairobi County. Table 4.1 presents the study's findings.

**Table 4. 1 Digital information resources available at KNLS**

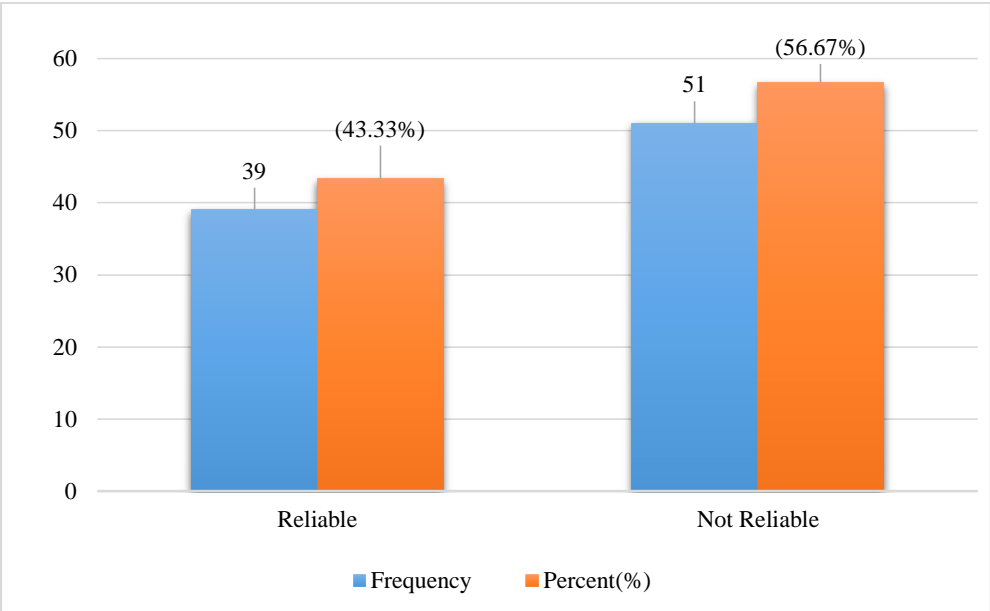
<b>Digital information resources</b>	<b>Frequency</b>	<b>Percent (%)</b>
e-newspaper	24	15.38
e-books	28	17.95
e-journals	22	14.10
e-reader	16	10.26
mobile information literacy	6	3.85
Kio kit training	4	2.56
e-learning tutorials	15	9.62
e-thesis and dissertations	7	4.49
Internet services	19	12.18
Online database	4	2.56
Online search engines	11	7.05

The KNLS was discovered to have a wealth of digital information resources. Among these, the vast majority (28; 17.95%) reported the availability of e-books, followed by 24; 15.38%) reporting the availability of e-newspapers, 22; 14.10% reporting the availability of e-journals, and 19; 12.18%) reporting the availability of digital services. Furthermore, 16(10.26%) of the respondents indicated e-readers, 15(9.62%) indicated e-learning tutorials, 11(7.05%) listed online search engines, and 7(4.49%) noted that e-thesis and dissertations. Lastly, the same number of respondents, 4(2.56%), indicated that Kio kit training and the online database were the digital information resources available. The findings agree with a study by (Brawner et al., 2014), who

stated that the information environment keeps on charging; hence there is a need to invent and adopt innovative ways to survive in this dynamic and competitive environment.

### 4.4.3 Reliability of digital information resources

The study interrogated the reliability of the digital information resources in the KNLS. The respondent's views are illustrated in figure 4.5.



**Figure 4. 5 Reliability of digital information**

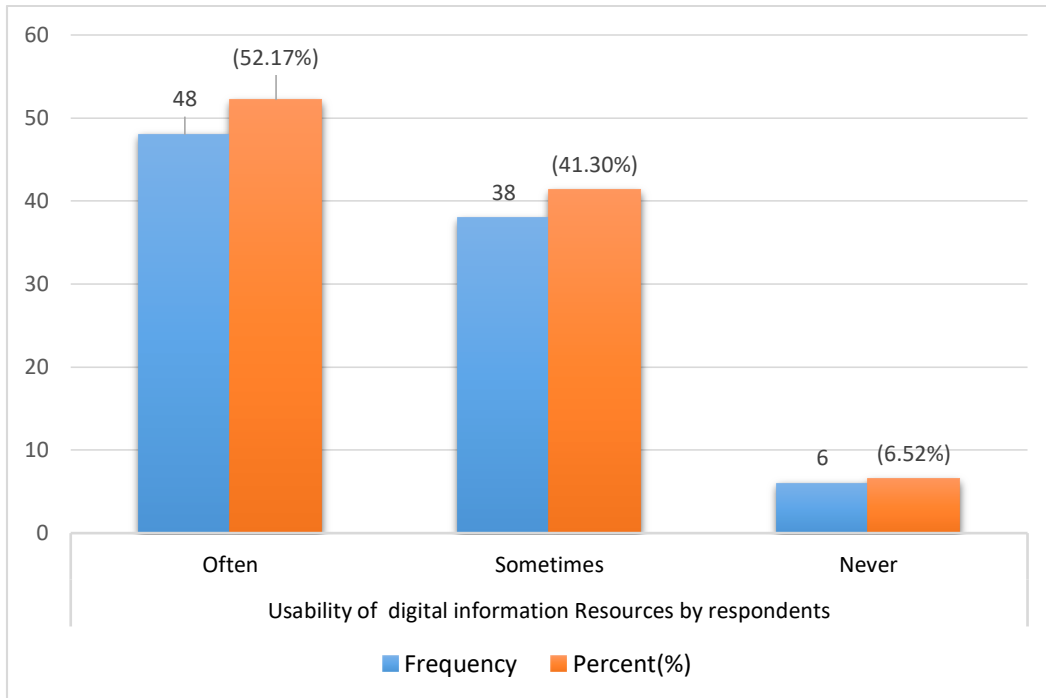
*Source: Researcher, 2021.*

The majority of respondents (83%) indicated that 56.67% of digital information sources were unreliable despite the fact that they were readily available. Comparatively, just 39 individuals (43.33%) believed they could be trusted. The findings support those of a study by Wanjohi (2017), which found that the majority of public libraries' digital services are both unreliable and underutilized. The supply of digital information services does not, however, guarantee the seamless accessibility of these digital objects and texts, even if the required funds or resources are provided.

## 4.5 The Extent of utilization and Use of Digital Information at KNLS

### 4.5.1 Respondent's Views on Whether They Have Used Digital Information Resources

The researcher also sought to get the respondents' views on whether they had used digital information resources. The findings from the study are shown in **figure 4.6**.



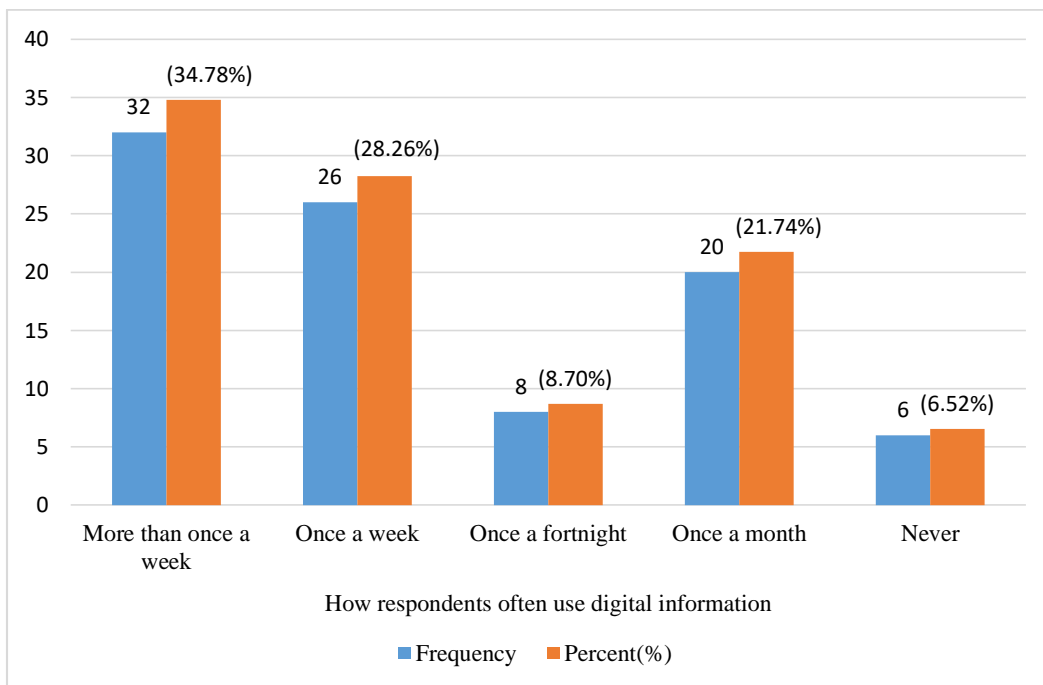
**Figure 4. 6 Usability of Digital Information Resources by the Respondents**

*Source: Researcher, 2021.*

Based on the respondents' views on whether they have used digital information resources, the findings showed that the majority, 48(52.17%) of the respondents agreed to use it most often, 38(41.30%) stated that they use it sometimes, and 6(6.52%) stated they have never used digital information resources. These findings agreed with the study (Hussain & Ansari, 2010) on Electronic information resources utilization by students in Mbarara University Library. They revealed that most library users have shifted to e-resources since they find them more convenient in terms of retrieval and access to information.

#### 4.5.2 How respondents often use digital information

Information-seeking behavior and information use are connected to the number of visits to information centers (Johnson, 2010). Consequently, it contributes to the use of government information centers (Jacobs et al., 2017). The goal of the research was to ascertain how often respondents accessed the KNLS in Nairobi County's digital information resources. The data from the results are shown in Figure 4.7.



**Figure 4. 7 Frequency at which respondents use digital information**

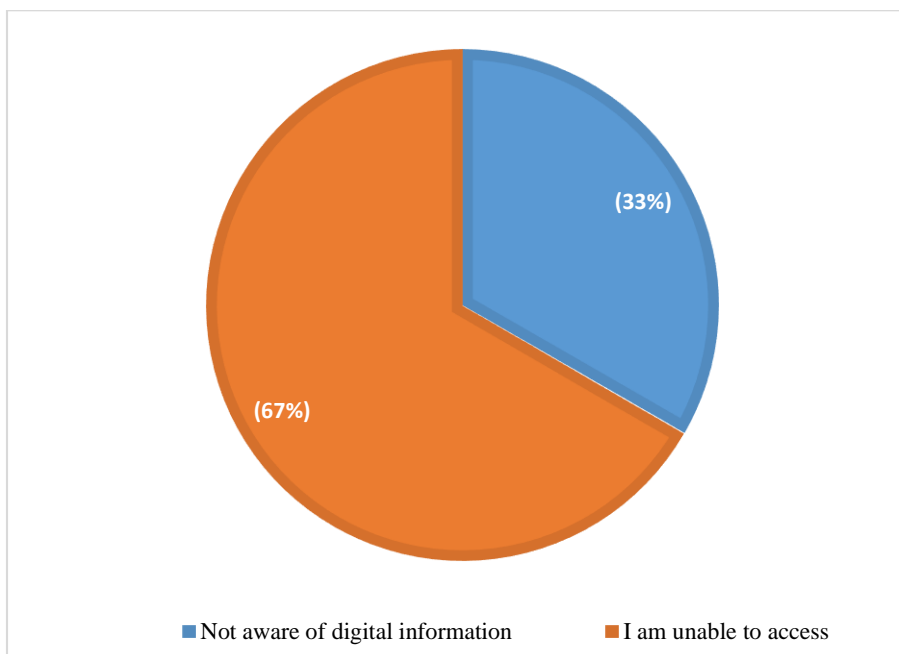
*Source: Researcher, 2021.*

From figure 4.6, the majority of 32(34.78%) of the respondents used digital information more than once a week, followed by 26(28.26%) who used digital information once a week, 20 (21.74%) who used it once a month, and only 8(8.70%) of the respondents who used the digital information once a fortnight. The results also showed that only 6 respondents, or 6.52%, had never accessed any of the digital information resources available at KNLS, Nairobi County. This may be attributed

to a lack of retrieval abilities or just ignorance about the presence of such resources. These results were corroborated by a survey of students, faculty, and staff at the AVU Library at Kenyatta University (Ringeera, 2007). The majority of library patrons utilized the facility once each week, whereas a small percentage used it seldom. The results suggested that weekdays were the favored time for library visits.

#### 4.5.3 Reason for respondents not using digital information

The research intended to determine the reasons why some of the respondents never accessed digital information resources. **Figure 4.8** depicts the rationale for this.



**Figure 4. 8 Reason for respondents not using digital information**

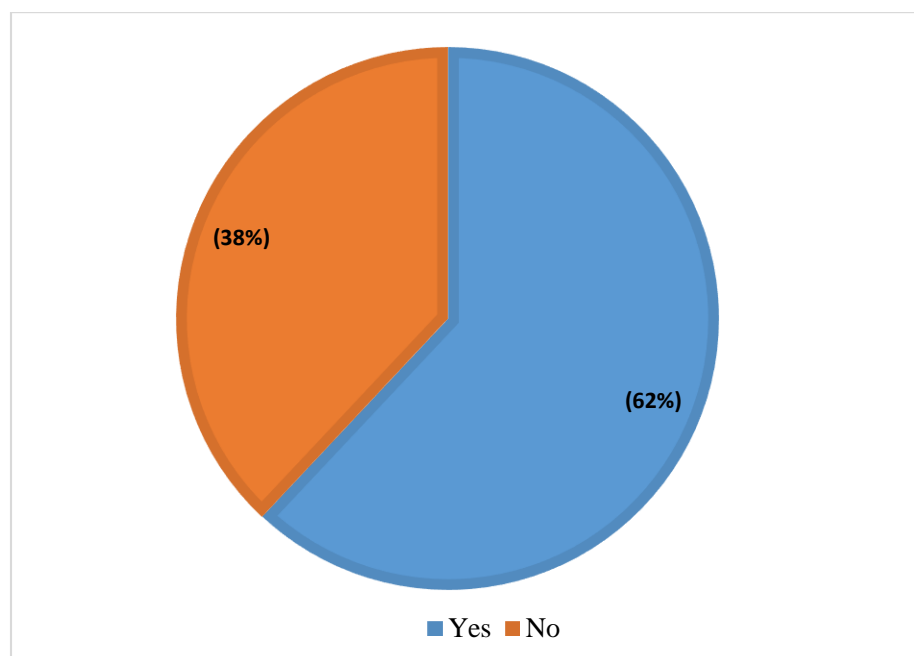
*Source: Researcher, 2021.*

Among the 6.52% of respondents who said they had never utilized digital information, 66.70 percent said they had no idea what digital information was. Whereas 33% said they were unable to participate because they lacked the necessary digital literacy abilities, the remaining 67% did

not even try. To enable a smooth transition for all users, extensive digital information training is required. The results are consistent with those of a research by (Nzivo, 2012) that looked at how library patrons in Kenya felt about the services and resources available to them. It was shown in the survey that the vast majority of participants lacked familiarity with online libraries and databases.

#### 4.5.4 Training of the Respondents on the Use of Digital Information resources at KNLS

The study sought to establish whether respondents had been trained to use digital information resources. The results are shown in **figure 4.9**.



**Figure 4. 9 Training of the Respondents on the Use of Digital Information Resources**

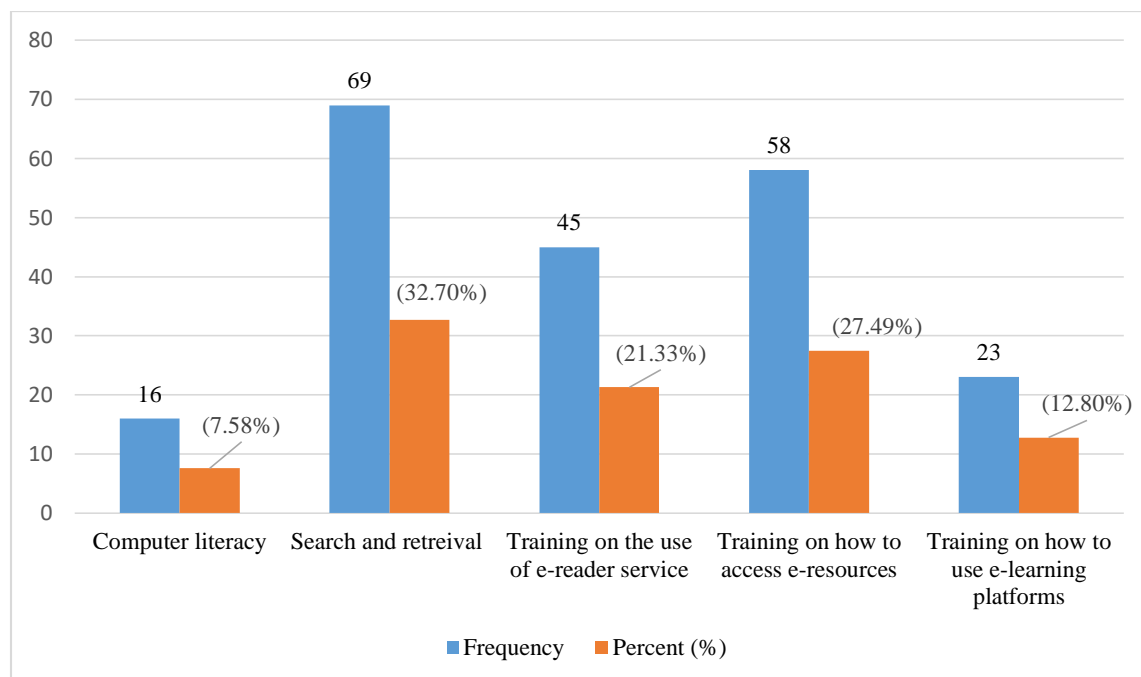
*Source: Researcher, 2021.*

According to the results of the survey, the vast majority of participants agreed that they had received training on how to make use of the KNLS's digital information resources. But 38% said they hadn't been shown how to make the most of digital library materials. The majority of survey

takers had attended training on how to make the most of KNLS' digital information resources, the branch's director said.

#### 4.5.5 Type of training attended by the respondents on digital information resources

One needs digital literacy to make use of digital information. The research went further to determine the specific courses that respondents had taken to acquire expertise in its use. **Figure 4.10** depicts the research's results.



**Figure 4. 10 Type of training attended by the respondents on digital information**

*Source: Researcher, 2021.*

The majority of respondents (62%), who reported having attended training, were taught how to do online searches and get digital material (32.70%), while only slightly fewer (27.50%) were taught how to use electronic resources. In a similar vein, 45 respondents (21.33%) had received instruction on how to make use of an e-reader service, and 23 respondents (12.80%) had been exposed to similar instruction on how to make use of an e-learning platform. Only 16 (7.58%) of



those surveyed had any kind of formal instruction in computer use. The results showed that the vast majority of respondents had received instruction on how to effectively search for and retrieve digital material. A study's results (Iyoro, 2014) indicated users and employees require training in growing digital information fields corroborated this hypothesis.

#### **4.5.6 Digital information resources used by the respondents**

The study also enquired about the digital information resources used mainly by the respondents.

The analyzed data are summarized in **Table 4.2**

<b>Digital information resources used by the respondents</b>	<b>Frequency</b>	<b>Percent (%)</b>
e-newspaper	24	24.00
e-books	28	28.00
e-journals	22	22.00
e-reader	16	16.00
mobile information literacy	6	6.00
Kio kit training	4	4.00

**Table 4. 2 Digital information resources used by the respondents**

*Source: researcher, 2021.*

28.0% of respondents used e-books, followed by 24.0% who read newspapers, 22.0% who read e-journals, and 16.0% who used e-readers, according to the report. Six (6.00%) were found to have utilized mobile information literacy, whereas just four (4.00%) had participated in Kio kit training. The results of this study corroborated those of previous research by Kingori et al. (2016) and Maina (2014), which found that the majority of KNLS patrons favored using e-books to access information, followed by patrons who relied on the internet and other digital sources.

#### 4.5.6 Reasons for which the respondents use digital information resources

Additionally, the survey determined the extent to which respondents make use of various forms of digital information. Results data is shown in table 4.3.

The results showed that out of the total number of respondents, 38 (27.14%) used it for gaining a broad understanding of the topic, 32 (22.86%) used it for academic reasons, and 26 (18.57%) used it for doing specific research. Twenty-four (17.14%) respondents reported using it to do homework, while twenty (14.29%) reported using it for leisure. This study's results also contradicted those of (Okongo, 2014), who documented the prevalence of library patrons' use of digital resources for information. He confirmed that the vast majority of respondents who made use of the library's digital information resources and services did so for research purposes.

**Table 4. 3 Reasons why the respondents use digital information resources**

<b>Purposes for which respondents use digital information resources</b>	<b>Frequency</b>	<b>Percent (%)</b>
Entertainment	20	14.29
Research	26	18.57
Studying	32	22.86
Assignment	24	17.14
General knowledge	38	27.14

#### 4.5.7 Reasons why the respondents choose to use digital information

This research aimed to learn why people choose digital resources over traditional ones. **Table 4.4** displays the results.

**Table 4. 4 Reasons why the respondents choose to use digital information**

<b>Reasons why the respondents choose to use digital information</b>	<b>Frequency</b>	<b>Percent (%)</b>
Ease of access	46	31.94
Saves time	34	23.61
No need to go to the library	24	16.67
More informative	4	2.78
Up to date	16	11.11
Links to other resources	12	8.33
Others specify	8	5.56

*Source: Researcher, 2021.*

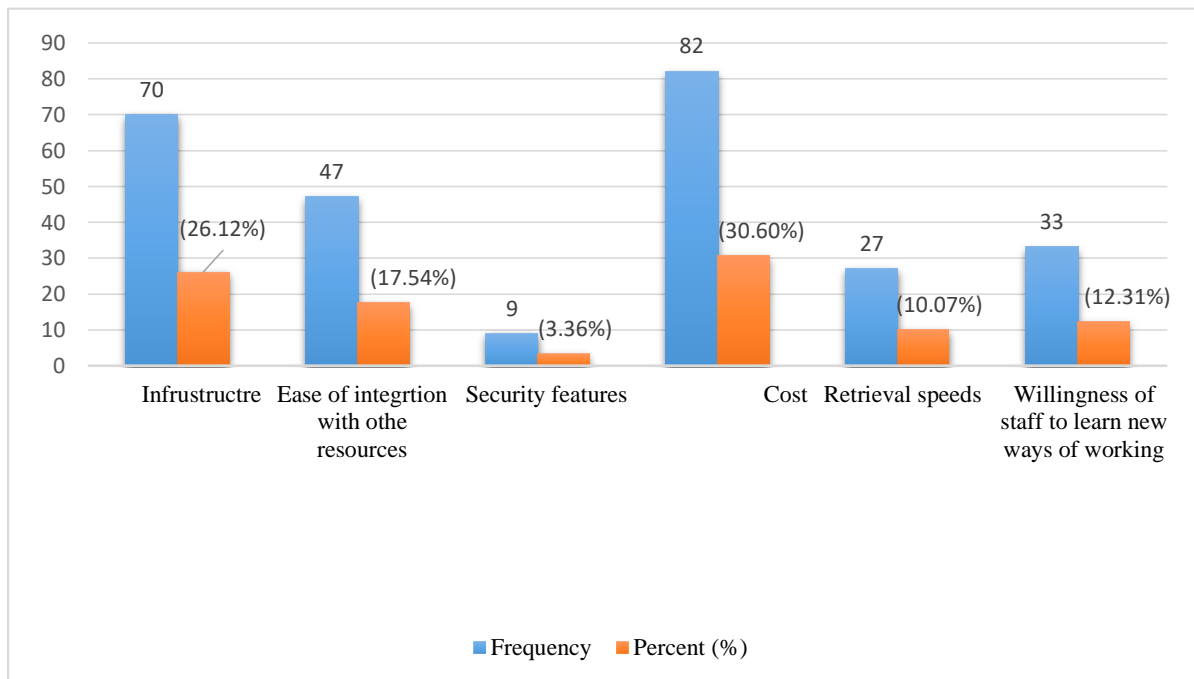
The reasons cited by the respondents for preferring digital information were as follows: The convenience of digital resources was cited as the primary attraction by 46 respondents (31.94 percent), followed by the time savings experienced by another 34 respondents (23.6 percent). A further 24 individuals (16.67%) disagreed that library use was necessary. Another 16 (11.11%) found the content to be current, 12 (8.33%) appreciated the access to other resources, and 8 (5.56%) found the format to be user-friendly. Finally, four people (2.78 percent) claimed they preferred digital information because it was more detailed.

#### **4.6 Challenges and problems experienced in the utilization of digital information resources at KNLS**

The research aimed to determine the issues with the usability of digital information resources as well.

#### 4.6.1 Challenges Faced In the Utilization of Digital Information

Figure 4.5 displays the opinions of the respondents about difficulties encountered while using digital information. According to the data, 82 (30.60%) of respondents believed that price was the biggest obstacle. Those expenses include not only the outlay for the digital information resources themselves, but also their setup, instruction, upkeep, and data/internet use. The next most common response was that access to basic services like energy, internet, and storage space was the biggest hurdle to maximizing the value of digital information resources (70 respondents, or 26.12%). Respondents also highlighted resource integration as a key area of difficulty. That equated to 47 people, or 17.54 percent of the total. Another difficulty encountered by 33 (12.31%) of respondents was the unwillingness of library employees to acquire new methods of dealing with digital material.



**Figure 4. 5 Challenges faced in the utilization of digital information**

*Source: Researcher, 2021.*

The respondents also said that the speed at which digital information could be retrieved was the biggest obstacle. This equated to 27 people (10.07%) who filled out the survey. Nine respondents (3.36 percent) said that concerns about the safety of their digital data were a further obstacle. According to the research, the KNLS had the most difficulty with subscription and maintenance costs when attempting to use digital information.

#### 4.6.2 Problems faced by respondents on the use of digital information resources

Some of the difficulties that respondents at KNLS had accessing digital information resources were also identified by the researcher. The conclusions of the investigation are reported in **table 4.6.**

**Table 4. 6 Problems faced by respondents on the use of digital information resources**

<b>Problems faced by respondents on digital information use at KNLS Community Branch</b>	<b>Frequency</b>	<b>Percent (%)</b>
Poor Network/ slow internet bandwidth	28	9.21
Lack of digital skills	60	19.74
A limited number of computers	34	11.18
Power shortages	48	15.79
Unavailability of some digital resources	34	11.18
Lack of well-trained personnel on e-resources	34	11.18
Restricted e-resources	34	11.18
It requires one to have IT gadgets	32	10.53

*Source: researcher, 2021.*

The respondents described a number of difficulties they encounter while using digital information on a regular basis at KNLS, Maktaba Kuu. The majority of respondents—60(19.74%)—said that

using digital information effectively and efficiently without proper training is their biggest obstacle, followed by 48(15.76%) who said that power outages/blackouts are another problem. The precise number of respondents, 34(11.18%), said that they lacked knowledgeable staff on e-resources, had subpar computers, limited access to e-resources, and certain digital resources were unavailable. A further issue, according to 32 (10.53%) respondents, is owning IT devices. Studies conducted by (Modiba, 2016) that found that respondents' lack of skills was the main obstacle to utilizing digital information corroborated these results.

The study's conclusions were in line with research by (Akanbi et al., 2012), which found that the high cost of setup infrastructure and maintenance was the primary obstacle to using digital information. It was further supported by (Okongo, 2014), who noted that a lack of adequate search skills and appropriate training on access and utilization of digital information was the major challenge. This study revealed that one of the most complex challenges libraries currently face is how to most effectively and efficiently give users access to titles of electronic resources. Furthermore, (Okongo, 2014) revealed that inadequate search abilities and insufficient training on access and usage were among the key difficulties encountered while accessing digital information services.

#### **4.7 Possible Solutions to the challenges and problems experienced in utilizing digital information at KNLS.**

In order to address the problems encountered by the KNLS in adopting and making use of digital information resources, the research concluded that it was important to provide respondents the opportunity to offer their own suggestions. **Table 4.7** displays the results.

**Table 4. 7 Possible Solutions to the challenges and problems experienced in the utilization of digital information**

<b>Possible Solutions to the challenges experienced in the utilization of digital information</b>	<b>Frequency</b>	<b>Percent (%)</b>
Improve on internet strength	41	18.39
Have IT personnel assist in accessing the e-resources	51	22.87
Improve on the minimal sitting spaces	9	4.04
Train users on how to access e-resources	43	19.28
Increase the number of computers to help users access	79	35.43

*Source: Researcher, 2021.*

According to the data in the table, 79 people (35.43%) thought that expanding the availability of computers to facilitate access to digital information would be a good thing. The second most popular option, put up by 51 (22.87%) respondents, was to have an IT specialist help in retrieving the digital information resources. Additionally, 43 people (19.28%) mentioned user training for e-resources. The research found that boosting the KNLS's internet capacity would help users get beyond slow connections and other network issues 41 times out of 100. Finally, 9 respondents (4.04 percent) said that if the KNLS library had more seating available, people would be more likely to use its digital information resources.

## **CHAPTER FIVE:**

### **SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS**

#### **5.1. Introduction**

This section included a summation, overview, and suggestions for improving the KNLS's use of digital communication resources throughout Nairobi County.

#### **5.2. Summary of Findings**

The findings are summarized in this section.

The majority of respondents (62%) claimed to have received instruction on using the digital information tools of the KNLS. The courses cover information retrieval, online resource access, e-reader service use, familiarity with e-learning platforms, and fundamental computer skills.

Additionally, the findings revealed that out of the entire sample, 32 (22.86%) used digital information resources for school, while 38 (27.14%) used them for fun. Just 26 (18.57%) people used it for research, 24 (17.14%) for assignment completion, and 20 (14.29%) for general knowledge, to put that in perspective. The respondents preferred digital information resource due to their ease of access, limited time consumed, the need not going to the library, up-to-date information, their ability to link to other resources, and that digital information are more informative.

Regarding the third objective on challenges experienced while utilizing digital information at KNLS, Most respondents agreed .unanimously that cost (initial purchase of the digital information resources, installation costs, training costs, maintenance costs, and costs incurred on data/internet) was the main challenge. They also noted that infrastructure (storage space, electricity, and internet)



was the other challenge experienced when adopting digital information resources. The respondents added that; the ease of integration with additional resources, the willingness of the library staff to learn new ways of working, the retrieval speed of the digital information, and the security features of the digital information were some of the challenges that were experienced during the utilization of the digital data at KNLS.

Grounded on the challenges they experience while using the digital information at KNLS. The study noted the following; lack of training on the usability of digital information, power instability, lack of well-trained personnel on e-resources, and inadequate computers. Also, restricted e-resources, unavailability of some digital resources, and the need to have IT gargets were the challenges they encountered while using the digital information resources at KNLS.

Based on the last objective on the Possible Solutions to the challenges and problems experienced in utilizing digital information at KNLS. The findings established that increasing the number of computers to help users' access digital data would be hailed. It was also noted that having IT professionals assist the users in retrieving the digital information resources would be ideal. Furthermore, it was established that training the users on how to access e-resources would be more hailed. The study also ascertained that improving the internet bandwidth at KNLS. Will assist in overcoming the problems they encounter due to poor networks.

### **5.3. Conclusions**

From the study findings, it can be concluded that; most of the users at KNLS were using digital information and were trained on how to use it. Although the findings established that there were various digital information resources at KNLS, most were unreliable.

The respondents preferred to use the digital information resource due to their ease of access, limited time consumed, the need not to go to the library, up-to-date information, its ability to link to other resources, and that digital information is more informative. However, it was noted that some were using digital information resources to acquire knowledge and skills, and many users were using them for entertainment purposes.

Challenges such as; cost (initial purchase of the digital information resources, installation costs, training costs, maintenance costs, and costs incurred on the internet), infrastructure (storage space, electricity, and internet), the ease of integration with other resources, the willingness of the library staff to learn new ways of working, retrieval speed of the digital information and security features of the digital information were experienced during the adoption of the digital data at KNLS. Lack of training on the usability of digital information, power instability, lack of well-trained personnel on e-resources, inadequate computers, restricted e-resources, unavailability of some digital resources, and the need to have IT gargets were the problems encountered by the user of the digital information resources. Public libraries are crucial in encouraging digital inclusion, especially among the underprivileged and disadvantaged populations, where ICT usage is on the rise. The Kenya National Library Service is gradually obtaining computers and internet connectivity to provide public access to its communities, despite the fact that it lacks the infrastructure and resources needed to take on new responsibilities and meet the urgent needs of the digital age.

However, there isn't enough focus on librarian capacity development to help them become efficient ICT mediators who support social and economic transformation.

#### **5.4. Recommendations of the Study**

From the study findings and conclusions, the following recommendations are made:

1. The awareness and use of digital information will assist with deciding if there is a need to heighten refinement projects and data proficiency abilities for students and academic staff to work with support. To figure out which assets are often utilized, such pertinent memberships not settled, particularly with the base financial plans allocated to electronic data asset memberships, and which assets are regularly used, such applicable memberships can be determined (Killen, 2015).
2. It was crucial to establish whether public library users knew the resources available and which ones they preferred to use. This allowed for more targeted information transmission by giving them updates on current field developments. The utilization of electronic assets by instructors, understudies, and examination researchers at colleges and exploration organizations has likewise been researched. In a study by Madhusudhan (2008), the majority of respondents felt that using e-diaries has expanded their reliance on their examination work and that they request current article-ready administrations just as electronic record supply administrations (Madhusudhan, 2008)

## **5.5. Suggestions for Future Study**

The following suggestions are based on the results and discussion of the research.

1. Kenya's national service may benefit greatly from the wealth of digital material available today, but only if the relevant parties take the time to develop a comprehensive strategy for educating library patrons to access and utilize these resources effectively.
2. Policymakers should work to improve library patrons' access to the internet and digital information resources and services in order to raise the profile of these assets among the general public.

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## APPENDICES

### Appendix I: APPLICATION FOR A RESEARCH PERMIT



MAASAI MARA UNIVERSITY

(OFFICE OF THE DIRECTOR, POSTGRADUATE STUDIES)

TEL. No.0722346 419

P. O. Box 861-20500

Email: [graduatestudies@mmarau.ac.ke](mailto:graduatestudies@mmarau.ac.ke)

NAROK, KENYA

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Ref/MMU/AA0328/45/ VOL 1 (63)

Date: 21<sup>st</sup> June, 2021

Council Secretary,

National Council for Science and Technology,

P.O. Box 30623-00100

NAIROBI-KENYA

Dear Sir/Madam,

RE: APPLICATION FOR A RESEARCH PERMIT FOR: VERONICAH MWANIKI, REG. NO. SM06/MP/MN/8244/2018.

I wish to recommend the above candidate for a permit to enable her collect data for her research. She defended her thesis at the School of Science & Information Sciences successfully and has made the necessary corrections. The title is "Assessment of Digital Information Use & Utilization

by Public Libraries in Kenya: A Case Study of Nairobi County.” She therefore qualifies for a permit to conduct research.

Any assistance accorded to her will be highly appreciated.

MAASAI MARA UNIVERSITY  
P. O. Box 861 - 20500  
NAROK  
R. Abila  
21 JUN 2021  
Prof. Romulus Abila, PhD.  
**DIRECTOR, BOARD OF POSTGRADUATE STUDIES**  
BOARD OF POSTGRADUATE STUDIES

## Appendix II: NACOSTI RESEARCH PERMIT

 <b>REPUBLIC OF KENYA</b>	 <b>NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY &amp; INNOVATION</b>
Ref No: <b>275195</b>	Date of Issue: <b>13/July/2021</b>
<b>RESEARCH LICENSE</b>	
	
<b>This is to Certify that Miss..mwaniki Veronicah veronica of Maasai Mara University, has been licensed to conduct research in Nairobi on the topic: ASSESSMENT OF DIGITAL INFORMATION USE AND UTILIZATION BY PUBLIC LIBRARIES IN KENYA: A CASE STUDY OF NAIROBI COUNTY for the period ending : 13/July/2022.</b>	
License No: <b>NACOSTI/P/21/11556</b>	
275195 Applicant Identification Number	 Director General <b>NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY &amp; INNOVATION</b>
	Verification QR Code 
<b>NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.</b>	

### **Appendix III. QUESTIONNAIRE**

The following suggestions are based on the results and discussion of the research.

Kenya's national service may benefit greatly from the wealth of digital material available today, but only if the relevant parties take the time to develop a comprehensive strategy for educating library patrons to access and utilize these resources effectively.

Policymakers should work to improve library patrons' access to the internet and digital information resources and services in order to raise the profile of these assets among the general public.

#### **Section A: General Information**

1. Gender of the respondent

**A)** Male ( )    **b)** Female ( ).

2. Indicate by ticking your age bracket

**a)** 24 yrs. and below            **b)** 25-29            **c)** 30-34            **d)** 35-39            **e)** Over 40 years

3. Kindly indicate your highest level of educational qualification (tick)

**a).** Primary Education [ ].

**b).** Secondary Education [ ].

**c).** Certificate or diploma [ ].

**d).** Graduate [ ].

**Section B: Digital Information available in KNLS/Maktaba kuu**

1. Is there digital information in KNLS/Maktaba kuu?

[Yes].[No].

2. If yes, how reliable is it?

3. List all the digital information resources available at KNLS /Maktaba Kuu

**Section C: Adoption and use of digital Information at KNLS /Maktaba Kuu**

1. When the utilization of digital information did began at KNLS /Maktaba Kuu?

2. Do you use the Digital Information Resources?

Often	
Sometimes	
Never	

3. If yes, how often do you use digital information?

More than once a week	
Once a week	
Once a fortnight	
Once a month	
Less than once a month	
Never	

4. If “never” what is the reason for not using digital Information?

Not aware of digital information resources	
Do not know how to use them	



Do not need them	
Too much time consuming	
I am unable to access	
Others (Specify)	

Have you ever been trained on the use of digital information resources?

[Yes]

[No]

5. If yes, list some of the trainings you attended.

6. Which digital Information Resources do you use?

7. For which reason do you use digital Information Resources?

8. Why do you choose to use Digital Information?

Ease of access	
Saves time	
No need to go to the library	
Availability of search tools	
More informative	
Up to date	
Links to other resources	
Others (Specify)	

**Section: Challenges Experienced on utilization of digital information at KNLS/Maktaba kuu**

1. What are some of the challenges that were faced on adoption digital information at KNLS/Maktaba kuu?
2. What problems do you face while using digital information resources at KNLS/Maktaba Kuu?

**Section: Possible solutions to the challenges experienced in the utilization of digital information.**

1. Indicate some of the possible solutions to the challenges and problems experienced at KNLS/Maktaba Kuu.

**THEEND**

**THANK YOU FOR PARTICIPATION**